Enclosure 2

Seismic Walkdown Report In Response To The 50.54(f) Information Request Regarding Fukushima Near-Term Task Force Recommendation 2.3: Seismic for the Dresden Nuclear Power Station, Unit 3, Report Number: 12Q0108.30-R-002, Revision 2

(891 pages)

SEISMIC WALKDOWN REPORT

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

for the

DRESDEN GENERATING STATION UNIT 3
6500 North Dresden Road, Morris, Illinois, 60450
Renewed Facility Operating License No. DPR-25
NRC Docket No. STN 50-249
Correspondence No.: RS-12-167

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Report Number: 12Q0108.30-R-002, Rev. 2

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Document Title: SEISMIC WALKDOWN REPORT IN RESPONSE TO THE 50.54(f) INFORMATION REQUEST REGARDING FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATION 2.3: SEISMIC for the DRESDEN GENERATING STATION UNIT 3

Document Type: Report

Report Number: 12Q0108.30-R-002

Project Name: NTTF R2.3 Seismic Walkdowns for Exelon - Dresden
Job No.: 12Q0108.30
Client: Exelon.

This document has been prepared in accordance with the S&A Quality Assurance Program Manual, Revision 17 and project requirements:

Initial Issue (Rev. 0)	
Prepared by: Marlene Delaney	Date: 11/7/2012
Reviewed by: Tony Perez	Date: 11/7/2012
Approved by: Tony Perez	Date: 11/7/2012

Revision Record:				
Revision No.	Prepared by/ Date	Reviewed by/ Date	Approved by/ Date	Description of Revision
1	Marlene Delaney 11/8/2012	Tony Perez 11/8/2012	Tony Perez 11/8/2012	Replaced pages 5-11, 5-12, and F-3.
2	Marlene Delaney 11/15/2012	Tony Perez 11/15/2012	Tony Perez 11/15/2012	Replaced page F-3 and Table E-2.

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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. 7) In particular, this report provides information requested to address Enclosure 3, Recommendation 2.3: Seismic, of the March 12, 2012 letter. (Ref. 7)

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. 7) 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 Dresden Generating Station Unit 3 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. 7) 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/Dresden 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 safe shutdown earthquake for the Dresden Generating Station site is 0.20g horizontal ground acceleration and 0.133g vertical ground acceleration. (Ref. 2 Section 3.8)

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 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 Dresden Unit 3, the SWEL is comprised of:

- SWEL 1 resulted with 103 items for walkdown.
- SWEL 2 resulted with no 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 Dresden Unit 3 were performed during the week of July 30, 2012. During the walkdown activities, the walkdown team consisted of two (2) Seismic Walkdown Engineers (SWEs), a station Equipment Operator, and various station personnel.

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 88 of the 103 components on the SWEL. Walkdowns for 15 components were deferred due to accessibility issues such as being located in containment or energized equipment. The 15 remaining items will be inspected during a unit outage or another time when the equipment is accessible, as required. Anchorage verification was required for a minimum of 31 components. (Ref. 1) A total of 45 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 33 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 the Dresden Unit 3 fourteen (14) Issue Reports (IRs) were issued. After evaluation through the CAP, it was determined that none of the conditions identified in the IRs were 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/Dresden utilized the existing processes and procedures (Site CAP Expectations) to identify, evaluate and document conditions identified during the Seismic Walkdowns.

In accordance with Exelon/Dresden 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 and Appendix G of this report. No vulnerabilities were identified as a result of the effort that addressed the Individual Plant Examination of External Events (IPEEE). (Ref. 3 and 5) However, plant improvements were identified in Section 7 of Reference 4. Table G-1 provides the list of plant improvements, the IPEEE proposed resolution, the actual resolution and resolution date. 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 Dresden Generating Station Unit 3 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 fourteen (14) minor conditions. 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 15 items deferred due to inaccessibility along with

supplemental inspections of 33 electrical cabinets. Area Walk-Bys will be complete, as required, during these follow-on activities.

All IPEEE improvement actions are complete.

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. 7) In particular, this report provides information requested to address Enclosure 3, Recommendation 2.3: Seismic, of the March 12, 2012 letter. (Ref. 7)

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. 7) 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 Dresden Generating Station Unit 3 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. 7) 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/Dresden has utilized this NRC endorsed guidance as the basis for the seismic walkdowns and this report. (Ref. 1)

1.3 PLANT OVERVIEW

Dresden Generating Station consists of two operating boiling water reactor (BWR) generating units, located in Morris, Illinois. A third retired unit is also present at Dresden but will not be included in this report. Both operating units have Mark I containments, are rated at 2957 MWt power (Renewed Facility Operating License No. DPR-25), and were originally designed and built by GE as prime contractor for Commonwealth Edison

Company (ComEd). Dresden Unit 3 was completed and went in to commercial service in November of 1971. (Ref. 2 section 1.1.1).

1.4 APPROACH

The EPRI guidance document is used for the Dresden Generating Station Unit 3 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 Systems, Structures, and Components (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 Dresden Generating Station Unit 3 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 fourteen (14) minor conditions. 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 15 items deferred due to inaccessibility along with supplemental inspections of 33 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 Dresden Generating Station Unit 2 and Unit 3. The safe shutdown earthquake and a summary of the codes, standards, and methods used in the design of Seismic Class I (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 safe shutdown earthquake for the Dresden Generating Station site is 0.20g horizontal ground acceleration and 0.133g vertical ground acceleration. (Ref. 2 Section 3.8)

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 Class I (Category I) SSCs for meeting the seismic licensing basis requirements is provided in the following Dresden Generating Station UFSAR sections:

- 3.2 Classification of Structures, Components, and Systems
- 3.7 Seismic Design
- 3.8 Design of Class I Structures
- 3.9 Mechanical Systems and Components
- 3.10 Seismic Qualification of Class I Instrumentation and Electrical Equipment

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

2.3.1 Seismic Summary

The input motions used to create the seismic design of Dresden are based on the Housner-type Ground Response Spectrum (GRS) and the north-south component earthquake record of El Centro of May 18, 1940. The Dresden design basis Safe Shutdown Earthquake (SSE) ground spectra are smoothed Housner-type spectra. The design basis In-Structure Response Spectra (ISRS) were generated using a time-history method of analysis. The El Centro 1940 earthquake N-S component, anchored to 0.10g, was used to generate the ISRS for the Dresden Operating basis Earthquake (OBE). For SSE design, the spectral values were obtained by doubling the OBE spectra. The OBE is defined in the horizontal direction by the Housner-type GRS scaled to 0.10g peak

ground acceleration (PGA) and ISRS developed from the El Centro Earthquake time history scaled to 0.10g. The OBE in the vertical direction is defined by two-thirds of the Housner-type GRS with a resulting PGA of 0.067g. The SSE is defined by multiplying the OBE acceleration by a factor of 2, resulting in a horizontal direction GRS PGA of 0.20g. (Ref. 4)

2.3.2 *Applicable Codes*

As per section 3.2 of Reference 2, Table 2-1 summarizes the codes and standards used for design of systems or components which are applicable in-whole or in-part:

Table 2-1. List of Codes and Standards

System, Structure, or Component	Code or Standard
Valves (except main steam isolation, safety, relief, and safety relief valves)	USAS B-31.1 and ASME Section I
Reactor Recirculation Pumps	ASME Section III, Class C
Main Steam Isolation, Safety, Relief, and Safety Relief Valves and Flow Restrictors	USAS B-31.1, ASME Section I, and ASME Section III (Safety Relief Valve)), 1971 Edition
Piping System	USAS B-31.1, and ASME Section I.
Batteries (Station batteries)	IEEE 308-1974; IEEE 450
Cable (new cable installations)	IEEE 384
Condenser pit level alarms	IEEE 279
Containment	ASME Section III, 1965 Edition, Class B
Containment air monitoring (CAM)	ASME III, Class 2; IEEE 323-1974; IEEE 344-1975
Containment penetrations	ASME Section III, Class B
Containment penetration fitting design	ASME Section VIII
Control rod drive	ASME Section III
Core spray piping	USAS B31.1
Core spray pump casing	ASME Section III, Class C
Core spray spargers and nozzles	ASME Section III
Core spray vessel nozzle	ASME SA 336, Code Case 1332
Fuel pool cooling heat exchanger	ASME Section III
Fuel pool cooling pump	ASME VIII
HPCI piping	USAS B-31.1 and ASME Section I
HPCI pumps	ASME Section III
Hydrogen injection system	USAS B-31.1 and ASME Section VIII
Isolation condenser heat exchanger shell side	ASME Section VIII
Isolation condenser heat exchanger tube side	ASME Section III
Instruments (replacement and new RG 1.97)	IEEE 344-1975
LPCI pump casings	ASME Section III, Class C
Main steam piping	USAS B-31.1; ASME Section I and III
Off-gas piping	USAS ASA B-31.1
Off-gas recombiner/adsorber	ASME Section III, Subsection ND, Class 3
Oxygen injection tank (inner vessel)	ASME Section VIII, Division I
RBCCW heat exchangers	ASME Section VIII

System, Structure, or Component	Code or Standard
Reactor protection system	IEEE 279-1968
Reactor water cleanup vessels	ASME Section III Class C, 1965 (Unit 2 purchased to ASME Section VIII, reconciled to ASME Section III, Class C, 1965)
Shutdown cooling system	ASME III, Class C)
Suppression pool temp monitoring system	IEEE 279-1971, 323-1974, 344-1971, 344-1975
Traversing incore probe guide tubes	ASME Section VIII

2.3.3 *Seismic Qualification of Safety Related Mechanical Equipment*

Safety-related mechanical equipment is qualified by either dynamic or static analysis methods. (Ref. 2 section 3.9.2.2)

Where a dynamic analysis was not performed, the horizontal seismic coefficients for rigid equipment in the reactor-turbine building were considered to be equal to or greater than the building acceleration at the installed elevation. The vertical seismic coefficient was considered as two-thirds of ground acceleration, i.e., 0.067 g. The input motion to the equipment was assumed to be the absolute acceleration of the structure at the points of support of the equipment. (Ref. 2 section 3.9.2.2)

A reassessment of the seismic adequacy of mechanical and electrical equipment at Dresden Unit 2 was performed under the systematic evaluation program (SEP), Topic III-6, titled, "Seismic Design Considerations." In addition, Generic Letter (GL) 87-02, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, Unresolved Safety Issue (USI) A-46," requires verification of seismic adequacy. (Ref. 2 section 3.9.2.2)

2.3.4 *Seismic Qualification of Class I Instrumentation and Electrical Equipment*

The original seismic design criteria for Dresden Units 2 and 3 were developed by John A. Blume and Associates based on the recommendation of seismologist Perry Byerly. (Ref. 2 section 3.10)

Dresden Station was originally designed for a design level earthquake, equivalent to the operating basis earthquake (OBE) with a peak ground acceleration of 0.1 g. The design was reviewed to assure that the plant would resist twice the response loads for the 0.1 g earthquake without hindering the ability of the plant to be safely shut down. (Ref. 2 section 3.10)

Seismic design requirements and procedures have evolved significantly since the time Dresden Station received its construction permit. Recognizing this evolution, the NRC found that it was necessary to make a reassessment of the seismic safety of older operating plants. The Dresden Unit 2 seismic reassessment was performed under the Systematic Evaluation Program (SEP), Topic III-6, titled "Seismic Design Considerations," June 30, 1982. (Ref. 2 section 3.10)

Generic letter (GL) 87-02, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, Unresolved Safety Issue (USI) A-46," which was issued on February 19, 1987, also addresses seismic assessment of older plants. The generic letter was issued to implement the USI A-46 resolution which concluded that the seismic adequacy of certain equipment in older operating nuclear plants must be

reviewed against seismic criteria not yet in use when these plants were licensed. (Ref. 2 section 3.10)

Supplement No. 1 to Generic Letter 87-02 was issued on May 22, 1992. It transmitted the NRC staff's Supplemental Safety Evaluation Report No. 2 (SSER-2) on the Seismic Qualification Utility Group's (SQUG) Generic Implementing Procedure, Revision 2 as corrected on February 14, 1992 (referred to as GIP-2). The GIP-2 methodology relies primarily on the use of existing earthquake and testing experience data to verify the seismic adequacy of generic classes of equipment in contrast to seismic qualification procedures, which rely on analysis or testing of each item of equipment. (Ref. 2 section 3.10)

ComEd committed to use the following as its method for responding to Generic Letter 87-02:

- GIP-2 in its entirety (both SQUG commitments and implementation guidance);
- Clarifications, interpretations, and exceptions to GIP-2 identified in SSER-2;
- Letter of August 21, 1992 (N.P. Smith to J.G. Partlow), SQUG Response to Generic Letter 87-02; and
- Letter of October 2, 1992 (J.G. Partlow to N.P. Smith), NRC Response to Seismic Qualification Group.

(Ref. 2 section 3.10)

The following two clarifications apply:

1. ComEd will use previously performed anchorage evaluations to expedite and/or minimize the GIP verification efforts, provided that the anchorage evaluations previously performed meet the criteria and procedures approved by the staff in SSER-2.
2. ComEd will use existing seismic qualification test reports to demonstrate operability for any equipment on its safe shutdown equipment list that was previously qualified to IEEE 344-1975.

(Ref. 2 section 3.10)

For new and replacement equipment, the GIP-2 methodology is applied if consistent with the licensing basis for the equipment. In particular, each new or replacement item of equipment and parts is evaluated for any design changes that could reduce its seismic capacity from that reflected by the earthquake experience or generic testing equipment classes. This includes verification of the seismic adequacy of commercial grade equipment being dedicated for safety-related purposes. (Ref. 2 section 3.10)

For Regulatory Guide 1.97 new and replacement equipment requiring seismic qualification, the requirements of IEEE 344-1975, Regulatory Guide 1.100, Revision 1, and Dresden Station will be satisfied. (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. (Ref. 1) Resumes included in Appendix A provide detail on each person's qualifications.

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					
K. Hull	X					
T.K. Ram						X(1)
J. Griffith			X	X		
M. Wodarcyk			X	X		
B. Lory						X(2)
W. Djordjevic						X(3)
D. Hamilton (Exelon)		X				
B. Weight (Exelon)				X	X	

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

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. 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. 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. 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.

Jim Griffith, P.E. Mr. Griffith is a Senior Engineer III in the S&A Chicago Office. He has a Bachelor of Science degree in civil engineering and has more than 25 years of experience in the nuclear power plant industry. He is a licensed Professional Engineer

in the State of Wisconsin. He is a SQUG Qualified Seismic Capability Engineer (SCE) and has completed the NTTF Recommendation 2.3 Training Course (SWE). In addition to his involvement in design and analysis of structures, systems, and components at nuclear power plants, Mr. Griffith has many years of experience working at numerous nuclear power plants in support of construction, design, outage, and walkdown activities including SQUG walkdowns.

Michael Wodarcyk, E.I.T. Mr. Wodarcyk is a Staff Engineer in the S&A Chicago, IL Office. He has a Master of Science Degree in Civil Engineering and has been working in the nuclear power plant industry for slightly more than one year. He has completed the NTTF Recommendation 2.3 Training Course (SWE). He has been involved in the design and analysis of rigging configurations, piping and pipe supports, and other various structures.

Bruce Lory Mr. Lory is a Senior Engineer III in the S&A Chicago, IL Office. He has a Bachelor of Science degree in mechanical engineering and has more than 30 years of experience in the nuclear power plant industry. He is a SQUG Qualified Seismic Capability Engineer (SCE) and is the instructor of the Fundamentals of Equipment Seismic Qualification training course for EPRI, and is the co-instructor of the Fukushima Seismic Walkdown training course in response to NTTF 2.3. In addition, he has been involved with equipment modifications for Extended Power Uprates (EPU), as well as Seismic Qualification (SQ) and Environmental Qualification (EQ) of equipment/components at numerous nuclear power plants.

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).

3.3 ADDITIONAL PERSONNEL

Exelon plant Operations staff member Mr. David Hamilton, reviewed the SWEL. Mr. Hamilton is the Manager of Operations Support at Dresden Station. He is currently a licensed SRO and has been since 2006. Mr. Hamilton has worked in the operations department at Dresden for 23 years and he is familiar with all aspects of the station operating procedures.

Various additional station personnel also provided support to the SWEL preparer to help identify 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. Bryan Weight performed the IPEEE Vulnerabilities Review based, in part, on the Dresden IPEEE submittal along with subsequent correspondence and station records. (Ref. 3, 4, and 5) Mr. Weight is a Staff Engineer in the Exelon Engineering Department. He has over 36 years of engineering experience

and has worked at Dresden for the past 5 years. Mr. Weight has completed the NTTF Recommendation 2.3 Training Course (SWE) and the SQUG Training in 2009.

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-1a, Base List 1a – Items Exclusive to Unit 3
- Table B-1b, Base List 1b – Items Common to Units 2 and 3
- Table B-2, SWEL 1

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, was utilized to develop the SWEL for Dresden Generating Station Unit 3. (Ref. 1)

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

4.2.1 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 composite Seismic Individual Plant Examination for External Events (IPEEE) Success Path Equipment List (SPEL)[1]. (Ref. 3 and 4) The IPEEE SPEL was then subjected to the following four 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 IPEEE SPEL was reviewed to determine if it had a defined seismic licensing basis. All items identified as Class I, as defined in Dresden UFSAR Chapter 3, were identified as having a defined seismic licensing basis. (Ref. 2) Electrical enclosures containing Class 1E devices

[1] Through the efforts of this project, certain equipment identification numbers listed on the IPEEE SPEL were found to be incorrect. The equipment identification numbers have been corrected in this report to be consistent with current plant drawings and the master equipment database.

were identified as Class I. Class I and Class 1E determination was made through a review of current design and licensing basis documentation.

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 IPEEE SPEL of any Class I Structures, Containment Penetrations, Class 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 IPEEE SPEL 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 of 'Auxiliary & Support', 'Electrical Systems', or 'Racks & Panels' may be a frontline or support system. Items with a safety function of 'Auxiliary & Support', 'Electrical Systems', or 'Racks & Panels' support at least one of the five safety functions however, the specific safety function(s) is not indicated as identification of the specific safety function(s) supported is not required by Reference 1.

   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 multiple 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:

- (13) - Motor Generators
- (19) - Temperature Sensors.

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

The equipment included on SWEL 1 includes several items that were enhanced as a result of the IPEEE program. Each item on SWEL 1 that was enhanced as a result of the IPEEE program is identified.

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. 8)

4.2.2 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. (Ref. 2 section 9.1 and Ref. 9, 10, 11, 12, 13, and 15) 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**

Only those items identified as Class I (having defined seismic licensing basis) are to be included on SWEL 2 with exception to the SFP structure. 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.

The review of design and licensing basis documentation for the SFP revealed no Class I equipment for Dresden Generating Station Unit 3. (Ref. 2 section 9.1 and Ref. 9, 10, 11, 12, 13 and 15)

Screen #1 identified no items to be added to SWEL 2. Therefore, Screens #2 and #3 below were not performed. However, Screens #2 and #3 are provided for completeness as they are part of the equipment selection process.

2. Screen #2 – Equipment or Systems

This screen was to consider only those items associated with the SFP that were appropriate for an equipment walkdown process. This screen was not performed as Screen #1 added no items to SWEL 2.

3. Screen #3 – Sample Considerations

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

G. A variety of types of systems

H. Major new and replacement equipment

I. A variety of types of equipment

J. A variety of environments

This screen was not performed as Screen #1 added no items to SWEL 2.

4. 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 (having defined seismic licensing basis) 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.

An assessment of the Dresden Generating Station Unit 3 spent fuel pools and their cooling systems was performed and found no SFP penetrations below 10 feet above the top of the fuel assemblies. (Ref. 2 section 9.1 and Ref. 9, 10, 11, 12, 13 & 15) As such, and consistent with Reference 1, there is no potential for rapid drain-down and no items were added to SWEL 2 for Unit 3.

No items were identified to be included in the scope of SWEL 2 for Dresden Generating Station Unit 3.

5 Seismic Walkdowns and Area Walk-Bys

5.1 Overview

Seismic Walkdowns and Area Walk-Bys were conducted by two (2) person teams of trained Seismic Walkdown Engineers (SWEs), in accordance with the EPRI guidance document during the week of July 30, 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 as provided in Appendix B of this report. It is noted, as discussed in Section 4 above, there were no items included on SWEL 2 for Dresden Unit 3. 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. Seismic Walkdowns were performed and a SWC completed for 88 of the 103 items identified on the Dresden Unit 3 SWEL. The completed SWCs are provided in Appendix C of this report. 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. Information on anchorage that was obtained from the previously performed Seismic Qualification Utility Group (SQUG) walkdowns are included in the SWCs since this information, in part, was used for the anchorage verification.

Seismic Walkdowns are deferred for the remaining 15 items to a unit outage or appropriate 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 was 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 or USI A-46 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	103	42	31	45

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 Appendix D: 'Seismic Spatial Interaction' of the EPRI guidance document.

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 with 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 33 AWCs were completed for Dresden Unit 3.

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 NES-MS-04.1 Seismic Prequalified Scaffolds
- Seismic housekeeping was examined to meet station procedure DAP 03-20, Restraint of Portable Equipment

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 provides a summary of conditions identified during the Area Walk-bys. Nine (9) 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, See Notes 1 & 2)
D03-0903-0028	Panel 903-28 was found unlocked and unlatched. The opening device is a push button lock without a handle, which makes it impossible to engage the latches without a key. Some of the relays in this panel could be adversely affected (relay chatter sending intermittent signals) during a seismic event. Interim (temporary) fix was installed by FIN team and judged to be acceptable by Engineering. Permanent fix (new locks) has been installed and panel doors are properly latched.	1394831	Yes
D03-9802-A----P06	Panel 3A 48/24VDC was found partially latched. Only one of three latches were engaged (the door was out of plane with the rest of the item). Operations personnel secured all latches.	1394946	Yes
D03-1503-A----H15	Light fixture just west of the 3A Hx in the SE LPCI Corner Room had a detached chain on one side of the fixture. However, the other chain at the same end of the fixture was securely attached and the two chains at the other end of the fixture were also securely attached.. Therefore, the fixture is not in any immediate danger of falling.	1396014	Yes
D03-7338----S35 D03-7339----S35	During Fukushima seismic walkdowns, two movable trolley hoists mounted on top of SWGR 38 and one movable trolley hoist mounted on top of SWGR 39 were found unrestrained against horizontal movement due to the restraining pin for each hoist not being installed while each hoist was in the stored position. The switchgears are located at U3, N-47, EL. 570. Station personnel installed the pins for all three trolley hoists.	1396562	Yes
D03-0302-0019AV27	A cantilever channel support for the (1/2" diameter estimated) copper pipe running to Equipment No. 3-0302-20B was missing a clamp. Location RxB at L-48 elevation 517'-6". The system is adequately supported with no adverse effects based upon inspection and engineering judgment.	1395804	Yes

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 Corrective Action Program.

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

Item ID	Description of Issue	Action Request ID (IR)	Actions Complete (Yes/No, See Notes 1 & 2)
AWC-U3-10	Light fixture hanging above Equipment No. 3-1501-36A (Location: U3, Grid 49, El. 495') had an open S-hook on the North side of the fixture. However, the other chain at the same end of the fixture had an S-hook that was securely clamped shut. Therefore, the fixture would not fall if the open S-hook were to come loose.	1395486	Yes
AWC-U3-26	The Fukushima Seismic walkdown team inspected the U3 SDC Pump Room as part of the scope for area walk-by inspections to satisfy the NRC request for information. There is a ladder rack on the wall directly across from the doorway to the room. The chain intended to restrain the ladder on the rack was placed over the ladder but the chain did not have a latch to secure it. The ladder was repositioned to mitigate this deficiency.	1396906	Yes
AWC-U3-2	Panel 903-28 was found unlatched per IR 01394831. The FIN Team performed a corrective remedial repair of cabinet door 903-28 and then checked the Unit 2 side, Panel 902-28 (located in the front part of the Aux Electric room at elevation 517'-6"). Panel 902-28 was found in the same condition as U3; namely, the opening device is a push button operated latch without a handle that requires a key to engage the latches. Interim (temporary) fix was installed by FIN team and judged to be acceptable by Engineering. Permanent fix (new locks) has been installed and panel doors are properly latched.	1395481	Yes
AWC-U3-2	Panels 903-28 and 902-28 were found unlatched per IRs 01394831 & 01395481 respectively. An extent of condition walkdown was performed in the Aux Electric room at elevation 517'-6" to see if there are other unsecured panel latches. The "Data Aquisition Cabinet #1 & #2" doors were found in similar conditions as those above; namely, the opening device is a button without a handle that requires a key to engage the latches. There are no other panels/cabinets in the Aux Electric room besides those identified above that have the key operated latches. This IR was generated to document unsecured latches for Data Aquisition Cabinets #1 & #2. These panels are not safety related and since they are by themselves, they have no spatial seismic interaction issues with other cabinets in the Aux Electric room.	1395498	Yes

Item ID	Description of Issue	Action Request ID (IR)	Actions Complete (Yes/No, See Notes 1 & 2)
AWC-U3-19	Multiple open S-hook connections between the chain and the support bracket for the lighting fixtures in the U3 HPCI Room. However, each light fixture is hardwired; therefore, they would not fall if the support chains were to come loose. In addition, the equipment within the range that the light fixtures would swing; if they were to come loose, is robust and would not be significantly damaged by engineering judgment.	1396017	Yes
AWC-U3-23	NRC identified an electrical conduit support outside the designated walk-by boundary that has one of two wall mounted brackets not flush with the wall. The support is U-shaped. Three conduits are attached to this support. The location of the subject support is between L-50 and K-50 approximately 15' above floor elevation 545'-0". The subject support is also above valve 3-3917-B-501. The bracket that is not flush is not a concern because the other end of the support is judged capable of carrying the whole load as a hanger. The bracket that is not flush would be in compression so flush mount is not an issue. In addition, there are multiple additional properly installed conduit supports in the run that are immediately adjacent to the subject support. The system is adequately supported with no adverse effects based upon inspection and engineering judgment.	1396558	No
AWC-U3-30	Anchor plate of a floor mounted piping support near valve 3-1201-124B missing a nut on one of four anchors. The support is located at the U3 RWCU Demin Valve Gallery. However, the other three anchors have nuts securely torqued so the support is structurally adequate by engineering judgement. Also, this support is on a non-safety related system.	1396565	No

Item ID	Description of Issue	Action Request ID (IR)	Actions Complete (Yes/No, See Notes 1 & 2)
AWC-U3-24	NRC identified a 3" diameter pipe run with two knee-brace type wall mounted bracket supports missing one anchor bolt each. The 3" pipe has Spent Fuel Pool (SFP) drain valve 3-1901-8 in the line. Each support is intended to have two anchor bolts and only the bottom bolt in each support is installed. The location of the subject supports is on the north wall above elevation 570 on the high dose side of the SFP fence in a High Radiation Locked boundary. The 3" pipe is 3-1913-3-L per P&ID drawing M-362. According to the P&ID drawing, the subject pipe drains the SFP on the dry side of the gate and is currently isolated. This was confirmed by the shift manager and unit supervisor. Therefore the deficiency does not affect the safety related function of the equipment.	1396568	No

Item ID	Description of Issue	Action Request ID (IR)	Actions Complete (Yes/No, See Notes 1 & 2)
AWC-U3-24	NRC identified a 2.5" diameter conduit run with a ceiling mounted bracket support that is missing one anchor bolt. The location of the subject support is in the ceiling above elevation 570' on the high dose side of the SFP fence in a High Radiation Locked boundary. The conduit and subject support are above valve 3-1601-23. The conduit run is vertical from an existing junction box that is supported from the floor by a stanchion underneath. The majority of this vertical conduit run is carried by the floor support. The ceiling support with a missing anchor bolt is immediately after a 90 degree bend where it turns horizontal below the ceiling. A second ceiling support is located approximately 4' from the support with the missing anchor bolt. This second ceiling support is properly installed with both anchors intact. According to Table 1.2 in specification K-4081 the maximum acceptable horizontal span between supports is 9'-0". The vertical run is well supported and acts as an end support for the beginning of the horizontal run. The properly installed ceiling hanger may be considered the next support on the horizontal run without regard to the improperly installed support. Since the horizontal span between the vertical conduit run and properly installed support is less than 9'-0", the missing anchor deficiency does not affect the safety related function of the equipment.	1396571	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 Corrective Action Program.

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/Dresden utilized the existing processes and procedures (Site CAP Expectations) to identify, evaluate and document conditions identified during the Seismic Walkdowns.

In accordance with Exelon/Dresden 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

Per the Individual Plant Examination of External Events (IPEEE) Submittal for Dresden and the NRC Staff Evaluation Report of IPEEE submittal for the Dresden Station, an explicit definition of vulnerability was not provided and no vulnerabilities with respect to potential severe accidents related to external events were identified. (Ref. 3, 4, & 5) However, plant improvements and previously identified SQUG outliers were identified in Sections 3 and 7 of Reference 4. Table G-1, in Appendix G, lists the plant improvements, the IPEEE/SQUG proposed resolution, the actual resolution and resolution date. 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. Dresden Power Station Updated Final Safety Analysis Report (UFSAR), Revision 9
3. ComEd PSLTR #00-0068, Request for Additional Information Regarding Individual Plant Examination of External Events, dated March 30, 2000
4. Letter from J.M. Heffley (ComEd) to U. S. NRC, "Final Report – Individual Plant Examination of External Events (IPEEE) Generic Letter 88-20, Supplement 4," dated December 30, 1997
5. Staff Evaluation Report of Individual Plant Examination of External Events (IPEEE) submittal of Dresden Nuclear Power Station, Units 2 and 3 dated September 28, 2001
6. ComEd Letter to U.S. Nuclear Regulatory Commission dated May 18, 1999 "Response to Request for Additional Information Regarding Unresolved Safety Issue (USI) A-46
7. 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 3, "Recommendation 2.3: Seismic," dated March 12, 2012
8. Exelon Nuclear Memorandum from Larry Lee to John Steinmentz, dated July 3, 2012, Subject: Dresden Risk Importance Listings to Support Development of Seismic Walkdown Equipment List (SWEL)
9. Drawing M-362, Rev. BA, Diagram of Fuel Pool Cooling Piping
10. Drawing B-681, Rev. A, Reactor Building Pool Liner Plan
11. Drawing B-683, Rev. Original, Reactor Building Pool Liner Sections & Details
12. Drawing B-684, Rev. A, Reactor Building Pool Liner Sections & Details
13. Drawing B-685, Rev. Original, Reactor Building Pool Liner Sections & Details
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. ML111861807, July 12, 2011
15. Drawing M-373, Rev. AG, Diagram of Fuel Pool Filter & Demineralizing Piping

A

Project Personnel Resumes and SWE Certificates

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

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

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

STEVENSON & ASSOCIATES

JAMES D. GRIFFITH

QUALIFICATIONS

Knowledgeable professional with over 23 years of diverse experience in structural engineering. Thorough, results-oriented problem solver with excellent communication skills. Works well independently or as part of a team. Highly skilled in all project phases from design through construction and specializes in field problem resolution.

PROFESSIONAL EXPERIENCE

Project Engineer (Stevenson & Associates, 2000 to present)

Responsible for all aspects of civil structural design. Also provides interface between clients, vendors, constructors and Stevenson & Associates.

Decommissioning Design Engineer (ComEd, 1998 to 2000)

Responsible for structural design work during conversion from generating to storage facility. Gathered design information during conceptual field walkdowns and prepared design calculations and drawings. Provided field support during construction.

- Designed all component supports and concrete foundations for various new indoor equipment.
- Managed construction during installation of new roof-mounted HVAC system.
- Designed structural steel support framing and access gallery for new outdoor cooling towers.

Maintenance Engineer (ComEd, 1995 to 1998)

Responsible for the design of structural repairs to station equipment and facilities. Interfaced with maintenance and construction personnel and performed evaluations of rigging, lead shielding, and scaffolding. Investigated and developed solutions for structural problems in the field and provided field support during installation of modifications.

- Designed and supervised field installation of heavy-duty rigging apparatus for replacement of large overhead crane motor.
- Performed conceptual design and supervised field construction of 60 foot high scaffold work platform for valve replacement.
- Prepared and reviewed calculations to justify structural acceptability of station equipment during successful completion of Seismic Qualification Utility Group (SQUG) evaluation program.
- Acted as engineering liaison to other station departments (Maintenance, Operations, Radiation Protection, etc) to resolve emergent problems regarding:
    - Rigging for lifting various plant equipment
    - Placement and support of temporary lead shielding
    - Storage of equipment in safety related seismic areas of the plant
    - Structural repairs and improvements to plant buildings and equipment

Structural Engineer (Sargent and Lundy, 1983 to 1995)

Responsible for design of structural modifications to various components of power generating facilities. Prepared and reviewed design calculations and drawings

- Designed numerous modifications to existing structural steel framing members and end connections.

- Supported field installation of modifications and provided solutions to problems encountered in the field.
- Designed and monitored field installation of new access galleries for various pieces of equipment.

EDUCATION

B.S., Civil and Environmental Engineering, University of Wisconsin, Madison, Wisconsin

Continuing Education

"Concrete Evaluation and Repair Seminar", Portland Cement Association, Skokie, Illinois, 1996

"STAAD III Program Training", Sargent and Lundy Engineers, Chicago, Illinois, 1995

"Piping Design, Analysis and AUTOPIPE Training"
Vectra Technologies, Inc., Zion, Illinois, 1995

"SQUG Walkdown Screening and Seismic Evaluation Training Course",
Seismic Qualification Utility Group through ComEd, Downers Grove, Illinois, 1994

PROFESSIONAL REGISTRATIONS

Licensed Professional Engineer in State of Wisconsin

Certificate of Completion

Jim Griffith

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

SQUG

Certificate of Achievement

This is to Certify that

Jim Griffith

has Completed the SQUG Walkdown Screening and Seismic Evaluation Training Course

Aug 2-4 & 10-11, 1994
Date of Course

Paul C. Smith
SQUG Representative

Bruce M. Long
Training Course Administrator

MICHAEL WODARCYK

EMPLOYMENT

Stevenson & Associates, Glenview, Illinois
Staff Engineer June 2011 – present
- Analysis and design of nuclear power plant structures and other assorted structures. On-site engineering at plants during outage maintenance periods.

ESCA Consultants, Urbana, Illinois
Design Engineer September 2010 – June 2011
- Structural design and hydraulic modeling of bridges for the Illinois Department of Transportation, Canadian National Railway, BNSF Railway, and others. Inspection of the production of precast structural elements for CN.

Evans, Mechwart, Hambleton, & Tilton, Columbus, Ohio
Intern May 2007 – August 2007, May 2008 – August 2008
- Assisted in the design and drafting of site, stormwater, and utility plans for various projects using AutoCAD, including the headquarters tower and garage for Grange Insurance in downtown Columbus.

D.E. Huddleston General Contractors, Columbus, Ohio
Laborer May 2006 – August 2006
- Constructed footing foundations and performed other miscellaneous tasks for two elementary schools under construction in the Columbus City Schools district.

EDUCATION

University of Illinois, Urbana-Champaign — Urbana-Champaign, Illinois
Master of Science, Civil Engineering — August 2010
Structural Engineering Concentration
GPA: 3.66 (of 4.0)

University of Notre Dame — Notre Dame, Indiana
Bachelor of Science, Civil Engineering — May 2009
GPA: 3.47 (of 4.0)

- *Undergraduate Research,* January 2009 – August 2009
  Studied the effects that different structural systems have on the harmonic damping of a high-rise structure. Modeled a case study high-rise building using SAP2000.

- *Big Beam Contest,* August 2008 – February 2009
  Led a team of four students that designed, built, and tested Notre Dame's entry for the Precast/Prestressed Concrete Institute's Big Beam reinforced-concrete beam contest, with all design considerations based upon ACI 318-08 and PCI 6th ed. codes and specifications. This design won 2nd place in the contest's Zone 4 (Midwest).

CERTIFICATIONS

Engineer-in-Training — April 2009
First Aid — August 2008

ORGANIZATIONS

American Concrete Institute
American Society of Civil Engineers

Certificate of Completion

Mike Wodarcyk

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

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

STEVENSON & ASSOCIATES
4350 DiPaolo Center, Suite H, Glenview, IL 60025

Tel: 847.795.0500
Fax: 847.795.0501
blory@vecsa.com

Bruce M. Lory

EDUCATION AND PROFESSIONAL AFFILIATIONS

- B.S., Mechanical Engineering, State University of New York at Buffalo, Buffalo, NY – 1982
- Exelon-certified instructor – 1992
- ASME Training certification - "Design and Repair of ASME Section I, IV, and VIII, Division 1 Pressure Vessels" – 2000
- Instructor of EPRI "Fundamentals of Equipment Seismic Qualification" course
- Member of 2003-11 IEEE Subcommittee-2 on Equipment Qualification
- Member of 2003-11 IEEE 323 Working Group (Environmental Qualification)
- Member of 2003-11 IEEE 344 Working Group (Seismic Qualification)

QUALIFICATIONS

Degreed Mechanical Engineer with over 30 years experience in the nuclear industry, with specific technical expertise in the field of overseeing equipment modifications for Extended Power Uprates (EPU), as well as Seismic Qualification (SQ) and Environmental Qualification (EQ) of equipment/components. Also possesses technical proficiency in design verification and project management for installation of single failure-proof cranes.

PROFESSIONAL EXPERIENCE – EPU PROJECTS

Provided staff augmentation services as utility responsible engineer, overseeing engineering activities necessary for developing engineering modifications packages for various EPU projects, including:

- Generator rewinds (LaSalle, Clinton, & Dresden), and associated GE support system modifications (SLMS package, flux probe, generator temperature monitoring, rotor torsional vibration monitoring system)
- HP Turbine replacement with new ADSP advanced GE turbine design
- RWCU pump replacements
- Reactor Feed Pump, Recirc Valve, and FW Reg. Valve replacements
- Stator Cooling system improvements (heat exchangers, filters, strainer)
- Replacement of entire IA system with 3 independent system trains in new building.

Activities included interface with Project Manager, Field Engineer, Work Planning, Construction, and Work Week Manager, as modification packages were developed, followed by implementation. Worked within INDUS PassPort program for populating ADL, AEL, loading engineering deliverables in PassPort, ECN processing. Performed owner's review of design descriptions, calculations, construction drawings. etc. Reviewed FAT test plans, as well as witnessed FAT activities at OEM locations, assisted supply chain oversight of OEM milestones and auditing OEM facilities and generating nonconformances. Provided technical interface with OEM as designs developed from mechanical & structural engineering perspectives. Reviewed resulting work order tasks in PassPort to get WO tasks to approved status. Produced CCNs in accordance with station procedures during installation phase to develop quick solution to engineering issues.

Bruce M. Lory

PROFESSIONAL EXPERIENCE – SEISMIC QUALIFICATION
Over 18 years of experience in Seismic Qualification of equipment and components, including seismic stress analyses, equipment foundation load analyses, equipment nozzle secondary stress analyses, and selection of vendors for replacement of seismically qualified Class 1E components. Well versed in requirements of IEEE 344-1975 for seismic qualification of Class 1E components, and use of SQUG methodology for demonstrating seismic adequacy of equipment. Excellent verbal/writing skills in field of SQ and EQ testing/analyses; responds well to organizational challenges, and relationship building. Member/Chairperson of numerous EPRI EQ and SQ technical committees (see below). Proficient in PC software applications: Microsoft Word, Excel, MS Projects and PowerPoint as well as INDUS PassPort database.

Special expertise in preparation of SQ test plans, and witnessing of SQ tests; having witnessed over 100 seismic tests for numerous utilities. Excellent knowledge of seismic and environmental testing facilities, including Wyle (Norco and Huntsville), NLI, Southern Testing Services, Nutherm, NTS Acton, EGS, and Qualtech.

Served as ComEd (now Exelon) corporate subject matter expert in SQ, providing SQ guidance and policy for all five ComEd generating stations, including on-site SQ engineers. Developed and implemented ComEd ownership of SQ program by authoring corporate procedure and SQ review checklists in 1993. Also created existing ComEd SQ standards used at all sites.

Also served as subject matter expert for ComEd Corporate Engineering, providing technical guidance to Dresden, Quad Cities, and Zion sites required to complete the SQUG project. EPRI SQUG-certified Seismic Capability Engineer, and participated in all SQUG walkdowns at the three ComEd SQUG sites. Served on EPRI G-STERI, and SQURTS committees, as ComEd employee.

Specific SQ experience and special SQ projects includes:

- Designed temporary fix to broken auxiliary switch mounting on Merlin Gerin 4KV circuit breakers in support of restarting Dresden 2 & 3 and Quad Cities 1 & 2 after extended shutdown to investigate issue. Coordinated and witnessed expedited seismic testing of temporary design fix that resulted in NRC approval to restart affected units. Received "Engaging in Excellence" award from ComEd for solving problem (1997).

- Member of EPRI SQUG mock-NRC audit team which performed 1 week inspection of TMI SQUG program at TMI in preparation for formal NRC SQUG inspection (1998).

- Expedited SQ test procedure preparation and witnessed SQ testing and HELB (EQ) testing of Magnetrol level switch needed to replace Dresden HPCI Glo-SLO obsolete level switch, allowing Dresden to exit 14 day LCO (1999).

- Coordinated response to NRC resident inspector inquiry at Byron regarding SQ status of a racked out Westinghouse 4KV circuit breaker, reviewed third party calculation justifying the configuration as seismically qualified, interfaced with Resident Inspector at Byron, and consulted industry on the issue (2000).

- Chairman of 1 day EPRI technical workshop on issue of "racked out" circuit breakers, attended by over 30 utilities and contractors, EPRI NDE Center – Charlotte, NC (1997)

- Coordinated with Quad Cities SQ engineer the response to NRC concern regarding potential contact of 125VDC batteries against hard spot on associated battery racks under seismic loading. Solution involved SQ testing of non-conforming condition, SQ test procedure reviewed and SQ test witnessed as well (1998).

- Member of the special root cause investigative team formed in response to NRC audit concern on seismic qualification status of commercial grade-dedicated protective relays on Quad Cities EDGs (1999).

Bruce M. Lory

PROFESSIONAL EXPERIENCE – ENVIRONMENTAL QUALIFICATION
Possess over 15 years of EQ experience, in consulting services and in utility positions. Prepared and reviewed over 100 EQ Binders to meet requirements station-specific EQ licensing basis requirement.). Knowledgeable in EQ requirements for satisfying the different levels of EQ licensing basis, (10CFR50.49, NUREG 0588 – Category I and II, or DOR Guideline).

Prepared, reviewed over 20 EQ test procedures, and witnessed numerous EQ tests as part of licensee's initial EQ program origination or EQ component replacement objectives. Well versed in EQ requirements contained in IEEE Standards 323, 382, 282, 317, and 649. Understands differentiation between Arrhenius and Regression Line analysis methodologies for calculating thermal qualified life.

Have performed many FMEAs (Failure Mode Effects Analysis) on EQ components down to part level to determine applicable failure mode and appropriate corresponding activation energy/regression line slope and intercept for calculating thermal qualified life of a given material. Have used Digital Engineering and Wyle Materials databases to assist FMEAs in selection of most applicable Arrhenius material properties for failure mode/part use.

Member of Corporate EQ group at Commonwealth Edison (ComEd) Downers Grove, IL overseeing EQ program compliance of all 6 nuclear stations (1991-1995). Served as backup EQ Engineer for

ComEd Corporate Engineering office (1998-2000). Specific EQ experience and special EQ projects includes:

- Prepared or reviewed over 100 EQ binders over entire six site ComEd EQ program (1983-1993)
- Project Engineer overseeing staff of 5 EQ engineers prepare 88 EQ binders for Fort St. Vrain EQ program creation from scratch. Numerous technical challenges due to high temperature MSLB profile, necessitating thermal lag analyses and design of thermal protection modifications. Included lead role of defending EQ program in mock-NRC audit followed by successful NRC audit.
- Assisted in EQ impact evaluation for high drywell temperature excursion that occurred at ComEd Dresden Nuclear Station, assessing EQ life consequences on Class 1E components (1988).
- Assisted in preparation of EQ test procedure and witnessed EQ HELB testing of non-conforming Raychem NMCK and WCSF-N electrical splices for ComEd LaSalle County Nuclear Station in support of JCO (1986)
- Member of EQ inspection team performing mock-NRC audit of Quad Cities EQ program with respect to compliance to R.G. 1.97, including EQ walkdown discovery of Class 1E terminal blocks epoxy glued to junction boxes involving R.G. 1.97 instrumentation circuitry (1991).
- Member of EQ assessment team performing technical review of Consumers Energy - Palisades EQ program for compliance to DOR Guidelines and R.G. 1.97 (1990).
- Performed special EQ impact assessment of potentially non-EQ components installed in Class 1E 480VAC MCCs at ComEd Braidwood Nuclear Station, reviewed over 150 NWRs for Stores Item # used for installation.
- Lead 5 EQ engineers on independent EQ assessment of ComEd LaSalle County Nuclear Station EQ program re-baseline initiative to determine remaining weaknesses in EQ program and identify corrective actions needed in EQ analyses and component replacements (1997)

Bruce M. Lory

PROFESSIONAL EXPERIENCE – SINGLE FAILURE-PROOF CRANE DESIGN VERIFICATION
Performed utility owner's (CMS Energy – Big Rock Restoration Project) design review of all crane manufacturer's design stress analyses for use of single failure-proof Containment Building Crane for dry cask activities. Activities included assisting project manager in resolving design issues which arose during seismic qualification analyses by crane vendor, resolving crane manufacturer (Ederer) NCRs, and establishing protocol for identification of critical characteristics for commercial grade dedication of crane for safety related use. Crane expertise includes owner's review of manufacturer's design stress calculations for all operating load conditions per CMAA Spec. #70, and compliance with NUREG 0554.

Project highlights included:

- Visited crane manufacturer facility (Ederer) and vendor facility (Bigee) numerous times to resolve owner review comments on design stress calculations, attend project status meetings, and work with crane/vendor engineering staff towards final design resolutions.
- Reviewed over 30 design stress calculations for Ederer "X-SAM" single failure-proof crane trolley and hoist, including vendor bridge, column, and end truck design. Review resulted in three design changes to crane in order to comply with CMAA Spec. #70 and NUREG 0554 design margin requirements.
- Attended NRC meeting at NRR headquarters (Washington D.C.) with client to answer NRC and independent review team technical review questions on crane design and Ederer topical report.
- Assisted utility project manager in related engineering activities of commercial grade dedication, QA program establishment, and seismic qualification interface with Bigee Rigging.

EMPLOYMENT HISTORY
Stevenson & Associates – 2008 to present
EMS Inc. – 2000 - 2007
Commonwealth Edison, 1991-2000
ABB Impell, 1989 – 1991
Sargent & Lundy Engineers, 1979 – 1989

SPECIAL ACHIEVEMENTS & AFFILIATIONS

- Presented ComEd C-Team facility design for LOCA test chamber system to NUGEQ - 1991
- Inaugural Technical Program Chairman of EPRI – SQURTS program, 1993-95
- Member of EPRI – G-STERI program, 1995-98
- "Engaging in Excellence" award from ComEd for designing and seismically qualifying emergency fix to broken auxiliary switch mounting on Merlin-Gerin 4KV circuit breakers – 1997
- "Certificate of Appreciation" , ASME PVP Division for being Technical Program Representative of the OAC Committee for the 2000 ASME PVP Division International Conference – 2000
- Instructor of EPRI "Fundamentals of Equipment Seismic Qualification" training course - 2011

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

BRYAN Y WEIGHT

EDUCATION BRIGHAM YOUNG UNIVERSITY
Bachelor of Science, Civil Engineering (structural emphasis)

EXPERIENCE

EXELON CORPORATION, Morris, IL: Currently 5 years
Dresden Generation Station (DGS – nuclear power)
Engineering Design / Projects / Staff Engineer
- Performed owners acceptance reviews of civil and structural engineering vendor supplied products for DGS
- Completed various plant modifications – Project Engineer
- Specialty projects: Heavy loads per NUREG 0612, Post-Fukushima Earthquake Task Force, NRC audits, etc

PT&C FORENSIC CONSULTING SERVICES, P.A., Chicago, IL: 1.5 years
Engineering Manager / Senior Forensic Engineer
- Marketing – established new accounts with Insurance Companies
- Executed inspections and managed consulting services related to insurance claims and associated reports, invoices, client interface
- Managed personnel and work assignments in the Midwest region

BW INSPECTION ENGINEERS, INC., Wilsonville, OR: 18 years
EIFS & STUCCO CONSULTANTS, INC., Wilsonville, OR: Concurrent
President & Owner
- Managed consulting services in Oregon & Washington
- Experienced in forensic engineering, construction defect litigation, cause & origin insurance claims, engineering design, construction management, and surveyed the physical condition of residential and commercial properties
- Marketing

NORTHWEST INSPECTION ENGINEERS, INC., Renton, WA: 1.5 years
Inspection Engineer
- Performed inspections, forensics, engineering, expert witness, and construction management services

BECHTEL POWER & BECHTEL CONSTRUCTION CORPORATIONS: 10 years
Assistant Project Administrator -- San Onofre Nuclear Generation Stations 2 & 3
- Responsible for construction work procedures, quality control, and documentation during refueling operations in accordance with NRC code of Federal Regulations 10CFR50; managed various personnel groups

Construction Management -- Intermountain Power Project, Delta, UT
- Managed multi-million dollar contracts in the civil and mechanical disciplines
- Authorized progress payments, change orders, settled claims, contractor audits
- Completed quality control (QC) inspections, specification compliance & reports
- ANSI inspector: concrete, steel, soils, pipe & mechanical equipment

Construction Engineer -- Springerville Arizona Generating Station
- Worked as field liaison, provided technical guidance, recommended design changes, was advisor to construction

Design Engineer -- Los Angeles Power Division, Norwalk, CA
- Involved in the design of concrete; steel; supports for instrumentation, HVAC, pipe and electrical cable tray systems of various nuclear and fossil fuel projects including: Korea Nuclear Generation Stations 5 & 6; Palo Verde Nuclear Generation Station 2 & 3; San Onofre Nuclear Generation Station 2 & 3; Springerville Arizona Generating Station

PROFESSIONAL LICENSES:

Professional Engineer: CA 33679
Professional Engineer: IL 62059873
Professional Structural Engineer: UT 170291-2203
Lapsed P.E. licenses: IA, MI, MN, OR, WA

OTHER PROFESSIONAL QUALIFICATIONS / TRAINING

BWR Plant Systems Engineering
Configuration Change Responsible Engineer (Plant Modifications)
10 Code of Federal Regulations (CRF) 50.59 BWR Screener
EPRI Near Term Task Force Recommendation 2.3 – Plant Seismic Walkdowns
SQUG Walkdown Screening and Seismic Evaluation Training
Site Materials Expert (SME) for movement of Heavy Loads
Certified Building Moisture Analyst
Certified Infrared Thermographer

EPRI | ELECTRIC POWER RESEARCH INSTITUTE

Certificate of Completion

Bryan Weight

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

June 27, 2012
Date

R.P. Kassawara

Robert K. Kassawara
EPRI Manager,
Structural Reliability & Integrity

SQUG

Presents this

Certificate of Achievement

To Certify That

[redacted]

has Completed the SQUG Walkdown Screening and Seismic Evaluation Training Course Held August 23-27, 2010

[redacted]

Richard G. Starck II, MPR Associates, Inc.
SQUG Instructor

Paul D. Baughman, ARES Corporation
SQUG Instructor

B
Equipment Lists

Appendix B contains the equipment lists that were developed during SWEL development. Note that because no SWEL 2 or Rapid Drain-Down items existed for Dresden Generating Station Unit 3, there is no Base List 2, SWEL 2, or Rapid Drain-Down Equipment List.

The following contents are found in Appendix B:

Stevenson & Associates

Seismic Walkdown Interim Report, Revision 0

In Response to NTTF Recommendation 2.3: Seismic

Dresden Generating Station Unit 3

Tony Perez	07/25/2012
Equipment Selection Preparer	date
Kim L. Hull	07/25/2012
Equipment Selection Reviewer	date
David Hamilton	7/26/12
Station Operations Staff Member Refer to Attachment 3 for synopsis of Station Operations role and responsibility.	date

Table B-1a. Base List 1a - Items Exclusive to Unit 3

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-0202-0005AV20	REACTOR RECIRCULATION/ Recirc Pump A Discharge Valve	Nuclear Boiler System	Reactor	515.5	DRYWELL
D03-0203-0001AV05	MAIN STEAM/ Isolation Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-0001BV05	MAIN STEAM/ Isolation Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-0001CV05	MAIN STEAM/ Isolation Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-0001DV05	MAIN STEAM/ Isolation Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-0002AV05	MAIN STEAM/ Isolation Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0203-0002BV05	MAIN STEAM/ Isolation Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0203-0002CV05	MAIN STEAM/ Isolation Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0203-0002DV05	MAIN STEAM/ Isolation Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0203-0003A-PC	ADS/ Target Rock Process Controller (ROB-203-3A)	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0203-0003AV26	ADS/ Target Rock Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-0003B-PC	ADS/ Electromatic Valve Process Controller (ROB-203-3B)	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0203-0003BV26	ADS/ Electromatic Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-0003C-PC	ADS/ Electromatic Valve Process Controller (ROB-203-3C)	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0203-0003CV26	ADS/ Electromatic Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-0003D-PC	ADS/ Electromatic Valve Process Controller (ROB-203-3D)	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0203-0003DV26	ADS/ Electromatic Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-0003E-PC	ADS/ Electromatic Valve Process Controller (ROB-203-3E)	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0203-0003EV26	ADS/ Electromatic Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-0004AV26	ADS/ Reactor Overpressure Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-0004BV26	ADS/ Reactor Overpressure Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-0004CV26	ADS/ Reactor Overpressure Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-0004DV26	ADS/ Reactor Overpressure Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-0203-0004EV26	ADS/ Reactor Overpressure Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-0004FV26	ADS/ Reactor Overpressure Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-0004GV26	ADS/ Reactor Overpressure Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-0004HV26	ADS/ Reactor Overpressure Relief Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0203-001A1V27	MAIN STEAM/ Isolation DC Solenoid Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-001A2V27	MAIN STEAM/ Isolation AC Solenoid Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-001B1V27	MAIN STEAM/ Isolation DC Solenoid Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-001B2V27	MAIN STEAM/ Isolation AC Solenoid Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-001C1V27	MAIN STEAM/ Isolation DC Solenoid Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-001C2V27	MAIN STEAM/ Isolation AC Solenoid Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-001D1V27	MAIN STEAM/ Isolation DC Solenoid Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-001D2V27	MAIN STEAM/ Isolation AC Solenoid Valve	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0203-002A1V27	MAIN STEAM/ Isolation DC Solenoid Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0203-002A2V27	MAIN STEAM/ Isolation AC Solenoid Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0203-002B1V27	MAIN STEAM/ Isolation DC Solenoid Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0203-002B2V27	MAIN STEAM/ Isolation AC Solenoid Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0203-002C1V27	MAIN STEAM/ Isolation DC Solenoid Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-0203-002C2V27	MAIN STEAM/ Isolation AC Solenoid Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0203-002D1V27	MAIN STEAM/ Isolation DC Solenoid Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0203-002D2V27	MAIN STEAM/ Isolation AC Solenoid Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0205-0024-V20	REACTOR RECIRCULATION/ Reactor Head Cooling Line Valve	Nuclear Boiler System	Reactor	589	K-L/47
D03-0220-0001-V20	MAIN STEAM/ Isolation Valve Line Drain Valve	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0220-0002-V20	MAIN STEAM/ Isolation Valve Line Drain Valve	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0220-0044-V05	REACTOR RECIRCULATION/ Recirc Loop Sample Line Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0220-0044-V27	REACTOR RECIRCULATION/ Recirc Loop Line Solenoid Valve	Nuclear Boiler System	Reactor	537	DRYWELL
D03-0220-0045-V05	REACTOR RECIRCULATION/ Recirc Loop Sample Line Valve	Nuclear Boiler System	Reactor	545.5	L/45-46
D03-0220-0045-V27	REACTOR RECIRCULATION/ Recirc Loop Line Solenoid Valve	Nuclear Boiler System	Reactor	545.5	L/45-46
D03-0220-0082AA10	MAIN STEAM/ Isolation Valve Accumulator	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0220-0082BA10	MAIN STEAM/ Isolation Valve Accumulator	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0220-0082CA10	MAIN STEAM/ Isolation Valve Accumulator	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0220-0082DA10	MAIN STEAM/ Isolation Valve Accumulator	Nuclear Boiler System	Reactor	515.42	DRYWELL
D03-0220-0083AA10	MAIN STEAM/ Isolation Valve Accumulator	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0220-0083BA10	MAIN STEAM/ Isolation Valve Accumulator	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0220-0083CA10	MAIN STEAM/ Isolation Valve Accumulator	Nuclear Boiler System	Turbine	517.5	X AREA H/46

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-0220-0083DA10	MAIN STEAM/ Isolation Valve Accumulator	Nuclear Boiler System	Turbine	517.5	X AREA H/46
D03-0261-0001A-FE	MAIN STEAM/ Injection Line Flow Element	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0261-0001B-FE	MAIN STEAM/ Injection Line Flow Element	Nuclear Boiler System	Reactor	517.5	DryUell
D03-0261-0001C-FE	MAIN STEAM/ Injection Line Flow Element	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0261-0001D-FE	MAIN STEAM/ Injection Line Flow Element	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0261-0014A-TE	ADS/ Target Rock Temperature Element	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0261-0014B-TE	ADS/ Electromatic Relief Valve Temperature Element	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0261-0014C-TE	ADS/ Electromatic Relief Valve Temperature Element	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0261-0014D-TE	ADS/ Electromatic Relief Valve Temperature Element	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0261-0014E-TE	ADS/ Electromatic Relief Valve Temperature Element	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0261-0020--TR	ADS/ Blowdown Lines Temperature Recorder	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0261-0037A-PS	ADS/ Target Rock Pressure Switch	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0261-0037B-PS	ADS/ Target Rock Pressure Switch	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0261-0037C-PS	ADS/ Target Rock Pressure Switch	Nuclear Boiler System	Reactor	517.5	Drywell
D03-0263-0059ALIS	REACTOR RECIRCULATION/ Level Indicating Switch	Nuclear Boiler System	Reactor	545.5	L-M/46-47
D03-0263-0059BLIS	REACTOR RECIRCULATION/ Level Indicating Switch	Nuclear Boiler System	Reactor	545.5	K/48-49
D03-0263-0060A-PI	REACTOR RECIRCULATION/ Pressure Indicator	Nuclear Boiler System	Reactor	545.5	L-M/46-47

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-0263-0060B-PI	REACTOR RECIRCULATION/ Pressure Indicator	Nuclear Boiler System	Reactor	545.5	K/48-49
D03-0302-0019AV27	CRD/ Backup Scram Solenoid Valve	Control Rod Drive System	Reactor	517.5	L/48
D03-0302-0019BV27	CRD/ Backup Scram Solenoid Valve	Control Rod Drive System	Reactor	517.5	L/48
D03-0302-0020AV25	CRD/ Scram Dump Solenoid Valve	Control Rod Drive System	Reactor	517.5	L/48
D03-0302-0020BV27	CRD/ Scram Dump Solenoid Valve	Control Rod Drive System	Reactor	517.5	L/48
D03-0302-0082B-LS	CRD/ East Bank SDV Tank Level Switch	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0302-0082B-LT	CRD/ East Bank SDV Tank Level Transmitter	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0302-0082C-LS	CRD/ East Bank SDV Tank Level Switch	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0302-0082D-LS	CRD/ East Bank SDV Tank Level Switch	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0302-0082E-LS	CRD/ East Bank SDV Tank Level Switch	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0302-0082E-LT	CRD/ East Bank SDV Tank Level Transmitter	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0302-0082H-LS	CRD/ West Bank SDV Tank Level Switch	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0302-0082H-LT	CRD/ West Bank SDV Tank Level Transmitter	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0302-0082J-LS	CRD/ West Bank SDV Tank Level Switch	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0302-0082K-LS	CRD/ West Bank SDV Tank Level Switch	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0302-0082L-LS	CRD/ West Bank SDV Tank Level Switch	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0302-0082L-LT	CRD/ West Bank SDV Tank Level Transmitter	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-0302-0157AV05	CRD/ East Bank Scram Discharge Volume Drain Valve	Control Rod Drive System	Reactor	476.5	TORUS BAY 4
D03-0302-0157AV27	CRD/ East Bank Scram Discharge Volume Drain Sol. Valve	Control Rod Drive System	Reactor	476.5	TORUS BAY 4
D03-0302-0157BV05	CRD/ West Bank Scram Discharge Volume Drain Valve	Control Rod Drive System	Reactor	476.5	TORUS BAY 9
D03-0302-0157BV27	CRD/ West Bank Scram Discharge Volume Drain Sol. Valve	Control Rod Drive System	Reactor	476.5	TORUS BAY 9
D03-0302-0156AV05	CRD/ East Bank Scram Discharge Volume Drain Valve	Control Rod Drive System	Reactor	476.5	TORUS BAY 4
D03-0302-0156AV27	CRD/ East Bank Scram Discharge Volume Drain Sol. Valve	Control Rod Drive System	Reactor	476.5	TORUS BAY 4
D03-0302-0156BV05	CRD/ West Bank Scram Discharge Volume Drain Valve	Control Rod Drive System	Reactor	476.5	TORUS BAY 9
D03-0302-0156BV27	CRD/ West Bank Scram Discharge Volume Drain Sol. Valve	Control Rod Drive System	Reactor	476.5	TORUS BAY 9
D03-0302-0160AV05	CRD/ East Bank Scram Discharge Volume Vent Valve	Control Rod Drive System	Reactor	517.5	DRY GALL J/45
D03-0302-0160AV27	CRD/ East Bank Scram Discharge Volume Vent Sol. Valve	Control Rod Drive System	Reactor	517.5	DRY GALL J/45
D03-0302-0160BV05	CRD/ West Bank Scram Discharge Volume Vent Valve	Control Rod Drive System	Reactor	517.5	DRY GALL K/48
D03-0302-0160BV27	CRD/ West Bank Scram Discharge Volume Vent Sol. Valve	Control Rod Drive System	Reactor	517.5	DRY GALL K/48
D03-0302-0161AV05	CRD/ East Bank Scram Discharge Volume Vent Valve	Control Rod Drive System	Reactor	517.5	DRY GALL J/45

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-0302-0161AV27	CRD/ East Bank Scram Discharge Volume Vent Sol. Valve	Control Rod Drive System	Reactor	517.5	DRY GALL J/45
D03-0302-0161BV05	CRD/ West Bank Scram Discharge Volume Vent Valve	Control Rod Drive System	Reactor	517.5	DRY GALL K/48
D03-0302-0161BV27	CRD/ West Bank Scram Discharge Volume Vent Sol. Valve	Control Rod Drive System	Reactor	517.5	DRY GALL K/48
D03-0305-0010-0031-0125-A10	CRD/ Insertion Accumulator, West Bank, Row 8, Position 15 (C-8)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0010-0031-0126-V05	CRD/ Accumulator Insertion Scram Valve, West Bank, Row 8, Position 15 (C-8)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0010-0031-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, West Bank, Row 8, Position 15 (C-8)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0010-0031-H20	CRD/ Hydraulic Control Unit, West Bank, Row 8, Position 15 (C-8)	Control Rod Drive System	Reactor	517.5	J-K/44-45,49-50
D03-0305-0030-0043-0125-A10	CRD/ Insertion Accumulator, West Bank, Row 8, Position 4 (H-11)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0030-0043-0126-V05	CRD/ Accumulator Insertion Scram Valve, West Bank, Row 8, Position 4 (H-11)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0030-0043-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, West Bank, Row 8, Position 4 (H-11)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0030-0043-H20	CRD/ Hydraulic Control Unit, West Bank, Row 8, Position 4 (H-11)	Control Rod Drive System	Reactor	517.5	J-K/44-45,49-50

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-0305-0046-0031-0125-A10	CRD/ Insertion Accumulator, East Bank, Row 1, Position 16 (M-8)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0046-0031-0126-V05	CRD/ Accumulator Insertion Scram Valve, East Bank, Row 1, Position 16 (M-8)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0046-0031-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, East Bank, Row 1, Position 16 (M-8)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0046-0031-H20	CRD/ Hydraulic Control Unit, East Bank, Row 1, Position 16 (M-8)	Control Rod Drive System	Reactor	517.5	J-K/44-45,49-50
D03-0305-0058-0023-0125-A10	CRD/ Insertion Accumulator, East Bank, Row 1, Position 12 (R-6)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0058-0023-0126-V05	CRD/ Accumulator Insertion Scram Valve, East Bank, Row 1, Position 12 (R-6)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0058-0023-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, East Bank, Row 1, Position 12 (R-6)	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0058-0023-H20	CRD/ Hydraulic Control Unit, East Bank, Row 1, Position 12 (R-6)	Control Rod Drive System	Reactor	517.5	J-K/44-45,49-50
D03-0305-0117-V27	CRD/ Pilot Solenoid For HCU Scram Valves	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0118-V27	CRD/ Pilot Solenoid For HCU Scram Valves	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0120-V15	CRD/ Hydraulic Control Unit Withdraw Valve	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0121-V15	CRD/ Hydraulic Control Unit Insertion Valve	Control Rod Drive System	Reactor	517.5	In Hydraulic CU

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-0305-0122-V15	CRD/ Hydraulic Control Unit Withdraw Valve	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0123-V15	CRD/ Hydraulic Control Unit Insertion Valve	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0128-A10	CRD/ Insertion Accumulator	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0129--LS	CRD/ Insertion Accumulator Level Switch	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0130--PS	CRD/ Insertion Accumulator Pressure Switch	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0305-0131--PI	CRD/ Insertion Accumulator Pressure Indicator	Control Rod Drive System	Reactor	517.5	In Hydraulic CU
D03-0399-0524AV27	CRD/ Alternate Rod Insertion ATWS Solenoid Valve	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0399-0524BV27	CRD/ Alternate Rod Insertion ATWS Solenoid Valve	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0399-0548AV27	CRD/ Alternate Rod Insertion ATWS Solenoid Valve	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0399-0548BV27	CRD/ Alternate Rod Insertion ATWS Solenoid Valve	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0399-0549AV27	CRD/ Alternate Rod Insertion ATWS Solenoid Valve	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0399-0549BV27	CRD/ Alternate Rod Insertion ATWS Solenoid Valve	Control Rod Drive System	Reactor	517.5	J-L/44-45,49-50
D03-0409-A----T05	CRD/ East Bank Scram Discharge Volume Tank	Startup Equipment	Reactor	517.5	J-L/44-45,49-50
D03-0409-B----T05	CRD/ West Bank Scram Discharge Volume Tank	Startup Equipment	Reactor	517.5	J-L/44-45,49-50
D03-0645-A-----FT	MAIN STEAM/ Steam Flow Transmitter	Reactor Level Control System	Reactor	545.5	L-M/46-47
D03-0645-B-----FT	MAIN STEAM/ Steam Flow Transmitter	Reactor Level Control System	Reactor	545.5	L-M/46-47
D03-0645-C-----FT	MAIN STEAM/ Steam Flow Transmitter	Reactor Level Control System	Reactor	545.5	L-M/46-47

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-0645-D-----FT	MAIN STEAM/ Steam Flow Transmitter	Reactor Level Control System	Reactor	545.5	L-M/46-47
D03-0750-0001A-RY	NEUTRON MONITORING/ Source Range Monitor	Neutron Monitoring System	Turbine	534	G-H/31-32
D03-0750-0001B-RY	NEUTRON MONITORING/ Source Range Monitor	Neutron Monitoring System	Turbine	534	G-H/31-32
D03-0750-0001C-RY	NEUTRON MONITORING/ Source Range Monitor	Neutron Monitoring System	Turbine	534	G-H/31-32
D03-0750-0001D-RY	NEUTRON MONITORING/ Source Range Monitor	Neutron Monitoring System	Turbine	534	G-H/31-32
D03-0903-0003	CONTROL PANELS/ Control Panel 903-3	Control Room Panels	N/A	534	C. RM PNL 903-3
D03-0903-0004	CONTROL PANELS/ Control Panel 903-4	Control Room Panels	N/A	534	C. RM PNL 903-4
D03-0903-0005	CONTROL PANELS/ Control Panel 903-5	Control Room Panels	N/A	534	C. RM PNL 903-5
D03-0903-0008	Aux Electric Room Panel	Control Room Panels	N/A		
D03-0903-0015	CONTROL PANELS/ Control Panel 903-15	Control Room Panels	N/A	534	C. RM PL 903-15
D03-0903-0017	CONTROL PANELS/ Control Panel 903-17	Control Room Panels	N/A	534	C. RM PL 903-17
D03-0903-0019	CONTROL PANELS/ Control Panel 903-19	Control Room Panels	N/A	534	C. RM PL 903-19
D03-0903-0028	CONTROL PANELS/ Control Panel 903-28	Control Room Panels	Turbine	517.5	AEER PNL 903-28
D03-0903-0032	CONTROL PANELS/ Control Panel 903-32	Control Room Panels	Turbine	517.5	AEER PNL 903-32
D03-0903-0033	CONTROL PANELS/ Control Panel 903-33	Control Room Panels	Turbine	517.5	AEER PNL 903-33
D03-0903-0036	CONTROL PANELS/ Control Panel 903-36	Control Room Panels	N/A	534	C. RM PL 903-36
D03-0903-0039	CONTROL PANELS/ Control Panel 903-39	Control Room Panels	Turbine	517.5	AEER PNL 903-39

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-0903-0041	CONTROL PANELS/ Control Panel 903-41	Control Room Panels	Turbine	517.5	AEER PNL 903-41
D03-0903-0046	CONTROL PANELS/ Control Panel 903-46	Control Room Panels	Turbine	517.5	AEER PNL 903-46
D03-0903-0047	CONTROL PANELS/ Control Panel 903-47	Control Room Panels	Turbine	517.5	AEER PNL 903-47
D03-0903-0061	CONTROL PANELS/ Control Panel 903-61	Control Room Panels	Turbine	549	B RM2 E/31
D03-0903-0062	CONTROL PANELS/ Control Panel 903-62	Control Room Panels	Turbine	517.5	AEER PNL 903-62
D03-0923-0005	CONTROL PANELS/ Control Panel 923-5	Control Room Panels	N/A	534	C. RM PNL 923-5
D03-1001-0001AV20	SHUTDOWN COOLING/ Shut Down Pumps Injection Line Valve	Shutdown Cooling	Reactor	517.5	Drywell
D03-1001-0001BV20	SHUTDOWN COOLING/ Shut Down Pumps Injection Line Valve	Shutdown Cooling	Reactor	517.5	Drywell
D03-1001-0002AV20	SHUTDOWN COOLING/ Shut Down Pumps Suction Line Valve	Shutdown Cooling	Reactor	517.5	H-J/48-49
D03-1001-0002BV20	SHUTDOWN COOLING/ Shut Down Pumps Suction Line Valve	Shutdown Cooling	Reactor	517.5	H-J/48-49
D03-1001-0002CV20	SHUTDOWN COOLING/ Shut Down Pumps Suction Line Valve	Shutdown Cooling	Reactor	517.5	H-J/48-49
D03-1001-0005AV20	SHUTDOWN COOLING/ Injection Line Valve	Shutdown Cooling	Reactor	476.5	TORUS BAY K/45
D03-1001-0005BV20	SHUTDOWN COOLING/ Injection Line Valve	Shutdown Cooling	Reactor	476.5	K/44-45
D03-1201-0001AV20	REACTOR WATER CLEAN UP/ Pump Suction Bypass Line Valve	Reactor Water Cleanup System	Reactor	545.5	Drywell
D03-1201-0001-V20	REACTOR WATER CLEAN UP/ Aux Pump Suction Line Valve	Reactor Water Cleanup System	Reactor	537	DRYWELL
D03-1201-0002-V20	REACTOR WATER CLEAN UP/ Pump Suction Bypass Line Valve	Reactor Water Cleanup System	Reactor	545.5	RWCU PIPWY J/45
D03-1201-0003-V20	REACTOR WATER CLEAN UP/ Aux Pump Suction Line Valve	Reactor Water Cleanup System	Reactor	545.5	J-K/45-46

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-1301-0001-V20	ISOLATION CONDENSER/ Steam Line Isolation Valve	Isolation Condenser System	Reactor	576.58	DRYWELL
D03-1301-0002-V20	ISOLATION CONDENSER/ Steam Line Isolation Valve	Isolation Condenser System	Reactor	570	IC VLV RM L/46
D03-1301-0003-V20	ISOLATION CONDENSER/ Steam Return Line Isolation Valve	Isolation Condenser System	Reactor	545.5	M/47
D03-1301-0004-V20	ISOLATION CONDENSER/ Steam Return Line Isolation Valve	Isolation Condenser System	Reactor	537	DRYWELL
D03-1402-0003AV20	CORE SPRAY/ Pump Injection Line Valve	Core Spray System	Reactor	476.5	TORUS BSMT 1
D03-1402-0003BV20	CORE SPRAY/ Pump Injection Line Valve	Core Spray System	Reactor	476.5	TORUS BSMT 11
D03-1402-0004AV20	CORE SPRAY/ Pump Discharge Test Line Valve	Core Spray System	Reactor	476.5	TORUS BAY L/44
D03-1402-0004BV20	CORE SPRAY/ Pump Discharge Test Line Valve	Core Spray System	Reactor	476.5	TORSU BAY L/49
D03-1402-0024AV20	CORE SPRAY/ Pump Discharge Injection Line Valve	Core Spray System	Reactor	545.5	DRY GALL L/47
D03-1402-0024BV20	CORE SPRAY/ Pump Discharge Injection Line Valve	Core Spray System	Reactor	545.5	SHTC HX RM H/47
D03-1402-0025AV20	CORE SPRAY/ Pump Discharge Injection Line Valve	Core Spray System	Reactor	545.5	H-J/47-48
D03-1402-0025BV20	CORE SPRAY/ Pump Discharge Injection Line Valve	Core Spray System	Reactor	545.5	H-J/47-48
D03-1501-0003AV20	CCSW/ Heat Exchanger Outlet Service Water Line Valve	LPCI	Reactor	476.5	SE C.RM M/44
D03-1501-0003BV20	CCSW/ Heat Exchanger Outlet Service Water Line Valve	LPCI	Reactor	476.5	SW C.RM N/49
D03-1501-0005AV20	LPCI/ Suppression Pool Suction Line "A" Valve	LPCI	Reactor	476.5	SE C.RM N/45
D03-1501-0005BV20	LPCI/ Suppression Pool Suction Line "B" Valve	LPCI	Reactor	476.5	SE C.RM N/45
D03-1501-0005CV20	LPCI/ Suppression Pool Suction Line "C" Valve	LPCI	Reactor	476.5	SW C.RM N/49

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-1501-0005DV20	LPCI/ Suppression Pool Suction Line "D" Valve	LPCI	Reactor	476.5	SW C.RM N/49
D03-1501-0011AV20	LPCI/ LPCI Heat Exchanger Bypass Line Valve	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1501-0011BV20	LPCI/ LPCI Heat Exchanger Bypass Line Valve	LPCI	Reactor	476.5	SW C.RM M-N/49
D03-1501-0013AV20	LPCI/ LPCI Minimum Flow Bypass Line Valve	LPCI	Reactor	476.5	TORUS BAY 2
D03-1501-0013BV20	LPCI/ LPCI Minimum Flow Bypass Line Valve	LPCI	Reactor	476.5	TORUS BAY 10
D03-1501-0018AV20	LPCI/ Suppression Chamber Spray Line Valve	LPCI	Reactor	476.5	M/44-45
D03-1501-0018BV20	LPCI/ Suppression Chamber Spray Line Valve	LPCI	Reactor	476.5	M/50
D03-1501-0019AV20	LPCI/ Suppression Chamber Spray Line Valve	LPCI	Reactor	476.5	M/44-45
D03-1501-0019BV20	LPCI/ Suppression Chamber Spray Line Valve	LPCI	Reactor	476.5	M/50
D03-1501-0020AV20	LPCI/ Suppression Chamber Spray Line Valve	LPCI	Reactor	476.5	TORUS BAY 2
D03-1501-0020BV20	LPCI/ Suppression Chamber Spray Line Valve	LPCI	Reactor	476.5	TORUS BAY 10
D03-1501-0021AV20	LPCI/ LPCI Injection Line Valve	LPCI	Reactor	517.5	K/44-45
D03-1501-0021BV20	LPCI/ LPCI Injection Line Valve	LPCI	Reactor	517.5	K/50
D03-1501-0022AV20	LPCI/ LPCI Injection Line Valve	LPCI	Reactor	476.5	TORUS BAY 2
D03-1501-0022BV20	LPCI/ LPCI Injection Line Valve	LPCI	Reactor	476.5	TORUS BAY K/49
D03-1501-0027AV20	LPCI/ Drywell Spray Line Valve	LPCI	Reactor	545.5	L-M/47-48
D03-1501-0027BV20	LPCI/ Drywell Spray Line Valve	LPCI	Reactor	517.5	M/48
D03-1501-0028AV20	LPCI/ Drywell Spray Line Valve	LPCI	Reactor	545.5	L-M/47-48
D03-1501-0028BV20	LPCI/ Drywell Spray Line Valve	LPCI	Reactor	517.5	M/48
D03-1501-0032AV20	LPCI/ LPCI Header Crosstie Line Valve	LPCI	Reactor	476.5	SE C.RM N/45
D03-1501-0032BV20	LPCI/ LPCI Header Crosstie Line Valve	LPCI	Reactor	476.5	SW C.RM N/49

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-1501-0038AV20	LPCI/ Suppression Chamber Spray Line Valve	LPCI	Reactor	476.5	TORUS BAY 2
D03-1501-0038BV20	LPCI/ Suppression Chamber Spray Line Valve	LPCI	Reactor	476.5	TORUS BAY 10
D03-1501-0044AP30	CCSW/ CCSW Pump "A"	LPCI	Turbine	495	D/49
D03-1501-0044BP30	CCSW/ CCSW Pump "B"	LPCI	Turbine	495	VAULT RM D/50
D03-1501-0044CP30	CCSW/ CCSW Pump "C"	LPCI	Turbine	495	VAULT RM D/50
D03-1501-0044DP30	CCSW/ CCSW Pump "D"	LPCI	Turbine	495	D/52
D03-1501-0045D-PI	LPCI/ LPCI Pump Suction Line "D" Pressure Indicator	LPCI	Reactor	476.5	SW C.RM N/49
D03-1501-0047A-PI	LPCI/ LPCI Pump Suction Line "A" Pressure Indicator	LPCI	Reactor	476.5	SE C.RM N/45
D03-1501-0047B-PI	LPCI/ LPCI Pump Suction Line "B" Pressure Indicator	LPCI	Reactor	476.5	SE C.RM N/45
D03-1501-0047C-PI	LPCI/ LPCI Pump Suction Line "C" Pressure Indicator	LPCI	Reactor	476.5	SW C.RM N/49
D03-1501-0048A-PI	LPCI/ LPCI Pump Discharge Line "A" Pressure Indicator	LPCI	Reactor	476.5	SE C.RM N/45
D03-1501-0048B-PI	LPCI/ LPCI Pump Discharge Line "B" Pressure Indicator	LPCI	Reactor	476.5	SE C.RM N/45
D03-1501-0048C-PI	LPCI/ LPCI Pump Discharge Line "C" Pressure Indicator	LPCI	Reactor	476.5	SW C.RM N/49
D03-1501-0048D-PI	LPCI/ LPCI Pump Discharge Line "D" Pressure Indicator	LPCI	Reactor	476.5	SW C.RM N/49
D03-1501-0051A-PS	LPCI/ LPCI Header Line Pressure Switch	LPCI	Reactor	476.5	M-N/44-45
D03-1501-0051B-PS	LPCI/ LPCI Header Line Pressure Switch	LPCI	Reactor	476.5	N/49
D03-1501-0053AFSL	LPCI/ LPCI Injection Line Flow Switch Low	LPCI	Reactor	476.5	K/44-45
D03-1501-0053BFSL	LPCI/ LPCI Injection Line Flow Switch Low	LPCI	Reactor	476.5	K/50
D03-1501-0058A-FT	LPCI/ LPCI Header Line Flow Transmitter	LPCI	Reactor	476.5	M-N/44-45

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-1501-0058B-FT	LPCI/ LPCI Header Line Flow Transmitter	LPCI	Reactor	476.5	N/49
D03-1501-0059A1PT	CCSW/ CCSW Pump "A" Discharge Pressure Transmitter	LPCI	Turbine	495	D/49
D03-1501-0059A-PI	CCSW/ CCSW Pump "A" Discharge Pressure Indicator	LPCI	Turbine	495	D/49
D03-1501-0059B1PT	CCSW/ CCSW Pump "B" Discharge Pressure Transmitter	LPCI	Turbine	495	D/50
D03-1501-0059B-PI	CCSW/ CCSW Pump "B" Discharge Pressure Indicator	LPCI	Turbine	495	D/50
D03-1501-0059C1PT	CCSW/ CCSW Pump "C" Discharge Pressure Transmitter	LPCI	Turbine	495	D/50-51
D03-1501-0059C-PI	CCSW/ CCSW Pump "C" Discharge Pressure Indicator	LPCI	Turbine	495	D/50-51
D03-1501-0059D1PT	CCSW/ CCSW Pump "D" Discharge Pressure Transmitter	LPCI	Turbine	495	D/51-52
D03-1501-0059D-PI	CCSW/ CCSW Pump "D" Discharge Pressure Indicator	LPCI	Turbine	495	D/51-52
D03-1501-0092AFIS	LPCI/ LPCI Header Line Flow Indicating Switch	LPCI	Reactor	476.5	M-N/44-45
D03-1501-0092BFIS	LPCI/ LPCI Header Line Flow Indicating Switch	LPCI	Reactor	476.5	N/49
D03-1501-090A-PDS	LPCI/ Heat Exchanger Differential Pressure Switch	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1501-090B-PDS	LPCI/ Heat Exchanger Differential Pressure Switch	LPCI	Reactor	476.5	SW C.RM M-N/49
D03-1501-LDSH	LPCI/ Lower Drywell Spray Header	LPCI	Reactor	515.5	DRYWELL
D03-1501-SCSH	LPCI/ Sippression Chamber Spray Header	LPCI	Reactor	476.5	INSIDE TORUS
D03-1501-UDSH	LPCI/ Upper Drywell Spray Header	LPCI	Reactor	537	DRYWELL
D03-1502-A----P30	LPCI/ LPCI Injection Pump "A"	LPCI	Reactor	476.5	SE C.RM N/45
D03-1502-B----P30	LPCI/ LPCI Injection Pump "B"	LPCI	Reactor	476.5	SE C.RM N/45

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-1502-C----P30	LPCI/ LPCI Injection Pump "C"	LPCI	Reactor	476.5	SW C.RM N/49
D03-1502-D----P30	LPCI/ LPCI Injection Pump "D"	LPCI	Reactor	476.5	SW C.RM N/49
D03-1503-A----H15	LPCI/ LPCI Heat Exchanger	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1503-B----H15	LPCI/ LPCI Heat Exchanger	LPCI	Reactor	476.5	SW C.RM M-N/49
D03-1540-0005--TR	LPCI/ Heat Exchanger Temperature Recorder	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1540-0006A-ZC	LPCI/ Heat Exchanger Differential Pressure Modulator	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1540-0006B-ZC	LPCI/ Heat Exchanger Differential Pressure Modulator	LPCI	Reactor	476.5	SW C.RM M-N/49
D03-1540-0007--FR	LPCI/ LPCI Header Line Flow Recorder	LPCI	Reactor	476.5	M-N/44-45
D03-1540-0012AFIS	LPCI/ LPCI Injection Line Flow Indicating Switch	LPCI	Reactor	476.5	K/44-45
D03-1540-0012BFIS	LPCI/ LPCI Injection Line Flow Indicating Switch	LPCI	Reactor	476.5	K/50
D03-1540-0013A-SI	LPCI/ LPCI Injection Line Flow Summer	LPCI	Reactor	476.5	K/44-45
D03-1540-0013B-SI	LPCI/ LPCI Injection Line Flow Summer	LPCI	Reactor	476.5	K/50
D03-1540-003ADPIC	LPCI/ Heat Exchanger Differential Pressure Controller	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1540-003BDPIC	LPCI/ Heat Exchanger Differential Pressure Controller	LPCI	Reactor	476.5	SW C.RM M-N/49
D03-1541-----A-FE	CCSW/ CCSW Pump "A" and "B" Discharge Flow Element	LPCI	Reactor	476.5	M-N/44-45
D03-1541-----B-FE	CCSW/ CCSW Pump "C" and "D" Discharge Flow Element	LPCI	Reactor	476.5	N/49
D03-1543-A----PDT	LPCI/ Heat Exchanger Differential Pressure Transmitter	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1543-B----PDT	LPCI/ Heat Exchanger Differential Pressure Transmitter	LPCI	Reactor	476.5	SW C.RM M-N/49
D03-1545-----A-TE	CCSW/ CCSW Heat Exchanger Outlet Temperature Element	LPCI	Reactor	476.5	SW C.RM M/44

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-1545-----B-TE	CCSW/ CCSW Heat Exchanger Outlet Temperature Element	LPCI	Reactor	476.5	SW C.RM N/49
D03-1546-A1----TE	LPCI/ Heat Exchanger Inlet Line Temperature Element	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1546-A-----TE	LPCI/ Heat Exchanger Inlet Line Temperature Element	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1546-B1----TE	LPCI/ Heat Exchanger Inlet Line Temperature Element	LPCI	Reactor	476.5	SW C.RM M-N/49
D03-1546-B-----TE	LPCI/ Heat Exchanger Inlet Line Temperature Element	LPCI	Reactor	476.5	SW C.RM M-N/49
D03-1547-A1----TE	LPCI/ Heat Exchanger Outlet Line Temperature Element	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1547-A-----TE	LPCI/ Heat Exchanger Outlet Line Temperature Element	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1547-B1----TE	LPCI/ Heat Exchanger Outlet Line Temperature Element	LPCI	Reactor	476.5	SW C.RM M-N/49
D03-1547-B-----TE	LPCI/ Heat Exchanger Outlet Line Temperature Element	LPCI	Reactor	476.5	SW C.RM M-N/49
D03-1548-A-----FE	LPCI/ LPCI Header Line Flow Element	LPCI	Reactor	476.5	M-N/44-45
D03-1548-B-----FE	LPCI/ LPCI Header Line Flow Element	LPCI	Reactor	476.5	N/49
D03-1549-A-----FT	LPCI/ LPCI Header Line Flow Transmitter	LPCI	Reactor	476.5	M-N/44-45
D03-1549-B-----FT	LPCI/ LPCI Header Line Flow Transmitter	LPCI	Reactor	476.5	N/49
D03-1550-A-----FE	LPCI/ LPCI Injection Line Flow Element	LPCI	Reactor	476.5	K/44-45
D03-1550-B-----FE	LPCI/ LPCI Injection Line Flow Element	LPCI	Reactor	476.5	K/50
D03-1551-A-----FT	LPCI/ LPCI Injection Line Flow Transmitter	LPCI	Reactor	476.5	K/44-45
D03-1551-B-----FT	LPCI/ LPCI Injection Line Flow Transmitter	LPCI	Reactor	476.5	K/50

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-1551-C-----FT	LPCI/ LPCI Injection Line Flow Transmitter	LPCI	Reactor	476.5	K/44-45
D03-1551-D-----FT	LPCI/ LPCI Injection Line Flow Transmitter	LPCI	Reactor	476.5	K/50
D03-1552-A1----TE	CCSW/ CCSW Heat Exchanger Inlet Temperature Element	LPCI	Reactor	476.5	SW C.RM M/44
D03-1552-A-----TE	CCSW/ CCSW Heat Exchanger Inlet Temperature Element	LPCI	Reactor	476.5	SW C.RM M/44
D03-1552-B1----TE	CCSW/ CCSW Heat Exchanger Inlet Temperature Element	LPCI	Reactor	476.5	SW C.RM N/49
D03-1552-B-----TE	CCSW/ CCSW Heat Exchanger Inlet Temperature Element	LPCI	Reactor	476.5	SW C.RM N/49
D03-1554-A-----PS	LPCI/ LPCI Pump Discharge Line "A" Pressure Switch	LPCI	Reactor	476.5	SE C.RM M/45
D03-1554-B-----PS	LPCI/ LPCI Pump Discharge Line "B" Pressure Switch	LPCI	Reactor	476.5	SE C.RM M/45
D03-1554-C-----PS	LPCI/ LPCI Pump Discharge Line "C" Pressure Switch	LPCI	Reactor	476.5	SW C.RM M/49
D03-1554-D-----PS	LPCI/ LPCI Pump Discharge Line "D" Pressure Switch	LPCI	Reactor	476.5	SW C.RM M/49
D03-1554-E-----PS	LPCI/ LPCI Pump Discharge Line "A" Pressure Switch	LPCI	Reactor	476.5	SE C.RM M/45
D03-1554-F-----PS	LPCI/ LPCI Pump Discharge Line "B" Pressure Switch	LPCI	Reactor	476.5	SE C.RM M/45
D03-1554-H-----PS	LPCI/ LPCI Pump Discharge Line "C" Pressure Switch	LPCI	Reactor	476.5	SW C.RM M/49
D03-1554-J-----PS	LPCI/ LPCI Pump Discharge Line "D" Pressure Switch	LPCI	Reactor	476.5	SW C.RM M/49
D03-1555-A-----FY	LPCI/ Heat Exchanger Differential Pressure Converter	LPCI	Reactor	476.5	SE C.RM M-N/44
D03-1555-B-----FY	LPCI/ Heat Exchanger Differential Pressure Converter	LPCI	Reactor	476.5	SW C.RM M-N/49
D03-1556-----A-FT	CCSW/ CCSW Pump "A" and "B" Discharge Flow Tranmitter	LPCI	Reactor	476.5	M-N/44-45

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-1556-----B-FT	CCSW/ CCSW Pump "C" and "D" Discharge Flow Tranmitter	LPCI	Reactor	476.5	N/49
D03-1556-----C-FT	CCSW/ CCSW Pump "A" and "B" Discharge Flow Tranmitter	LPCI	Reactor	476.5	M-N/44-45
D03-1556-----D-FT	CCSW/ CCSW Pump "C" and "D" Discharge Flow Tranmitter	LPCI	Reactor	476.5	N/49
D03-1557-A----PSL	LPCI/ LPCI Header Line Pressure Switch	LPCI	Reactor	476.5	M-N/44-45
D03-1557-B----PSL	LPCI/ LPCI Header Line Pressure Switch	LPCI	Reactor	476.5	N/49
D03-1558-----A-FY	CCSW/ CCSW Pump "A" and "B" Discharge Flow Converter	LPCI	Reactor	476.5	M-N/44-45
D03-1558-----B-FY	CCSW/ CCSW Pump "C" and "D" Discharge Flow Converter	LPCI	Reactor	476.5	N/49
D03-1558-----C-FY	CCSW/ CCSW Pump "A" and "B" Discharge Flow Converter	LPCI	Reactor	476.5	M-N/44-45
D03-1558-----D-FY	CCSW/ CCSW Pump "C" and "D" Discharge Flow Converter	LPCI	Reactor	476.5	N/49
D03-1559-A-----FY	LPCI/ LPCI Injection Line Flow Converter	LPCI	Reactor	476.5	K/44-45
D03-1559-B-----FY	LPCI/ LPCI Injection Line Flow Converter	LPCI	Reactor	476.5	K/50
D03-1559-C-----FY	LPCI/ LPCI Injection Line Flow Converter	LPCI	Reactor	476.5	K/44-45
D03-1559-D-----FY	LPCI/ LPCI Injection Line Flow Converter	LPCI	Reactor	476.5	K/50
D03-1560-----A-FI	CCSW/ CCSW Pump "A" and "B" Discharge Flow Indicator	LPCI	Reactor	476.5	M-N/44-45
D03-1560-----B-FI	CCSW/ CCSW Pump "C" and "D" Discharge Flow Indicator	LPCI	Reactor	476.5	N/49
D03-1561-A-----FI	LPCI/ LPCI Injection Line Flow Indicator	LPCI	Reactor	476.5	K/44-45
D03-1561-B-----FI	LPCI/ LPCI Injection Lije Flou Indicator	LPCI	Reactor	476.5	K/50

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-1599-0002BV15	LPCI/ LPCI Injection Line Drain Valve	LPCI	Reactor	476.5	K/45
D03-1599-0013AV26	LPCI/ Suppression Pool Suction Line "A" Relief Valve	LPCI	Reactor	476.5	SE C.RM N/45
D03-1599-0013BV26	LPCI/ Suppression Pool Suction Line "B" Relief Valve	LPCI	Reactor	476.5	SE C.RM N/45
D03-1599-0013CV26	LPCI/ Suppression Pool Suction Line "C" Relief Valve	LPCI	Reactor	476.5	SW C.RM N/49
D03-1599-0013DV26	LPCI/ Suppression Pool Suction Line "D" Relief Valve	LPCI	Reactor	476.5	SW C.RM N/49
D03-1601-0021-V05	PRESSURE SUPPRESSION/ Drywell Purge Line Valve	Drywell Containment	Reactor	476.5	TORUS BAY 4
D03-1601-0021-V27	PRESSURE SUPPRESSION/ Drywell Purge Line Solenoid Valve	Drywell Containment	Reactor	476.5	TORUS BAY 4
D03-1601-0022-V05	PRESSURE SUPPRESSION/ Drywell/Torus Purge Line Valve	Drywell Containment	Reactor	476.5	TORUS BAY 4
D03-1601-0022-V27	PRESSURE SUPPRESSION/ Drywell/Torus Purge Solen. Valve	Drywell Containment	Reactor	476.5	TORUS BAY 4
D03-1601-0023-V05	PRESSURE SUPPRESSION/ Drywell Ventiliation Line Valve	Drywell Containment	Reactor	570	FPC RM L/47-48
D03-1601-0023-V27	PRESSURE SUPPRESSION/ Drywell Vent. Solenoid Valve	Drywell Containment	Reactor	570	FPC RM L/47-48
D03-1601-0024-V05	PRESSURE SUPPRESSION/ Drywell and Torus Vent Valve	Drywell Containment	Reactor	570	J-K/46
D03-1601-0024-V27	PRESSURE SUPPRESSION/ Drywell/Torus Solenoid Valve	Drywell Containment	Reactor	570	J-K/46
D03-1601-0055-V05	PRESSURE SUPPRESSION/ Drywell Purge Inerting Line Valve	Drywell Containment	Reactor	476.5	TORUS BAY 4
D03-1601-0055-V27	PRESSURE SUPPRESSION/ Drywell Purge Inert. Solen. Valve	Drywell Containment	Reactor	476.5	TORUS BAY 4
D03-1601-0056-V05	PRESSURE SUPPRESSION/ Torus Purge and Inert Line Valve	Drywell Containment	Reactor	476.5	TORUS BAY 2

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-1601-0056-V27	PRESSURE SUPPRESSION/ Torus Purge/Inert Solenoid Valve	Drywell Containment	Reactor	476.5	TORUS BAY 2
D03-1601-0057-V20	PRESSURE SUPPRESSION/ Drywell/Torus Nitr. Makeup Valve	Drywell Containment	Reactor	476.5	TORUS BAY 3
D03-1601-0058-V05	PRESSURE SUPPRESSION/ Torus Nitrogen Makeup Line Valve	Drywell Containment	Reactor	476.5	TORUS BAY 3
D03-1601-0058-V27	PRESSURE SUPPRESSION/ Torus Nitrogen Make. Solen. Valve	Drywell Containment	Reactor	476.5	TORUS BAY 3
D03-1601-0059-V05	PRESSURE SUPPRESSION/ Drywell Nitr. Makeup Line Valve	Drywell Containment	Reactor	476.5	TORUS BAY 3
D03-1601-0059-V27	PRESSURE SUPPRESSION/ Drywell Nitr. Makeup Solen. Valve	Drywell Containment	Reactor	476.5	TORUS BAY 3
D03-1601-0060-V05	PRESSURE SUPPRESSION/ Torus Ventilation Line Valve	Drywell Containment	Reactor	476.5	TORUS BAY 10
D03-1601-0060-V27	PRESSURE SUPPRESSION/ Torus Vent. Solenoid Valve	Drywell Containment	Reactor	476.5	TORUS BAY 10
D03-1601-0061-V05	PRESSURE SUPPRESSION/ Torus Ventilation Line Valve	Drywell Containment	Reactor	476.5	TORUS BAY 10
D03-1601-0061-V27	PRESSURE SUPPRESSION/ Torus Vent. Solenoid Valve	Drywell Containment	Reactor	476.5	TORUS BAY 10
D03-1601-0062-V05	PRESSURE SUPPRESSION/ Drywell Ventilation Line Valve	Drywell Containment	Reactor	570	FPC RM L/47-48
D03-1601-0062-V27	PRESSURE SUPPRESSION/ Drywell Vent. Solenoid Valve	Drywell Containment	Reactor	570	FPC RM L/47-48
D03-1601-0063-V05	PRESSURE SUPPRESSION/ Containment to SBGT Line Valve	Drywell Containment	Reactor	570	RWCU DEMIN J/45
D03-1601-0063-V27	PRESSURE SUPPRESSION/ Containment to SBGT Solen. Valve	Drywell Containment	Reactor	570	RWCU DEMIN J/45
D03-2001-0005-V05	RB EQUIPMENT DRAIN/ Drywell Equipment Drain Line Valve	Radwaste / Spent Fuel Pool	Reactor	476.5	TORUS BAY 4

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-2001-0005-V27	RB EQUIPMENT DRAIN/ Drywell Equipment Solenoid Valve	Radwaste / Spent Fuel Pool	Reactor	476.5	TORUS BAY 4
D03-2001-0006-V05	RB EQUIPMENT DRAIN/ Drywell Equipment Drain Line Valve	Radwaste / Spent Fuel Pool	Reactor	476.5	TORUS BAY 4
D03-2001-0006-V27	RB EQUIPMENT DRAIN/ Drywell Equipment Solenoid Valve	Radwaste / Spent Fuel Pool	Reactor	476.5	TORUS BAY 4
D03-2001-0105-V05	RB EQUIPMENT DRAIN/ Drywell Floor Drain Line Valve	Radwaste / Spent Fuel Pool	Reactor	476.5	TORUS BAY 14
D03-2001-0105-V27	RB EQUIPMENT DRAIN/ Drywell Floor Drain Solenoid Valve	Radwaste / Spent Fuel Pool	Reactor	476.5	TORUS BAY 14
D03-2001-0106-V05	RB EQUIPMENT DRAIN/ Drywell Floor Drain Line Valve	Radwaste / Spent Fuel Pool	Reactor	476.5	TORUS BAY 14
D03-2001-0106-V27	RB EQUIPMENT DRAIN/ Drywell Floor Drain Solenoid Valve	Radwaste / Spent Fuel Pool	Reactor	476.5	TORUS BAY 14
D03-2203-0005	INSTRUMENT RACKS/ Instrument Rack 2203-5	Local Panels & Racks (Radwaste)	Reactor	545.5	M/47
D03-2203-0006	INSTRUMENT RACKS/ Instrument Rack 2203-6	Local Panels & Racks (Radwaste)	Reactor	545.5	K/49
D03-2203-0007	INSTRUMENT RACKS/ Instrument Rack 2203-7	Local Panels & Racks (Radwaste)	Reactor	517.5	K/45
D03-2203-0008	INSTRUMENT RACKS/ Instrument Rack 2203-8	Local Panels & Racks (Radwaste)	Reactor	517.5	K/49
D03-2203-0029	INSTRUMENT RACKS/ Instrument Rack 2203-29	Local Panels & Racks (Radwaste)	Reactor	476.5	SE C.RM N/46
D03-2203-0032	INSTRUMENT RACKS/ Instrument Rack 2203-32	Local Panels & Racks (Radwaste)	Reactor	545.5	L/46
D03-2203-0036	INSTRUMENT RACKS/ Instrument Rack 2203-36	Local Panels & Racks (Radwaste)	Reactor	476.5	SW C.RM M/49
D03-2203-0070A	INSTRUMENT RACKS/ Instrument Rack 2203-70A	Local Panels & Racks (Radwaste)	Turbine	517.5	AEER 2203-70A
D03-2203-0070B	INSTRUMENT RACKS/ Instrument Rack 2203-70B	Local Panels & Racks (Radwaste)	Turbine	517.5	AEER 2203-70B
D03-2203-0073A	INSTRUMENT RACKS/ Instrument Rack 2203-73A	Local Panels & Racks (Radwaste)	Turbine	538	H/35

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-2203-0073B	INSTRUMENT RACKS/ Instrument Rack 2203-73B	Local Panels & Racks (Radwaste)	Turbine	538	H/35
D03-2203-0075	INSTRUMENT RACKS/ Instrument Rack 2203-75	Local Panels & Racks (Radwaste)	Reactor	517.5	TIP RM3 H/45
D03-2253-0010	CONTROL PANEL/ DG Metering and Relay Cabinet	Local Panels & Racks (Radwaste)	Turbine	517.5	DG RM3 G-H/55
D03-2253-0021	CONTROL PANEL/ DG Excitation Cabinet	Local Panels & Racks (Radwaste)	Turbine	517.5	DG RM3 G-H/55
D03-2253-0083	INSTRUMENT RACKS/ Instrument Rack 2253-83	Local Panels & Racks (Radwaste)	Reactor	545.5	N/47
D03-2253-0084	INSTRUMENT RACKS/ Instrument Rack 2253-84	Local Panels & Racks (Radwaste)	Reactor	545.5	N/48
D03-2300-LLAS-1	Gland Seal Condenser Hotwell Level Alarm Switch	HPCI	Reactor	476.5	
D03-2300-LLAS-2	Gland Seal Condenser Hotwell Level Alarm Switch	HPCI	Reactor	476.5	
D03-2301-0003-V20	HPCI/ Turbine Steam Line Valve	HPCI	Reactor	476.5	HP RM3 N/46
D03-2301-0004-V20	HPCI/ Turbine Steam Line Valve	HPCI	Reactor	576.58	DRYWELL
D03-2301-0005-V20	HPCI/ Turbine Steam Line Valve	HPCI	Reactor	476.5	TORUS BAY 2
D03-2301-0006-V20	HPCI/ Condensate Tank Supply to HPCI Pump Valve	HPCI	Reactor	476.5	HP RM3 N/46
D03-2301-0008-V20	HPCI/ HPCI Pump Injection Line Valve	HPCI	Turbine	517.5	X AREA G/46
D03-2301-0009-V20	HPCI/ HPCI Pump Injection Line Valve	HPCI	Reactor	476.5	HP RM3 N/45
D03-2301-0010-V20	HPCI/ Condensate Storage Tank Return Line Valve	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2301-0014-V20	HPCI/ HPCI Pump Test Line Valve	HPCI	Reactor	476.5	HP RM3 N/46
D03-2301-0035-V20	HPCI/ Suppression Pool Suction Line Valve	HPCI	Reactor	476.5	HP RM3 N/46
D03-2301-0036-V20	HPCI/ Suppression Pool Suction Line Valve	HPCI	Reactor	476.5	TORUS BSMT 15

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-2301-0048-V20	HPCI/ HPCI Pump Condensate Return Line Valve	HPCI	Reactor	476.5	HP RM3 N/46
D03-2301-0049-V20	HPCI/ HPCI Pump Condensate Return Line Valve	HPCI	Reactor	476.5	HP RM3 N/46
D03-2301-0057-P30	HPCI/ HPCI Turbine Cooling Water Pump	HPCI	Reactor	476.5	HP RM3 N/46
D03-2301-CONDPP	HPCI/ Condenser Hotwell Condensate Pump	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2301-PS4---PS	HPCI/ Emergency Bearing Oil Pump Pressure Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2301------T20	HPCI/ HPCI Turbine	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2302------P30	HPCI/ HPCI Pump	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2320-GSCE-F05	HPCI/ Gland Seal Condenser Exhaust Fan	HPCI	Reactor	476.5	HP RM3 N/46
D03-2320-GSC--H15	HPCI/ Gland Seal Condenser	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2320-GSEF-F05	HPCI/ Gland Seal Condenser Exhaust Fan	HPCI	Reactor	476.5	HP RM3 N/46
D03-2340-0001-FIC	HPCI/ HPCI Pump Discharge Flow Controller	HPCI	Reactor	476.5	HP RM3 N/46
D03-2340-0002--PI	HPCI/ HPCI Pump Discharge Pressure Indicator	HPCI	Reactor	476.5	HP RM3 N/46
D03-2340-0004--PI	HPCI/ Turbine Steam Line Pressure Indicator	HPCI	Reactor	476.5	HP RM3 N/46
D03-2340-0005--PI	HPCI/ Turbine Exhaust Line Pressure Indicator	HPCI	Reactor	476.5	TORUS BAY M/46
D03-2340-0007--PI	HPCI/ HPCI Pump Inlet Pressure Indicator	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2341-0003--TE	HPCI/ HPCI Pump Injection Line Temperature Element	HPCI	Turbine	517.5	G-H/47
D03-2351-A-----LS	HPCI/ Torus Water Level Switch	HPCI	Reactor	476.5	SW C.RM M/49
D03-2351-B-----LS	HPCI/ Torus Water Level Switch	HPCI	Reactor	476.5	SW C.RM M/49
D03-2354-------FS	HPCI/ HPCI Pump Discharge Flow Switch	HPCI	Reactor	476.5	HP RM3 N/46

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-2356-------FE	HPCI/ HPCI Pump Discharge Line Flow Element	HPCI	Reactor	476.5	HP RM3 N/46
D03-2357-------PI	HPCI/ HPCI Pump Discharge Line Pressure Indicator	HPCI	Reactor	476.5	HP RM3 N/46
D03-2358-------FT	HPCI/ HPCI Pump Discharge Flow Transmitter	HPCI	Reactor	476.5	HP RM3 N/46
D03-2359-------PT	HPCI/ HPCI Pump Discharge Pressure Transmitter	HPCI	Reactor	476.5	HP RM3 N/46
D03-2360-------PS	HPCI/ HPCI Pump Inlet Pressure Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2363-------PI	HPCI/ Turbine Steam Line Pressure Indicator	HPCI	Reactor	476.5	HP RM3 N/46
D03-2364-------PT	HPCI/ Turbine Steam Line Pressure Transmitter	HPCI	Reactor	476.5	HP RM3 N/46
D03-2365------LSH	HPCI/ Turbine Steam Drain Line Level Switch High	HPCI	Reactor	476.5	HP RM3 N/46
D03-2366-------PT	HPCI/ Turbine Exhaust Line Pressure Transmitter	HPCI	Reactor	476.5	TORUS BAY M/46
D03-2367-------PI	HPCI/ Turbine Exhaust Line Pressure Indicator	HPCI	Reactor	476.5	TORUS BAY M/46
D03-2368-A-----PS	HPCI/ Turbine Exhaust Line Pressure Switch	HPCI	Reactor	476.5	TORUS BAY M/46
D03-2368-B-----PS	HPCI/ Turbine Exhaust Line Pressure Switch	HPCI	Reactor	476.5	TORUS BAY M/46
D03-2369------LSH	HPCI/ Turbine Exhaust Drain Line Level Switch High	HPCI	Reactor	476.5	HP RM3 N/46
D03-2370-A-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2370-B-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2370-C-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2370-D-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-2371-A-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2371-B-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2371-C-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2371-D-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2372-A-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2372-B-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2372-C-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2372-D-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2373-A-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2373-B-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2373-C-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2373-D-----TS	HPCI/ Steam Leak Detection Temperature Switch	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2380------PSH	HPCI/ HPCI Turbine Pressure Switch High	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2381-------PI	HPCI/ HPCI Pump Inlet Local Pressure Indicator	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2382-------PT	HPCI/ HPCI Pump Inlet Pressure Transmitter	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2392-0001--PI	HPCI/ Hotwell Pump Discharge Line Pressure Indicator	HPCI	Reactor	476.5	HP RM3 N/46-47
D03-2399-79	HPCI Gland Seal Flow Regulating Valve	HPCI	Reactor	476.5	

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-3701-A----P30	RBCCW/ Cooling Water Pump	Rx Bldg Closed Cooling Water	Reactor	545.5	M/48-49
D03-3701-B----P30	RBCCW/ Cooling Water Pump	Rx Bldg Closed Cooling Water	Reactor	545.5	M/48-49
D03-3702-A----H15	RBCCW/ Cooling Water Heat Exchanger	Rx Bldg Closed Cooling Water	Reactor	545.5	M-N/49-50
D03-3702-B----H15	RBCCW/ Cooling Water Heat Exchanger	Rx Bldg Closed Cooling Water	Reactor	545.5	M-N/49-50
D03-3702------V20	RBCCW/ Drywell Coolers Inlet Header Line Valve	Rx Bldg Closed Cooling Water	Reactor	545.5	L-M/48
D03-3703------V20	RBCCW/ Drywell Coolers Outlet Header Line Valve	Rx Bldg Closed Cooling Water	Reactor	545.5	L/49
D03-3704------V20	RBCCW/ Tie to Shutdown Heat Exchangers Line Valve	Rx Bldg Closed Cooling Water	Reactor	545.5	J/49
D03-3706------V20	RBCCW/ Drywell Coolers Outlet Header Line Valve	Rx Bldg Closed Cooling Water	Reactor	545.5	Drywell
D03-3901-A----P30	SERVICE WATER/ Service Water Cooling Pump	Service Water System	C. House	490.67	B-C/4-5
D03-3901-B----P30	SERVICE WATER/ Service Water Cooling Pump	Service Water System	C. House	490.67	B-C/5-6
D03-3902------S22	SERVICE WATER/ Cooling Pump Strainer	Service Water System	C. House	490.67	A-B/4-5
D03-3903------P30	SERVICE WATER/ Diesel Generator Cooling Water Pump	Service Water System	C. House	490.67	A/5
D03-4600-B----T05	DIESEL GENERATOR/ Primary Gas Air Receiver Unit "A1"	Service Air System	Turbine	517.5	DG RM3 G-H/55
D03-4600-C----T05	DIESEL GENERATOR/ Primary Gas Air Receiver Unit "A2"	Service Air System	Turbine	517.5	DG RM3 G-H/55
D03-4600-G----T05	DIESEL GENERATOR/ Primary Gas Air Receiver Unit "B1"	Service Air System	Turbine	517.5	DG RM3 G-H/55
D03-4600-H----T05	DIESEL GENERATOR/ Primary Gas Air Receiver Unit "B2"	Service Air System	Turbine	517.5	DG RM3 G-H/55
D03-4720------V05	INSTRUMENT AIR/ Drywell Pneumatic Supply Valve	Instument Air	Reactor	517.5	DRY GALL J/45

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-4720------V27	INSTRUMENT AIR/ Drywell Pneumatic Supply Solenoid Valve	Instument Air	Reactor	517.5	DRY GALL J/45
D03-4721------V05	INSTRUMENT AIR/ Drywell Pneumatic Supply Valve	Instument Air	Reactor	517.5	DRY GALL J/45
D03-4721------V27	INSTRUMENT AIR/ Drywell Pneumatic Supply Solenoid Valve	Instument Air	Reactor	517.5	DRY GALL J/45
D03-4741-0011-V27	INSTRUMENT AIR/ Drywell Pneumatic Supply Solenoid Valve	Instument Air	Reactor	517.5	DRY GALL J/45
D03-4741-0012-V27	INSTRUMENT AIR/ Drywell Pneumatic Supply Solenoid Valve	Instument Air	Reactor	517.5	DRY GALL J/45
D03-4798-A----A10	INSTRUMENT AIR/ Target Rock Accumulator	Instument Air	Reactor	537	DRYWELL
D03-5201------T05	DIESEL GENERATOR/ Diesel Fuel Oil Storage Tank	Diesel Oil System	N/A	517.5	N/A
D03-5202------T05	DIESEL GENERATOR/ Diesel Fuel Oil Storage Day Tank	Diesel Oil System	Turbine	528.25	DG RM3 G-H/55
D03-5203------P30	DIESEL GENERATOR/ Fuel Oil Transfer Pump	Diesel Oil System	Turbine	517.5	DG RM3 G-H/55
D03-5500-0030AH15	CCSW/ CCSU Pump Cooler "A"	Condensate Demineralizer System	Turbine	495	D+50
D03-5500-0030BH15	CCSW/ CCSW Pump Cooler "B"	Condensate Demineralizer System	Turbine	495	D/50
D03-5700-0030AH15	CCSW/ CCSW Pump Cooler "A"	Condensate Demineralizer System	Turbine	495	VAULT RM D/50
D03-5700-0030BH15	CCSW/ CCSW Pump Cooler "B"	Condensate Demineralizer System	Turbine	495	VAULT RM D/50
D03-5700-0030CH15	CCSW/ CCSW Pump Cooler "C"	Condensate Demineralizer System	Turbine	495	VAULT RM D/50
D03-5700-0030DH15	CCSW/ CCSW Pump Cooler "D"	Condensate Demineralizer System	Turbine	495	VAULT RM D/50
D03-5734-A----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	502.33	DRYWELL
D03-5734-A----H15	DRYWELL COOLING HVAC/ Drywell Cooler	Condensate Demineralizer System	Reactor	502.33	DRYWELL

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-5734-B----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	502.33	DRYWELL
D03-5734-B----H15	DRYWELL COOLING HVAC/ Drywell Cooler	Condensate Demineralizer System	Reactor	502.33	DRYWELL
D03-5734-C----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	502.33	DRYWELL
D03-5734-C----H15	DRYWELL COOLING HVAC/ Drywell Cooler	Condensate Demineralizer System	Reactor	502.33	DRYWELL
D03-5734-D----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	502.33	DRYWELL
D03-5734-D----H15	DRYWELL COOLING HVAC/ Drywell Cooler	Condensate Demineralizer System	Reactor	502.33	DRYWELL
D03-5734-E----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	502.33	DRYWELL
D03-5734-E----H15	DRYWELL COOLING HVAC/ Drywell Cooler	Condensate Demineralizer System	Reactor	502.33	DRYWELL
D03-5734-F----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	515.42	DRYWELL
D03-5734-F----H15	DRYWELL COOLING HVAC/ Drywell Cooler	Condensate Demineralizer System	Reactor	515.42	DRYWELL
D03-5734-G----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	515.42	DRYWELL
D03-5734-G----H15	DRYWELL COOLING HVAC/ Drywell Cooler	Condensate Demineralizer System	Reactor	515.42	DRYWELL
D03-5746-A----H15	LPCI/ LPCI Emergency Room Air Cooler	Condensate Demineralizer System	Reactor	476.5	SE C.RM M/44
D03-5746-B----H15	LPCI/ LPCI Emergency Room Air Cooler	Condensate Demineralizer System	Reactor	476.5	SW C.RM M/50
D03-5747------H15	HPCI/ HPCI Emergency Air Cooler	Condensate Demineralizer System	Reactor	476.5	HP RM3 N/46
D03-5772-0100-D05	DIESEL GENERATOR/ Ventiliation Fan Inlet Damper	Condensate Demineralizer System	Turbine	538	H/54-55
D03-5772-0101-D05	DIESEL GENERATOR/ Ventiliation Fan Outlet Damper	Condensate Demineralizer System	Turbine	517.5	DG RM3 G-H/55

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-5772-0102-D05	DIESEL GENERATOR/ Normal Ventiliation Duct Damper	Condensate Demineralizer System	Turbine	517.5	G/54
D03-5788-A----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	502.33	Drywell
D03-5788-B----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	502.33	Drywell
D03-5788-C----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	502.33	Drywell
D03-5788-D----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	502.33	Drywell
D03-5788-E----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	502.33	Drywell
D03-5788-F----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	515.5	Drywell
D03-5788-G----F05	DRYWELL COOLING HVAC/ Drywell Cooler Blower	Condensate Demineralizer System	Reactor	515.5	Drywell
D03-5790-0003-D05	DIESEL GENERATOR/ Ventiliation Fan Solenoid	Condensate Demineralizer System	Turbine	517.5	G-H/34-35
D03-5790-0003-V10	DIESEL GENERATOR/ Vent. Fan Damper Solenoid Operator	Condensate Demineralizer System	Turbine	538	H/54-55
D03-5790--EP2-V27	DIESEL GENERATOR/ Room Vent. Fan Dampers Solenoid Valve	Condensate Demineralizer System	Turbine	517.5	DG PNL 2253-47
D03-5790--EP3-V27	DIESEL GENERATOR/ Normal Vent. Damper Solenoid Valve	Condensate Demineralizer System	Turbine	517.5	DG PNL 2253-47
D03-5790------F10	DIESEL GENERATOR/ Room Ventiliation Fan	Condensate Demineralizer System	Turbine	517.5	DG RM3 G-H/55
D03-6601------G05	DIESEL GENERATOR/ Diesel Engine Driven Generator	Diesel Generator	Turbine	517.5	DG RM3 G-H/55
D03-6665------P30	DIESEL GENERATOR/ Fuel Oil Priming Pump	Diesel Generator	Turbine	517.5	G-H/55-56
D03-67331-----S35	4160V AC/ Switchgear 33-1	4160 Volt Switchgear	Reactor	545.5	M-N/46-47
D03-6733------S35	4160V AC/ Switchgear 33	4160 Volt Switchgear	Turbine	538	D-E/54-55
D03-67341-----S35	4160V AC/ Switchgear 34-1	4160 Volt Switchgear	Reactor	545.5	M-N/48-49

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-6734------S35	4160V AC/ Switchgear 34	4160 Volt Switchgear	Turbine	538	D-E/54-55
D03-7338------T10	480V AC/ Transformer 38, Feed to Switchgear 38	480 Volt Switchgear	Reactor	570	N/48
D03-7339------T10	480V AC/ 480V Transformer 39, Feed to Switchgear 39	480 Volt Switchgear	Reactor	570	N/48
D03-7338-0382BS35	480V AC/ Breaker to Transformer 38 (ROB-Switchgear 38)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7338-0382CS35	480V AC/ Breaker to Switchgear 39 (ROB-Switchgear 38)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7338-0384AS35	480V AC/ Breaker to MCC 38-1,4 (ROB-Switchgear 38)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7338-0384BS35	480V AC/ Breaker to MCC 38-2 (ROB-Switchgear 38)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7338-0384DS35	480V AC/ Breaker to MCC 38-3 (ROB-Switchgear 38)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7338-0385AS35	480V AC/ Breaker to MCC 38-7 (ROB-Switchgear 38)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7338-0386AS35	480V AC/ Breaker to Drywell Fan A (ROB-Switchgear 38)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7338-0386BS35	480V AC/ Breaker to Drywell Fan B (ROB-Switchgear 38)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7338-0386CS35	480V AC/ Breaker to Drywell Fan F (ROB-Switchgear 38)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7338-0386DS35	480V AC/ Breaker to Drywell Fan G (ROB-Switchgear 38)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7338------C05	480V AC/ Switchgear 38	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7338------S35	480V AC/ Switchgear 38	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7339-0392BS35	480V AC/ Breaker to Transformer 39 (ROB-Switchgear 39)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7339-0392CS35	480V AC/ Breaker to Switchgear 38 (ROB-Switchgear 39)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7339-0393BS35	480V AC/ Breaker MCC 39-1 (ROB-Switchgear 39)	480 Volt Switchgear	Reactor	570	M-N/47-48

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-7339-0393DS35	480V AC/ Breaker MCC 39-2 (ROB-Switchgear 39)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7339-0394CS35	480V AC/ Breaker to MCC 39-7 (ROB-Switchgear 39)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7339-0396AS35	480V AC/ Breaker to Drywell Fan C (ROB-Switchgear 39)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7339-0396BS35	480V AC/ Breaker to Drywell Fan D (ROB-Switchgear 39)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7339-0396CS35	480V AC/ Breaker to Drywell Fan E (ROB-Switchgear 39)	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7339-----S35	480V AC/ 480V Switchgear 39	480 Volt Switchgear	Reactor	570	M-N/47-48
D03-7829-02A4-S35	480V AC/ Breaker to 125V Batt. Chg. 3 (ROB-MCC 39-2)	480 Volt MCCS	Turbine	534	G/44-45
D03-7838-01C1-S35	480V AC/ Breaker to LPCI Air Cooler (ROB-MCC 38-1)	480 Volt MCCS	Reactor	517.5	L/44
D03-7838-01E1-S35	480V AC/ Breaker to Valve 1402-24A (ROB-MCC 38-1)	480 Volt MCCS	Reactor	517.5	L/44
D03-7838-01E3-S35	480V AC/ Breaker to Valve 1501-3A (ROB-MCC 38-1)	480 Volt MCCS	Reactor	517.5	L/44
D03-7838-01F3-S35	480V AC/ Breaker to Valve 1201-1 (ROB-MCC 38-1)	480 Volt MCCS	Reactor	517.5	L/44
D03-7838-01H1-S35	480V AC/ Breaker to Valve 1301-4 (ROB-MCC 38-1)	480 Volt MCCS	Reactor	517.5	L/44
D03-7838-01H2-S35	480V AC/ Breaker to Valve 1301-1 (ROB-MCC 38-1)	480 Volt MCCS	Reactor	517.5	L/44
D03-7838-02C1-S35	480V AC/ Breaker to 125V Batt. Chg. 3A (ROB-MCC 38-2)	480 Volt MCCS	Turbine	534	G/47-48
D03-7838-02D2-S35	480V AC/ Breaker to 250V Batt. Chg. 3 (ROB-MCC 38-2)	480 Volt MCCS	Turbine	534	G/47-48
D03-7838-03C4-S35	480V AC/ Breaker to DG Cooling Pump 2/3 (ROB-MCC 38-3)	480 Volt MCCS	Turbine	517.5	G/44
D03-7838-03D1-S35	480V AC/ Breaker to CCSW Cooler A, Fan 1 (ROB-MCC 38-3)	480 Volt MCCS	Turbine	517.5	G/44

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-7838-03D2-S35	480V AC/ Breaker to CCSW Cooler A, Fan 2 (ROB-MCC 38-3)	480 Volt MCCS	Turbine	517.5	G/44
D03-7838-03D3-S35	480V AC/ Breaker to CCSW Cooler B, Fan 1 (ROB-MCC 38-3)	480 Volt MCCS	Turbine	517.5	G/44
D03-7838-03D4-S35	480V AC/ Breaker to CCSW Cooler B, Fan 2 (ROB-MCC 38-3)	480 Volt MCCS	Turbine	517.5	G/44
D03-7838-04A1-S35	480V AC/ Breaker to Valve 1402-3A (ROB-MCC 38-4)	480 Volt MCCS	Reactor	517.5	M/44
D03-7838-04A3-S35	480V AC/ Breaker to Valve 1501-5A (ROB-MCC 38-4)	480 Volt MCCS	Reactor	517.5	M/44
D03-7838-04A4-S35	480V AC/ Breaker to Valve 1501-5B (ROB-MCC 38-4)	480 Volt MCCS	Reactor	517.5	M/44
D03-7838-04B1-S35	480V AC/ Breaker to Valve 1501-38A (ROB-MCC 38-4)	480 Volt MCCS	Reactor	517.5	M/44
D03-7838-04B2-S35	480V AC/ Breaker to Valve 1501-20A (ROB-MCC 38-4)	480 Volt MCCS	Reactor	517.5	M/44
D03-7838-04C3-S35	480V AC/ Breaker to Valve 1501-32A (ROB-MCC 38-4)	480 Volt MCCS	Reactor	517.5	M/44
D03-7838-04E2-S35	480V AC/ Breaker to Valve 1501-13A (ROB-MCC 38-4)	480 Volt MCCS	Reactor	517.5	M/44
D03-7838-04E4-S35	480V AC/ Breaker to Valve 1501-11A (ROB-MCC 38-4)	480 Volt MCCS	Reactor	517.5	M/44
D03-7838-07A2-S35	480V AC/ Breaker to Valve 1501-22A (ROB-MCC 38-7)	480 Volt MCCS	Reactor	517.5	N/46
D03-7838-07B2-S35	480V AC/ Breaker to Valve 202-5A (ROB-MCC 38-7)	480 Volt MCCS	Reactor	517.5	N/46
D03-7838-1-1--P06	DISTRIBUTION PANELS/ Distribution Panel 38-1-1	480 Volt MCCS	Reactor	517.5	L-M/44
D03-7838-1----M05	480V AC/ MCC 38-1	480 Volt MCCS	Reactor	517.5	L/44
D03-7838-2----M05	480V AC/ MCC 38-2	480 Volt MCCS	Turbine	538	G/52
D03-7838-3----M05	480V AC/ MCC 38-3	480 Volt MCCS	Turbine	538	H/53
D03-7838-4----M05	480V AC/ MCC 38-4	480 Volt MCCS	Reactor	517.5	M/44
D03-7838-7----M05	480V AC/ MCC 38-7	480 Volt MCCS	Reactor	517.5	N/46
D03-7839-01A1-S35	480V AC/ Breaker to HPCI Cooling Pump (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-7839-01B1-S35	480V AC/ Breaker to HPCI Air Cooler (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01E2-S35	480V AC/ Breaker to Valve 1501-3B (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01F1-S35	480V AC/ Breaker to LPCI Air Cooler B (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01H1-S35	480V AC/ Breaker to Valve 1402-24B (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01H4-S35	480V AC/ Breaker to Valve 1402-3B (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01K1-S35	480V AC/ Breaker to Valve 1501-5C (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01K2-S35	480V AC/ Breaker to Valve 1501-5D (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01L1-S35	480V AC/ Breaker to Valve 1501-38B (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01L2-S35	480V AC/ Breaker to Valve 1501-20B (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01N1-S35	480V AC/ Breaker to Valve 1501-13B (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01N2-S35	480V AC/ Breaker to Valve 1501-11B (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01P4-S35	480V AC/ Breaker to Valve 1501-32B (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-01P5-S35	480V AC/ Breaker to Valve 2301-4 (ROB-MCC 39-1)	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-02A3-S35	480V AC/ Breaker to CCSW Cooler C, Fan 1 (ROB-MCC 39-2)	480 Volt MCCS	Turbine	534	G/44-45
D03-7839-02B2-S35	480V AC/ Breaker to CCSW Cooler C, Fan 2 (ROB-MCC 39-2)	480 Volt MCCS	Turbine	534	G/44-45
D03-7839-02C2-S35	480V AC/ Breaker to DG Cooling Pump (ROB-MCC 39-2)	480 Volt MCCS	Turbine	534	G/44-45
D03-7839-02D3-S35	480V AC/ Breaker to 250V Batt. Chg. 2/3 (ROB-MCC 39-2)	480 Volt MCCS	Turbine	534	G/44-45

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-7839-02D4-S35	480V AC/ Breaker to CCSW Cooler D, Fan 1 (ROB-MCC 39-2)	480 Volt MCCS	Turbine	534	G/44-45
D03-7839-02D5-S35	480V AC/ Breaker to CCSW Cooler D, Fan 2 (ROB-MCC 39-2)	480 Volt MCCS	Turbine	534	G/44-45
D03-7839-02E1-S35	480V AC/ Breaker to Transfer Pump 3 (ROB-MCC 39-2)	480 Volt MCCS	Turbine	534	G/44-45
D03-7839-02E3-S35	480V AC/ Breaker to DG Vent. Fan 3 (ROB-MCC 39-2)	480 Volt MCCS	Turbine	534	G/44-45
D03-7839-1----M05	480V AC/ MCC 39-1	480 Volt MCCS	Reactor	517.5	L-M/50
D03-7839-2----M05	480V AC/ MCC 39-2	480 Volt MCCS	Turbine	534	G/44-45
D03-7839-7----M05	480V AC/ MCC 39-7	480 Volt MCCS	Reactor	517.5	N/48
D03-8300--3A--B05	125V DC/ Battery Charger #3A	125 VDC /250 VDC	Turbine	538	G-H/54-55
D03-8300--3---B05	125V DC/ Battery Charger #3	125 VDC /250 VDC	Turbine	538	BC RM3 G-H/55
D03-8300--BC--B04	125V DC/ Battery #3, Feed to TB Battery Bus #3	125 VDC /250 VDC	Turbine	551	B RM3 G-H/55
D03-8301A-P06	panels 3A-1 and 3A-2	125 VDC /250 VDC	Turbine	538	G-H/55-56
D03-8302B-P02-M05	250V DC/ Breaker to Line Valve 2301-6 (ROB-Bus 2B)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303A1-1--P06	125V DC/ TB Main Bus #3A, Feed to Res Bus #2	125 VDC /250 VDC	Turbine	538	G-H/54-55
D03-8303A1-2--P06	125V DC/ TB Main Bus #3A-1 (ROB-Main Bus #3A)	125 VDC /250 VDC	Turbine	538	G-H/54-55
D03-8303AAA02-M05	250V DC/ Breaker to Steam Valve 2301-8 (ROB-Bus 3A)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303A-B01-M05	250V DC/ Breaker to Turbine Auxiliary Pump (ROB-Bus 3A)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303A-C01-M05	250V DC/ Breaker to Turbine Oil Pump (ROB-Bus 3A)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303A-C02-M05	250V DC/ Breaker to Gland Seal Cond. Fan (ROB-Bus 3A)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303A-D02-M05	250V DC/ Breaker to Hot. Condensate Pump (ROB-Bus 3A)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303A-G01-M05	250V DC/ Breaker to Line Valve 1201-2 (ROB-Bus 3A)	125 VDC /250 VDC	Reactor	570	M-N/46-47

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-8303A-H02-M05	250V DC/ Breaker to Line Valve 1301-2 (ROB-Bus 3A)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303A-----M05	250V DC/ MCC Bus #3A (ROB-RB MCC #3)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303B1----P06	125V DC/ TB Res Bus #3B-1 (ROB-TB Res Bus #3B)	125 VDC /250 VDC	Turbine	538	BC RM3 G-H/55
D03-8303B-K02-M05	250V DC/ Breaker to Steam Valve 2301-3 (ROB-Bus 3B)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303B-L01-M05	250V DC/ Breaker to Test Valve 2301-5 (ROB-Bus 3B)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303B-L02-M05	250V DC/ Breaker to Test Valve 2301-14 (ROB-Bus 3B)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303B-----M05	250V DC/ MCC Bus #3B (ROB-RB MCC #3)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303B-O02-M05	250V DC/ Breaker to Line Valve 2301-35 (ROB-Bus 3B)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-8303B-P01-M05	250V DC/ Breaker to Line Valve 2301-36 (ROB-Bus 3B)	125 VDC /250 VDC	Reactor	570	M-N/46-47
D03-83125-3---P06	125V DC/ TB Battery Bus #3, Feed to Main Bus #3A	125 VDC /250 VDC	Turbine	538	G-H/54-55
D03-83125-----P06	125V DC/ RB 125V DC Distribution Panel #3	125 VDC /250 VDC	Reactor	570	N/46
D03-83250-3---B05	250V DC/ Battery Charger #3	125 VDC /250 VDC	Turbine	538	BC RM3 G-H/55
D03-83250-A01-M05	250V DC/ Breaker to TB MCC #3 (ROB-Battery #3)	125 VDC /250 VDC	Turbine	549	G/31-32
D03-83250-A02-M05	250V DC/ Breaker to Battery #3 (ROB-Battery Charg #2/3)	125 VDC /250 VDC	Turbine	549	G/31-32
D03-83250-A03-M05	250V DC/ Breaker to Battery #3 (ROB-Battery Charger #3)	125 VDC /250 VDC	Turbine	549	G/31-32
D03-83250-----B04	250V DC/ Battery #3, Feed to TB MCC #3	125 VDC /250 VDC	Turbine	551	B RM3 G-H/55
D03-83250-I02-M05	250V DC/ Breaker to RB MCC #2 (ROB-TB MCC #3)	125 VDC /250 VDC	Turbine	538	G-H/55-56
D03-83250-----M05	250V DC/ TB MCC #3	125 VDC /250 VDC	Turbine	538	BC RM3 G-H/55

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-8501-0001AV05	CONTAINMENT SAMPLING/ Torus Oxygen Sampling Line Valve	Nitrogen Inerting System	Reactor	476.5	TORUS BAY 16
D03-8501-0001AV27	CONTAINMENT SAMPLING/ Torus Oxygen Sampl. Solen. Valve	Nitrogen Inerting System	Reactor	476.5	TORUS BAY 16
D03-8501-0001BV05	CONTAINMENT SAMPLING/ Torus Oxygen Sampling Line Valve	Nitrogen Inerting System	Reactor	476.5	TORUS BAY 16
D03-8501-0001BV27	CONTAINMENT SAMPLING/ Torus Oxygen Sampl. Solen. Valve	Nitrogen Inerting System	Reactor	476.5	TORUS BAY 16
D03-8501-0003AV05	CONTAINMENT SAMPLING/ Drywell Oxy. Sampling Line Valve	Nitrogen Inerting System	Reactor	517.5	J/45-46
D03-8501-0003AV27	CONTAINMENT SAMPLING/ Drywell Oxy. Sampl. Solen. Valve	Nitrogen Inerting System	Reactor	517.5	J/45-46
D03-8501-0003BV05	CONTAINMENT SAMPLING/ Drywell Oxy. Sampling Line Valve	Nitrogen Inerting System	Reactor	517.5	J/45-46
D03-8501-0003BV27	CONTAINMENT SAMPLING/ Drywell Oxy. Sampl. Solen. Valve	Nitrogen Inerting System	Reactor	517.5	J/45-46
D03-8501-0005AV05	CONTAINMENT SAMPLING/ Drywell Oxy. Sampling Line Valve	Nitrogen Inerting System	Reactor	545.5	L/46
D03-8501-0005AV27	CONTAINMENT SAMPLING/ Drywell Oxy. Sampl. Solen. Valve	Nitrogen Inerting System	Reactor	545.5	L/46
D03-8501-0005BV05	CONTAINMENT SAMPLING/ Drywell Oxy. Sampling Line Valve	Nitrogen Inerting System	Reactor	545.5	L/46
D03-8501-0005BV27	CONTAINMENT SAMPLING/ Drywell Oxy. Sampl. Solen. Valve	Nitrogen Inerting System	Reactor	545.5	L/46
D03-8599-0617-V15	CONTAINMENT SAMPLING/ Drywell Oxy. Sampling Vent Valve	Nitrogen Inerting System	Reactor	517.5	J/45-46
D03-9205-A----V05	CONTAINMENT SAMPLING/ Drywell Oxy. Sampling Line Valve	Drywell Air Sampling	Reactor	545.5	L/46
D03-9205-A----V27	CONTAINMENT SAMPLING/ Drywell Oxy. Sampl. Solen. Valve	Drywell Air Sampling	Reactor	545.5	L/46
D03-9205-B----V05	CONTAINMENT SAMPLING/ Drywell Oxy. Sampling Line Valve	Drywell Air Sampling	Reactor	545.5	L/46
D03-9205-B----V27	CONTAINMENT SAMPLING/ Drywell Oxy. Sampl. Solen. Valve	Drywell Air Sampling	Reactor	545.5	L/46

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-9206-A----V05	CONTAINMENT SAMPLING/ Drywell Oxy. Sampling Line Valve	Drywell Air Sampling	Reactor	545.5	L/46
D03-9206-A----V27	CONTAINMENT SAMPLING/ Drywell Oxy. Sampl. Solen. Valve	Drywell Air Sampling	Reactor	545.5	L/46
D03-9206-B----V05	CONTAINMENT SAMPLING/ Drywell Oxy. Sampling Line Valve	Drywell Air Sampling	Reactor	545.5	L/46
D03-9206-B----V27	CONTAINMENT SAMPLING/ Drywell Oxy. Sampl. Solen. Valve	Drywell Air Sampling	Reactor	545.5	L/46
D03-9207-A----V05	CONTAINMENT SAMPLING/ Drywell Sampling Line Valve	Drywell Air Sampling	Reactor	517.5	DRY LOCK L/48
D03-9207-A----V27	CONTAINMENT SAMPLING/ Drywell Sampling Solenoid Valve	Drywell Air Sampling	Reactor	517.5	DRY LOCK L/48
D03-9207-B----V05	CONTAINMENT SAMPLING/ Drywell Sampling Line Valve	Drywell Air Sampling	Reactor	517.5	DRY LOCK L/48
D03-9207-B----V27	CONTAINMENT SAMPLING/ Drywell Sampling Solenoid Valve	Drywell Air Sampling	Reactor	517.5	DRY LOCK L/48
D03-9208-A----V05	CONTAINMENT SAMPLING/ Drywell Sampling Line Valve	Drywell Air Sampling	Reactor	517.5	DRY LOCK L/48
D03-9208-A----V27	CONTAINMENT SAMPLING/ Drywell Sampling Solenoid Valve	Drywell Air Sampling	Reactor	517.5	DRY LOCK L/48
D03-9208-B----V05	CONTAINMENT SAMPLING/ Drywell Sampling Line Valve	Drywell Air Sampling	Reactor	517.5	DRY LOCK L/48
D03-9208-B----V27	CONTAINMENT SAMPLING/ Drywell Sampling Solenoid Valve	Drywell Air Sampling	Reactor	517.5	DRY LOCK L/48
D03-9802-3A---B05	24/48V DC/ Battery Charger #3A	345 kV Switchyard DC System	Turbine	551	G/56
D03-9802-3ANEGB05	24/48V DC/ Battery Charger #3A (-)	345 kV Switchyard DC System	Turbine	538	BC RM3 G-H/55
D03-9802-3APOSB05	24/48V DC/ Battery Charger #3A (+)	345 kV Switchyard DC System	Turbine	538	BC RM3 G-H/55
D03-9802-3B---B05	24/48V DC/ Battery Charger #3B	345 kV Switchyard DC System	Turbine	551	G-H/55
D03-9802-3BNEGB05	24/48V DC/ Battery Charger #3B (-)	345 kV Switchyard DC System	Turbine	538	BC RM3 G-H/55

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D03-9802-3BPOSB05	24/48V DC/ Battery Charger #3B (+)	345 kV Switchyard DC System	Turbine	538	BC RM3 G-H/55
D03-9802A-A21-B11	24/48V DC/ Breaker to Battery Charger #3A (+)	345 kV Switchyard DC System	Turbine	551	G/56
D03-9802A-A22-B11	24/48V DC/ Breaker to Battery Charger #3A (-)	345 kV Switchyard DC System	Turbine	551	G/56
D03-9802-A----B04	24/48V DC/ Battery #3A	345 kV Switchyard DC System	Turbine	551	B RM3 G-H/55
D03-9802-A----P06	24/48V DC/ Distribution Panel #3A	345 kV Switchyard DC System	Turbine	538	BC RM3 G-H/55
D03-9802B-A21-B11	24/48V DC/ Breaker to Battery Charger #3B (+)	345 kV Switchyard DC System	Turbine	551	G-H/55
D03-9802B-A22-B11	24/48V DC/ Breaker to Battery Charger #3B (-)	345 kV Switchyard DC System	Turbine	551	G-H/55
D03-9802-B----B04	24/48V DC/ Battery #3B	345 kV Switchyard DC System	Turbine	551	B RM3 G-H/55
D03-9802-B----P06	24/48V DC/ Distribution Panel #3B		Turbine	538	BC RM3 G-H/55
D03-DGCP	CONTROL PANEL/ Unit 3 Diesel Generator Control Panel		Turbine	517.5	DG RM3 G-H/55
D03-LCS1-------LS	HPCI/ Gland Seal Condenser Drain Pump Level Switch		Reactor	476.5	HP RM3 N/46-47
D03-LCS2-------LS	HPCI/ Gland Seal Condenser Drain Pump Level Switch		Reactor	476.5	HP RM3 N/46-47
D03-LOC	HPCI/ Lube Oil Cooler		Reactor	476.5	HP RM3 N/46-47
D03-NGC	CONTROL PANEL/ Unit 3 Neutral Grounding Cabinet		Turbine	517.5	DG RM3 G-H/55

Table B-1b. Base List 1b - Items Common to Units 2 and 3

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D00-2223-0033	CONTROL PANEL/ DG Relaying and Metering Cabinet	Local Panels & Racks (Radwaste)	Reactor	504.5	DG RM2/3 N/46
D00-2223-0041	CONTROL PANEL/ DG Excitation Cabinet	Local Panels & Racks (Radwaste)	Reactor	504.5	DG RM2/3 N/46
D00-2223-0053	CONTROL PANEL/ Diesel Generator Fire Protection Panel	Local Panels & Racks (Radwaste)	Turbine	517.5	G/45
D00-2223-0058	CONTROL PANEL/ Diesel Generator Fire Protection Panel	Local Panels & Racks (Radwaste)	Turbine	517.5	G/45
D00-2223-0109	CONTROL PANEL/ DG Cooling Pump Transfer Switch Status	Local Panels & Racks (Radwaste)	Reactor	504.5	DG RM2/3 N/46
D00-2350-A-----LS	HPCI/ Storage Tank Level Switch	HPCI	Turbine	517.5	RFP RM G/35
D00-2350-B-----LS	HPCI/ Storage Tank Level Switch	HPCI	Turbine	517.5	RFP RM G/35
D00-2350-C-----LS	HPCI/ Storage Tank Level Switch	HPCI	Turbine	517.5	RFP RM G/35
D00-2350-D-----LS	HPCI/ Storage Tank Level Switch	HPCI	Turbine	517.5	RFP RM G/35
D00-3303-A----T05	CONDENSATE/ Contaminated Condensate Storage Tank	Condenser System	N/A	517.5	N/A
D00-3303-B----T05	CONDENSTAE/ Contaminated Condensate Storage Tank B	Condenser System	N/A	517.5	N/A
D00-3340-0003--LI	CONDENSATE/ Storage Tank Level Indicator	Condenser System	N/A	517.5	K/35
D00-3341-0071ALSH	CONDENSATE/ Storage Tank Level Switch High	Condenser System	N/A	517.5	K/35
D00-3341-0072ALSL	CONDENSATE/ Storage Tank Level Switch Low	Condenser System	N/A	517.5	K/35
D00-3341-0076A-LT	CONDENSATE/ Storage Tank Level Transmitter	Condenser System	N/A	517.5	K/35
D00-3341-0077A-LI	CONDENSATE/ Storage Tank Local Level Indicator	Condenser System	N/A	517.5	K/35
D00-3701------P30	RBCCW/ Cooling Water Pump	Rx Bldg Closed Cooling Water	Reactor	545.5	M/39-40
D00-3702------H15	RBCCW/ Cooling Water Heat Exchanger	Rx Bldg Closed Cooling Water	Reactor	545.5	M-N/38-39

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D00-3901------P30	SERVICE WATER/ Service Water Cooling Pump	Service Water System	C. House	490.67	B-C/3-4
D00-3903------P30	SERVICE WATER/ Diesel Generator Cooling Water Pump	Service Water System	C. House	490.67	A-B/4
D00-3941-0898--FE	SERVICE WATER/ DG Cooling Pump Discharge Flow Element	Service Water System	Reactor	504.5	N/44-46
D00-4600-B----T05	DIESEL GENERATOR/ Primary Gas Air Receiver Unit "A1"	Service Air System	Reactor	504.5	DG RM2/3 N/46
D00-4600-C----T05	DIESEL GENERATOR/ Primary Gas Air Receiver Unit "A2"	Service Air System	Reactor	504.5	DG RM2/3 N/46
D00-4600-G----T05	DIESEL GENERATOR/ Primary Gas Air Receiver Unit "B1"	Service Air System	Reactor	504.5	DG RM2/3 N/46
D00-4600-H----T05	DIESEL GENERATOR/ Primary Gas Air Receiver Unit "B2"	Service Air System	Reactor	504.5	DG RM2/3 N/46
D00-5201------T05	DIESEL GENERATOR/ Diesel Fuel Oil Storage Tank	Diesel Oil System	N/A	517.5	N/A
D00-5202------T05	DIESEL GENERATOR/ Diesel Fuel Oil Storage Day Tank	Diesel Oil System	Turbine	517.5	DG RM2/3 N/46
D00-5203------P30	DIESEL GENERATOR/ Fuel Oil Transfer Pump	Diesel Oil System	Reactor	504.5	DG RM2/3 N/46
D00-5741-0048AV72	CONTROL ROOM VENTILATION/ CCSW Cooling Supply Valve	Heating Boilers & Ventilation System	Turbine	534	VENT RM2/3 G/32
D00-5741-0048BV72	CONTROL ROOM VENTILATION/ Service Water Supply Valve	Heating Boilers & Ventilation System	Turbine	534	VENT RM2/3 G/32
D00-5741-0054AD05	CONTROL ROOM VENTILATION/ Train "A" Isolation Damper	Heating Boilers & Ventilation System	Turbine	549	H/32
D00-5741-0054BD05	CONTROL ROOM VENTILATION/ Train "A" Isolation Damper	Heating Boilers & Ventilation System	Turbine	549	H/32
D00-5741-0054CD05	CONTROL ROOM VENTILATION/ Train "A" Isolation Damper	Heating Boilers & Ventilation System	Turbine	549	H/32
D00-5741-0054DD05	CONTROL ROOM VENTILATION/ Train "A" Isolation Damper	Heating Boilers & Ventilation System	Turbine	549	H/32
D00-5741-0054-V27	CONTROL ROOM VENTILATION/ Train "A" Iso. Damper Solen.	Heating Boilers & Ventilation System	Turbine	549	H/32

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D00-5741-0055-D05	CONTROL ROOM VENTILATION/ AFU Booster Fan Outlet Damper	Heating Boilers & Ventilation System	Turbine	534	VENT RM2/3 G/32
D00-5741-0056-D05	CONTROL ROOM VENTILATION/ AFU Booster Fan Outlet Damper	Heating Boilers & Ventilation System	Turbine	534	VENT RM2/3 G/32
D00-5741-0057-D05	CONTROL ROOM VENTILATION/ AFU Recirculation Damper	Heating Boilers & Ventilation System	Turbine	534	VENT RM2/3 G/32
D00-5741-0058-D05	CONTROL ROOM VENTILATION/ AFU Inlet Damper	Heating Boilers & Ventilation System	Turbine	534	VENT RM2/3 G/32
D00-5741-0059AD05	CONTROL ROOM VENTILATION/ AHU Outlet Damper	Heating Boilers & Ventilation System	Turbine	534	VENT RM2/3 G/32
D00-5741-0059BD05	CONTROL ROOM VENTILATION/ AHU Inlet Damper	Heating Boilers & Ventilation System	Turbine	534	VENT RM2/3 G/32
D00-5772-0100-D05	DIESEL GENERATOR/ Ventiliation Fan Inlet Damper	Heating Boilers & Ventilation System	Reactor	504.5	DG RM2/3 N/46
D00-5772-0101-D05	DIESEL GENERATOR/ Ventiliation Fan Outlet Damper	Heating Boilers & Ventilation System	Reactor	504.5	DG RM2/3 N/46
D00-5790-0003AV10	DIESEL GENERATOR/ Vent. Fan Inlet Damper Solen. Oper.	Heating Boilers & Ventilation System	Reactor	504.5	DG RM2/3 N/46
D00-5790-0003AV27	DIESEL GENERATOR/ Vent. Fan Inlet Damper Solenoid Valve	Heating Boilers & Ventilation System	Reactor	504.5	N/46
D00-5790-0003BV10	DIESEL GENERATOR/ Vent. Fan Outlet Damper Solen. Oper.	Heating Boilers & Ventilation System	Reactor	504.5	DG RM2/3 N/46
D00-5790-0003BV27	DIESEL GENERATOR/ Vent. Fan Outlet Damper Solen. Valve	Heating Boilers & Ventilation System	Reactor	504.5	N/46
D00-5790--EP2-V27	DIESEL GENERATOR/ Vent. Fan Dampers Solenoid Valve	Heating Boilers & Ventilation System	Reactor	504.5	DG PNL 2223-56
D00-5790------F10	DIESEL GENERATOR/ Room Ventiliation Fan	Heating Boilers & Ventilation System	Reactor	504.5	DG RM2/3 N/46
D00-6601------G05	DIESEL GENERATOR/ Diesel Engine Driven Generator	Diesel Generator	Reactor	504.5	DG RM2/3 N/46
D00-6665------P30	DIESEL GENERATOR/ Fuel Oil Priming Pump	Diesel Generator	Reactor	504.5	N/46
D00-6740------S35	4160V AC/ Switchgear 40	4160 Volt Switchgear	Reactor	504.5	DG RM2/3 N/46
D00-83250-0---B05	250V DC/ Battery Charger #2/3	125 VDC / 250 VDC	Turbine	549	B RM2 E/31

ID	DESCRIPTION	SYSTEM	BUILDING	ELEVATION	LOCATION
D00-9400-0100-F05	CONTROL ROOM VENTILATION/ Air Handling Unit	Chemical Cleaning System	Turbine	534	VENT RM2/3 G/32
D00-9400-0101-F10	CONTROL ROOM VENTILATION/ Air Filtration Unit Heater	Chemical Cleaning System	Turbine	534	VENT RM2/3 G/32
D00-9400-0102	CONTROL PANEL/ RCU Control Panel	Chemical Cleaning System	Turbine	534	VENT RM2/3 G/32
D00-9400-0102-R15	CONTROL ROOM VENTILATION/ Refrigeration Condensing Unit	Chemical Cleaning System	Turbine	534	VENT RM2/3 G/32
D00-9400-0103	CONTROL PANEL/ Control Cabinet 9400-103	Chemical Cleaning System	Turbine	534	VENT RM2/3 G/32
D00-9400-0104AF05	CONTROL ROOM VENTILATION/ AFU Booster Fan	Chemical Cleaning System	Turbine	534	VENT RM2/3 G/32
D00-9400-0104BF05	CONTROL ROOM VENTILATION/ AFU Booster Fan	Chemical Cleaning System	Turbine	534	VENT RM2/3 G/32
D00-9400-0105	CONTROL PANEL/ Control Cabinet 9400-105	Chemical Cleaning System	Turbine	534	VENT RM2/3 G/32
D00-ACP	CONTROL PANEL/ Unit 2/3 Auxiliary Control Panel		Reactor	504.5	DG RM2/3 N/46
D00-DGCP	CONTROL PANEL/ Unit 2/3 Diesel Generator Control Panel		Reactor	504.5	DG RM2/3 N/46
D00-NGC	CONTROL PANEL/ Unit 2/3 Neutral Grounding Cabinet		Reactor	504.5	DG RM2/3 N/46

Table B-2. SWEL 1

ID	DESCRIPTION	CLASS	BUILDING	ELEVATION	LOCATION	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace ?	IPEEE Enhance-ment?	Comments
D00-2223-0109	CONTROL PANEL/ DG Cooling Pump Transfer Switch Status	(20) Instrumentation and Control Panels and Cabinets	Reactor	504.5	DG RM2/3 N/46	Local Panels & Racks (Radwaste)	Y	Racks & Panels			
D00-2350-C---LS	HPCI/ Storage Tank Level Switch	(18) Instruments on Racks	Turbine	517.5	RFP RM G/35	HPCI	Y	RCIC			
D00-5741-0048BV72	CONTROL ROOM VENTILATION/ Service Water Supply Valve	(07) Fluid-Operated Valves	Turbine	534	VENT RM2/3 G/32	Heating Boilers & Ventilation System	Y	Auxiliary & Support			
D00-9400-0102-R15	CONTROL ROOM VENTILATION/ Refrigeration Condensing Unit	(11) Chillers	Turbine	534	VENT RM2/3 G/32	Chemical Cleaning System	Y	Auxiliary & Support			
D00-9400-0104BF05	CONTROL ROOM VENTILATION/ AFU Booster Fan	(09) Fans	Turbine	534	VENT RM2/3 G/32	Chemical Cleaning System	Y	Auxiliary & Support			
D00-ACP	CONTROL PANEL/ Unit 2/3 Auxiliary Control Panel	(20) Instrumentation and Control Panels and Cabinets	Reactor	504.5	DG RM2/3 N/46		Y	Racks & Panels			
D00-DGCP	CONTROL PANEL/ Unit 2/3 Diesel Generator Control Panel	(20) Instrumentation and Control Panels and Cabinets	Reactor	504.5	DG RM2/3 N/46		Y	Racks & Panels			
D00-NGC	CONTROL PANEL/ Unit 2/3 Neutral Grounding Cabinet	(20) Instrumentation and Control Panels and Cabinets	Reactor	504.5	DG RM2/3 N/46		Y	Racks & Panels			
D03-0202-0005AV20	REACTOR RECIRCULATION/ Recirc Pump A Discharge Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	515.5	DRYWELL	Nuclear Boiler System	Y	RCIC			
D03-0203-0001AV05	MAIN STEAM/ Isolation Valve	(07) Fluid-Operated Valves	Reactor	515.42	DRYWELL	Nuclear Boiler System	Y	RCIC			
D03-0203-0003AV26	ADS/ Target Rock Valve	(07) Fluid-Operated Valves	Reactor	537	DRYWELL	Nuclear Boiler System	Y	RCIC			PRA: F-V=1.84E-02
D03-0203-0003BV26	ADS/ Electromatic Relief Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	537	DRYWELL	Nuclear Boiler System	Y	RCPC			PRA: F-V=2.23E-02
D03-0203-0004AV26	ADS/ Reactor Overpressure Relief Valve	(07) Fluid-Operated Valves	Reactor	537	DRYWELL	Nuclear Boiler System	Y	RCPC			
D03-0302-0019AV27	CRD/ Backup Scram Solenoid Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	517.5	L/48	Control Rod Drive System	Y	RRC			
D03-0302-0082B-LS	CRD/ East Bank SDV Tank Level Switch	(18) Instruments on Racks	Reactor	517.5	J-L/44-45,49-50	Control Rod Drive System	Y	RRC			
D03-0302-0082B-LT	CRD/ East Bank SDV Tank Level Transmitter	(18) Instruments on Racks	Reactor	517.5	J-L/44-45,49-50	Control Rod Drive System	Y	RRC			
D03-0302-0082E-LT	CRD/ East Bank SDV Tank Level Transmitter	(18) Instruments on Racks	Reactor	517.5	J-L/44-45,49-50	Control Rod Drive System	Y	RRC			
D03-0302-0156AV05	CRD/ East Bank Scram Discharge Volume Drain Valve	(07) Fluid-Operated Valves	Reactor	476.5	TORUS BAY 4	Control Rod Drive System	Y	RRC			
D03-0302-0157AV05	CRD/ East Bank Scram Discharge Volume Drain Valve	(07) Fluid-Operated Valves	Reactor	476.5	TORUS BAY 4	Control Rod Drive System	Y	RRC		y	

ID	DESCRIPTION	CLASS	BUILDING	ELEVATION	LOCATION	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace ?	IPEEE Enhance-ment?	Comments
D03-0305-0010-0031-0125-A10	CRD/ Insertion Accumulator, West Bank, Row 8, Position 15 (C-8)	(21) Tanks and Heat Exchangers	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			
D03-0305-0010-0031-0126-V05	CRD/ Accumulator Insertion Scram Valve, West Bank, Row 8, Position 15 (C-8)	(07) Fluid-Operated Valves	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			
D03-0305-0010-0031-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, West Bank, Row 8, Position 15 (C-8)	(07) Fluid-Operated Valves	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			
D03-0305-0010-0031-H20	CRD/ Hydraulic Control Unit, West Bank, Row 8, Position 15 (C-8)	(00) Other	Reactor	517.5	J-K/44-45,49-50	Control Rod Drive System	Y	RRC		y	
D03-0305-0030-0043-0125-A10	CRD/ Insertion Accumulator, West Bank, Row 8, Position 4 (H-11)	(21) Tanks and Heat Exchangers	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			
D03-0305-0030-0043-0126-V05	CRD/ Accumulator Insertion Scram Valve, West Bank, Row 8, Position 4 (H-11)	(07) Fluid-Operated Valves	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			
D03-0305-0030-0043-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, West Bank, Row 8, Position 4 (H-11)	(07) Fluid-Operated Valves	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			
D03-0305-0030-0043-H20	CRD/ Hydraulic Control Unit, West Bank, Row 8, Position 4 (H-11)	(00) Other	Reactor	517.5	J-K/44-45,49-50	Control Rod Drive System	Y	RRC		y	
D03-0305-0046-0031-0125-A10	CRD/ Insertion Accumulator, East Bank, Row 1, Position 16 (M-8)	(21) Tanks and Heat Exchangers	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			
D03-0305-0046-0031-0126-V05	CRD/ Accumulator Insertion Scram Valve, East Bank, Row 1, Position 16 (M-8)	(07) Fluid-Operated Valves	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			
D03-0305-0046-0031-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, East Bank, Row 1, Position 16 (M-8)	(07) Fluid-Operated Valves	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			
D03-0305-0046-0031-H20	CRD/ Hydraulic Control Unit, East Bank, Row 1, Position 16 (M-8)	(00) Other	Reactor	517.5	J-K/44-45,49-50	Control Rod Drive System	Y	RRC		y	
D03-0305-0058-0023-0125-A10	CRD/ Insertion Accumulator, East Bank, Row 1, Position 12 (R-6)	(21) Tanks and Heat Exchangers	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			
D03-0305-0058-0023-0126-V05	CRD/ Accumulator Insertion Scram Valve, East Bank, Row 1, Position 12 (R-6)	(07) Fluid-Operated Valves	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			

ID	DESCRIPTION	CLASS	BUILDING	ELEVATION	LOCATION	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace ?	IPEEE Enhance-ment?	Comments
D03-0305-0058-0023-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, East Bank, Row 1, Position 12 (R-6)	(07) Fluid-Operated Valves	Reactor	517.5	In Hydraulic CU	Control Rod Drive System	Y	RRC			
D03-0305-0058-0023-H20	CRD/ Hydraulic Control Unit, East Bank, Row 1, Position 12 (R-6)	(00) Other	Reactor	517.5	J-K/44-45,49-50	Control Rod Drive System	Y	RRC		y	
D03-0409-A--T05	CRD/ East Bank Scram Discharge Volume Tank	(21) Tanks and Heat Exchangers	Reactor	517.5	J-L/44-45,49-50	Startup Equipment	Y	RRC			
D03-0903-0003	CONTROL PANELS/ Control Panel 903-3	(20) Instrumentation and Control Panels and Cabinets	N/A	534	C. RM PNL 903-3	Control Room Panels	Y	Racks & Panels			
D03-0903-0015	CONTROL PANELS/ Control Panel 903-15	(20) Instrumentation and Control Panels and Cabinets	N/A	534	C. RM PL 903-15	Control Room Panels	Y	Racks & Panels		y	
D03-0903-0028	CONTROL PANELS/ Control Panel 903-28	(20) Instrumentation and Control Panels and Cabinets	Turbine	517.5	AEER PNL 903-28	Control Room Panels	Y	Racks & Panels			
D03-0903-0039	CONTROL PANELS/ Control Panel 903-39	(20) Instrumentation and Control Panels and Cabinets	Turbine	517.5	AEER PNL 903-39	Control Room Panels	Y	Racks & Panels			
D03-0923-0005	CONTROL PANELS/ Control Panel 923-5	(20) Instrumentation and Control Panels and Cabinets	N/A	534	C. RM PNL 923-5	Control Room Panels	Y	Racks & Panels			
D03-1001-0002AV20	SHUTDOWN COOLING/ Shut Down Pumps Suction Line Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	517.5	H-J/48-49	Shutdown Cooling	Y	CF			
D03-1001-0005AV20	SHUTDOWN COOLING/ Injection Line Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	476.5	TORUS BAY K/45	Shutdown Cooling	Y	RCIC/CF			
D03-1301-0004-V20	ISOLATION CONDENSER/ Steam Return Line Isolation Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	537	DRYWELL	Isolation Condenser System	Y	CF			
D03-1501-0003AV20	CCSW/ Heat Exchanger Outlet Service Water Line Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	476.5	SE C.RM M/44	LPCI	Y	DHR			
D03-1501-0021AV20	LPCI/ LPCI Injection Line Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	517.5	K/44-45	LPCI	Y	RCIC/DHR			
D03-1501-0032AV20	LPCI/ LPCI Header Crosstie Line Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	476.5	SE C.RM N/45	LPCI	Y	RCIC			
D03-1501-0044AP30	CCSW/ CCSW Pump "A"	(05) Horizontal Pumps	Turbine	495	D/49	LPCI	Y	DHR			
D03-1502-A--P30	LPCI/ LPCI Injection Pump "A"	(06) Vertical Pumps	Reactor	476.5	SE C.RM N/45	LPCI	Y	RCIC/DHR			
D03-1503-A--H15	LPCI/ LPCI Heat Exchanger	(21) Tanks and Heat Exchangers	Reactor	476.5	SE C.RM M-N/44	LPCI	Y	DHR		y	
D03-1541----A-FE	CCSW/ CCSW Pump "A" and "B" Discharge Flow Element	(18) Instruments on Racks	Reactor	476.5	M-N/44-45	LPCI	Y	DHR			

ID	DESCRIPTION	CLASS	BUILDING	ELEVATION	LOCATION	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace ?	IPEEE Enhance-ment?	Comments
D03-1599-0013AV26	LPCI/ Suppression Pool Suction Line "A" Relief Valve	(07) Fluid-Operated Valves	Reactor	476.5	SE C.RM N/45	LPCI	Y	RCIC/DHR			
D03-1601-0021-V05	PRESSURE SUPPRESSION/ Drywell Purge Line Valve	(07) Fluid-Operated Valves	Reactor	476.5	TORUS BAY 4	Drywell Containment	Y	CF			
D03-1601-0022-V05	PRESSURE SUPPRESSION/ Drywell/Torus Purge Line Valve	(07) Fluid-Operated Valves	Reactor	476.5	TORUS BAY 4	Drywell Containment	Y	CF			
D03-1601-0023-V05	PRESSURE SUPPRESSION/ Drywell Ventiliation Line Valve	(07) Fluid-Operated Valves	Reactor	570	FPC RM L/47-48	Drywell Containment	Y	CF			
D03-1601-0024-V05	PRESSURE SUPPRESSION/ Drywell and Torus Vent Valve	(07) Fluid-Operated Valves	Reactor	570	J-K/46	Drywell Containment	Y	CF			
D03-1601-0057-V20	PRESSURE SUPPRESSION/ Drywell/Torus Nitr. Makeup Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	476.5	TORUS BAY 3	Drywell Containment	Y	CF			
D03-1601-0062-V05	PRESSURE SUPPRESSION/ Drywell Ventilation Line Valve	(07) Fluid-Operated Valves	Reactor	570	FPC RM L/47-48	Drywell Containment	Y	CF			
D03-1601-0063-V05	PRESSURE SUPPRESSION/ Containment to SBGT Line Valve	(07) Fluid-Operated Valves	Reactor	570	RWCU DEMIN J/45	Drywell Containment	Y	CF			
D03-2001-0005-V05	RB EQUIPMENT DRAIN/ Drywell Equipment Drain Line Valve	(07) Fluid-Operated Valves	Reactor	476.5	TORUS BAY 4	Radwaste / Spent Fuel Pool	Y	CF			
D03-2001-0105-V05	RB EQUIPMENT DRAIN/ Drywell Floor Drain Line Valve	(07) Fluid-Operated Valves	Reactor	476.5	TORUS BAY 14	Radwaste / Spent Fuel Pool	Y	CF			
D03-2203-0006	INSTRUMENT RACKS/ Instrument Rack 2203-6	(18) Instruments on Racks	Reactor	545.5	K/49	Local Panels & Racks (Radwaste)	Y	Racks & Panels		y	
D03-2203-0008	INSTRUMENT RACKS/ Instrument Rack 2203-8	(18) Instruments on Racks	Reactor	517.5	K/49	Local Panels & Racks (Radwaste)	Y	Racks & Panels			
D03-2203-0070A	INSTRUMENT RACKS/ Instrument Rack 2203-70A	(18) Instruments on Racks	Turbine	517.5	AEER 2203-70A	Local Panels & Racks (Radwaste)	Y	Racks & Panels		y	
D03-2203-0073A	INSTRUMENT RACKS/ Instrument Rack 2203-73A	(18) Instruments on Racks	Turbine	538	H/35	Local Panels & Racks (Radwaste)	Y	Racks & Panels		y	
D03-2253-0010	CONTROL PANEL/ DG Metering and Relay Cabinet	(20) Instrumentation and Control Panels and Cabinets	Turbine	517.5	DG RM3 G-H/55	Local Panels & Racks (Radwaste)	Y	Racks & Panels			
D03-2253-0021	CONTROL PANEL/ DG Excitation Cabinet	(20) Instrumentation and Control Panels and Cabinets	Turbine	517.5	DG RM3 G-H/55	Local Panels & Racks (Radwaste)	Y	Racks & Panels			
D03-2253-0084	INSTRUMENT RACKS/ Instrument Rack 2253-84	(18) Instruments on Racks	Reactor	545.5	N/48	Local Panels & Racks (Radwaste)	Y	Racks & Panels			
D03-2301-0003-V20	HPCI/ Turbine Steam Line Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	476.5	HP RM3 N/46	HPCI	Y	RCIC			PRA: F-V=4.83E-03, RAW=2.6
D03-2301-0006-V20	HPCI/ Condensate Tank Supply to HPCI Pump Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	476.5	HP RM3 N/46	HPCI	Y	RCIC			PRA: RAW=2.6

ID	DESCRIPTION	CLASS	BUILDING	ELEVATION	LOCATION	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace ?	IPEEE Enhance-ment?	Comments
D03-2301-0008-V20	HPCI/ HPCI Pump Injection Line Valve	(08) Motor-Operated and Solenoid-Operated Valves	Turbine	517.5	X AREA G/46	HPCI	Y	RCIC			PRA: F-V=4.83E-03, RAW=2.6
D03-2301-0035-V20	HPCI/ Suppression Pool Suction Line Valve	(08) Motor-Operated and Solenoid-Operated Valves	Reactor	476.5	HP RM3 N/46	HPCI	Y	RCIC			PRA: RAW=2.6
D03-2301-0057-P30	HPCI/ HPCI Turbine Cooling Water Pump	(05) Horizontal Pumps	Reactor	476.5	HP RM3 N/46	HPCI	Y	RCIC			
D03-2302----P30	HPCI/ HPCI Pump	(05) Horizontal Pumps	Reactor	476.5	HP RM3 N/46-47	HPCI	Y	RCIC			PRA: F-V=3.77E-02, RAW=2.9
D03-2320-GSCE-F05	HPCI/ Gland Seal Condenser Exhaust Fan	(09) Fans	Reactor	476.5	HP RM3 N/46	HPCI	Y	RCIC			
D03-2380----PSH	HPCI/ HPCI Turbine Pressure Switch High	(20) Instrumentation and Control Panels and Cabinets	Reactor	476.5	HP RM3 N/46-47	HPCI	Y	RCIC			
D03-3903----P30	SERVICE WATER/ Diesel Generator Cooling Water Pump	(05) Horizontal Pumps	C. House	490.67	A/5	Service Water System	Y	Auxiliary & Support			
D03-4600-B--T05	DIESEL GENERATOR/ Primary Gas Air Receiver Unit "A1"	(12) Air Compressors	Turbine	517.5	DG RM3 G-H/55	Service Air System	Y	Auxiliary & Support			
D03-5202----T05	DIESEL GENERATOR/ Diesel Fuel Oil Storage Day Tank	(21) Tanks and Heat Exchangers	Turbine	528.25	DG RM3 G-H/55	Diesel Oil System	Y	Auxiliary & Support			
D03-5203----P30	DIESEL GENERATOR/ Fuel Oil Transfer Pump	(05) Horizontal Pumps	Turbine	517.5	DG RM3 G-H/55	Diesel Oil System	Y	Auxiliary & Support			
D03-5746-A--H15	LPCI/ LPCI Emergency Room Air Cooler	(10) Air Handlers	Reactor	476.5	SE C.RM M/44	Condensate Demineralizer System	Y	RCIC		y	
D03-5747----H15	HPCI/ HPCI Emergency Air Cooler	(10) Air Handlers	Reactor	476.5	HP RM3 N/46	Condensate Demineralizer System	Y	RCIC			PRA: F-V=4.86E-03, RAW=2.6
D03-6601----G05	DIESEL GENERATOR/ Diesel Engine Driven Generator	(17) Engine-Generators	Turbine	517.5	DG RM3 G-H/55	Diesel Generator	Y	Auxiliary & Support			PRA: F-V=6.74E-02
D03-67341----S35	4160V AC/ Switchgear 34-1	(03) Medium Voltage Switchgear	Reactor	545.5	M-N/48-49	4160 Volt Switchgear	Y	Electrical Systems		y	Scheduled to be de-energized during D3R22
D03-7338----S35	480V AC/ Switchgear 38	(02) Low Voltage Switchgear	Reactor	570	M-N/47-48	480 Volt Switchgear	Y	Electrical Systems		y	
D03-7338----T10	480V AC/ Transformer 38, Feed to Switchgear 38	(04) Transformers	Reactor	570	N/48	Transformer 28/38	Y	Electrical Systems	y		EC 330524; WO 400804; 03/05/2005
D03-7339----S35	480V AC/ 480V Switchgear 39	(02) Low Voltage Switchgear	Reactor	570	M-N/47-48	480 Volt Switchgear	Y	Electrical Systems		y	
D03-7838-1-1--P06	DISTRIBUTION PANELS/ Distribution Panel 38-1-1	(20) Instrumentation and Control Panels and Cabinets	Reactor	517.5	L-M/44	480 Volt MCCS	Y	Racks & Panels		y	
D03-7838-2--M05	480V AC/ MCC 38-2	(01) Motor Control Centers	Turbine	538	G/52	480 Volt MCCS	Y	Electrical Systems		y	Scheduled to be de-energized during D3R22
D03-7839-2--M05	480V AC/ MCC 39-2	(01) Motor Control Centers	Turbine	534	G/44-45	480 Volt MCCS	Y	Electrical Systems		y	
D03-8300--3A--B05	125V DC/ Battery Charger #3A	(16) Battery Chargers and Inverters	Turbine	538	G-H/54-55	125 VDC /250 VDC	Y	Electrical Systems	y	y	EC 333200; WO 365571; 06/19/2003

ID	DESCRIPTION	CLASS	BUILDING	ELEVATION	LOCATION	SYSTEM	Seismic Cat 1?	Safety Function(s)	New or Replace ?	IPEEE Enhance-ment?	Comments
D03-8300--3--B05	125V DC/ Battery Charger #3	(16) Battery Chargers and Inverters	Turbine	538	BC RM3 G-H/55	125 VDC /250 VDC	Y	Electrical Systems		y	
D03-8300--BC--B04	125V DC/ Battery #3, Feed to TB Battery Bus #3	(15) Batteries on Racks	Turbine	551	B RM3 G-H/55	125 VDC /250 VDC	Y	Electrical Systems		y	PRA: F-V=2.25E-01, RAW=35.3
D03-8303A---M05	250V DC/ MCC Bus #3A (ROB-RB MCC #3)	(01) Motor Control Centers	Reactor	570	M-N/46-47	125 VDC /250 VDC	Y	Electrical Systems	y	y	EC 341875; WO 558649; 01/31/2004
D03-8303B---M05	250V DC/ MCC Bus #3B (ROB-RB MCC #3)	(01) Motor Control Centers	Reactor	570	M-N/46-47	125 VDC /250 VDC	Y	Electrical Systems	y	y	EC 341875; WO 558649; 01/31/2004
D03-83125---P06	125V DC/ RB 125V DC Distribution Panel #3	(01) Motor Control Centers	Reactor	570	N/46	125 VDC /250 VDC	Y	Electrical Systems	y	y	EC 341875; WO 558649; 01/31/2004
D03-83250-3--B05	250V DC/ Battery Charger #3	(16) Battery Chargers and Inverters	Turbine	538	BC RM3 G-H/55	125 VDC /250 VDC	Y	Electrical Systems	y		EC 3332002; WO 365573; 10/27/2002
D03-83250-A01-M05	250V DC/ Breaker to TB MCC #3 (ROB-Battery #3)	(14) Distribution Panels	Turbine	549	G/31-32	125 VDC /250 VDC	Y	Electrical Systems			
D03-83250---B04	250V DC/ Battery #3, Feed to TB MCC #3	(15) Batteries on Racks	Turbine	551	B RM3 G-H/55	125 VDC /250 VDC	Y	Electrical Systems		y	
D03-9802A-A21-B11	24/48V DC/ Breaker to Battery Charger #3A (+)	(14) Distribution Panels	Turbine	551	G/56	345 kV Switchyard DC System	Y	Electrical Systems			
D03-9802-A--P06	24/48V DC/ Distribution Panel #3A	(01) Motor Control Centers	Turbine	538	BC RM3 G-H/55	345 kV Switchyard DC System	Y	Electrical Systems		y	
D03-DGCP	CONTROL PANEL/ Unit 3 Diesel Generator Control Panel	(20) Instrumentation and Control Panels and Cabinets	Turbine	517.5	DG RM3 G-H/55		Y	Racks & Panels			
D03-NGC	CONTROL PANEL/ Unit 3 Neutral Grounding Cabinet	(20) Instrumentation and Control Panels and Cabinets	Turbine	517.5	DG RM3 G-H/55		Y	Racks & Panels			

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

COMPONENT ID	DESCRIPTION	Anchorage Configuration Confirmed?	AWC-U3-xx	PAGE
D00-2223-0109	CONTROL PANEL/ DG Cooling Pump Transfer Switch Status	Y	25	C-7
D00-2350-C-----LS	HPCI/ Storage Tank Level Switch	N	29	C-12
D00-5741-0048BV72	CONTROL ROOM VENTILATION/ Service Water Supply Valve	N/A	31	C-16
D00-9400-0102-R15	CONTROL ROOM VENTILATION/ Refrigeration Condensing Unit	Y	31	C-23
D00-9400-0104BF05	CONTROL ROOM VENTILATION/ AFU Booster Fan	Y	31	C-34
D00-ACP	CONTROL PANEL/ Unit 2/3 Auxiliary Control Panel	Y	25	C-41
D00-DGCP	CONTROL PANEL/ Unit 2/3 Diesel Generator Control Panel	Y	13	C-46
D00-NGC	CONTROL PANEL/ Unit 2/3 Neutral Grounding Cabinet	Y	25	C-53
D03-0202-0005AV20	REACTOR RECIRCULATION/ Recirc Pump A Discharge Valve	N/A	OUTAGE	
D03-0203-0001AV05	MAIN STEAM/ Isolation Valve	N/A	OUTAGE	
D03-0203-0003AV26	ADS/ Target Rock Valve	N/A	OUTAGE	
D03-0203-0003BV26	ADS/ Electromatic Relief Valve	N/A	OUTAGE	
D03-0203-0004AV26	ADS/ Reactor Overpressure Relief Valve	N/A	OUTAGE	
D03-0302-0019AV27	CRD/ Backup Scram Solenoid Valve	N/A	11	C-59
D03-0302-0082B-LS	CRD/ East Bank SDV Tank Level Switch	N	LATER	
D03-0302-0082B-LT	CRD/ East Bank SDV Tank Level Transmitter	N	12	C-70
D03-0302-0082E-LT	CRD/ East Bank SDV Tank Level Transmitter	N	12	C-76
D03-0302-0156AV05	CRD/ East Bank Scram Discharge Volume Drain Valve	N/A	OUTAGE	
D03-0302-0157AV05	CRD/ East Bank Scram Discharge Volume Drain Valve	N/A	OUTAGE	
D03-0305-0010-0031-0125-A10	CRD/ Insertion Accumulator, West Bank, Row 8, Position 15 (C-8)	N/A	11	C-83
D03-0305-0010-0031-0126-V05	CRD/ Accumulator Insertion Scram Valve, West Bank, Row 8, Position 15 (C-8)	N/A	11	C-85

COMPONENT ID	DESCRIPTION	Anchorage Configuration Confirmed?	AWC-U3-xx	PAGE
D03-0305-0010-0031-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, West Bank, Row 8, Position 15 (C-8)	N/A	11	C-87
D03-0305-0010-0031-H20	CRD/ Hydraulic Control Unit, West Bank, Row 8, Position 15 (C-8)	Y	11	C-89
D03-0305-0030-0043-0125-A10	CRD/ Insertion Accumulator, West Bank, Row 8, Position 4 (H-11)	N/A	11	C-96
D03-0305-0030-0043-0126-V05	CRD/ Accumulator Insertion Scram Valve, West Bank, Row 8, Position 4 (H-11)	N/A	11	C-98
D03-0305-0030-0043-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, West Bank, Row 8, Position 4 (H-11)	N/A	11	C-100
D03-0305-0030-0043-H20	CRD/ Hydraulic Control Unit, West Bank, Row 8, Position 4 (H-11)	Y	11	C-102
D03-0305-0046-0031-0125-A10	CRD/ Insertion Accumulator, East Bank, Row 1, Position 16 (M-8)	N/A	12	C-108
D03-0305-0046-0031-0126-V05	CRD/ Accumulator Insertion Scram Valve, East Bank, Row 1, Position 16 (M-8)	N/A	12	C-110
D03-0305-0046-0031-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, East Bank, Row 1, Position 16 (M-8)	N/A	12	C-112
D03-0305-0046-0031-H20	CRD/ Hydraulic Control Unit, East Bank, Row 1, Position 16 (M-8)	Y	12	C-114
D03-0305-0058-0023-0125-A10	CRD/ Insertion Accumulator, East Bank, Row 1, Position 12 (R-6)	N/A	12	C-119
D03-0305-0058-0023-0126-V05	CRD/ Accumulator Insertion Scram Valve, East Bank, Row 1, Position 12 (R-6)	N/A	12	C-121
D03-0305-0058-0023-0127-V05	CRD/ Withdraw to Scram Discharge Volume Scram Valve, East Bank, Row 1, Position 12 (R-6)	N/A	12	C-123
D03-0305-0058-0023-H20	CRD/ Hydraulic Control Unit, East Bank, Row 1, Position 12 (R-6)	Y	12	C-125
D03-0409-A----T05	CRD/ East Bank Scram Discharge Volume Tank	N	27	C-129
D03-0903-0003	CONTROL PANELS/ Control Panel 903-3	Y	1	C-141
D03-0903-0015	CONTROL PANELS/ Control Panel 903-15	Y	1	C-144
D03-0903-0028	CONTROL PANELS/ Control Panel 903-28	Y	2	C-147
D03-0903-0039	CONTROL PANELS/ Control Panel 903-39	Y	2	C-152
D03-0923-0005 & -0005A	CONTROL PANELS/ Control Panel 923-5 & 923-5A	Y	1	C-158
D03-1001-0002AV20	SHUTDOWN COOLING/ Shut Down Pumps Suction Line Valve	N/A	26	C-163
D03-1001-0005AV20	SHUTDOWN COOLING/ Injection Line Valve	N/A	33	C-173
D03-1301-0004-V20	ISOLATION CONDENSER/ Steam Return Line Isolation Valve	N/A	OUTAGE	

COMPONENT ID	DESCRIPTION	Anchorage Configuration Confirmed?	AWC-U3-xx	PAGE
D03-1501-0003AV20	CCSW/ Heat Exchanger Outlet Service Water Line Valve	N/A	17	C-183
D03-1501-0021AV20	LPCI/ LPCI Injection Line Valve	N/A	12, 15	C-190
D03-1501-0032AV20	LPCI/ LPCI Header Crosstie Line Valve	N/A	17	C-201
D03-1501-0044AP30	CCSW/ CCSW Pump "A"	Y	10	C-208
D03-1502-A----P30	LPCI/ LPCI Injection Pump "A"	Y	18	C-217
D03-1503-A----H15	LPCI/ LPCI Heat Exchanger	Y	17	C-227
D03-1541-----A-FE	CCSW/ CCSW Pump "A" and "B" Discharge Flow Element	N/A	28	C-234
D03-1599-0013AV26	LPCI/ Suppression Pool Suction Line "A" Relief Valve	N/A	18	C-239
D03-1601-0021-V05	PRESSURE SUPPRESSION/ Drywell Purge Line Valve	N/A	OUTAGE	
D03-1601-0022-V05	PRESSURE SUPPRESSION/ Drywell/Torus Purge Line Valve	N/A	OUTAGE	
D03-1601-0023-V05	PRESSURE SUPPRESSION/ Drywell Ventiliation Line Valve	N/A	24	C-245
D03-1601-0024-V05	PRESSURE SUPPRESSION/ Drywell and Torus Vent Valve	N/A	21	C-257
D03-1601-0057-V20	PRESSURE SUPPRESSION/ Drywell/Torus Nitr. Makeup Valve	N/A	28	C-264
D03-1601-0062-V05	PRESSURE SUPPRESSION/ Drywell Ventilation Line Valve	N/A	24	C-272
D03-1601-0063-V05	PRESSURE SUPPRESSION/ Containment to SBGT Line Valve	N/A	30	C-274
D03-2001-0005-V05	RB EQUIPMENT DRAIN/ Drywell Equipment Drain Line Valve	N/A	OUTAGE	
D03-2001-0105-V05	RB EQUIPMENT DRAIN/ Drywell Floor Drain Line Valve	N/A	OUTAGE	
D03-2203-0006	INSTRUMENT RACKS/ Instrument Rack 2203-6	Y	23	C-282
D03-2203-0008	INSTRUMENT RACKS/ Instrument Rack 2203-8	Y	11	C-290
D03-2203-0070A	INSTRUMENT RACKS/ Instrument Rack 2203-70A	Y	2	C-297
D03-2203-0073A	INSTRUMENT RACKS/ Instrument Rack 2203-73A	Y	32	C-304
D03-2253-0010	CONTROL PANEL/ DG Metering and Relay Cabinet	Y	8	C-308
D03-2253-0021	CONTROL PANEL/ DG Excitation Cabinet	Y	8	C-314
D03-2253-0084	INSTRUMENT RACKS/ Instrument Rack 2253-84	Y	22	C-319
D03-2301-0003-V20	HPCI/ Turbine Steam Line Valve	N/A	19	C-326

COMPONENT ID	DESCRIPTION	Anchorage Configuration Confirmed?	AWC-U3-xx	PAGE
D03-2301-0006-V20	HPCI/ Condensate Tank Supply to HPCI Pump Valve	N/A	19	C-333
D03-2301-0008-V20	HPCI/ HPCI Pump Injection Line Valve	N/A	OUTAGE	
D03-2301-0035-V20	HPCI/ Suppression Pool Suction Line Valve	N/A	19	C-339
D03-2301-0057-P30	HPCI/ HPCI Turbine Cooling Water Pump	Y	19	C-346
D03-2302------P30	HPCI/ HPCI Pump	Y	19	C-353
D03-2320-GSCE-F05	HPCI/ Gland Seal Condenser Exhaust Fan	Y	19	C-362
D03-2380------PSH	HPCI/ HPCI Turbine Pressure Switch High	N	19	C-368
D03-3903------P30	SERVICE WATER/ Diesel Generator Cooling Water Pump	Y	14	C-377
D03-4600-B----T05	DIESEL GENERATOR/ Primary Gas Air Receiver Unit "A1"	Y	8	C-384
D03-5202------T05	DIESEL GENERATOR/ Diesel Fuel Oil Storage Day Tank	Y	7	C-390
D03-5203------P30	DIESEL GENERATOR/ Fuel Oil Transfer Pump	Y	8	C-396
D03-5746-A----H15	LPCI/ LPCI Emergency Room Air Cooler	Y	17	C-403
D03-5747------H15	HPCI/ HPCI Emergency Air Cooler	Y	19	C-410
D03-6601------G05	DIESEL GENERATOR/ Diesel Engine Driven Generator	Y	8	C-424
D03-67341-----S35	4160V AC/ Switchgear 34-1	Y	22	C-431
D03-7338------S35	480V AC/ Switchgear 38	N	20	C-440
D03-7338------T10	480V AC/ Transformer 38, Feed to Switchgear 38	N	20	C-448
D03-7339------S35	480V AC/ 480V Switchgear 39	N	20	C-453
D03-7838-1-1--P06	DISTRIBUTION PANELS/ Distribution Panel 38-1-1	Y	16	C-460
D03-7838-2----M05	480V AC/ MCC 38-2	Y	6	C-468
D03-7839-2----M05	480V AC/ MCC 39-2	Y	9	C-476
D03-8300--3A--B05	125V DC/ Battery Charger #3A	N	4	C-483
D03-8300--3---B05	125V DC/ Battery Charger #3	N	3	C-489

COMPONENT ID	DESCRIPTION	Anchorage Configuration Confirmed?	AWC-U3-xx	PAGE
D03-8300--BC--B04	125V DC/ Battery #3, Feed to TB Battery Bus #3	Y	5	C-495
D03-8303A-----M05	250V DC/ MCC Bus #3A (ROB-RB MCC #3)	Y	20	C-502
D03-8303B-----M05	250V DC/ MCC Bus #3B (ROB-RB MCC #3)	Y	20	C-507
D03-83125-----P06	125V DC/ RB 125V DC Distribution Panel #3	Y	20	C-512
D03-83250-3---B05	250V DC/ Battery Charger #3	N	3	C-515
D03-83250-A01-M05	250V DC/ Breaker to TB MCC #3 (ROB-Battery #3)	N	LATER	
D03-83250-----B04	250V DC/ Battery #3, Feed to TB MCC #3	Y	5	C-521
D03-9802A-A21-B11	24/48V DC/ Breaker to Battery Charger #3A (+)	N	3	C-529
D03-9802-A----P06	24/48V DC/ Distribution Panel #3A	N	3	C-533
D03-DGCP	CONTROL PANEL/ Unit 3 Diesel Generator Control Panel	Y	8	C-542
D03-NGC	CONTROL PANEL/ Unit 3 Neutral Grounding Cabinet	N	8	C-547

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-2223-0109

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

Equipment Description: CONTROL PANEL/ DG Cooling Pump Transfer Switch Status

Project: Dresden 3 SWEL

Location (Bldg, Elev, Room/Area): Reactor, 504.50 ft, ALL

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.: D00-2223-0109

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

Equipment Description: CONTROL PANEL/ DG Cooling Pump Transfer Switch Status

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

SEWS Anchorage Notes:

Column mounted panel. Bolted to column with four 3/8" non-shell expansion bolts (one in each corner) through a 1/2" shim plate.

*****

Seismic Walkdown Team: J. Griffith & M. Wodarcyk - 7/31/2012

See U2/3 Diesel Generator Room area walk-by notes completed during U2 walkdown for further information.

Evaluated by: James Griffith Date: 9/30/2012

Michael Wodarcyk 9/30/2012

Status: [Y] N U

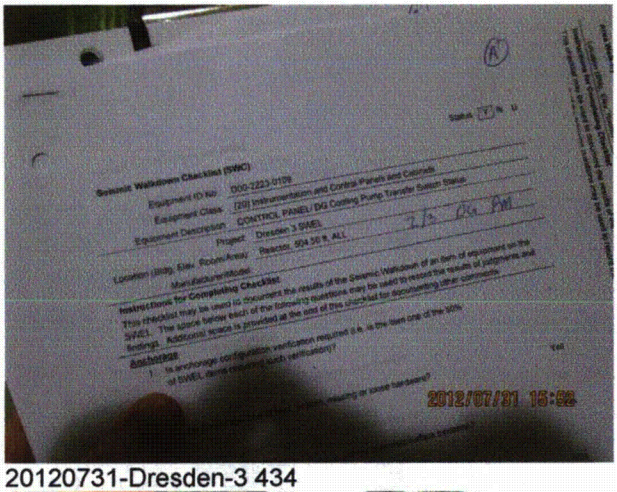
Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-2223-0109

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

Equipment Description: CONTROL PANEL/ DG Cooling Pump Transfer Switch Status

Photos



20120731-Dresden-3 434

20120731-Dresden-3 435

20120731-Dresden-3 436

20120731-Dresden-3 437

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-2223-0109

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

Equipment Description: CONTROL PANEL/ DG Cooling Pump Transfer Switch Status

20120731-Dresden-3 438

20120731-Dresden-3 439

20120731-Dresden-3 440

20120731-Dresden-3 441

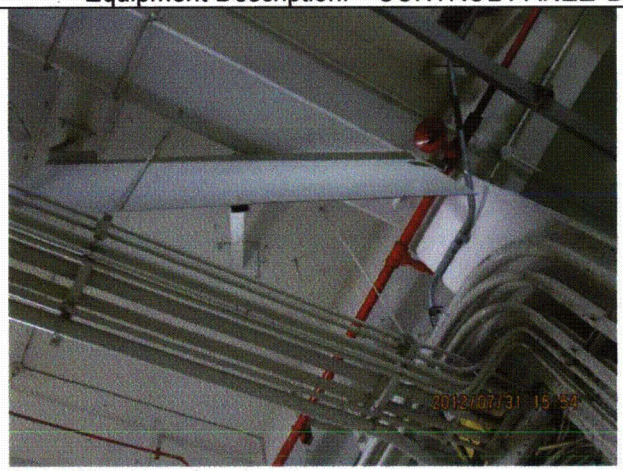
Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-2223-0109

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

Equipment Description: CONTROL PANEL/ DG Cooling Pump Transfer Switch Status



20120731-Dresden-3 442

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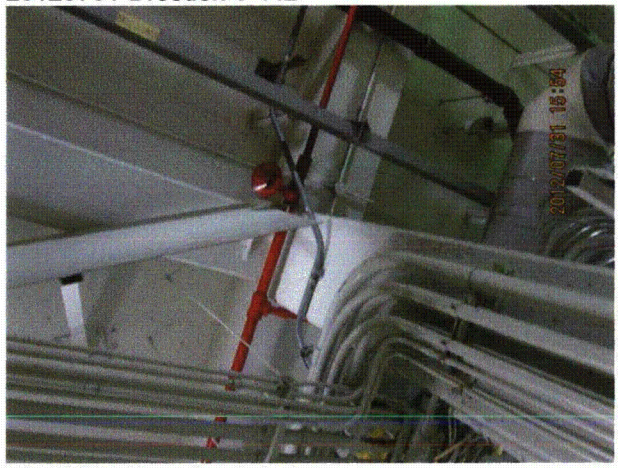


20120731-Dresden-3 444

20120731-Dresden-3 445

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-2350-C-----LS

Equipment Class: (18) Instruments on Racks

Equipment Description: HPCI/ Storage Tank Level Switch

Project: Dresden 3 SWEL

Location (Bldg, Elev, Room/Area): Turbine, 517.50 ft, ALL

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
   Tube steel cantilever floor support with anchors.

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
   Switch is labeled as 3-2350C-LS in plant.

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-2350-C-----LS

Equipment Class: (18) Instruments on Racks

Equipment Description: HPCI/ Storage Tank Level 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

Seismic Walkdown Team: J. Griffith & M. Wodarcyk - 7/31/2012

Equipment tag says 3-2350-C. Operations confirmed that this is the correct item.

Evaluated by: James Griffith Date: 10/24/2012

Michael Wodarcyk 10/24/2012

Status: [Y] N U

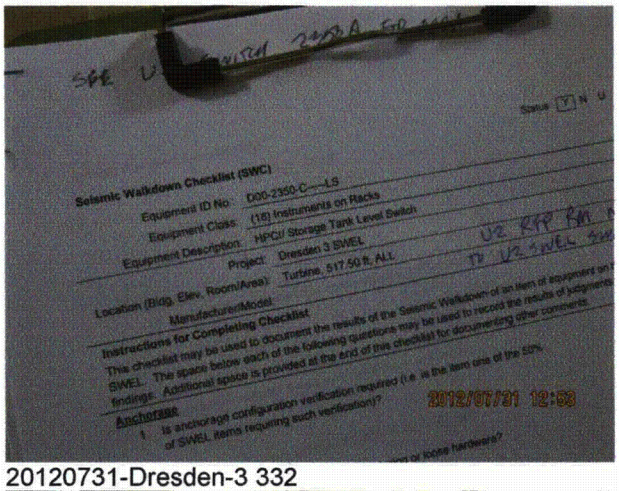
Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-2350-C-----LS

Equipment Class: (18) Instruments on Racks

Equipment Description: HPCI/ Storage Tank Level Switch

Photos



20120731-Dresden-3 332

20120731-Dresden-3 333

20120731-Dresden-3 334

20120731-Dresden-3 335

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-2350-C-----LS

Equipment Class: (18) Instruments on Racks

Equipment Description: HPCI/ Storage Tank Level Switch

20120731-Dresden-3 336

20120731-Dresden-3 337

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-5741-0048BV72

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CONTROL ROOM VENTILATION/ Service Water Supply Valve

Project: Dresden 3 SWEL

Location (Bldg, Elev, Room/Area): Turbine, 534.00 ft, ALL

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? *Valve actuator is well-supported from floor. Valve actuator support has an anchor with projection that is flush with top-of-nut and judged to be acceptable.*	Yes

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-5741-0048BV72

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CONTROL ROOM VENTILATION/ Service Water Supply Valve

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? *Overhead light fixtures judged to be acceptable. Adjacent masonry wall is adequately restrained and judged to be acceptable.*	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

Seismic Walkdown Team: J. Griffith & M. Wodarcyk - 7/30/2012

See area walk-by for D00-5741-0048A72 for further information.

Evaluated by: James Griffith Date: 9/30/2012

Michael Wodarcyk 9/30/2012

Status: [Y] N U

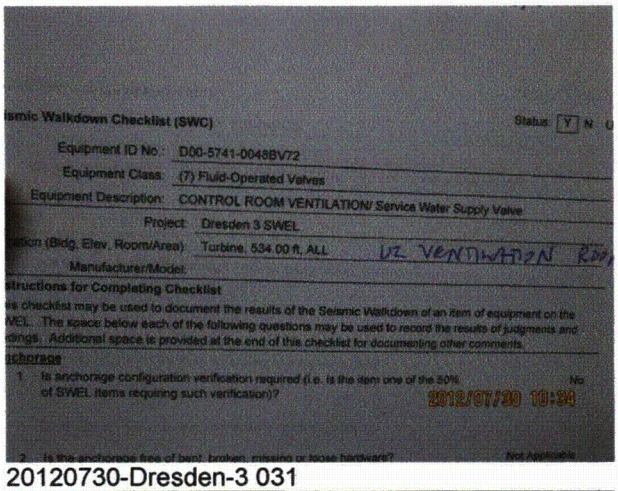
Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-5741-0048BV72

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CONTROL ROOM VENTILATION/ Service Water Supply Valve

Photos



20120730-Dresden-3 031

20120730-Dresden-3 032

20120730-Dresden-3 034

20120730-Dresden-3 035

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

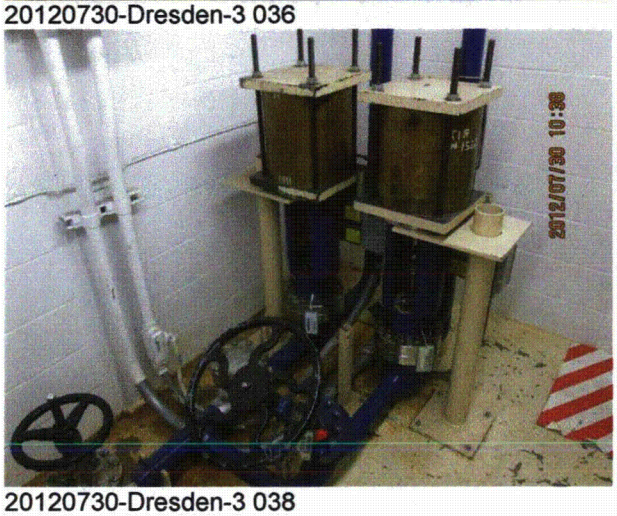
Equipment ID No.: D00-5741-0048BV72

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CONTROL ROOM VENTILATION/ Service Water Supply Valve

20120730-Dresden-3 036

20120730-Dresden-3 037



20120730-Dresden-3 038

20120730-Dresden-3 039

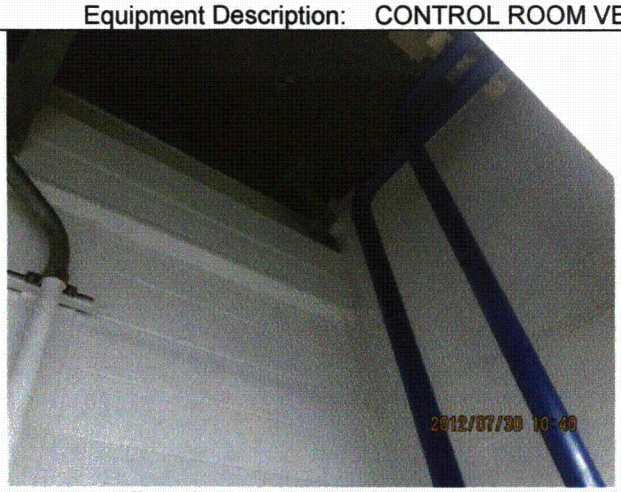
Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-5741-0048BV72

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CONTROL ROOM VENTILATION/ Service Water Supply Valve



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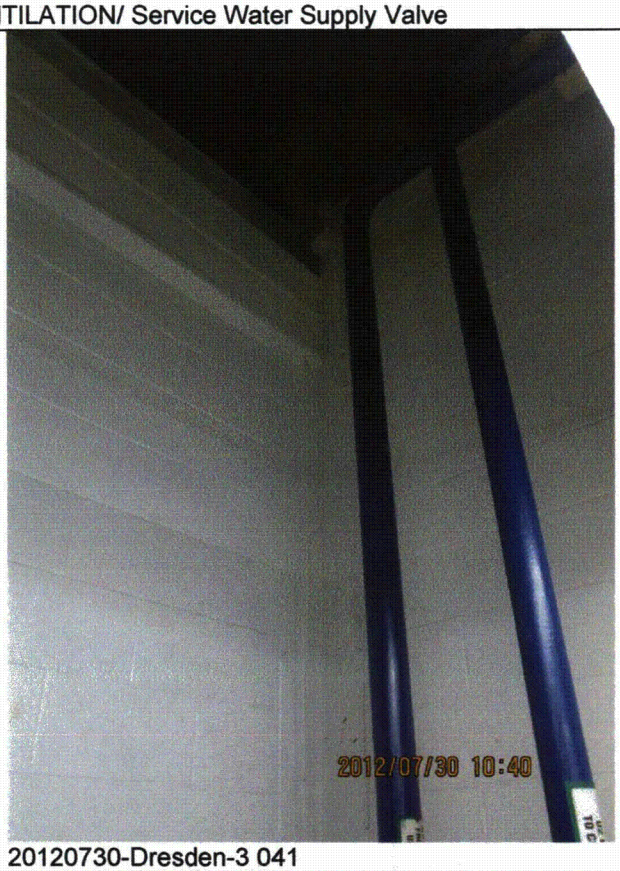

20120730-Dresden-3 041

20120730-Dresden-3 042

20120730-Dresden-3 043

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-5741-0048BV72

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CONTROL ROOM VENTILATION/ Service Water Supply Valve

20120730-Dresden-3 044

20120730-Dresden-3 045

20120730-Dresden-3 046

20120730-Dresden-3 047

Status: [Y] N U

Seismic Walkdown Checklist (SWC)

Equipment ID No.: D00-5741-0048BV72

Equipment Class: (7) Fluid-Operated Valves

Equipment Description: CONTROL ROOM VENTILATION/ Service Water Supply Valve

20120730-Dresden-3 048

20120730-Dresden-3 049

20120730-Dresden-3 050

20120730-Dresden-3 051