

**Vogtle Electric Generating Plant – Unit 1  
Seismic Recommendation 2.3 Walkdown Report Requested by NRC Letter,  
*Request for Information Pursuant to Title 10 of the Code of Federal  
Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the  
Near-Term Task Force Review of Insights from the Fukushima Daiichi  
Accident, dated March 12, 2012***

**Enclosure**

**Vogtle Unit 1 Seismic Walkdown Report for Resolution of Fukushima Near-  
Term Task Force Recommendation 2.3: Seismic**

PROJECT REPORT  
COVER SHEET

NO. SNCV061-RPT-01

VERSION 1.0

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Vogtle Unit 1 SEISMIC WALKDOWN REPORT, RER SNC432485

For

Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic

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### **EXECUTIVE SUMMARY**

The Seismic Walkdowns at Vogtle Unit 1 in response to the NRC 50.54(f) letter dated March 12, 2012, "Enclosure 3, Recommendation 2.3: Seismic" are complete. The walkdowns were performed using the methodology outlined in the NRC endorsed "Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic" (EPRI Report number 1025286). Plant Vogtle Unit 1 had no significant degraded, non-conforming or unanalyzed conditions that warranted modification to the plant. Plant Vogtle Unit 1 had no as-found conditions that would prevent SSCs from performing their required safety functions.

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## **1.0 SCOPE AND OBJECTIVE**

The objective of this report is to document the results of the Seismic Walkdowns at Vogtle Unit 1 in response to the NRC 50.54(f) letter dated March 12, 2012, "Enclosure 3, Recommendation 2.3: Seismic" (Reference 10.1).

The Seismic Walkdowns followed the guidance contained in EPRI Report 1025286 (Reference 10.2), which was endorsed by the NRC on May 31, 2012. The scope of the walkdowns was to identify potentially degraded, unanalyzed, or nonconforming conditions relative to the seismic licensing basis.

The 2.3: Seismic Walkdowns for Vogtle Unit 1 are complete. All items on the SWEL were accessible. This report is comprehensive and documents the findings from all Seismic Walkdowns and Area Walk-bys.

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## **2.0 SEISMIC WALKDOWN PROGRAM IMPLEMENTATION APPROACH**

The requirements of the 50.54(f) Letter are satisfied by application of and compliance with the NRC endorsed methodology provided in EPRI Report 1025286 (Reference 10.2). In accordance with EPRI Report 1025286 (Reference 10.2), the following topics are addressed in this report:

- Documentation of the seismic licensing basis for the SSCs in the plant (Section 3.0);
- Assignment of appropriately qualified personnel (Section 4.0);
- Reporting of actions taken to reduce/eliminate seismic vulnerabilities identified by the Individual Plant Examination for External Events IPEEE program (Section 5.0);
- Selection of SSCs to be inspected in the plant (Section 6.0);
- Performance of the Seismic Walkdowns and Area Walk-bys (Section 7.0);
- Evaluation of potentially adverse seismic conditions with respect to the seismic licensing bases (Section 8.0); and
- Performance of Peer Reviews (Section 9.0).

Supplemental guidance/clarification for opening cabinets to inspect for adverse conditions was received on September 18, 2012. This required the opening of cabinets, electrical boxes, and switchgear to inspect the internals for potentially adverse seismic conditions, even when opening the components was not required to inspect the anchorage. At the time of this supplemental guidance/clarification, the Vogtle Unit 1 walkdowns were complete. However, the affected components were identified and scheduled for re-inspection with component doors opened. Further discussion is provided in Section 7.0.

Due to the occurrence of a scheduled refueling outage at Vogtle Unit 1 in late September 2012, items inaccessible during the initial walkdowns were accessible during subsequent walkdowns performed during the outage. In addition, during subsequent Seismic Walkdowns of Vogtle Unit 1, electrical cabinets (where no extensive disassembly was required) were opened to inspect the cabinet internals for mounting of internal components, inspect the condition of fasteners of adjacent cabinets, and confirm absence of any other adverse seismic conditions.

Therefore, all cabinets at Vogtle Unit 1 have now been made accessible for internal inspections and inspections of these panels are complete.

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### **3.0 SEISMIC LICENSING BASIS SUMMARY**

This section provides a summary of the licensing bases for the Seismic Category I Structures, Systems, and Components (SSCs) in the plant. It includes a discussion of the Safe Shutdown Earthquake (SSE) and the codes and standards used in the design of the Seismic Category I SSCs for meeting the plant-specific seismic licensing basis requirements.

#### **3.1 SAFE SHUTDOWN EARTHQUAKE**

The plant site geologic and seismologic investigations are covered in Section 2.5 of the Vogtle FSAR (Reference 10.7). Based on this data, the peak ground accelerations for Safe Shutdown Earthquake (SSE) and Operating Basis Earthquake (OBE) are established as 0.20g and 0.12g, respectively, as discussed in subsection 2.5.2 (Reference 10.7).

The VEGP site design response spectra are provided in Figures 3.7.B.1-1 and 3.7.B.1-2 for the horizontal and vertical components of the SSE and in Figures 3.7.B.1-3 and 3.7.B.1-4 for the horizontal and vertical components of the OBE (Reference 10.7). The design response spectra are in conformance with Regulatory Guide 1.60, Design Response Spectra for Seismic Design of Nuclear Power Plants (Reference 10.5). The ground spectra were applied to models of the various structures and amplified in-structure response spectra were generated taking into account the flexibility of the soil and structure.

#### **POWER GENERATION DESIGN BASES**

Seismic Category I systems, structures and components are designed so that stresses remain within normal code allowable limits during the OBE and to ensure that they will perform their safety-related functions during and/or after an SSE.

#### **MAJOR COMPONENT DESIGN BASES**

The horizontal and vertical OBE and SSE in-structure response spectra curves form the basis for the seismic qualification and design of Category I SSCs and for demonstrating the structural integrity of Seismic Category II SSCs, where required. In addition, systems running between structures shall be designed to withstand the seismic relative displacements.

The seismic analysis of safety related systems, equipment, and components is based on the response spectra method, time-history method, or equivalent static method.

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All Seismic Category I safety-related instrumentation and mechanical and electrical equipment meet the requirements and recommendations of IEEE 344-1975. Damping values are consistent with those specified in Regulatory Guide 1.61 (Reference 10.10).

### 3.2 DESIGN CODES, STANDARDS, AND METHODS

The design codes and standards for seismic qualification are listed in Chapter 3 of the Vogtle FSAR (Reference 10.7). Examples of the pertinent codes, standards, and methods used in the original design of Vogtle Unit 1 are listed below.

- ANSI B31.1, Power Piping
- ANSI/ASME Boiler and Pressure Vessel Code, Section III, Rules for Construction of Nuclear Power Plant Components, Division 1
- ANSI/ASME Boiler and Pressure Vessel Code, Section III, Division 1-A, Appendix N, Dynamic Analysis Methods
- IEEE 317-1976, Standard for Electric Penetration Assemblies in Containment Structures for Nuclear Power Generating Stations
- IEEE 323-1974, Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations
- IEEE 344-1975, Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations
- Manual of Steel Construction (AISC), 7th Edition



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#### 4.0 PERSONNEL QUALIFICATIONS

Table 4-1 identifies the project team members and their project responsibilities per EPRI Report 1025286 (Reference 10.2). Table 4-2 identifies the Peer Review Team members and responsibilities. Section 4.1 provides an overview of the project responsibilities. Section 4.2 includes brief experience summaries for all project personnel in alphabetical order.

**Table 4-1 Project Team Members and Responsibilities**

<b>Name</b>	<b>Site Point of Contact (POC)</b>	<b>Equipment Selection / IPEEE Reviewer</b>	<b>Plant Operations</b>	<b>Seismic Walkdown Engineer (SWE)</b>	<b>Licensing Basis Reviewer</b>
Justo Chacon		X		X	X
James Dovel				X	X
Parimal Gandhi				X	X
Jose Hernandez	X	X		X	X
Thomas Petrak		X	X		
Winston Stewart *				X	X
David Volodarsky				X	X
Matthew Wilkinson				X	X
Frank Yao				X	X

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**Table 4-2 Peer Review Team Members and Responsibilities**

Name	Peer Review Team Leader	SWEL Peer Reviewer	Walkdown Peer Reviewer	Licensing Basis Peer Reviewer	Submittal Report Peer Reviewer
Robert Ashworth *		X	X	X	X
Melanie Brown *	X	X		X	X
Richard Starck *		X			X
Kenneth Whitmore *		X	X	X	X

Notes (Table 4-1 and Table 4-2):

- 1) \* Indicates Seismic Capability Engineer
- 2) As stated in Section 7.0, all potentially adverse conditions were entered into the plant Corrective Action Program (CAP) system. However, as part of the process of entering the condition into the CAP, the SWEs made a preliminary assessment of the condition with respect to the plant licensing basis. Further licensing basis reviews were performed as discussed in Section 8.0 as part of the CAP resolution process by personnel not directly involved in the walkdowns.

#### 4.1 OVERVIEW OF PROJECT RESPONSIBILITIES

The Site Point of Contact (POC) is a site engineer from Southern Nuclear that has experience with the site equipment, site procedures, plant operations, and overall personnel organization. The site POC coordinated site access for walkdown personnel and any resources required for the walkdowns such as inspection equipment and support from plant operations. The POC was responsible for development of the walkdown schedule and any updates to the schedule based on equipment availability.

Equipment Selection Personnel (ESP) were responsible for identifying the sample of SSCs for the Seismic Walkdowns. The ESP have knowledge of plant operations, plant documentation, and associated SSCs. The ESP also have knowledge of the IPEEE program. For this project, site engineers and plant operations personnel participated in the equipment selection. The ESP also

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performed the responsibilities of the IPEEE Reviewers. The IPEEE Reviewers also ensured that the walkdown scope included a sample of equipment that had IPEEE seismic vulnerabilities.

Plant Operations Personnel provided detailed review of the sample of SSCs to ensure the walkdown scope included equipment located in a variety of environments, equipment in a variety of systems, and equipment accessible for a walkdown. For the Vogtle Unit 1 project, the Plant Operations Personnel (POP) is a former licensed Senior Reactor Operator.

The SWEs were trained on the NTTF Recommendation 2.3: Seismic, and on the material contained in EPRI Report 1025286 (Reference 10.2). SWEs that had previously completed the Seismic Walkdown Training Class developed by the Seismic Qualification Utilities Group (SQUG) were not required to complete training on the NTTF Seismic recommendations but were trained on the differences between SQUG activities and activities associated with the NTTF Seismic recommendations.

The Licensing Basis Reviewer was responsible for determining whether any potentially adverse seismic conditions identified by the SWEs met the plant seismic licensing basis. The Licensing Basis Reviewer has knowledge of and experience with the seismic licensing basis and documentation for the SSCs at Vogtle.

A Peer Review Team was formed for this project to provide both oversight and review of all aspects of the walkdowns. The Peer Review Team members have extensive experience in seismic design and qualification of structures, systems and components as well as extensive field experience. The Peer Review Team for this project interfaced with the ESP and SWEs to ensure that the walkdown program satisfied the guidance in EPRI Report 1025286 (Reference 10.2).

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## 4.2 TEAM EXPERIENCE SUMMARIES

### Robert Ashworth, SCE (MPR)

Mr. Ashworth has more than six years of experience providing engineering solutions for a wide variety of nuclear power plant components and systems. His experience includes equipment walkdowns at industrial facilities to assess material condition, structural modeling and analyses, and seismic qualification in accordance with current industry standards for mechanical and electrical equipment in nuclear power plants. Mr. Ashworth has completed the training course for the EPRI Report 1025286 and is also a Seismic Capability Engineer (SCE) as defined in the SQUG Generic Implementation Procedure (GIP) for resolution of unresolved safety issue (USI) A-46.

### Melanie Brown, SCE (SNC)

Ms. Brown has over 31 years of experience with Southern Company, the majority of which has been serving the nuclear fleet. Ms. Brown's most recent assignment was as a Seismic Qualification Engineer in the Fleet Design Department, where she was responsible for performing activities associated with the Governance, Oversight, Support, and Perform (GOSP) Model including:

- Management of the seismic design bases,
- Seismic equipment qualification,
- Seismic evaluation of plant structures and components,
- Design documentation and configuration management.

She is currently serving as the Southern Nuclear Seismic Technical Lead for the Fukushima Near-Term Task Force (NTTF) 2.3 Seismic Walkdowns for all three Southern Nuclear plants.

### Justo S Chacon, SWE (SNC)

Mr. Chacon is an engineer with Southern Nuclear Operating Company. He is working at Vogtle Nuclear Plant in the Modification Group in the Civil/Mechanical area. Mr. Chacon has a degree in Industrial Engineering and has worked on numerous site projects associated with civil/mechanical applications. Being part of Modification Group, he is exposed to the seismic engineering issues as they apply to nuclear power plants. His extensive experience also as a Reactor Operator (roughly 6 years) provides experience with nuclear power equipment. Mr. Chacon completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

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James Dovel, SWE (ENERCON)

Mr. Dovel is a Registered Professional Engineer with over 20 years of Civil/Structural experience in the design and construction of nuclear power plants, and in commercial and Industrial design. Mr. Dovel is a Civil Lead Engineer. In this capacity he has provided structural support of modification packages for numerous Entergy plants including Grand Gulf Nuclear Station (GGNS), River Bend Station, Arkansas Nuclear One (ANO), Pilgrim Nuclear Power Station, and Waterford 3. Mr. Dovel also supported the extended power uprate (EPU) for FPL’s Turkey Point plant, pipe stress analysis for DC Cook and the design of new power plants for China. Mr. Dovel completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

Parimal Gandhi, SWE (SNC)

Mr. Gandhi is a senior engineer with Southern Nuclear Operating Company. For the past 25 years, he has been working with the design and modifications of numerous Nuclear Power Plants and other industrial facilities including evaluating the condition of structural steel and concrete. His experience includes static and dynamic analysis of steel frames, platforms, towers, crane girders, and various miscellaneous structures and finite element analysis of pressure vessel and lifting devices. Mr. Gandhi completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

Jose Hernandez, SWE (SNC)

Mr. Hernandez is an engineer with Southern Nuclear Operating Company. He is working at Vogtle Nuclear Plant in the Site Design department. Mr. Hernandez is a registered professional engineer in the state of Georgia. His experience consists of 8 years in reinforced concrete analysis and design, elastic design, seismic rehabilitation, nonlinear analysis, nuclear design engineering, and geotechnical elements on reinforced concrete structures. Mr. Hernandez is familiar in-depth with structural and civil construction codes. Mr. Hernandez managed the internal project team and subcontractors on numerous site projects. Mr. Hernandez’s previous experience includes participation in several researches that investigated the seismic vulnerability of existing school and hospital buildings located in high intensity activity seismic zones. Mr. Hernandez completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as SWE.

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Thomas Petrak (SNC)

Mr. Petrak has 30 years of nuclear power plant experience with 26 years at Plant Vogtle. Mr. Petrak's current assignment is the Fukushima Project Manager – Vogtle. During his time at Plant Vogtle, Mr. Petrak maintained an active SRO license for twenty years, 1989 – 2009. Positions held by Mr. Petrak include:

- Engineering Systems Manager
- Shift Manager
- Unit Shift Supervisor
- Support Shift Supervisor
- Maintenance Superintendent
- I&C Team Leader
- Engineering Supervisor

Richard Starck, SCE (MPR)

Mr. Starck is a registered Professional Engineer with more than 30 years of experience in seismic qualification of nuclear plant equipment. He is the principal author of the EPRI Report 1025286 (Reference 10.2). He developed and taught the six sessions of the NTTF 2.3 Seismic Walkdown Training Course to more than 200 engineers. He has provided technical oversight of work for various SQUG projects aimed at resolving USI A-46. Mr. Starck developed for SQUG the generic guidelines, criteria, and procedure for identifying safe shutdown equipment for resolution of USI A-46, is the editor and principal author of the SQUG Generic Implementation Procedure, and has interfaced with the NRC Staff and the SQUG Steering Group to resolve open issues on several revisions of the GIP. Mr. Starck is a SCE and has performed Seismic Walkdowns and evaluations of nuclear plant electric and mechanical equipment as part of the NRC required USI A-46 program. This work included equipment qualification, anchorage evaluation, seismic interaction review, outlier resolution, and operability determination.

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Winston Stewart, SCE (ENERCON)

Mr. Stewart is a Mechanical Engineer with over eight years of experience in various capacities including: Modification Engineer, Engineering Mentor, 10CFR50.59 Evaluator, Apparent Cause Evaluator, Contract Administration and Designated Representative, Project Manager, Procedure Technical Reviewer, and Environmental Monitoring Team Leader for Emergency Response Organization. Mr. Stewart was responsible for the preparation of technical evaluations for various configuration changes to plant systems, structures, or components, as well as the preparation and revision of civil/structural calculations, pipe stress calculations, and other design documents. He also served as subject matter expert for Pipe Stress Analysis and Pipe Flaw Evaluation (ASME B31.1, Section III and Section XI). During this time he qualified as SQUG Seismic Capability Engineer. Mr. Stewart completed his EPRI training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

David Volodarsky, SWE (ENERCON)

Mr. Volodarsky is a Registered Professional Engineer with over 30 years of Civil/Structural experience in the design and construction of nuclear power plants. Mr. Volodarsky is a civil supervisor with Enercon Services. His design experience includes field survey; piping design and stress analysis; seismic qualification of equipment, parts and structures; design of supports for various systems (piping, ductwork, raceways) for nuclear power plants. His recent work is associated with 10 CFR 73.55 nuclear plant security upgrades at Plant Farley, Plant Hatch, and Plant Vogtle. Mr. Volodarsky supported modification packages for the installation of the Emergency Sump Strainer for Davis Besse, Crystal River Unit 3, McGuire Nuclear Station Unit 1 & 2, Catawba Nuclear Station Unit 1 & 2, Indian Point Unit 2 & 3, Shearon Harris Nuclear Plant, Three Mile Island Nuclear Station Unit 1 and Qinshan Nuclear Power Plant Unit 3. Mr. Volodarsky completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

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Kenneth Whitmore, SCE (ENERCON)

Mr. Whitmore is a Registered Professional Engineer with more than 30 years of experience in seismic design and seismic equipment qualification in nuclear power plants. Mr. Whitmore is a Seismic Capability Engineer that was involved in the development of the SQUG methodology for verification of nuclear plant components. Specifically, Mr. Whitmore served on the sub-committee that developed the SQUG methodology for evaluation of raceways and on the sub-committee that performed the peer review of the SQUG walkdown training class. Mr. Whitmore performed A-46 and IPEEE walkdowns at Oyster Creek and Three Mile Island and has subsequently performed SQUG evaluations at numerous nuclear power plants. Mr. Whitmore served as both Chairman and Technical Chairman of the Seismic Qualification Reporting and Testing Service (SQRTS), has witnessed numerous seismic tests and is a recognized industry expert in seismic qualification of components. Mr. Whitmore has significant experience in all aspects of structural analysis and design and has extensive experience in performing plant walkdowns associated with seismic issues. Mr. Whitmore completed his EPRI training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

Matthew Wilkinson, SWE (ENERCON)

Mr. Wilkinson is a Civil Engineer with over 5 years of experience. He has a B.S. in Civil Engineering. As a civil engineer, he is responsible for the development of engineering packages, calculations, analyses, drawings, and reports. Mr. Wilkinson has significant design experience with Florida Power and Light, primarily providing his services for Turkey Point Nuclear Station (PTN) on several modification packages and calculations. Mr. Wilkinson has significant site support experience at PTN, McGuire Nuclear Station and River Bend Nuclear Station. Moreover, Mr. Wilkinson worked directly at PTN for the majority of 2010 to support the Independent Spent Fuel Storage Installation (ISFSI) construction and 2011 to 2012 to support the Extended Power Uprate (EPU) project design phase. Mr. Wilkinson completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.



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Frank Yao, SWE (ENERCON)

Mr. Yao is a Registered Professional Engineer with over 40 years of Civil Structural experience in the design and construction of nuclear and fossil power plants and highway bridge design. His design experience includes structural steel design (including anchorages); supports for suspended systems (piping, ductwork, raceways); seismic qualification of equipment, parts and structures; rigging and scaffold; and retaining walls, cooling towers concrete slabs, beams and foundations. His recent work associated with 10 CFR 73.55 nuclear plant security upgrades at Plant Hatch, and Plant Vogtle. Mr. Yao supported modification packages for the installation of the Emergency Sump Strainer for Davis Besse Nuclear Power Station, Catawba Unit 1 & 2, McGuire Unit 1 & 2, Qinshan Unit 3 & 4 (China), and Ling Ao Unit 3 & 4 (China). He has also supported several plants during the implementation phase of the strainers, providing engineering support, resolving construction issues and performing structural evaluation to qualify changes made during the installation phase of the project. Mr. Yao completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

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## **5.0 IPEEE VULNERABILITIES REPORTING**

Information on the seismic vulnerabilities identified during the IPEEE program is reported in Attachment 5. Within this context, “vulnerabilities” means seismic anomalies, outliers, or other findings. For each vulnerability, Attachment 5 also reports a description of the action taken to eliminate or reduce the seismic vulnerability, and specifies whether the configuration management program has maintained the IPEEE action (including procedural changes) to ensure that the vulnerability continues to be addressed.

As part of a Seismic PRA/IPEEE update, in May 2012 Plant Vogtle conducted a walkdown of Equipment modified under the IPEEE - Seismic. As a result of this walkdown, Document No. 12L0075-RPT-001 was issued (Reference 10.9). That walkdown revisited systems and components that have been either significantly modified or replaced since the issuance of the original VEGP IPEEE- Seismic Report to NRC (Reference 10.8). The findings of the walkdown conducted in May are documented in Appendix A-2 (Previous IPEEE Open Item Walkdown Resolution Notes) (Reference 10.9). Appendix A-2 is included in Attachment 5. The purpose of these walkdowns was to ensure that the IPEEE vulnerabilities had been resolved. During those walkdowns, 2 outliers were discovered that were potentially unresolved (either had never been resolved or were currently no longer resolved, i.e., the problem had “re-occurred”). Two items specifically dealt with hoists in the Diesel Generator Buildings were found not properly restrained (see CR 504859).

The seismic walkdown equipment list (SWEL) for Vogtle Unit 1 included 6 components that had seismic vulnerabilities previously identified during the IPEEE program. Even though the items identified as IPEEE vulnerabilities had been walked down in May 2012, implementation of these modifications for SWEL items was verified again during the walkdowns performed for resolution of the NTTF Recommendations 2.3, Seismic. During the walkdowns, the walkdown teams verified that the recommended resolutions to the IPEEE vulnerabilities associated with these six items had been implemented.

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## 6.0 SEISMIC WALKDOWN EQUIPMENT LIST DEVELOPMENT

A team of individuals with extensive knowledge of Plant Vogtle systems and components developed the SWEL. Qualifications of the personnel responsible for developing the SWEL are provided in Section 4.0 of this report. The equipment selection personnel used a SNC-template to ensure compliance with EPRI Report 1025286 (Reference 10.2) and consistency across the fleet.

Two SWELs were developed (SWEL 1 and SWEL 2) consistent with the guidance in EPRI Report 1025286 (Reference 10.2). SWEL 1 consists of a sample of equipment related to safe shutdown of the reactor and maintaining containment integrity as described in Section 3.0 of the EPRI Report 1025286 (Reference 10.2). SWEL 2 consists of items related to the spent fuel pool as described in Section 3.0 of EPRI Report 1025286 (Reference 10.2). The two SWELs form the overall SWEL for the plant. Attachment 1 provides the final SWEL 1 and SWEL 2.

In some cases, components listed on the SWEL were removed from the SWEL or were replaced with equivalent components. These changes were made when it was determined during the Seismic Walkdown that access to the equipment on the original SWEL would be impractical to achieve during a walkdown. For example, components located very high overhead were replaced with equivalent items that could be seen without erecting scaffolding. All such changes meet the provisions of the EPRI Report 1025286 (Reference 10.2). The SWELs provided in Attachment 1 reflect the final SWELs after all changes were incorporated.

### 6.1 DEVELOPMENT OF SWEL 1

SWEL 1 was developed using the four screens described in EPRI Report 1025286 (Reference 10.2).

#### **Screens 1 to 3**

Screens 1 to 3 were used to select Seismic Category I equipment that do not undergo regular inspection and support the five safety functions.

In accordance with the EPRI Seismic Walkdown Guidance (page 3-3), Screens 1 through 3 can be satisfied using previous equipment lists developed for the IPEEE program. Consequently, the Seismic Review Safe Shutdown Equipment List (SSEL) developed for the Vogtle Nuclear Plant IPEEE Unit 1 (Reference 10.8) was used as Base List 1 for the development of SWEL 1.

The specific guidance used to create the IPEEE Seismic SSEL was EPRI Report NP-6041, "A Methodology for Assessment of Nuclear Power Plant Seismic Margin" (Reference 10.12). The Seismic SSEL from IPEEE – Seismic was checked and verified to meet the intentions set forth in the

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EPRI Report 1025286. The intent of the Base List 1 was to provide an equipment list of the SSCs used to safely shut down the reactor and maintain containment integrity following a Seismic Safe Shutdown Earthquake. The EPRI Report 1025286 (page 3-1) listed three screens to use in selecting the Base List 1 if a utility was to not start from an existing equipment list used in previous plant evaluations. Applying these three screens would result in an acceptable base list that was comprised of Seismic Category I SSCs associated with maintaining the five safety functions:

- Reactor reactivity control
- Reactor coolant pressure control
- Reactor coolant inventory control
- Decay heat removal, and
- Containment function.

The criteria used in selection of the Seismic SSEL are detailed in Section 3.1.2.5 of the IPEEE – Seismic Report (Reference 10.8).

Therefore, based upon the review of the Base List, it was determined that the list did satisfy the requirements as specified in the EPRI Report 1025286 (Reference 10.2) which is a list comprised of Seismic Category I SSCs associated with maintaining the five safety functions described in EPRI Report 1025286, which are used to safely shut down the reactor and maintain containment cooling integrity. Base List 1 is presented in Attachment 1. However, before proceeding any further with the subsequent screens for the base list, it was necessary to confirm that the components satisfied screens 1 to 3. Hence, screens 1 to 3 were applied to the base list and a small number of components were identified and screened out of the base list.

**Screen 4**

Screen 4 provides the sample considerations to select components from the Base List 1. The selection of components for SWEL 1 was developed through an iterative process that ensured a representative sample (i.e., Screen 4 from EPRI Report 1025286). Various drafts of SWEL 1 were provided to POP for review and input. The POP identified and recommended inclusion of additional equipment important to plant operations.

The following list summarizes the sample considerations used to develop SWEL 1:

- Variety of systems
- Major new or replacement equipment
- Classes of equipment

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- Variety of environments
- Equipment enhanced due to vulnerabilities identified during the IPEEE program
- Risk significance

Variety of Systems – EPRI Report 1025286 specifies that equipment from a variety of plant systems must be included on the SWEL 1. The systems represented in the Base List were reviewed and components from a majority of these systems are included on the SWEL.

Major New and Replacement Equipment – Major new or replacement equipment installed within the previous 15 years was identified through a search of work order (WO) histories for selected equipment and input from the plant personnel familiar with plant modification and from the PRA group on equipment changes to components that are included in the PRA.

Variety of Equipment Classes – A list of the 21 Classes of Equipment that should be included on the SWEL is provided in Appendix B of the EPRI Report 1025286. SWEL 1 includes components from each equipment class except Class 12 (Air Compressors) and Class 13 (Motor Generators). Vogtle does not contain any safety-related Air Compressors or Motor Generators.

Variety of Environments – The EPRI Report 1025286 specifies that the SWEL contain components located in various plant environments, including environments subject to corrosion and high temperatures. SWEL 1 includes equipment in three environment types. These include Harsh (e.g. Containment Building, Main Steam Valve Room), Mild (e.g. Control Room, Auxiliary Building), and Outdoors Structures (e.g. valve boxes, Nuclear Service Cooling Towers).

IPEEE Vulnerabilities – SWEL 1 includes equipment identified with seismic vulnerabilities identified in Reference 10.8.

Risk Significance – Information from the Vogtle Unit 1 PRA and the Maintenance Rule implementation documentation were used to determine whether items were risk significant. Representative samples of Risk Significant items are included in the SWEL.

## 6.2 DEVELOPMENT OF SWEL 2

SWEL 2 is developed using four screens described in EPRI Report 1025286 (Reference 10.2). SWEL 2 is presented in Attachment 1.

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**Screens 1 to 2**

The equipment selected through Screens 1 and 2 provide any Seismic Category I components associated with the Spent Fuel Pool (SFP) that are also accessible for a walkdown. For Vogtle Unit 1, the only Seismic Category 1 equipment associated with the SFP is the Spent Fuel Cooling and Purification System. The SSCs in the Spent Fuel Cooling and Purification System that are accessible and available for a walkdown comprise Base List 2.

**Screen 3**

Screen 3 provides the sample considerations that ensure that a broad category of equipment included in SWEL 2. These considerations include:

- Variety of systems
- Major new or replacement equipment
- Classes of equipment
- Variety of environments

For Vogtle Unit 1, SWEL 2 is developed from the Base list 2 which is provided in Attachment 1.

**Screen 4**

Screen 4 identifies any items that could potentially lead to rapid drain down of the SFP. These include any penetrations in the SFP that are below 10 feet above the top of the fuel assemblies.

For Vogtle Unit 1, there are no SFP penetrations within 10 feet above the fuel in the SFP. All piping connected to the SFP, either terminates more than 10 feet above the fuel or has anti-siphon holes, located more than 10 feet above the fuel, to prevent rapid drain-down of the SFP. Based on the fact that there are no penetrations within 10 feet of the fuel and accompanied with the design of the anti-siphon hole in the SFP discharge piping, no rapid drain-down items exist.

Therefore, there are no components associated with rapid drain down of the Spent Fuel Pool included on SWEL 2.

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## **7.0 SEISMIC WALKDOWNS AND AREA WALK-BYS**

Walkdowns were performed for all components on the (combined) SWEL. A Seismic Walkdown Checklist (SWC) was completed for each component and an Area Walk-by Checklist (AWC) was completed for each area containing equipment on the SWEL. Copies of the SWCs and AWCs are provided in Attachments 3 and 4, respectively.

The personnel performing walkdowns received training on the NTTF 2.3 seismic walkdown guidance. Prior to the walkdown teams arriving onsite, walkdown packages were assembled into folders that contained the SWCs and AWCs and other pertinent information (e.g., calculations, test reports, IPEEE walkdowns, equipment location, and layout drawings). Each walkdown team consisted of two SWEs. The walkdown teams spent the first week on site obtaining unescorted plant access and organizing for the walkdowns. Organization included assignment of specific components to the teams; review of the walkdown packages; development of a process for tracking the Seismic Walkdown and Area Walk-bys; and familiarization with the plant.

The second week began with peer reviewers (Whitmore and Ashworth) providing an overview on the information contained in the EPRI Report 1025286 (Reference 10.2). Expectations for the walkdowns were discussed and questions were answered. After this overview, each walkdown team performed an initial Seismic Walkdown and Area Walk-by. This initial walkdown was performed in the presence of the other teams and at least one peer reviewer. The purpose of this initial walkdown was to ensure consistency between the different teams, to reinforce the expectations for identifying potentially adverse seismic conditions, and to allow team members to provide and obtain feedback.

Following the initial walkdowns, the walkdown teams began performing the Seismic Walkdowns and Area Walk-bys. Support from plant personnel (operators, electricians, engineering) was obtained as required to open equipment and to assist in locating and identifying components. All Component Walkdowns and Area Walk-bys were documented on the SWCs and AWCs, respectively. The final status of all SWCs and AWCs indicated one of the three following statuses:

- “Y” – Yes, the equipment is free from potentially adverse seismic conditions;
- “N” – No, the equipment is not free from at least one potentially adverse seismic condition;
- “U” – Undetermined, a portion(s) of the walkdown could not be completed due to equipment inaccessibility and the condition is not known.

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The walkdown focused on anchorage and seismic spatial interactions but also included inspections for other potentially adverse seismic conditions. Anchorage in all cases was considered to be anchorage to the structure. This included anchor bolts to concrete walls or floors, structural bolts to structural steel and welds to structural steel or embedded plates. For welds, the walkdown team looked for cracks and corrosion in the weld and base metal. Other bolts such as flange bolts on in-line components were not considered to be anchorage. These connections were evaluated and any potentially adverse seismic concerns were documented under “other adverse seismic conditions.”

As part of the walkdown, the anchorage of at least 50% of the anchored components was evaluated to verify if the anchorage was consistent with plant documentation. The document that provides the anchorage configuration was identified on the SWC and the anchorage in the field was compared to the information on this referenced document. In cases where the anchorage could not be observed (e. g. where the anchorage is inside a cabinet that could not be opened at the time of the walkdown), the items related to anchorage were marked as “U” (Undetermined) and deferred until the piece of equipment was available for inspection. However, all other possible inspections associated with that item were completed and the results were documented on the SWC. These items were considered to be incomplete at that time and deferred to a time when they would be available for inspection. Subsequent to that initial walkdown, all "U" items were walked down during Refueling Outage 1R17 in September 2012. At the time of this report preparation, there are no open items related to Vogtle Unit 1.

In cases where the seismic walkdown team members identified a potentially adverse condition, the condition was noted on the SWC or on the AWC and a Condition Report (CR) was written to document and evaluate/resolve the condition. As part of the process of generating the CR, preliminary licensing basis evaluations were performed by the SWEs during the walkdowns. Additionally, detailed licensing basis reviews were conducted as part of the resolution of the CR, as required. Conditions that were not obviously acceptable were documented on the checklists and a basis was provided for why the observed condition was determined to be acceptable.

Area Walk-bys were performed in the rooms containing the SSCs for walkdowns. For cases in which the room where a component was located was large, the extent of the area encompassed by the Area Walk-by was clearly indicated on the AWCs. For large areas, the walk-by included all structures, systems and components within a 35-foot radius of the equipment being walked down, as described on the AWC. The AWCs are included in Attachment 4.



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### SWEL 1 Walkdowns

A total of 110 Component Walkdowns were performed. All areas of the plant that contain items on the SWEL were included in the Area Walk-bys.

### SWEL 2 Walkdowns

A total of 5 Component Walkdowns were performed. In addition, a total of 4 Area Walk-bys were completed. All areas of the plant that contain items on the SWEL were included in the Area Walk-bys.

### 7.1 INACCESSIBLE ITEMS

Table 7-1 identifies the components originally determined to be inaccessible for walkdowns. These items are located throughout the plant and the required Seismic Walkdowns and Area Walk-bys were not completed for these items during the initial phase of walkdowns. However, all the items were later walked down during the 1R17 refueling outage in late September 2012. Items in Table 7-1 are now complete.

<b>Table 7-1. Inaccessible Equipment per Original Walkdown Scope</b>					
#	Item No.	Description	Access	Remaining Walkdown Scope	Completion Date
1.	1-1804-S3-A02	4160V Switchgear 1AA02	No cabinet door opening was allowed during plant operation	Inspect anchorage	Outage 1R17
2.	1-1501-A7-004-000	CTB CoolinUnit & Motor	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
3.	1-HV-0442B	Reactor Head Letdown Line Control SOV	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
4.	1-HV-0780	Normal CTB Sump Pump Discharge AOV	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17

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**Table 7-1. Inaccessible Equipment per Original Walkdown Scope**

#	Item No.	Description	Access	Remaining Walkdown Scope	Completion Date
5.	1-HV-0943A	Accumulator nitrogen HDR Vent—Solenoid Operated Valve	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
6.	1-HV-1974	ACCW Return From RCP Coolers MOV	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
7.	1-HV-8154	CVCS Excess Letdown Isolation	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
8.	1-HV-8875D	Accumulator 1 Nitrogen Vent—Solenoid Operated Valve	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
9.	1-LT-0459R	Pressurizer Level	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
10.	1-1511-E7-002-000	CTB Reactor Cavity Cooling Coil	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
11.	1-1511-E7-001-000	CTB Reactor Cavity Cooling Coil	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17

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**Table 7-1. Inaccessible Equipment per Original Walkdown Scope**

#	Item No.	Description	Access	Remaining Walkdown Scope	Completion Date
12.	1-1511-B7-001-000	Reactor Cavity Cooling Fan-1	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
13.	1-1511-B7-002-000	Reactor Cavity Cooling Fan-2	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17

**Table Notes:**

- 1) With the exception of the 4160 Volt Switchgear 1AA02, all components determined to be inaccessible during the initial walkdowns were located inside an area of the plant not accessible during normal plant operation, such as inside Containment. Walkdowns of these components and of the associated plant areas were deferred to an outage.

Supplemental guidance/clarification for opening cabinets to inspect for adverse conditions was received on September 18, 2012. This required the opening of cabinets, electrical boxes, and switchgear to inspect the internals for potentially adverse seismic conditions, even when opening the components was not required to inspect the anchorage. At the time of this supplemental guidance/clarification, the Vogtle Unit 1 Seismic Walkdowns were complete. However, the affected components were identified and scheduled for re-inspection with component doors opened.

Due to the occurrence of a scheduled refueling outage at Vogtle Unit 1 in late September 2012, items inaccessible during the initial walkdowns were accessible during subsequent walkdowns performed during the outage. In addition, during subsequent Seismic Walkdowns of Vogtle, Unit 1 electrical cabinets (where no extensive disassembly was required) were opened to inspect the cabinet internals for mounting of internal components, inspect the condition of fasteners of adjacent cabinets, and confirm absence of any other adverse seismic conditions. The results of the inspections recorded on a revised version of the SWC and or AWC.

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The following table provides a list of components that had to be opened in order to inspect for “other adverse conditions” inside the cabinets.

All cabinets at Vogtle Unit 1 have now been made accessible for internal inspections and inspections of these panels are complete.

#	Item No.	Description	Remaining Walkdown Scope	Completion Date
1.	1-1500-Q5-HVC	HVAC Panel	Inspect Internals	Outage 1R17
2.	1-1602-Q5-NIR	Nuclear Inst. Racks	Inspect Internals	Outage 1R17
3.	1-1604-Q5-PCG	BOP Control Panel 1	Inspect Internals	Outage 1R17
4.	1-1604-Q5-PS2	Process I & C Protect II	Inspect Internals	Outage 1R17
5.	1-1605-C5-ASI	Alternate Shutdown Ind. Eagle 21 Cab.	Inspect Internals	Outage 1R17
6.	1-1605-P5-SDB	Shutdown Panel Train. B	Inspect Internals	Outage 1R17
7.	1-1605-Q5-SPB	Solid State Protection Sys. Cab.-Trn. B	Inspect Internals	Outage 1R17
8.	1-1623-D5-006A	Display Processing Unit A	Inspect Internals	Outage 1R17
9.	1-1804-S3-A02	4160V Switchgear 1AA02	Inspect Internals	Outage 1R17
10.	1-1805-S3-ABD	480V MOT Control CTR 1ABD	Inspect Internals	Outage 1R17
11.	1-1805-S3-ABB	480V MOT Control CTR 1ABB	Inspect Internals	Outage 1R17
12.	1-1805-S3-BBB	480V MOT Control CTR 1BBB	Inspect Internals	Outage 1R17

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**Table 7-2. Inaccessible Equipment Resulting from Guidance on Opening Cabinets to Inspect for Other Adverse Conditions**

#	Item No.	Description	Remaining Walkdown Scope	Completion Date
13.	1-1805-S3-RHR2A	Starter/RHR HV-8702A	Inspect Internals	Outage 1R17
14.	1-1805-Y3-1D6R	RHR ISO VLV Inverter	Inspect Internals	Outage 1R17
15.	1-1806-B3-CAB	Battery Charger 1AD1CB	Inspect Internals	Outage 1R17
16.	1-1806-Q3-DA2	125 VDC Distr. Panel 1AD12	Inspect Internals	Outage 1R17
17.	1-1806-S3-DCA	125 VDC MCC 1AD1M	Inspect Internals	Outage 1R17
18.	1-1805-S3-B15	480V Switchgear 1AB15	Inspect Internals	Outage 1R17
19.	1-1805-S3-B07	480V Switchgear 1BB07	Inspect Internals	Outage 1R17
20.	1-1806-S3-DSB	125VDC Switchgear 1BD1	Inspect Internals	Outage 1R17
21.	1-1807-Q3-VI2	120 VAC Vital Panel 1BY1B	Inspect Internals	Outage 1R17
22.	1-1807-Q3-VI3	120 VAC Vital Panel 1CY1A	Inspect Internals	Outage 1R17
23.	1-1807-Q3-VI5	120 VAC Vital Dist Panel 1AY2A	Inspect Internals	Outage 1R17
24.	1-1807-Y3-IA11R	Vital AC Inverter 1AD111	Inspect Internals	Outage 1R17
25.	1-1808-Q3-L47	Emergency LTG Dist Panel 1NLP47	Inspect Internals	Outage 1R17
26.	1-1816-U3-017	Auxiliary Relay Panel	Inspect Internals	Outage 1R17
27.	1-1821-U3-002	SF Sequencer Board Train B	Inspect Internals	Outage 1R17
28.	1-2403-P5-DG3	DG 1B Gen CTL PNL	Inspect Internals	Outage 1R17

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<b>Table 7-2. Inaccessible Equipment Resulting from Guidance on Opening Cabinets to Inspect for Other Adverse Conditions</b>				
<b>#</b>	<b>Item No.</b>	<b>Description</b>	<b>Remaining Walkdown Scope</b>	<b>Completion Date</b>
29.	1-1805-S3-B15X	Transformer	SWC & AWC	Outage 1R17

**Table Notes:**

- Vogtle Unit 1 has 3 transformers (Equipment Class 4) in the SWEL-1. The transformers were inspected to the extent practical. All visible anchors, hardware and surfaces were inspected. The anchorage for the transformers was visible without opening the component. To inspect the transformer further would require disassembly and therefore would not be considered part of a normal electrical inspection. The inspection of the transformers meets the requirements of the guidance document and the 50.54(f) letter. The transformers are as listed below:

1-1808-T3-115	LTG ISOLATION XFMR 1BBF13X
1-1807-Y3-13	REGULATED XFMR 1BBC09RX ALTERNATE FEED TO PANEL 1DY1B
1-1807-Y3-11	REGULATED XFMR 1BBA07RX

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## 8.0 RESULTS

This section discusses the results of the Seismic Walkdowns that were performed in response to the NRC 50.54(f) letter dated March 12, 2012, "Enclosure 3, Recommendation 2.3: Seismic". As potentially adverse conditions were identified conditions reports were initiated in the Plant CAP program and evaluated. The sections below discuss the results of these walkdowns and evaluations.

### 8.1 POTENTIALLY ADVERSE SEISMIC CONDITIONS

All potentially adverse conditions were conservatively entered into the site Corrective Action Program (CAP) per Southern Nuclear expectations in a timely manner. While some preliminary licensing basis evaluations were performed by the SWEs as part of the generation of the CAP entries, the items did not first undergo a detailed seismic licensing basis review as described in EPRI Report 1025286 (Reference 10.2). Consequently, the as-found conditions in Table 8-1 below do not necessarily indicate that SSCs were deficient or not in conformance with their seismic licensing basis. Instead, it is an indication that Southern Nuclear has a very low threshold for CRs and actively uses the system.

SNC personnel familiar with the Plant Vogtle Seismic Licensing basis, Plant Vogtle seismic qualification methods and documentation, and Southern Nuclear requirements and procedures for entering items into the CAP reviewed and dispositioned all of the potentially adverse seismic conditions as part of the CAP process. The subsections below summarize the key findings from the CAP reviews that pertain to equipment operability, SSC conformance with the seismic licensing basis, and any required plant changes.

During the course of the seismic walkdowns, a total of 33 Unit 1 Potentially Adverse Conditions were identified and entered into the Corrective Action Program. In addition, another 4 were entered that are Common to both Units 1 and 2. Table 8-1 provides additional details on the SSCs that were identified during the walkdowns and entered into the CAP as degraded, nonconforming, or unanalyzed relative to their seismic licensing basis.

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**Table 8-1. Potentially Adverse Conditions**

<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1206-P6-001	A lighting hook was found that did not seem to be fully closed. This was found in D77 in the Auxiliary Building Unit 1. The light was above the Containment Spray pump 1-1206-P6-002. A closer inspection needs to be made to verify a set screw is missing or bent in the connection. Reference info on similar past lighting hooks include the following: CR 421479, CR 426198, CR 426209, CR 428582.	501548	The seismic analysis group performed an evaluation of the as found condition and concluded that no seismic interaction hazards exists that could affect equipment operability.	Repair/replace hook.	Open Due 1/31/2013



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<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1593-B7-002	Two out of sixteen screws were found loose on the 1-1593-B7-002 AFW Pump B Supply Fan and Motor.	501650	The seismic team judged the 14 (fourteen) screws to be adequate to hold the motor in place as the two loose screws were still located in the holes. As a result, all 16 (sixteen) screws would still provide restraint for shear which is the major load case on the screws. Also supporting frame structure for this Fan-Motor is seismically adequate and there is no significant impact on the structural adequacy. There are no operability concerns for this as found condition. Tighten screws.	Screws tightened.	Closed

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Component / Area	Brief Description of Potentially Adverse Seismic Condition	CR #	Brief Discussion of Analysis/Conclusion	Action Taken or Planned to Address/Resolve the Condition	Status (Open/Clsd)
Component 1-2403-P5-DG3  Area D/G Bldg R101	A hoist controller is not adequately restrained. This condition is located next to a panel with the location number 1-2403-P5-DG3 on the Unit 1 Diesel Generator Room R101. This condition does not meet the Vogtle standards of the procedure 00352-C General Plant Housekeeping and In-Process Materials Control section 5.8.1 which states that Safety-Related Equipment will not be vulnerable to impacts from controllers of hoist during a seismic event.	504859	The seismic team judged no operability concerns for this condition. Secure hoist.	The hoist has been secured.	Closed
Component 1-1808-Q3-L47	A discrepancy was found between the as-built condition and the drawing anchorage details. The drawing shows the connection to be bolted while the as-built condition was found to be welded.	504874	Seismic Walkdown Team judged that in case of a seismic event the component would not have the potential to fail and the connection does not show any sign of degradation. There is no operability concerns related to this condition.	Subsequent to the initial walkdown, the correct anchorage drawings were obtained and a second walkdown confirmed that the as built anchorage matched the drawing details.	Closed

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<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Area Control Bldg, R163	Unrestrained equipment found in the Control Building Room R163 next to the panels labeled as 1NCQEHC and 1NCQEHC1. The equipment was identified to be a copy machine on a wheeled cart and a storage cabinet. The equipment was not tied or secured as required per procedure 00352-C General Plant Housekeeping and In-Process Materials Control.	504882	The Vogtle site design group performed an evaluation of the as found condition and concluded that the copy machine should either be seismically secured or moved away from safety related equipment. The Vogtle site design group performed an evaluation of the as found condition and concluded that the cabinet, because of its location away from safety related, was acceptable. No further action required.	Move or seismically secure the copy machine. No further action required for the cabinet.	Closed
Area Control Bldg, RB48	A fluorescent lighting fixture hook screw was found to be not fully closed. This was found in Room RB48 in the Control Building. This sign was nearby the panel labeled "1DD1 125v SWGR".	505954	The Vogtle site design group performed an evaluation of the as found condition and concluded that no seismic interaction hazards exists that could affect equipment operability. Repair/replace hook.	Repair/tighten hook.	Open Due 1/28/2013

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<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1593-B7-001	Two out of sixteen bolts were not found installed on the 1-1593-B7-001 AFW Pump A Supply Fan and Motor.	507939	The seismic team judged the remaining 14 (fourteen) bolts to be adequate to hold the motor in place. The 14 (fourteen) bolts would still provide restraint for shear which is the major load case on the bolts. Also supporting frame structure for this Fan-Motor is seismically adequate and there is no significant impact on the structural adequacy. There are no operability concerns for this as found condition. Replace screws.	Replace screws.	Open Due 11/8/2013

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<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Area NSCT, R103	Connection of tube steel to base plate has significant oxidation on a surface of weld (pipe support for line associated w/valve 1-1202-X4-457). Edge of base plate for a support for three instrument lines is degraded.	509123	The Vogtle site design group performed an evaluation and concluded that the corrosion of the pipe support near valve 1-1202-X4-457 is mild and that the condition does not represent a seismic concern. The corrosion of the base plate is limited to the edges of the plate. The welds and the fasteners have no corrosion. Clean and recoat supports.	Clean and recoat supports	Open Due Outage 1R18
Area Aux Bldg, R203	Seismic Walkdown Team found hatch cover steel plates to be temporary stored next to safety related valves which is not consistent with the procedure 00352-C "General Plant Housekeeping and In-Process Materials Control". The storage area was only a couple of inches next to the safety related valves 1-HV-11704 and 1-1202-U4-150. This occurred on the Auxiliary Building level 2 Room R203 next to the Unit 1 A CCW Heat Exchanger (loc 1-1203-E4-001).	511980	The Temp Storage area should be reviewed to ensure it is in full compliance with Procedure 00352-C.	Hatch covers have been moved.	Closed

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<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1804-S3-A02	Seismic Walkdown team found two cases of a possible rigid connection between cabinets and cable trays. These cases occurred for the components number 1-1804-S3-A02 and 1-1623-D5-001.	517078	During the internal cabinet inspection of 1-1804-S3-A02, it was clear that the connection between the cabinets and the cable tray are not rigidly connected. A second walkdown was performed of cabinet 1-1623-D5-001. This walkdown confirmed that the connections were not rigid.	None required.	Closed
Component 1-1806-Q3-DA2	Seismic Walkdown Team found 1 of 4 bolts that connect the back right side of panel 1-1806-Q3-DA2 (1AD12 125 VDC PNL to inner frame to be missing. This missing bolt is located at the top right corner from the back part of the panel. Also, the hinge pin on the second from the bottom hinge on the rear door is partially withdrawn.	524560	Fastener should be installed.	Fastener has been installed.	Closed

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<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1806-Q3-DA1	Seismic Walkdown team found 1 of 4 bolts connecting the back left side of 1-1806-Q3-DA1 (1AD11 125 VDC PNL) to inner frame is missing. This missing bolt is located at the top left corner from the back part of the panel. The condition of the panel should be evaluated to determine seismic adequacy.	524568	Fastener should be installed.	Fastener has been installed.	Closed
Component 1-1807-Q3-VI3	For the component number 1-1807-Q3-VI3 (1CY1A 120 VAC PNL), the Seismic Walkdown team found 1 of 4 bolts connecting the back left side of Panel to inner frame is missing. This missing bolt is located at the top left corner from the back part of the panel.	525039	Fastener should be installed.	Fastener has been installed.	Closed

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<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1806-Q3-DC1	Seismic Walkdown team found 1 of 4 bolts connecting the back left side of 1-1806-Q3-DC1 (1CD11 125 VDC PNL), to inner frame is missing. This missing bolt is located at the top left corner from the back part of the panel. The condition of the panel should be evaluated to determine seismic adequacy.	525046	Fastener should be installed.	Fastener has been installed.	Closed
Component 1-1805-S3-B15	For the component number 1-1805-S3-B15 (480V SWITCHGEAR 1AB15), the Seismic Walkdown team found that 1 interconnector fastener is missing. This missing bolt connects the buckets 1AB1510 and 1AB1506 on the lower left side of 1AB1510.	525340	The seismic analysis group performed an evaluation of the as found condition and concluded that switchgear could perform its intended function during a seismic event. Install fastener.	Install fastener.	Open Duc Outage 1R 19 Fall 2015
Component 1-1805-S3-ABD	For the component number 1-1805-S3-ABD (480V MOT CONTROL CTR 1ABD), the Seismic Walkdown team found that some nuts and screws used to secure the protective covers and the link blocks were missing. These findings are occurring randomly across different link blocks.	525343	Fasteners should be installed.	Fasteners have been installed.	Closed



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Component / Area	Brief Description of Potentially Adverse Seismic Condition	CR #	Brief Discussion of Analysis/Conclusion	Action Taken or Planned to Address/Resolve the Condition	Status (Open/Ctsd)
Component 1-1805-S3-B07	For Component number 1-1805-S3-B07 (480V SWITCHGEAR 1BB07), the Seismic Walkdown team found that 1 interconnector fastener is missing. This missing bolt connects the bays 1BB0710 and 1BB0714 on the upper left side of 1BB0710. On this same switchgear, the team identified this same condition on the top right side of the bay 1BB0701; however, it could not be determined if in this case there was supposed to be a fastener or if this was left intentionally empty.	527135	The seismic analysis group performed an evaluation of the as found condition and concluded that switchgear could perform its intended function during a seismic event. Install fastener.	Install fastener.	Open Due Outage 1R19 Fall 2015
Component 1-1500-Q5-HVC	For component number 1-1500-Q5-HVC (HEATING VENTILATION AIR CONDITIONING PANEL (QHVC)), the Seismic Walkdown team found that some nuts and screws used to secure the protective covers, link blocks, and conduits supports inside the cabinet were missing. These findings are occurring randomly across the cabinet's sections 1 through 4.	527556	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage 1R18

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Component 1-1500-Q5-HVC	For component number 1-1500-Q5-HVC (HEATING VENTILATION AIR CONDITIONING PANEL (QHVC)), the Seismic Walkdown team found that one of the rods that latches the door is missing. Specifically, this occurs on the right door of the section 1 of the back of the cabinet.	527608	The seismic walkdown judged that this condition does not represent a seismic or operability concern; however, the condition should be evaluated to determine seismic adequacy of the cabinet.	Based on the evaluation performed by the Vogtle Site design group, the as-found structural configuration provides reasonable expectation that no seismic hazard exists that could adversely affect the safety related cabinet 1-1500-Q5-HVC equipment's operability or structural integrity with the missing door latching rod. Appropriate maintenance is recommended in order to replace the missing latching rod. Replace rod.	Open Due Outage 1R18

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Component 1-1604-Q5-PCG	For component number 1-1604-Q5-PCG (BOP Control Panel 1), the Seismic Walkdown team found a screw missing to secure the protective cover for a terminal block.	527624	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage IR18
Component 1-1605-Q5-SPB	For component number 1-1605-Q5-SPB (SOLID STATE PROTECTION SYSTEM CABINET (QSPB)), the Seismic Walkdown team found missing and loose screws used to secure the protective covers, terminal blocks, and also a cracked cable tray inside the cabinet. These findings are occurring randomly across the cabinet.	527627	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage IR18
Component 1-1623-D5-006A	For component number 1-1623-D5-006A (DISPLAY PROCESSING UNIT (DPU)), the Seismic Walkdown team found some screws missing used to secure the protective covers inside the cabinet.	527695	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage IR18

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<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1816-U3-017	For component number 1-1816-U3-017 (AUXILIARY RELAY PANEL (ARP)), the Seismic Walkdown team found screws missing used to secure the terminal blocks and to secure a door alarm relay inside the cabinet.	527701	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage 1R18
Component 1-2403-P5-DG3	For component number 1-2403-P5-DG3 (DG 1B Control Panel DG3), the qualified Seismic Walkdown team found screws missing used to secure a ventilation panel door window and a cover plate.	528369	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due 11/1/2013
Component 1-1807-Q3-VI2 (120 VAC VITAL PANEL 1BY1B)	Seismic Walkdown team found the following in 1-1807-Q3-VI2 (120 VAC VITAL PANEL 1BY1B): One (1) door hinge pin partially withdrawn (picture 01). One (1) bolt/screw missing for an isolation panel (picture 02).	528375	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fastener, fully insert pin.	Install fasteners/fully insert pin.	Open Due Outage 1R18

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Component 1-1805-S3-B07	For the location number 1-1805-S3-B07 (480V SWITCHGEAR 1BB07), the Seismic Walkdown team found the following: One (1) tie wrap used to support a cable bundle broken in bay 11 . Two (2) door hinge pins partially withdrawn on bay 18.	528379	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Replace tie wrap, fully insert pins.	Replace tie wraps/fully insert pins.	Open Due Outage 1R18
Component 1-1806-S3-DSB (125 VDC SWITCHGEAR 1BD1)	Seismic Walkdown team found the following in 1-1806-S3-DSB (125 VDC SWITCHGEAR 1BD1): One (1) cage nut used to secure the door closed missing. This occurs in the front bottom left bay (picture 01). One (1) door that could not be opened due to interference with the breaker face cover in bay 09 (picture 02).	528389	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fastener/Correct interference.	Install fastener/Correct interference.	Open Due Outage 1R18

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Component 1-1805-S3-BBB  (480V MOT CONTROL CTR 1BBB)	Seismic Walkdown team found the following in 1-1805-S3-BBB (480V MOT CONTROL CTR 1BBB): One (1) loose screw and one (1) missing screw for a terminal block in the top right bay of the back of the panel (picture 01). One (1) loose screw/bolt inside bay 05. This is an FME concern because the source of the screw/bolt could not be determined and no component was observed to have any screw or bolt missing (picture 02). Two (2) missing screws in bay 02 (picture 03).	528395	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage 1R19
Component 1-1605-P5-SDB  TRAIN B SHUTDOWN PANEL (PSDB)	Seismic Walkdown team found the following in 1-1605-P5-SDB (TRAIN B SHUTDOWN PANEL (PSDB): Missing and loose screws, bolts, and nuts on some cover plates and in a floor plate (pictures 01, 03, 04, 05, 06 and 07). One (1) broken receptacle (picture 02).	528400	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners/repair receptacle.	Install fasteners/repair receptacle.	Open Due Outage 1R18

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Component 1-2403-G4-001-V02	For component number 1-2403-G4-001-V02 (DG AIR START RECEIVER), the Seismic Walkdown team found two (2) missing washers on the bolts of the base anchorage.	540134	The seismic walkdown judged that the missing washers do not represent a seismic or operability concern.	Review of anchorage documentation revealed that washers are not required. No further action needed.	Closed
Area CNMT Bldg, near column #12, Elev 197'-0"	Seismic walkdown found an "Exit" sign had the cover loose or partially open inside Unit 1 Containment Building near column #12 on elevation 197'-0".	540137	The seismic walkdown judged that this condition does not represent a seismic or operability concern.	Repair Cover.	Open Due Outage 1R18 4/15/2014
Component 1-2403-G4-001-F01	For component number 1-2403-G4-001-F01 (DG INTAKE AIR FILTER), the Seismic Walkdown team found four (4) missing washers on the bolts of the base anchorage. The team also identified a deficiency on a component nearby on a HVAC duct access hatch panel door which had two missing latch screws.	540141	The seismic walkdown judged that both of these findings do not represent a seismic or operability concern.	Review of anchorage documentation revealed that washers are not required. No further action needed.	Closed

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Area CNMT Bldg, Elev 184'-0"	Seismic walkdown team found a metal box near valve 1-HV-8875D located in the Unit 1 Containment that was not secured (anchored). The box is located on level B near column 16.	542455	The box was installed at the end of a rigid conduit that is anchored and a flexible conduit was attached to one of the other sides. The qualified seismic walkdown team judged that this is not a seismic concern. Perform an evaluation to identify the need for any corrective actions.	Perform an evaluation to identify the need for any corrective actions.	Open Due 5/1/14



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During the course of the walkdowns the team identified issues that, while not rising to the level of a seismic concern, warranted evaluation to determine if programmatic enhancements are warranted. These issues have been entered into the SNC corrective action program.

CR 537446: While performing a review of the Condition Reports resulting from the SAM NTTF 2.3 Seismic Walkdowns, a possible trend was identified with regards to the failure of plant personnel to properly secure hoist and cranes following use. 00352-C requires that “that safety related equipment will not be vulnerable to impacts, from chains or controllers of hoists and monorail cranes, during a seismic event. Place any hoist or monorail cranes in the vicinity of the safety related equipment in a location where, during a seismic event, the chains and controllers cannot strike or become entangled with the equipment.” Contrary to the requirements of 00352-C, 3 of 4 hoist controllers near the D/G electrical panels and a hoist near Unit 2 Loops 1&4 ARV’s were not properly secured. All controllers have seen been secured. Reference CR’s 502483 & 504859.

CR 537451: While performing a review of the Condition Reports resulting from the SAM NTTF 2.3 Seismic Walkdowns, a possible trend was identified with regards to the failure of plant personnel to maintain housekeeping and temporary storage areas in accordance with procedure 00352-C. Reference CR’s 500988, 504853, 504860, 504882, 504895, 504901, 511980, 513336 & 517075.

CR 537453: While performing a review of the Condition Reports resulting from the SAM NTTF 2.3 Seismic Walkdowns, a possible trend was identified with regards to the management of seismic restraints of lighting fixtures. Reference CR’s 500990, 501548, 504862, 504868, 505324 & 505954.

CR 537454: While performing a review of the Condition Reports resulting from the SAM NTTF 2.3 Seismic Walkdowns, a possible trend was identified with regards to fasteners and hardware. Several CR’s were generated which identified missing or loose fasteners and hardware. Reference CR’s 501546, 501650, 504850, 505329, 507939, 509102, 513331, 524560, 524568, 525039, 525046, 525340 & 525343.

## 8.2 EQUIPMENT OPERABILITY

Plant Vogtle Unit 1 had no as-found conditions that would prevent SSCs from performing their required safety functions.

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### 8.3 PLANT CHANGES

There were no plant changes that resulted from the as-found conditions. Plant changes are any planned or newly installed protection and mitigation features (i.e., plant modifications) that result from the Seismic Walkdowns or Area Walk-bys.

### 8.4 OTHER NON-SEISMIC CONDITIONS

Housekeeping items were identified during walkdowns and walk-bys that were not potentially seismic adverse conditions. All such items were brought to the attention of plant personnel and CRs were generated as necessary. These issues included water on the floor and loose items (small tools, trash, etc.) stored in the plant areas. These items were processed through the site CAP process and are not specifically documented in this report though are available in the Plant CAP database.

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## **9.0 PEER REVIEW**

### **9.1 PEER REVIEW PROCESS**

The peer review for the Near Term Task Force (NTTF) Recommendation 2.3 Seismic Walkdowns was performed in accordance with Section 6 of EPRI Report 1025286 (Reference 10.2). The peer review included an evaluation of the following activities:

- review of the selection of the structures, systems, and components (SSCs) that are included in the Seismic Walkdown Equipment List (SWEL);
- review of a sample of the checklists prepared for the Seismic Walkdowns and Area Walk-bys;
- review of licensing basis evaluations and decisions for entering the potentially adverse seismic conditions in to the plant's Corrective Action Plan (CAP); and
- review of the final submittal report.

This report provides results of the review process for each review activity as well as the results of the peer review.

### **9.2 PEER REVIEW RESULTS SUMMARY**

#### **9.2.1 Seismic Walkdown Equipment List Development**

The selection of items for the SWEL underwent peer review according to the guidance in Section 3 of EPRI Report 1025286 (Reference 10.2). The SSCs to be evaluated during the Seismic Walkdown were selected as described in Section 6.0 of this report. The list of components was provided to the members of the Peer Review Team, which consisted of all four peer reviewers listed in Section 4.0. The Peer Review Team members independently provided comments to the personnel who selected the components on the SWEL. All comments were addressed and the Peer Review Team reviewed the changes made to the SWEL and the final SWEL, to ensure all recommendations from EPRI Report 1025286 (Reference 10.2) were met. Specifically, the Peer Reviewers confirmed that all SSCs in SWEL 1 and 2 were Seismic Category I components that do not undergo regular inspections. Specific considerations for the peer review process are described below for SWEL 1 and SWEL 2. The peer review check sheet of the SWEL is provided in Attachment 2.

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For SWEL 1, the Peer Review Team verified that the list of SSCs represented a diverse sample of the equipment required to perform the following five safety functions, as specified by EPRI Report 1025286 (Reference 10.2):

- Reactor Reactivity Control
- Reactor Coolant Pressure Control
- Reactor Coolant Inventory Control
- Decay Heat Removal and
- Containment Function

For SWEL 1, the Peer Review Team also verified that the SSCs included an appropriate representation of items having the following sample selection attributes:

- Various types of systems
- Major new and replacement equipment
- Various types of equipment
- Various environments
- Equipment enhanced based on the findings of the IPEEE and
- Risk insight consideration

The final SWEL 1 contains items that perform each of the five safety functions specified by EPRI Report 1025286 (Reference 10.2). Numerous components perform more than one of the safety functions and all five safety functions are well represented by the components on the list. SWEL 1 contains components from all the classes of equipment listed in Appendix B of EPRI Report 1025286 (Reference 10.2), except for cases where there are no safety-related components at the plant that fall into that specific equipment class. The list contains major new and replacement items, and items enhanced based on the IPEEE as well as equipment located in various environments and areas of the plant. All major safety-related systems are represented and risk factors were considered in the development of the list.

For SWEL 2, the Peer Review Team determined that the process to select spent fuel pool related items complied with EPRI Report 1025286 (Reference 10.2). Portions of the spent fuel pool cooling system at Vogtle Unit 1 are Seismic Category I and all different types of components are represented on the SWEL 2. No items that could cause rapid drain down of the Spent Fuel Pool for Vogtle Unit 1 were identified. Therefore, SWEL 2 does not contain any

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components associated with potentially rapid drain down of the pool. The Peer Review Team concluded that the bases for including/excluding items associated with the spent fuel pool were well documented and that the final SWEL 2 complies with EPRI Report 1025286 (Reference 10.2).

In summary, all of the Peer Review comments made during development of SWEL 1 and SWEL 2 were resolved by the team that prepared the SWELs. The resolutions were reviewed by the Peer Review Team and it was determined that all comments were adequately addressed. The SWEL was determined to incorporate all comments made by the Peer Review Team during the process.

During the process of conducting the walkdowns, a small number of isolated components that were not accessible were removed from the list and in most cases equivalent items that were determined to be accessible were added. The Peer Review Team reviewed all changes made to the SWELs and determined that these changes had no impact on the adequacy of the SWELs with respect to the provisions contained in EPRI Report 1025286 (Reference 10.2). The Peer Review Team concludes that the team that developed the SWELs appropriately followed the SWEL development process described in Section 3 of EPRI Report 1025286 (Reference 10.2).

The Peer Review Checklist of the SWEL is provided in Attachment 2.

#### 9.2.2 Seismic Walkdowns and Area Walk-Bys

The Peer Review Team was on-site and very involved with the Seismic Component Walkdowns and Area Walk-bys. The Peer Review was performed as follows:

- Each of the three walkdown teams performed an initial equipment Seismic Walkdown and an Area Walk-by under the observation of the other teams and the walkdown Peer Review Team. The Peer Review Team provided comments and suggestions and answered questions raised by the team performing the walkdown and the other walkdown teams.
- During the first week of walkdowns, a member of the walkdown Peer Review Team individually accompanied each of the SWE walkdown teams and observed the SWE team conducting the Seismic Walkdowns and Area Walk-bys. The Peer Review Team confirmed first-hand that the SWE walkdown teams performed the Seismic Walkdowns and Area Walk-bys as described in Section 4 of EPRI Report 1025286 (Reference 10.2). A member of the Peer Review Team accompanied each of the three walkdown teams on at least one full day of walkdowns. SWE walkdown teams were encouraged and expected to

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carry a copy of Section 4 from the EPRI Report 1025286 (Reference 10.2) and refer to it, as necessary, during conduct of the Seismic Walkdowns and Area Walk-bys.

- Finally, the walkdown Peer Review Team reviewed the Seismic Walkdown and Area Walk-by packages completed during the first week to ensure that the checklists were completed in accordance with the guidance provided in EPRI Report 1025286 (Reference 10.2). The walkdown Peer Review Team confirmed that the Seismic Walkdown and Area Walk-by packages were consistent, thorough, and the packages accurately reflected the results of the walkdowns and walk-bys as witnessed during the first week of walkdowns.

The Peer Review Team concluded that the SWE teams were familiar with the process for Seismic Equipment Walkdowns and Area Walk-bys. The SWE teams adequately demonstrated their ability to identify potentially adverse seismic conditions such as adverse anchorage, adverse spatial interaction, and other adverse conditions related to anchorage, and perform anchorage configuration verifications, where applicable. The SWEs also demonstrated the ability to identify seismically-induced flooding interactions and seismically-induced fire interactions. The SWEs documented the results of the Seismic Walkdowns and Area Walk-bys on the appropriate checklists from Appendix C of EPRI Report 1025286 (Reference 10.2).

The Peer Review Team inspected all the checklists completed during the first week of Seismic Walkdowns, which represents approximately 30% of the total number of the checklists. Peer review of the Seismic Walkdowns and Area Walk-bys identified minor editorial errors and also some instances where comments in the checklists required additional explanation and information. Mr. Ashworth and Mr. Whitmore provided verbal feedback to the SWEs to adjust these entries accordingly. The SWEs understood the comments and incorporated the recommendations and updates from the Peer Review Team.

Since the peer review occurred at the start of the Seismic Walkdowns, the peer reviewers were able to provide comments at the early stages of the walkdown process to ensure consistency in the reporting for all packages. Subsequently, the Peer Review Team considered the number of completed walkdown packages reviewed to be appropriate. In addition, all members of the Peer Review Team, including Mr. Ashworth, Ms. Brown, Mr. Starck and Mr. Whitmore were available by phone as necessary during the entire Walkdown process.

### 9.2.3 Licensing Basis Evaluations

All potentially adverse seismic conditions identified were immediately entered into the plant CAP for further review and disposition as discussed in Section 8.1 of this report. Therefore, the seismic walkdown teams did not perform licensing basis evaluations apart from evaluations

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performed as part for the CAP. The Peer Review Team considers this CAP process approach fully comprehensive and acceptable for addressing the potentially adverse seismic conditions observed during the Seismic Walkdowns.

#### 9.2.4 Submittal Report

The Peer Review Team was provided with drafts of the submittal report. This allowed the Peer Review Team to provide guidance and input and verify the submittal report would meet the objectives and requirements of EPRI Report 1025286 (Reference 10.2).

The Peer Review Team provided both verbal and written comments on the draft reports and was active in ensuring the report was thorough, complete and accurate. The final version of the submittal report includes all necessary elements of the Peer Review and meets the requirements of the 50.54(f) letter.

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## **10.0 REFERENCES**

- 10.1 10CFR50.54(f) Letter, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3 and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident, March 12, 2012
- 10.2 EPRI 1025286, Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic, June 2012
- 10.3 Generic Letter No. 88-20, Supplement 4, Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities
- 10.4 Generic Letter No. 87-02, Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, Unresolved Safety Issue (USI) A-46
- 10.5 Regulatory Guide 1.60, Design Response Spectra for Seismic Design of Nuclear Power Plants, December 1973
- 10.6 NMP-GM-033-GL01 Ver. 1.0, SAM NTTF Seismic Walkdowns Guide
- 10.7 VEGP FSAR, Rev.18, September 2012
- 10.8 Individual Plant Examination of External Events (IPEEE) – Seismic, Vogtle Electric Generating Plant, Unit 1 and Unit 2
- 10.9 Document No. 12L0075-RPT-001, Revision 0, May 18, 2012, “Southern Nuclear Company Seismic IPEEE Walkdown of Modified Equipment in Support of 10CFR50.69 Risk Informed Project – Plant Vogtle”
- 10.10 Regulatory Guide 1.61, Damping Values for Seismic Design of Nuclear Power Plants, October 1973
- 10.11 NUREG/CR-0098, Development of Criteria for Seismic Review of Selected Nuclear Power Plants, May 1978
- 10.12 EPRI Report NP-6041, A Methodology for Assessment of Nuclear Power Plant Seismic Margin, Revision 1, August 1991



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## **11.0 ATTACHMENTS**

ATTACHMENT 1 – SEISMIC WALKDOWN EQUIPMENT LISTS

ATTACHMENT 2 – PEER REVIEW CHECKLIST FOR THE SWEL 1 AND 2

ATTACHMENT 3 – SEISMIC WALKDOWN CHECKLISTS

ATTACHMENT 4 – AREA WALK-BY CHECKLISTS

ATTACHMENT 5 – IPEEE VULNERABILITIES INFORMATION

ATTACHMENT 6 – SEISMIC WALKDOWN ENGINEER CERTIFICATIONS

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For  
**Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic**

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### **EXECUTIVE SUMMARY**

The Seismic Walkdowns at Vogtle Unit 1 in response to the NRC 50.54(f) letter dated March 12, 2012, "Enclosure 3, Recommendation 2.3: Seismic" are complete. The walkdowns were performed using the methodology outlined in the NRC endorsed "Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic" (EPRI Report number 1025286). Plant Vogtle Unit 1 had no significant degraded, non-conforming or unanalyzed conditions that warranted modification to the plant. Plant Vogtle Unit 1 had no as-found conditions that would prevent SSCs from performing their required safety functions.

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## **1.0 SCOPE AND OBJECTIVE**

The objective of this report is to document the results of the Seismic Walkdowns at Vogtle Unit 1 in response to the NRC 50.54(f) letter dated March 12, 2012, "Enclosure 3, Recommendation 2.3: Seismic" (Reference 10.1).

The Seismic Walkdowns followed the guidance contained in EPRI Report 1025286 (Reference 10.2), which was endorsed by the NRC on May 31, 2012. The scope of the walkdowns was to identify potentially degraded, unanalyzed, or nonconforming conditions relative to the seismic licensing basis.

The 2.3: Seismic Walkdowns for Vogtle Unit 1 are complete. All items on the SWEL were accessible. This report is comprehensive and documents the findings from all Seismic Walkdowns and Area Walk-bys.

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## 2.0 SEISMIC WALKDOWN PROGRAM IMPLEMENTATION APPROACH

The requirements of the 50.54(f) Letter are satisfied by application of and compliance with the NRC endorsed methodology provided in EPRI Report 1025286 (Reference 10.2). In accordance with EPRI Report 1025286 (Reference 10.2), the following topics are addressed in this report:

- Documentation of the seismic licensing basis for the SSCs in the plant (Section 3.0);
- Assignment of appropriately qualified personnel (Section 4.0);
- Reporting of actions taken to reduce/eliminate seismic vulnerabilities identified by the Individual Plant Examination for External Events IPEEE program (Section 5.0);
- Selection of SSCs to be inspected in the plant (Section 6.0);
- Performance of the Seismic Walkdowns and Area Walk-bys (Section 7.0);
- Evaluation of potentially adverse seismic conditions with respect to the seismic licensing bases (Section 8.0); and
- Performance of Peer Reviews (Section 9.0).

Supplemental guidance/clarification for opening cabinets to inspect for adverse conditions was received on September 18, 2012. This required the opening of cabinets, electrical boxes, and switchgear to inspect the internals for potentially adverse seismic conditions, even when opening the components was not required to inspect the anchorage. At the time of this supplemental guidance/clarification, the Vogtle Unit 1 walkdowns were complete. However, the affected components were identified and scheduled for re-inspection with component doors opened. Further discussion is provided in Section 7.0.

Due to the occurrence of a scheduled refueling outage at Vogtle Unit 1 in late September 2012, items inaccessible during the initial walkdowns were accessible during subsequent walkdowns performed during the outage. In addition, during subsequent Seismic Walkdowns of Vogtle Unit 1, electrical cabinets (where no extensive disassembly was required) were opened to inspect the cabinet internals for mounting of internal components, inspect the condition of fasteners of adjacent cabinets, and confirm absence of any other adverse seismic conditions.

Therefore, all cabinets at Vogtle Unit 1 have now been made accessible for internal inspections and inspections of these panels are complete.

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### 3.0 SEISMIC LICENSING BASIS SUMMARY

This section provides a summary of the licensing bases for the Seismic Category I Structures, Systems, and Components (SSCs) in the plant. It includes a discussion of the Safe Shutdown Earthquake (SSE) and the codes and standards used in the design of the Seismic Category I SSCs for meeting the plant-specific seismic licensing basis requirements.

#### 3.1 SAFE SHUTDOWN EARTHQUAKE

The plant site geologic and seismologic investigations are covered in Section 2.5 of the Vogtle FSAR (Reference 10.7). Based on this data, the peak ground accelerations for Safe Shutdown Earthquake (SSE) and Operating Basis Earthquake (OBE) are established as 0.20g and 0.12g, respectively, as discussed in subsection 2.5.2 (Reference 10.7).

The VEGP site design response spectra are provided in Figures 3.7.B.1-1 and 3.7.B.1-2 for the horizontal and vertical components of the SSE and in Figures 3.7.B.1-3 and 3.7.B.1-4 for the horizontal and vertical components of the OBE (Reference 10.7). The design response spectra are in conformance with Regulatory Guide 1.60, Design Response Spectra for Seismic Design of Nuclear Power Plants (Reference 10.5). The ground spectra were applied to models of the various structures and amplified in-structure response spectra were generated taking into account the flexibility of the soil and structure.

#### POWER GENERATION DESIGN BASES

Seismic Category I systems, structures and components are designed so that stresses remain within normal code allowable limits during the OBE and to ensure that they will perform their safety-related functions during and/or after an SSE.

#### MAJOR COMPONENT DESIGN BASES

The horizontal and vertical OBE and SSE in-structure response spectra curves form the basis for the seismic qualification and design of Category I SSCs and for demonstrating the structural integrity of Seismic Category II SSCs, where required. In addition, systems running between structures shall be designed to withstand the seismic relative displacements.

The seismic analysis of safety related systems, equipment, and components is based on the response spectra method, time-history method, or equivalent static method.

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All Seismic Category I safety-related instrumentation and mechanical and electrical equipment meet the requirements and recommendations of IEEE 344-1975. Damping values are consistent with those specified in Regulatory Guide 1.61 (Reference 10.10).

### 3.2 DESIGN CODES, STANDARDS, AND METHODS

The design codes and standards for seismic qualification are listed in Chapter 3 of the Vogtle FSAR (Reference 10.7). Examples of the pertinent codes, standards, and methods used in the original design of Vogtle Unit 1 are listed below.

- ANSI B31.1, Power Piping
- ANSI/ASME Boiler and Pressure Vessel Code, Section III, Rules for Construction of Nuclear Power Plant Components, Division 1
- ANSI/ASME Boiler and Pressure Vessel Code, Section III, Division 1-A, Appendix N, Dynamic Analysis Methods
- IEEE 317-1976, Standard for Electric Penetration Assemblies in Containment Structures for Nuclear Power Generating Stations
- IEEE 323-1974, Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations
- IEEE 344-1975, Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations
- Manual of Steel Construction (AISC), 7th Edition



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#### 4.0 PERSONNEL QUALIFICATIONS

Table 4-1 identifies the project team members and their project responsibilities per EPRI Report 1025286 (Reference 10.2). Table 4-2 identifies the Peer Review Team members and responsibilities. Section 4.1 provides an overview of the project responsibilities. Section 4.2 includes brief experience summaries for all project personnel in alphabetical order.

**Table 4-1 Project Team Members and Responsibilities**

Name	Site Point of Contact (POC)	Equipment Selection / IPEEE Reviewer	Plant Operations	Seismic Walkdown Engineer (SWE)	Licensing Basis Reviewer
Justo Chacon		X		X	X
James Dovel				X	X
Parimal Gandhi				X	X
Jose Hernandez	X	X		X	X
Thomas Petrak		X	X		
Winston Stewart *				X	X
David Volodarsky				X	X
Matthew Wilkinson				X	X
Frank Yao				X	X

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**Table 4-2 Peer Review Team Members and Responsibilities**

Name	Peer Review Team Leader	SWEL Peer Reviewer	Walkdown Peer Reviewer	Licensing Basis Peer Reviewer	Submittal Report Peer Reviewer
Robert Ashworth *		X	X	X	X
Melanie Brown *	X	X		X	X
Richard Starck *		X			X
Kenneth Whitmore *		X	X	X	X

Notes (Table 4-1 and Table 4-2):

- 1) \* Indicates Seismic Capability Engineer
- 2) As stated in Section 7.0, all potentially adverse conditions were entered into the plant Corrective Action Program (CAP) system. However, as part of the process of entering the condition into the CAP, the SWEs made a preliminary assessment of the condition with respect to the plant licensing basis. Further licensing basis reviews were performed as discussed in Section 8.0 as part of the CAP resolution process by personnel not directly involved in the walkdowns.

#### 4.1 OVERVIEW OF PROJECT RESPONSIBILITIES

The Site Point of Contact (POC) is a site engineer from Southern Nuclear that has experience with the site equipment, site procedures, plant operations, and overall personnel organization. The site POC coordinated site access for walkdown personnel and any resources required for the walkdowns such as inspection equipment and support from plant operations. The POC was responsible for development of the walkdown schedule and any updates to the schedule based on equipment availability.

Equipment Selection Personnel (ESP) were responsible for identifying the sample of SSCs for the Seismic Walkdowns. The ESP have knowledge of plant operations, plant documentation, and associated SSCs. The ESP also have knowledge of the IPEEE program. For this project, site engineers and plant operations personnel participated in the equipment selection. The ESP also

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performed the responsibilities of the IPEEE Reviewers. The IPEEE Reviewers also ensured that the walkdown scope included a sample of equipment that had IPEEE seismic vulnerabilities.

Plant Operations Personnel provided detailed review of the sample of SSCs to ensure the walkdown scope included equipment located in a variety of environments, equipment in a variety of systems, and equipment accessible for a walkdown. For the Vogtle Unit 1 project, the Plant Operations Personnel (POP) is a former licensed Senior Reactor Operator.

The SWEs were trained on the NTTF Recommendation 2.3: Seismic, and on the material contained in EPRI Report 1025286 (Reference 10.2). SWEs that had previously completed the Seismic Walkdown Training Class developed by the Seismic Qualification Utilities Group (SQUG) were not required to complete training on the NTTF Seismic recommendations but were trained on the differences between SQUG activities and activities associated with the NTTF Seismic recommendations.

The Licensing Basis Reviewer was responsible for determining whether any potentially adverse seismic conditions identified by the SWEs met the plant seismic licensing basis. The Licensing Basis Reviewer has knowledge of and experience with the seismic licensing basis and documentation for the SSCs at Vogtle.

A Peer Review Team was formed for this project to provide both oversight and review of all aspects of the walkdowns. The Peer Review Team members have extensive experience in seismic design and qualification of structures, systems and components as well as extensive field experience. The Peer Review Team for this project interfaced with the ESP and SWEs to ensure that the walkdown program satisfied the guidance in EPRI Report 1025286 (Reference 10.2).

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## 4.2 TEAM EXPERIENCE SUMMARIES

### Robert Ashworth, SCE (MPR)

Mr. Ashworth has more than six years of experience providing engineering solutions for a wide variety of nuclear power plant components and systems. His experience includes equipment walkdowns at industrial facilities to assess material condition, structural modeling and analyses, and seismic qualification in accordance with current industry standards for mechanical and electrical equipment in nuclear power plants. Mr. Ashworth has completed the training course for the EPRI Report 1025286 and is also a Seismic Capability Engineer (SCE) as defined in the SQUG Generic Implementation Procedure (GIP) for resolution of unresolved safety issue (USI) A-46.

### Melanie Brown, SCE (SNC)

Ms. Brown has over 31 years of experience with Southern Company, the majority of which has been serving the nuclear fleet. Ms. Brown's most recent assignment was as a Seismic Qualification Engineer in the Fleet Design Department, where she was responsible for performing activities associated with the Governance, Oversight, Support, and Perform (GOSP) Model including:

- Management of the seismic design bases,
- Seismic equipment qualification,
- Seismic evaluation of plant structures and components,
- Design documentation and configuration management.

She is currently serving as the Southern Nuclear Seismic Technical Lead for the Fukushima Near-Term Task Force (NTTF) 2.3 Seismic Walkdowns for all three Southern Nuclear plants.

### Justo S Chacon, SWE (SNC)

Mr. Chacon is an engineer with Southern Nuclear Operating Company. He is working at Vogtle Nuclear Plant in the Modification Group in the Civil/Mechanical area. Mr. Chacon has a degree in Industrial Engineering and has worked on numerous site projects associated with civil/mechanical applications. Being part of Modification Group, he is exposed to the seismic engineering issues as they apply to nuclear power plants. His extensive experience also as a Reactor Operator (roughly 6 years) provides experience with nuclear power equipment. Mr. Chacon completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

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James Dovel, SWE (ENERCON)

Mr. Dovel is a Registered Professional Engineer with over 20 years of Civil/Structural experience in the design and construction of nuclear power plants, and in commercial and Industrial design. Mr. Dovel is a Civil Lead Engineer. In this capacity he has provided structural support of modification packages for numerous Entergy plants including Grand Gulf Nuclear Station (GGNS), River Bend Station, Arkansas Nuclear One (ANO), Pilgrim Nuclear Power Station, and Waterford 3. Mr. Dovel also supported the extended power uprate (EPU) for FPL's Turkey Point plant, pipe stress analysis for DC Cook and the design of new power plants for China. Mr. Dovel completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

Parimal Gandhi, SWE (SNC)

Mr. Gandhi is a senior engineer with Southern Nuclear Operating Company. For the past 25 years, he has been working with the design and modifications of numerous Nuclear Power Plants and other industrial facilities including evaluating the condition of structural steel and concrete. His experience includes static and dynamic analysis of steel frames, platforms, towers, crane girders, and various miscellaneous structures and finite element analysis of pressure vessel and lifting devices. Mr. Gandhi completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

Jose Hernandez, SWE (SNC)

Mr. Hernandez is an engineer with Southern Nuclear Operating Company. He is working at Vogtle Nuclear Plant in the Site Design department. Mr. Hernandez is a registered professional engineer in the state of Georgia. His experience consists of 8 years in reinforced concrete analysis and design, elastic design, seismic rehabilitation, nonlinear analysis, nuclear design engineering, and geotechnical elements on reinforced concrete structures. Mr. Hernandez is familiar in-depth with structural and civil construction codes. Mr. Hernandez managed the internal project team and subcontractors on numerous site projects. Mr. Hernandez's previous experience includes participation in several researches that investigated the seismic vulnerability of existing school and hospital buildings located in high intensity activity seismic zones. Mr. Hernandez completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as SWE.

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Thomas Petrak (SNC)

Mr. Petrak has 30 years of nuclear power plant experience with 26 years at Plant Vogtle. Mr. Petrak's current assignment is the Fukushima Project Manager – Vogtle. During his time at Plant Vogtle, Mr. Petrak maintained an active SRO license for twenty years, 1989 – 2009. Positions held by Mr. Petrak include:

- Engineering Systems Manager
- Shift Manager
- Unit Shift Supervisor
- Support Shift Supervisor
- Maintenance Superintendent
- I&C Team Leader
- Engineering Supervisor

Richard Starck, SCE (MPR)

Mr. Starck is a registered Professional Engineer with more than 30 years of experience in seismic qualification of nuclear plant equipment. He is the principal author of the EPRI Report 1025286 (Reference 10.2). He developed and taught the six sessions of the NTTF 2.3 Seismic Walkdown Training Course to more than 200 engineers. He has provided technical oversight of work for various SQUG projects aimed at resolving USI A-46. Mr. Starck developed for SQUG the generic guidelines, criteria, and procedure for identifying safe shutdown equipment for resolution of USI A-46, is the editor and principal author of the SQUG Generic Implementation Procedure, and has interfaced with the NRC Staff and the SQUG Steering Group to resolve open issues on several revisions of the GIP. Mr. Starck is a SCE and has performed Seismic Walkdowns and evaluations of nuclear plant electric and mechanical equipment as part of the NRC required USI A-46 program. This work included equipment qualification, anchorage evaluation, seismic interaction review, outlier resolution, and operability determination.

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Winston Stewart, SCE (ENERCON)

Mr. Stewart is a Mechanical Engineer with over eight years of experience in various capacities including: Modification Engineer, Engineering Mentor, 10CFR50.59 Evaluator, Apparent Cause Evaluator, Contract Administration and Designated Representative, Project Manager, Procedure Technical Reviewer, and Environmental Monitoring Team Leader for Emergency Response Organization. Mr. Stewart was responsible for the preparation of technical evaluations for various configuration changes to plant systems, structures, or components, as well as the preparation and revision of civil/structural calculations, pipe stress calculations, and other design documents. He also served as subject matter expert for Pipe Stress Analysis and Pipe Flaw Evaluation (ASME B31.1, Section III and Section XI). During this time he qualified as SQUG Seismic Capability Engineer. Mr. Stewart completed his EPRI training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

David Volodarsky, SWE (ENERCON)

Mr. Volodarsky is a Registered Professional Engineer with over 30 years of Civil/Structural experience in the design and construction of nuclear power plants. Mr. Volodarsky is a civil supervisor with Enercon Services. His design experience includes field survey; piping design and stress analysis; seismic qualification of equipment, parts and structures; design of supports for various systems (piping, ductwork, raceways) for nuclear power plants. His recent work is associated with 10 CFR 73.55 nuclear plant security upgrades at Plant Farley, Plant Hatch, and Plant Vogtle. Mr. Volodarsky supported modification packages for the installation of the Emergency Sump Strainer for Davis Besse, Crystal River Unit 3, McGuire Nuclear Station Unit 1 & 2, Catawba Nuclear Station Unit 1 & 2, Indian Point Unit 2 & 3, Shearon Harris Nuclear Plant, Three Mile Island Nuclear Station Unit 1 and Qinshan Nuclear Power Plant Unit 3. Mr. Volodarsky completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

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Kenneth Whitmore, SCE (ENERCON)

Mr. Whitmore is a Registered Professional Engineer with more than 30 years of experience in seismic design and seismic equipment qualification in nuclear power plants. Mr. Whitmore is a Seismic Capability Engineer that was involved in the development of the SQUG methodology for verification of nuclear plant components. Specifically, Mr. Whitmore served on the sub-committee that developed the SQUG methodology for evaluation of raceways and on the sub-committee that performed the peer review of the SQUG walkdown training class. Mr. Whitmore performed A-46 and IPEEE walkdowns at Oyster Creek and Three Mile Island and has subsequently performed SQUG evaluations at numerous nuclear power plants. Mr. Whitmore served as both Chairman and Technical Chairman of the Seismic Qualification Reporting and Testing Service (SQRTS), has witnessed numerous seismic tests and is a recognized industry expert in seismic qualification of components. Mr. Whitmore has significant experience in all aspects of structural analysis and design and has extensive experience in performing plant walkdowns associated with seismic issues. Mr. Whitmore completed his EPRI training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

Matthew Wilkinson, SWE (ENERCON)

Mr. Wilkinson is a Civil Engineer with over 5 years of experience. He has a B.S. in Civil Engineering. As a civil engineer, he is responsible for the development of engineering packages, calculations, analyses, drawings, and reports. Mr. Wilkinson has significant design experience with Florida Power and Light, primarily providing his services for Turkey Point Nuclear Station (PTN) on several modification packages and calculations. Mr. Wilkinson has significant site support experience at PTN, McGuire Nuclear Station and River Bend Nuclear Station. Moreover, Mr. Wilkinson worked directly at PTN for the majority of 2010 to support the Independent Spent Fuel Storage Installation (ISFSI) construction and 2011 to 2012 to support the Extended Power Uprate (EPU) project design phase. Mr. Wilkinson completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.



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Frank Yao, SWE (ENERCON)

Mr. Yao is a Registered Professional Engineer with over 40 years of Civil Structural experience in the design and construction of nuclear and fossil power plants and highway bridge design. His design experience includes structural steel design (including anchorages); supports for suspended systems (piping, ductwork, raceways); seismic qualification of equipment, parts and structures; rigging and scaffold; and retaining walls, cooling towers concrete slabs, beams and foundations. His recent work associated with 10 CFR 73.55 nuclear plant security upgrades at Plant Hatch, and Plant Vogtle. Mr. Yao supported modification packages for the installation of the Emergency Sump Strainer for Davis Besse Nuclear Power Station, Catawba Unit 1 & 2, McGuire Unit 1 & 2, Qinshan Unit 3 & 4 (China), and Ling Ao Unit 3 & 4 (China). He has also supported several plants during the implementation phase of the strainers, providing engineering support, resolving construction issues and performing structural evaluation to qualify changes made during the installation phase of the project. Mr. Yao completed his training on Near Term Task Force Recommendation 2.3 – Seismic Walkdowns as a SWE.

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## **5.0 IPEEE VULNERABILITIES REPORTING**

Information on the seismic vulnerabilities identified during the IPEEE program is reported in Attachment 5. Within this context, "vulnerabilities" means seismic anomalies, outliers, or other findings. For each vulnerability, Attachment 5 also reports a description of the action taken to eliminate or reduce the seismic vulnerability, and specifies whether the configuration management program has maintained the IPEEE action (including procedural changes) to ensure that the vulnerability continues to be addressed.

As part of a Seismic PRA/IPEEE update, in May 2012 Plant Vogtle conducted a walkdown of Equipment modified under the IPEEE - Seismic. As a result of this walkdown, Document No. 12L0075-RPT-001 was issued (Reference 10.9). That walkdown revisited systems and components that have been either significantly modified or replaced since the issuance of the original VEGP IPEEE- Seismic Report to NRC (Reference 10.8). The findings of the walkdown conducted in May are documented in Appendix A-2 (Previous IPEEE Open Item Walkdown Resolution Notes) (Reference 10.9). Appendix A-2 is included in Attachment 5. The purpose of these walkdowns was to ensure that the IPEEE vulnerabilities had been resolved. During those walkdowns, 2 outliers were discovered that were potentially unresolved (either had never been resolved or were currently no longer resolved, i.e., the problem had "re-occurred"). Two items specifically dealt with hoists in the Diesel Generator Buildings were found not properly restrained (see CR 504859).

The seismic walkdown equipment list (SWEL) for Vogtle Unit 1 included 6 components that had seismic vulnerabilities previously identified during the IPEEE program. Even though the items identified as IPEEE vulnerabilities had been walked down in May 2012, implementation of these modifications for SWEL items was verified again during the walkdowns performed for resolution of the NTTF Recommendations 2.3, Seismic. During the walkdowns, the walkdown teams verified that the recommended resolutions to the IPEEE vulnerabilities associated with these six items had been implemented.

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## 6.0 SEISMIC WALKDOWN EQUIPMENT LIST DEVELOPMENT

A team of individuals with extensive knowledge of Plant Vogtle systems and components developed the SWEL. Qualifications of the personnel responsible for developing the SWEL are provided in Section 4.0 of this report. The equipment selection personnel used a SNC-template to ensure compliance with EPRI Report 1025286 (Reference 10.2) and consistency across the fleet.

Two SWELs were developed (SWEL 1 and SWEL 2) consistent with the guidance in EPRI Report 1025286 (Reference 10.2). SWEL 1 consists of a sample of equipment related to safe shutdown of the reactor and maintaining containment integrity as described in Section 3.0 of the EPRI Report 1025286 (Reference 10.2). SWEL 2 consists of items related to the spent fuel pool as described in Section 3.0 of EPRI Report 1025286 (Reference 10.2). The two SWELs form the overall SWEL for the plant. Attachment 1 provides the final SWEL 1 and SWEL 2.

In some cases, components listed on the SWEL were removed from the SWEL or were replaced with equivalent components. These changes were made when it was determined during the Seismic Walkdown that access to the equipment on the original SWEL would be impractical to achieve during a walkdown. For example, components located very high overhead were replaced with equivalent items that could be seen without erecting scaffolding. All such changes meet the provisions of the EPRI Report 1025286 (Reference 10.2). The SWELs provided in Attachment 1 reflect the final SWELs after all changes were incorporated.

### 6.1 DEVELOPMENT OF SWEL 1

SWEL 1 was developed using the four screens described in EPRI Report 1025286 (Reference 10.2).

#### Screens 1 to 3

Screens 1 to 3 were used to select Seismic Category I equipment that do not undergo regular inspection and support the five safety functions.

In accordance with the EPRI Seismic Walkdown Guidance (page 3-3), Screens 1 through 3 can be satisfied using previous equipment lists developed for the IPEEE program. Consequently, the Seismic Review Safe Shutdown Equipment List (SSEL) developed for the Vogtle Nuclear Plant IPEEE Unit 1 (Reference 10.8) was used as Base List 1 for the development of SWEL 1.

The specific guidance used to create the IPEEE Seismic SSEL was EPRI Report NP-6041, "A Methodology for Assessment of Nuclear Power Plant Seismic Margin" (Reference 10.12). The Seismic SSEL from IPEEE – Seismic was checked and verified to meet the intentions set forth in the

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EPRI Report 1025286. The intent of the Base List 1 was to provide an equipment list of the SSCs used to safely shut down the reactor and maintain containment integrity following a Seismic Safe Shutdown Earthquake. The EPRI Report 1025286 (page 3-1) listed three screens to use in selecting the Base List 1 if a utility was to not start from an existing equipment list used in previous plant evaluations. Applying these three screens would result in an acceptable base list that was comprised of Seismic Category I SSCs associated with maintaining the five safety functions:

- Reactor reactivity control
- Reactor coolant pressure control
- Reactor coolant inventory control
- Decay heat removal, and
- Containment function.

The criteria used in selection of the Seismic SSEL are detailed in Section 3.1.2.5 of the IPEEE – Seismic Report (Reference 10.8).

Therefore, based upon the review of the Base List, it was determined that the list did satisfy the requirements as specified in the EPRI Report 1025286 (Reference 10.2) which is a list comprised of Seismic Category I SSCs associated with maintaining the five safety functions described in EPRI Report 1025286, which are used to safely shut down the reactor and maintain containment cooling integrity. Base List 1 is presented in Attachment 1. However, before proceeding any further with the subsequent screens for the base list, it was necessary to confirm that the components satisfied screens 1 to 3. Hence, screens 1 to 3 were applied to the base list and a small number of components were identified and screened out of the base list.

#### **Screen 4**

Screen 4 provides the sample considerations to select components from the Base List 1. The selection of components for SWEL 1 was developed through an iterative process that ensured a representative sample (i.e., Screen 4 from EPRI Report 1025286). Various drafts of SWEL 1 were provided to POP for review and input. The POP identified and recommended inclusion of additional equipment important to plant operations.

The following list summarizes the sample considerations used to develop SWEL 1:

- Variety of systems
- Major new or replacement equipment
- Classes of equipment

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- Variety of environments
- Equipment enhanced due to vulnerabilities identified during the IPEEE program
- Risk significance

Variety of Systems – EPRI Report 1025286 specifies that equipment from a variety of plant systems must be included on the SWEL 1. The systems represented in the Base List were reviewed and components from a majority of these systems are included on the SWEL.

Major New and Replacement Equipment – Major new or replacement equipment installed within the previous 15 years was identified through a search of work order (WO) histories for selected equipment and input from the plant personnel familiar with plant modification and from the PRA group on equipment changes to components that are included in the PRA.

Variety of Equipment Classes – A list of the 21 Classes of Equipment that should be included on the SWEL is provided in Appendix B of the EPRI Report 1025286. SWEL 1 includes components from each equipment class except Class 12 (Air Compressors) and Class 13 (Motor Generators). Vogtle does not contain any safety-related Air Compressors or Motor Generators.

Variety of Environments – The EPRI Report 1025286 specifies that the SWEL contain components located in various plant environments, including environments subject to corrosion and high temperatures. SWEL 1 includes equipment in three environment types. These include Harsh (e.g. Containment Building, Main Steam Valve Room), Mild (e.g. Control Room, Auxiliary Building), and Outdoors Structures (e.g. valve boxes, Nuclear Service Cooling Towers).

IPEEE Vulnerabilities – SWEL 1 includes equipment identified with seismic vulnerabilities identified in Reference 10.8.

Risk Significance – Information from the Vogtle Unit 1 PRA and the Maintenance Rule implementation documentation were used to determine whether items were risk significant. Representative samples of Risk Significant items are included in the SWEL.

## 6.2 DEVELOPMENT OF SWEL 2

SWEL 2 is developed using four screens described in EPRI Report 1025286 (Reference 10.2). SWEL 2 is presented in Attachment 1.

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**Screens 1 to 2**

The equipment selected through Screens 1 and 2 provide any Seismic Category I components associated with the Spent Fuel Pool (SFP) that are also accessible for a walkdown. For Vogtle Unit 1, the only Seismic Category 1 equipment associated with the SFP is the Spent Fuel Cooling and Purification System. The SSCs in the Spent Fuel Cooling and Purification System that are accessible and available for a walkdown comprise Base List 2.

**Screen 3**

Screen 3 provides the sample considerations that ensure that a broad category of equipment included in SWEL 2. These considerations include:

- Variety of systems
- Major new or replacement equipment
- Classes of equipment
- Variety of environments

For Vogtle Unit 1, SWEL 2 is developed from the Base list 2 which is provided in Attachment 1.

**Screen 4**

Screen 4 identifies any items that could potentially lead to rapid drain down of the SFP. These include any penetrations in the SFP that are below 10 feet above the top of the fuel assemblies.

For Vogtle Unit 1, there are no SFP penetrations within 10 feet above the fuel in the SFP. All piping connected to the SFP, either terminates more than 10 feet above the fuel or has anti-siphon holes, located more than 10 feet above the fuel, to prevent rapid drain-down of the SFP. Based on the fact that there are no penetrations within 10 feet of the fuel and accompanied with the design of the anti-siphon hole in the SFP discharge piping, no rapid drain-down items exist.

Therefore, there are no components associated with rapid drain down of the Spent Fuel Pool included on SWEL 2.

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## 7.0 SEISMIC WALKDOWNS AND AREA WALK-BYS

Walkdowns were performed for all components on the (combined) SWEL. A Seismic Walkdown Checklist (SWC) was completed for each component and an Area Walk-by Checklist (AWC) was completed for each area containing equipment on the SWEL. Copies of the SWCs and AWCs are provided in Attachments 3 and 4, respectively.

The personnel performing walkdowns received training on the NTTF 2.3 seismic walkdown guidance. Prior to the walkdown teams arriving onsite, walkdown packages were assembled into folders that contained the SWCs and AWCs and other pertinent information (e.g., calculations, test reports, IPEEE walkdowns, equipment location, and layout drawings). Each walkdown team consisted of two SWEs. The walkdown teams spent the first week on site obtaining unescorted plant access and organizing for the walkdowns. Organization included assignment of specific components to the teams; review of the walkdown packages; development of a process for tracking the Seismic Walkdown and Area Walk-bys; and familiarization with the plant.

The second week began with peer reviewers (Whitmore and Ashworth) providing an overview on the information contained in the EPRI Report 1025286 (Reference 10.2). Expectations for the walkdowns were discussed and questions were answered. After this overview, each walkdown team performed an initial Seismic Walkdown and Area Walk-by. This initial walkdown was performed in the presence of the other teams and at least one peer reviewer. The purpose of this initial walkdown was to ensure consistency between the different teams, to reinforce the expectations for identifying potentially adverse seismic conditions, and to allow team members to provide and obtain feedback.

Following the initial walkdowns, the walkdown teams began performing the Seismic Walkdowns and Area Walk-bys. Support from plant personnel (operators, electricians, engineering) was obtained as required to open equipment and to assist in locating and identifying components. All Component Walkdowns and Area Walk-bys were documented on the SWCs and AWCs, respectively. The final status of all SWCs and AWCs indicated one of the three following statuses:

- “Y” – Yes, the equipment is free from potentially adverse seismic conditions;
- “N” – No, the equipment is not free from at least one potentially adverse seismic condition;
- “U” – Undetermined, a portion(s) of the walkdown could not be completed due to equipment inaccessibility and the condition is not known.

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The walkdown focused on anchorage and seismic spatial interactions but also included inspections for other potentially adverse seismic conditions. Anchorage in all cases was considered to be anchorage to the structure. This included anchor bolts to concrete walls or floors, structural bolts to structural steel and welds to structural steel or embedded plates. For welds, the walkdown team looked for cracks and corrosion in the weld and base metal. Other bolts such as flange bolts on in-line components were not considered to be anchorage. These connections were evaluated and any potentially adverse seismic concerns were documented under "other adverse seismic conditions."

As part of the walkdown, the anchorage of at least 50% of the anchored components was evaluated to verify if the anchorage was consistent with plant documentation. The document that provides the anchorage configuration was identified on the SWC and the anchorage in the field was compared to the information on this referenced document. In cases where the anchorage could not be observed (e. g. where the anchorage is inside a cabinet that could not be opened at the time of the walkdown), the items related to anchorage were marked as "U" (Undetermined) and deferred until the piece of equipment was available for inspection. However, all other possible inspections associated with that item were completed and the results were documented on the SWC. These items were considered to be incomplete at that time and deferred to a time when they would be available for inspection. Subsequent to that initial walkdown, all "U" items were walked down during Refueling Outage 1R17 in September 2012. At the time of this report preparation, there are no open items related to Vogtle Unit 1.

In cases where the seismic walkdown team members identified a potentially adverse condition, the condition was noted on the SWC or on the AWC and a Condition Report (CR) was written to document and evaluate/resolve the condition. As part of the process of generating the CR, preliminary licensing basis evaluations were performed by the SWEs during the walkdowns. Additionally, detailed licensing basis reviews were conducted as part of the resolution of the CR, as required. Conditions that were not obviously acceptable were documented on the checklists and a basis was provided for why the observed condition was determined to be acceptable.

Area Walk-bys were performed in the rooms containing the SSCs for walkdowns. For cases in which the room where a component was located was large, the extent of the area encompassed by the Area Walk-by was clearly indicated on the AWCs. For large areas, the walk-by included all structures, systems and components within a 35-foot radius of the equipment being walked down, as described on the AWC. The AWCs are included in Attachment 4.



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### SWEL 1 Walkdowns

A total of 110 Component Walkdowns were performed. All areas of the plant that contain items on the SWEL were included in the Area Walk-bys.

### SWEL 2 Walkdowns

A total of 5 Component Walkdowns were performed. In addition, a total of 4 Area Walk-bys were completed. All areas of the plant that contain items on the SWEL were included in the Area Walk-bys.

### 7.1 INACCESSIBLE ITEMS

Table 7-1 identifies the components originally determined to be inaccessible for walkdowns. These items are located throughout the plant and the required Seismic Walkdowns and Area Walk-bys were not completed for these items during the initial phase of walkdowns. However, all the items were later walked down during the 1R17 refueling outage in late September 2012. Items in Table 7-1 are now complete.

#	Item No.	Description	Access	Remaining Walkdown Scope	Completion Date
1.	1-1804-S3-A02	4160V Switchgear 1AA02	No cabinet door opening was allowed during plant operation	Inspect anchorage	Outage 1R17
2.	1-1501-A7-004-000	CTB CoolinUnit & Motor	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
3.	1-HV-0442B	Reactor Head Letdown Line Control SOV	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
4.	1-HV-0780	Normal CTB Sump Pump Discharge AOV	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17

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**Table 7-1. Inaccessible Equipment per Original Walkdown Scope**

#	Item No.	Description	Access	Remaining Walkdown Scope	Completion Date
5.	1-HV-0943A	Accumulator nitrogen HDR Vent—Solenoid Operated Valve	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
6.	1-HV-1974	ACCW Return From RCP Coolers MOV	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
7.	1-HV-8154	CVCS Excess Letdown Isolation	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
8.	1-HV-8875D	Accumulator 1 Nitrogen Vent—Solenoid Operated Valve	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
9.	1-LT-0459R	Pressurizer Level	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
10.	1-1511-E7-002-000	CTB Reactor Cavity Cooling Coil	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
11.	1-1511-E7-001-000	CTB Reactor Cavity Cooling Coil	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17

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**Table 7-1. Inaccessible Equipment per Original Walkdown Scope**

#	Item No.	Description	Access	Remaining Walkdown Scope	Completion Date
12.	1-1511-B7-001-000	Reactor Cavity Cooling Fan-1	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17
13.	1-1511-B7-002-000	Reactor Cavity Cooling Fan-2	Inside containment. Not accessible during plant operation	SWC & AWC	Outage 1R17

**Table Notes:**

- 1) With the exception of the 4160 Volt Switchgear 1AA02, all components determined to be inaccessible during the initial walkdowns were located inside an area of the plant not accessible during normal plant operation, such as inside Containment. Walkdowns of these components and of the associated plant areas were deferred to an outage.

Supplemental guidance/clarification for opening cabinets to inspect for adverse conditions was received on September 18, 2012. This required the opening of cabinets, electrical boxes, and switchgear to inspect the internals for potentially adverse seismic conditions, even when opening the components was not required to inspect the anchorage. At the time of this supplemental guidance/clarification, the Vogtle Unit 1 Seismic Walkdowns were complete. However, the affected components were identified and scheduled for re-inspection with component doors opened.

Due to the occurrence of a scheduled refueling outage at Vogtle Unit 1 in late September 2012, items inaccessible during the initial walkdowns were accessible during subsequent walkdowns performed during the outage. In addition, during subsequent Seismic Walkdowns of Vogtle, Unit 1 electrical cabinets (where no extensive disassembly was required) were opened to inspect the cabinet internals for mounting of internal components, inspect the condition of fasteners of adjacent cabinets, and confirm absence of any other adverse seismic conditions. The results of the inspections recorded on a revised version of the SWC and or AWC.

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The following table provides a list of components that had to be opened in order to inspect for “other adverse conditions” inside the cabinets.

All cabinets at Vogtle Unit 1 have now been made accessible for internal inspections and inspections of these panels are complete.

**Table 7-2. Inaccessible Equipment Resulting from Guidance on Opening Cabinets to Inspect for Other Adverse Conditions.**

#	Item No.	Description	Remaining Walkdown Scope	Completion Date
1.	1-1500-Q5-HVC	HVAC Panel	Inspect Internals	Outage 1R17
2.	1-1602-Q5-NIR	Nuclear Inst. Racks	Inspect Internals	Outage 1R17
3.	1-1604-Q5-PCG	BOP Control Panel 1	Inspect Internals	Outage 1R17
4.	1-1604-Q5-PS2	Process I & C Protect II	Inspect Internals	Outage 1R17
5.	1-1605-C5-ASI	Alternate Shutdown Ind. Eagle 21 Cab.	Inspect Internals	Outage 1R17
6.	1-1605-P5-SDB	Shutdown Panel Train. B	Inspect Internals	Outage 1R17
7.	1-1605-Q5-SPB	Solid State Protection Sys. Cab.- Trn. B	Inspect Internals	Outage 1R17
8.	1-1623-D5-006A	Display Processing Unit A	Inspect Internals	Outage 1R17
9.	1-1804-S3-A02	4160V Switchgear 1AA02	Inspect Internals	Outage 1R17
10.	1-1805-S3-ABD	480V MOT Control CTR 1ABD	Inspect Internals	Outage 1R17
11.	1-1805-S3-ABB	480V MOT Control CTR 1ABB	Inspect Internals	Outage 1R17
12.	1-1805-S3-BBB	480V MOT Control CTR 1BBB	Inspect Internals	Outage 1R17

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**Table 7-2. Inaccessible Equipment Resulting from Guidance on Opening Cabinets to Inspect for Other Adverse Conditions**

#	Item No.	Description	Remaining Walkdown Scope	Completion Date
13.	1-1805-S3-RHR2A	Starter/RHR HV-8702A	Inspect Internals	Outage 1R17
14.	1-1805-Y3-1D6R	RHR ISO VLV Inverter	Inspect Internals	Outage 1R17
15.	1-1806-B3-CAB	Battery Charger 1AD1CB	Inspect Internals	Outage 1R17
16.	1-1806-Q3-DA2	125 VDC Distr. Panel 1AD12	Inspect Internals	Outage 1R17
17.	1-1806-S3-DCA	125 VDC MCC 1AD1M	Inspect Internals	Outage 1R17
18.	1-1805-S3-B15	480V Switchgear 1AB15	Inspect Internals	Outage 1R17
19.	1-1805-S3-B07	480V Switchgear 1BB07	Inspect Internals	Outage 1R17
20.	1-1806-S3-DSB	125VDC Switchgear 1BD1	Inspect Internals	Outage 1R17
21.	1-1807-Q3-VI2	120 VAC Vital Panel 1BY1B	Inspect Internals	Outage 1R17
22.	1-1807-Q3-VI3	120 VAC Vital Panel 1CY1A	Inspect Internals	Outage 1R17
23.	1-1807-Q3-VI5	120 VAC Vital Dist Panel 1AY2A	Inspect Internals	Outage 1R17
24.	1-1807-Y3-IA11R	Vital AC Inverter 1AD111	Inspect Internals	Outage 1R17
25.	1-1808-Q3-L47	Emergency LTG Dist Panel 1NLP47	Inspect Internals	Outage 1R17
26.	1-1816-U3-017	Auxiliary Relay Panel	Inspect Internals	Outage 1R17
27.	1-1821-U3-002	SF Sequencer Board Train B	Inspect Internals	Outage 1R17
28.	1-2403-P5-DG3	DG 1B Gen CTL PNL	Inspect Internals	Outage 1R17

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**Table 7-2. Inaccessible Equipment Resulting from Guidance on Opening Cabinets to Inspect for Other Adverse Conditions**

#	Item No.	Description	Remaining Walkdown Scope	Completion Date
29.	1-1805-S3-B15X	Transformer	SWC & AWC	Outage 1R17

Table Notes:

- 1) Vogtle Unit 1 has 3 transformers (Equipment Class 4) in the SWEL-1. The transformers were inspected to the extent practical. All visible anchors, hardware and surfaces were inspected. The anchorage for the transformers was visible without opening the component. To inspect the transformer further would require disassembly and therefore would not be considered part of a normal electrical inspection. The inspection of the transformers meets the requirements of the guidance document and the 50.54(f) letter. The transformers are as listed below:

1-1808-T3-115	LTG ISOLATION XFMR 1BBF13X
1-1807-Y3-13	REGULATED XFMR 1BBC09RX ALTERNATE FEED TO PANEL 1DY1B
1-1807-Y3-11	REGULATED XFMR 1BBA07RX

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## 8.0 RESULTS

This section discusses the results of the Seismic Walkdowns that were performed in response to the NRC 50.54(f) letter dated March 12, 2012, "Enclosure 3, Recommendation 2.3: Seismic". As potentially adverse conditions were identified conditions reports were initiated in the Plant CAP program and evaluated. The sections below discuss the results of these walkdowns and evaluations.

### 8.1 POTENTIALLY ADVERSE SEISMIC CONDITIONS

All potentially adverse conditions were conservatively entered into the site Corrective Action Program (CAP) per Southern Nuclear expectations in a timely manner. While some preliminary licensing basis evaluations were performed by the SWEs as part of the generation of the CAP entries, the items did not first undergo a detailed seismic licensing basis review as described in EPRI Report 1025286 (Reference 10.2). Consequently, the as-found conditions in Table 8-1 below do not necessarily indicate that SSCs were deficient or not in conformance with their seismic licensing basis. Instead, it is an indication that Southern Nuclear has a very low threshold for CRs and actively uses the system.

SNC personnel familiar with the Plant Vogtle Seismic Licensing basis, Plant Vogtle seismic qualification methods and documentation, and Southern Nuclear requirements and procedures for entering items into the CAP reviewed and dispositioned all of the potentially adverse seismic conditions as part of the CAP process. The subsections below summarize the key findings from the CAP reviews that pertain to equipment operability, SSC conformance with the seismic licensing basis, and any required plant changes.

During the course of the seismic walkdowns, a total of 33 Unit 1 Potentially Adverse Conditions were identified and entered into the Corrective Action Program. In addition, another 4 were entered that are Common to both Units 1 and 2. Table 8-1 provides additional details on the SSCs that were identified during the walkdowns and entered into the CAP as degraded, nonconforming, or unanalyzed relative to their seismic licensing basis.

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<b>Table 8-1. Potentially Adverse Conditions</b>					
<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1206-P6-001	A lighting hook was found that did not seem to be fully closed. This was found in D77 in the Auxiliary Building Unit 1. The light was above the Containment Spray pump 1-1206-P6-002. A closer inspection needs to be made to verify a set screw is missing or bent in the connection. Reference info on similar past lighting hooks include the following: CR 421479, CR 426198, CR 426209, CR 428582.	501548	The seismic analysis group performed an evaluation of the as found condition and concluded that no seismic interaction hazards exists that could affect equipment operability.	Repair/replace hook.	Open Due 1/31/2013



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<b>Table 8-1. Potentially Adverse Conditions</b>					
<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1593-B7-002	Two out of sixteen screws were found loose on the 1-1593-B7-002 AFW Pump B Supply Fan and Motor.	501650	The seismic team judged the 14 (fourteen) screws to be adequate to hold the motor in place as the two loose screws were still located in the holes. As a result, all 16 (sixteen) screws would still provide restraint for shear which is the major load case on the screws. Also supporting frame structure for this Fan-Motor is seismically adequate and there is no significant impact on the structural adequacy. There are no operability concerns for this as found condition. Tighten screws.	Screws tightened.	Closed

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<b>Table 8-1. Potentially Adverse Conditions</b>					
<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-2403-P5-DG3  Area D/G Bldg R101	A hoist controller is not adequately restrained. This condition is located next to a panel with the location number 1-2403-P5-DG3 on the Unit 1 Diesel Generator Room R101. This condition does not meet the Vogtle standards of the procedure 00352-C General Plant Housekeeping and In-Process Materials Control section 5.8.1 which states that Safety-Related Equipment will not be vulnerable to impacts from controllers of hoist during a seismic event.	504859	The seismic team judged no operability concerns for this condition. Secure hoist.	The hoist has been secured.	Closed
Component 1-1808-Q3-L47	A discrepancy was found between the as-built condition and the drawing anchorage details. The drawing shows the connection to be bolted while the as-built condition was found to be welded.	504874	Seismic Walkdown Team judged that in case of a seismic event the component would not have the potential to fail and the connection does not show any sign of degradation. There is no operability concerns related to this condition.	Subsequent to the initial walkdown, the correct anchorage drawings were obtained and a second walkdown confirmed that the as built anchorage matched the drawing details.	Closed

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**Table 8-1. Potentially Adverse Conditions**

<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Area Control Bldg, R163	Unrestrained equipment found in the Control Building Room R163 next to the panels labeled as 1NCQEHC and 1NCQEHC1. The equipment was identified to be a copy machine on a wheeled cart and a storage cabinet. The equipment was not tied or secured as required per procedure 00352-C General Plant Housekeeping and In-Process Materials Control.	504882	The Vogtle site design group performed an evaluation of the as found condition and concluded that the copy machine should either be seismically secured or moved away from safety related equipment. The Vogtle site design group performed an evaluation of the as found condition and concluded that the cabinet, because of its location away from safety related, was acceptable. No further action required.	Move or seismically secure the copy machine. No further action required for the cabinet.	Closed
Area Control Bldg, RB48	A fluorescent lighting fixture hook screw was found to be not fully closed. This was found in Room RB48 in the Control Building. This sign was nearby the panel labeled "1DD1 125v SWGR".	505954	The Vogtle site design group performed an evaluation of the as found condition and concluded that no seismic interaction hazards exists that could affect equipment operability. Repair/replace hook.	Repair/tighten hook.	Open Due 1/28/2013

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**Table 8-1. Potentially Adverse Conditions**

<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1593-B7-001	Two out of sixteen bolts were not found installed on the 1-1593-B7-001 AFW Pump A Supply Fan and Motor.	507939	The seismic team judged the remaining 14 (fourteen) bolts to be adequate to hold the motor in place. The 14 (fourteen) bolts would still provide restraint for shear which is the major load case on the bolts. Also supporting frame structure for this Fan-Motor is seismically adequate and there is no significant impact on the structural adequacy. There are no operability concerns for this as found condition. Replace screws.	Replace screws.	Open Due 11/8/2013

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**Table 8-1. Potentially Adverse Conditions**

Component / Area	Brief Description of Potentially Adverse Seismic Condition	CR #	Brief Discussion of Analysis/Conclusion	Action Taken or Planned to Address/Resolve the Condition	Status (Open/Clsd)
Area NSCT, R103	Connection of tube steel to base plate has significant oxidation on a surface of weld (pipe support for line associated w/valve 1-1202-X4-457). Edge of base plate for a support for three instrument lines is degraded.	509123	The Vogtle site design group performed an evaluation and concluded that the corrosion of the pipe support near valve 1-1202-X4-457 is mild and that the condition does not represent a seismic concern. The corrosion of the base plate is limited to the edges of the plate. The welds and the fasteners have no corrosion. Clean and recoat supports.	Clean and recoat supports	Open Due Outage 1R18
Area Aux Bldg, R203	Seismic Walkdown Team found hatch cover steel plates to be temporary stored next to safety related valves which is not consistent with the procedure 00352-C "General Plant Housekeeping and In-Process Materials Control". The storage area was only a couple of inches next to the safety related valves 1-HV-11704 and 1-1202-U4-150. This occurred on the Auxiliary Building level 2 Room R203 next to the Unit 1 A CCW Heat Exchanger (loc 1-1203-E4-001).	511980	The Temp Storage area should be reviewed to ensure it is in full compliance with Procedure 00352-C.	Hatch covers have been moved.	Closed

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**Table 8-1. Potentially Adverse Conditions**

Component / Area	Brief Description of Potentially Adverse Seismic Condition	CR #	Brief Discussion of Analysis/Conclusion	Action Taken or Planned to Address/Resolve the Condition	Status (Open/Clsd)
Component 1-1804-S3-A02	Seismic Walkdown team found two cases of a possible rigid connection between cabinets and cable trays. These cases occurred for the components number 1-1804-S3-A02 and 1-1623-D5-001.	517078	During the internal cabinet inspection of 1-1804-S3-A02, it was clear that the connection between the cabinets and the cable tray are not rigidly connected. A second walkdown was performed of cabinet 1-1623-D5-001. This walkdown confirmed that the connections were not rigid.	None required.	Closed
Component 1-1806-Q3-DA2	Seismic Walkdown Team found 1 of 4 bolts that connect the back right side of panel 1-1806-Q3-DA2 (1AD12 125 VDC PNL to inner frame to be missing. This missing bolt is located at the top right corner from the back part of the panel. Also, the hinge pin on the second from the bottom hinge on the rear door is partially withdrawn.	524560	Fastener should be installed.	Fastener has been installed.	Closed

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<b>Table 8-1. Potentially Adverse Conditions</b>					
<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1806-Q3-DA1	Seismic Walkdown team found 1 of 4 bolts connecting the back left side of 1-1806-Q3-DA1 (1AD11 125 VDC PNL) to inner frame is missing. This missing bolt is located at the top left corner from the back part of the panel. The condition of the panel should be evaluated to determine seismic adequacy.	524568	Fastener should be installed.	Fastener has been installed.	Closed
Component 1-1807-Q3-VI3	For the component number 1-1807-Q3-VI3 (1CY1A 120 VAC PNL), the Seismic Walkdown team found 1 of 4 bolts connecting the back left side of Panel to inner frame is missing. This missing bolt is located at the top left corner from the back part of the panel.	525039	Fastener should be installed.	Fastener has been installed.	Closed

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**Table 8-1. Potentially Adverse Conditions**

Component / Area	Brief Description of Potentially Adverse Seismic Condition	CR #	Brief Discussion of Analysis/Conclusion	Action Taken or Planned to Address/Resolve the Condition	Status (Open/Clsd)
Component 1-1806-Q3-DC1	Seismic Walkdown team found 1 of 4 bolts connecting the back left side of 1-1806-Q3-DC1 (1CD11 125 VDC PNL), to inner frame is missing. This missing bolt is located at the top left corner from the back part of the panel. The condition of the panel should be evaluated to determine seismic adequacy.	525046	Fastener should be installed.	Fastener has been installed.	Closed
Component 1-1805-S3-B15	For the component number 1-1805-S3-B15 (480V SWITCHGEAR 1AB15), the Seismic Walkdown team found that 1 interconnector fastener is missing. This missing bolt connects the buckets 1AB1510 and 1AB1506 on the lower left side of 1AB1510.	525340	The seismic analysis group performed an evaluation of the as found condition and concluded that switchgear could perform its intended function during a seismic event. Install fastener.	Install fastener.	Open Due Outage 1R19 Fall 2015
Component 1-1805-S3-ABD	For the component number 1-1805-S3-ABD (480V MOT CONTROL CTR 1ABD), the Seismic Walkdown team found that some nuts and screws used to secure the protective covers and the link blocks were missing. These findings are occurring randomly across different link blocks.	525343	Fasteners should be installed.	Fasteners have been installed.	Closed



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Component / Area	Brief Description of Potentially Adverse Seismic Condition	CR #	Brief Discussion of Analysis/Conclusion	Action Taken or Planned to Address/Resolve the Condition	Status (Open/Clsd)
Component 1-1805-S3-B07	For Component number 1-1805-S3-B07 (480V SWITCHGEAR 1BB07), the Seismic Walkdown team found that 1 interconnector fastener is missing. This missing bolt connects the bays 1BB0710 and 1BB0714 on the upper left side of 1BB0710. On this same switchgear, the team identified this same condition on the top right side of the bay 1BB0701; however, it could not be determined if in this case there was supposed to be a fastener or if this was left intentionally empty.	527135	The seismic analysis group performed an evaluation of the as found condition and concluded that switchgear could perform its intended function during a seismic event. Install fastener.	Install fastener.	Open Due Outage 1R19 Fall 2015
Component 1-1500-Q5-HVC	For component number 1-1500-Q5-HVC (HEATING VENTILATION AIR CONDITIONING PANEL (QHVC)), the Seismic Walkdown team found that some nuts and screws used to secure the protective covers, link blocks, and conduits supports inside the cabinet were missing. These findings are occurring randomly across the cabinet's sections 1 through 4.	527556	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage 1R18

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Table 8-1. Potentially Adverse Conditions					
Component / Area	Brief Description of Potentially Adverse Seismic Condition	CR #	Brief Discussion of Analysis/Conclusion	Action Taken or Planned to Address/Resolve the Condition	Status (Open/Clsd)
Component 1-1500-Q5-HVC	For component number 1-1500-Q5-HVC (HEATING VENTILATION AIR CONDITIONING PANEL (QHVC)), the Seismic Walkdown team found that one of the rods that latches the door is missing. Specifically, this occurs on the right door of the section 1 of the back of the cabinet.	527608	The seismic walkdown judged that this condition does not represent a seismic or operability concern; however, the condition should be evaluated to determine seismic adequacy of the cabinet.	Based on the evaluation performed by the Vogtle Site design group, the as-found structural configuration provides reasonable expectation that no seismic hazard exists that could adversely affect the safety related cabinet 1-1500-Q5-HVC equipment's operability or structural integrity with the missing door latching rod. Appropriate maintenance is recommended in order to replace the missing latching rod. Replace rod.	Open Due Outage 1R18

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**Table 8-1. Potentially Adverse Conditions**

Component / Area	Brief Description of Potentially Adverse Seismic Condition	CR #	Brief Discussion of Analysis/Conclusion	Action Taken or Planned to Address/Resolve the Condition	Status (Open/Clsd)
Component 1-1604-Q5-PCG	For component number 1-1604-Q5-PCG (BOP Control Panel 1), the Seismic Walkdown team found a screw missing to secure the protective cover for a terminal block.	527624	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage 1R18
Component 1-1605-Q5-SPB	For component number 1-1605-Q5-SPB (SOLID STATE PROTECTION SYSTEM CABINET (QSPB)), the Seismic Walkdown team found missing and loose screws used to secure the protective covers, terminal blocks, and also a cracked cable tray inside the cabinet. These findings are occurring randomly across the cabinet.	527627	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage 1R18
Component 1-1623-D5-006A	For component number 1-1623-D5-006A (DISPLAY PROCESSING UNIT (DPU)), the Seismic Walkdown team found some screws missing used to secure the protective covers inside the cabinet.	527695	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage 1R18

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**Table 8-1. Potentially Adverse Conditions**

Component / Area	Brief Description of Potentially Adverse Seismic Condition	CR #	Brief Discussion of Analysis/Conclusion	Action Taken or Planned to Address/Resolve the Condition	Status (Open/Clsd)
Component 1-1816-U3-017	For component number 1-1816-U3-017 (AUXILIARY RELAY PANEL (ARP)), the Seismic Walkdown team found screws missing used to secure the terminal blocks and to secure a door alarm relay inside the cabinet.	527701	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage 1R18
Component 1-2403-P5-DG3	For component number 1-2403-P5-DG3 (DG 1B Control Panel DG3), the qualified Seismic Walkdown team found screws missing used to secure a ventilation panel door window and a cover plate.	528369	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due 11/1/2013
Component 1-1807-Q3-VI2 (120 VAC VITAL PANEL 1BY1B)	Seismic Walkdown team found the following in 1-1807-Q3-VI2 (120 VAC VITAL PANEL 1BY1B): One (1) door hinge pin partially withdrawn (picture 01). One (1) bolt/screw missing for an isolation panel (picture 02).	528375	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fastener, fully insert pin.	Install fasteners/fully insert pin.	Open Due Outage 1R18

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<b>Table 8-1. Potentially Adverse Conditions</b>					
<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1805-S3-B07	For the location number 1-1805-S3-B07 (480V SWITCHGEAR 1BB07), the Seismic Walkdown team found the following: One (1) tie wrap used to support a cable bundle broken in bay 11 . Two (2) door hinge pins partially withdrawn on bay 18.	528379	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Replace tie wrap, fully insert pins.	Replace tie wraps/fully insert pins.	Open Due Outage 1R18
Component 1-1806-S3-DSB (125 VDC SWITCHGEAR 1BD1)	Seismic Walkdown team found the following in 1-1806-S3-DSB (125 VDC SWITCHGEAR 1BD1): One (1) cage nut used to secure the door closed missing. This occurs in the front bottom left bay (picture 01). One (1) door that could not be opened due to interference with the breaker face cover in bay 09 (picture 02).	528389	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fastener/Correct interference.	Install fastener/Correct interference.	Open Due Outage 1R18

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<b>Table 8-1. Potentially Adverse Conditions</b>					
<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-1805-S3-BBB  (480V MOT CONTROL CTR 1BBB)	Seismic Walkdown team found the following in 1-1805-S3-BBB (480V MOT CONTROL CTR 1BBB): One (1) loose screw and one (1) missing screw for a terminal block in the top right bay of the back of the panel (picture 01). One (1) loose screw/bolt inside bay 05. This is an FME concern because the source of the screw/bolt could not be determined and no component was observed to have any screw or bolt missing (picture 02). Two (2) missing screws in bay 02 (picture 03).	528395	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners.	Install fasteners.	Open Due Outage 1R19
Component 1-1605-P5-SDB  TRAIN B SHUTDOWN PANEL (PSDB)	Seismic Walkdown team found the following in 1-1605-P5-SDB (TRAIN B SHUTDOWN PANEL (PSDB): Missing and loose screws, bolts, and nuts on some cover plates and in a floor plate (pictures 01, 03, 04, 05, 06 and 07). One (1) broken receptacle (picture 02).	528400	The seismic walkdown judged that this condition does not represent a seismic or operability concern. Install fasteners/repair receptacle.	Install fasteners/repair receptacle.	Open Due Outage 1R18

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<b>Table 8-1. Potentially Adverse Conditions</b>					
<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Component 1-2403-G4-001-V02	For component number 1-2403-G4-001-V02 (DG AIR START RECEIVER), the Seismic Walkdown team found two (2) missing washers on the bolts of the base anchorage.	540134	The seismic walkdown judged that the missing washers do not represent a seismic or operability concern.	Review of anchorage documentation revealed that washers are not required. No further action needed.	Closed
Area CNMT Bldg, near column #12, Elev 197'-0"	Seismic walkdown found an "Exit" sign had the cover loose or partially open inside Unit 1 Containment Building near column #12 on elevation 197'-0".	540137	The seismic walkdown judged that this condition does not represent a seismic or operability concern.	Repair Cover.	Open Due Outage 1R18 4/15/2014
Component 1-2403-G4-001-F01	For component number 1-2403-G4-001-F01 (DG INTAKE AIR FILTER), the Seismic Walkdown team found four (4) missing washers on the bolts of the base anchorage. The team also identified a deficiency on a component nearby on a HVAC duct access hatch panel door which had two missing latch screws.	540141	The seismic walkdown judged that both of these findings do not represent a seismic or operability concern.	Review of anchorage documentation revealed that washers are not required. No further action needed.	Closed

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<b>Table 8-1. Potentially Adverse Conditions</b>					
<b>Component / Area</b>	<b>Brief Description of Potentially Adverse Seismic Condition</b>	<b>CR #</b>	<b>Brief Discussion of Analysis/Conclusion</b>	<b>Action Taken or Planned to Address/Resolve the Condition</b>	<b>Status (Open/Clsd)</b>
Area CNMT Bldg, Elev 184'-0"	Seismic walkdown team found a metal box near valve 1-HV-8875D located in the Unit 1 Containment that was not secured (anchored). The box is located on level B near column 16.	542455	The box was installed at the end of a rigid conduit that is anchored and a flexible conduit was attached to one of the other sides. The qualified seismic walkdown team judged that this is not a seismic concern. Perform an evaluation to identify the need for any corrective actions.	Perform an evaluation to identify the need for any corrective actions.	Open Due 5/1/14



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During the course of the walkdowns the team identified issues that, while not rising to the level of a seismic concern, warranted evaluation to determine if programmatic enhancements are warranted. These issues have been entered into the SNC corrective action program.

CR 537446: While performing a review of the Condition Reports resulting from the SAM NTTF 2.3 Seismic Walkdowns, a possible trend was identified with regards to the failure of plant personnel to properly secure hoist and cranes following use. 00352-C requires that "that safety related equipment will not be vulnerable to impacts, from chains or controllers of hoists and monorail cranes, during a seismic event. Place any hoist or monorail cranes in the vicinity of the safety related equipment in a location where, during a seismic event, the chains and controllers cannot strike or become entangled with the equipment." Contrary to the requirements of 00352-C, 3 of 4 hoist controllers near the D/G electrical panels and a hoist near Unit 2 Loops 1&4 ARV's were not properly secured. All controllers have been secured. Reference CR's 502483 & 504859.

CR 537451: While performing a review of the Condition Reports resulting from the SAM NTTF 2.3 Seismic Walkdowns, a possible trend was identified with regards to the failure of plant personnel to maintain housekeeping and temporary storage areas in accordance with procedure 00352-C. Reference CR's 500988, 504853, 504860, 504882, 504895, 504901, 511980, 513336 & 517075.

CR 537453: While performing a review of the Condition Reports resulting from the SAM NTTF 2.3 Seismic Walkdowns, a possible trend was identified with regards to the management of seismic restraints of lighting fixtures. Reference CR's 500990, 501548, 504862, 504868, 505324 & 505954.

CR 537454: While performing a review of the Condition Reports resulting from the SAM NTTF 2.3 Seismic Walkdowns, a possible trend was identified with regards to fasteners and hardware. Several CR's were generated which identified missing or loose fasteners and hardware. Reference CR's 501546, 501650, 504850, 505329, 507939, 509102, 513331, 524560, 524568, 525039, 525046, 525340 & 525343.

## 8.2 EQUIPMENT OPERABILITY

Plant Vogtle Unit 1 had no as-found conditions that would prevent SSCs from performing their required safety functions.

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### 8.3 PLANT CHANGES

There were no plant changes that resulted from the as-found conditions. Plant changes are any planned or newly installed protection and mitigation features (i.e., plant modifications) that result from the Seismic Walkdowns or Area Walk-bys.

### 8.4 OTHER NON-SEISMIC CONDITIONS

Housekeeping items were identified during walkdowns and walk-bys that were not potentially seismic adverse conditions. All such items were brought to the attention of plant personnel and CRs were generated as necessary. These issues included water on the floor and loose items (small tools, trash, etc.) stored in the plant areas. These items were processed through the site CAP process and are not specifically documented in this report though are available in the Plant CAP database.

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## 9.0 PEER REVIEW

### 9.1 PEER REVIEW PROCESS

The peer review for the Near Term Task Force (NTTF) Recommendation 2.3 Seismic Walkdowns was performed in accordance with Section 6 of EPRI Report 1025286 (Reference 10.2). The peer review included an evaluation of the following activities:

- review of the selection of the structures, systems, and components (SSCs) that are included in the Seismic Walkdown Equipment List (SWEL);
- review of a sample of the checklists prepared for the Seismic Walkdowns and Area Walk-bys;
- review of licensing basis evaluations and decisions for entering the potentially adverse seismic conditions in to the plant's Corrective Action Plan (CAP); and
- review of the final submittal report.

This report provides results of the review process for each review activity as well as the results of the peer review.

### 9.2 PEER REVIEW RESULTS SUMMARY

#### 9.2.1 Seismic Walkdown Equipment List Development

The selection of items for the SWEL underwent peer review according to the guidance in Section 3 of EPRI Report 1025286 (Reference 10.2). The SSCs to be evaluated during the Seismic Walkdown were selected as described in Section 6.0 of this report. The list of components was provided to the members of the Peer Review Team, which consisted of all four peer reviewers listed in Section 4.0. The Peer Review Team members independently provided comments to the personnel who selected the components on the SWEL. All comments were addressed and the Peer Review Team reviewed the changes made to the SWEL and the final SWEL, to ensure all recommendations from EPRI Report 1025286 (Reference 10.2) were met. Specifically, the Peer Reviewers confirmed that all SSCs in SWEL 1 and 2 were Seismic Category I components that do not undergo regular inspections. Specific considerations for the peer review process are described below for SWEL 1 and SWEL 2. The peer review check sheet of the SWEL is provided in Attachment 2.

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For SWEL 1, the Peer Review Team verified that the list of SSCs represented a diverse sample of the equipment required to perform the following five safety functions, as specified by EPRI Report 1025286 (Reference 10.2):

- Reactor Reactivity Control
- Reactor Coolant Pressure Control
- Reactor Coolant Inventory Control
- Decay Heat Removal and
- Containment Function

For SWEL 1, the Peer Review Team also verified that the SSCs included an appropriate representation of items having the following sample selection attributes:

- Various types of systems
- Major new and replacement equipment
- Various types of equipment
- Various environments
- Equipment enhanced based on the findings of the IPEEE and
- Risk insight consideration

The final SWEL 1 contains items that perform each of the five safety functions specified by EPRI Report 1025286 (Reference 10.2). Numerous components perform more than one of the safety functions and all five safety functions are well represented by the components on the list. SWEL 1 contains components from all the classes of equipment listed in Appendix B of EPRI Report 1025286 (Reference 10.2), except for cases where there are no safety-related components at the plant that fall into that specific equipment class. The list contains major new and replacement items, and items enhanced based on the IPEEE as well as equipment located in various environments and areas of the plant. All major safety-related systems are represented and risk factors were considered in the development of the list.

For SWEL 2, the Peer Review Team determined that the process to select spent fuel pool related items complied with EPRI Report 1025286 (Reference 10.2). Portions of the spent fuel pool cooling system at Vogtle Unit 1 are Seismic Category I and all different types of components are represented on the SWEL 2. No items that could cause rapid drain down of the Spent Fuel Pool for Vogtle Unit 1 were identified. Therefore, SWEL 2 does not contain any

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components associated with potentially rapid drain down of the pool. The Peer Review Team concluded that the bases for including/excluding items associated with the spent fuel pool were well documented and that the final SWEL 2 complies with EPRI Report 1025286 (Reference 10.2).

In summary, all of the Peer Review comments made during development of SWEL 1 and SWEL 2 were resolved by the team that prepared the SWELs. The resolutions were reviewed by the Peer Review Team and it was determined that all comments were adequately addressed. The SWEL was determined to incorporate all comments made by the Peer Review Team during the process.

During the process of conducting the walkdowns, a small number of isolated components that were not accessible were removed from the list and in most cases equivalent items that were determined to be accessible were added. The Peer Review Team reviewed all changes made to the SWELs and determined that these changes had no impact on the adequacy of the SWELs with respect to the provisions contained in EPRI Report 1025286 (Reference 10.2). The Peer Review Team concludes that the team that developed the SWELs appropriately followed the SWEL development process described in Section 3 of EPRI Report 1025286 (Reference 10.2).

The Peer Review Checklist of the SWEL is provided in Attachment 2.

#### 9.2.2 Seismic Walkdowns and Area Walk-Bys

The Peer Review Team was on-site and very involved with the Seismic Component Walkdowns and Area Walk-bys. The Peer Review was performed as follows:

- Each of the three walkdown teams performed an initial equipment Seismic Walkdown and an Area Walk-by under the observation of the other teams and the walkdown Peer Review Team. The Peer Review Team provided comments and suggestions and answered questions raised by the team performing the walkdown and the other walkdown teams.
- During the first week of walkdowns, a member of the walkdown Peer Review Team individually accompanied each of the SWE walkdown teams and observed the SWE team conducting the Seismic Walkdowns and Area Walk-bys. The Peer Review Team confirmed first-hand that the SWE walkdown teams performed the Seismic Walkdowns and Area Walk-bys as described in Section 4 of EPRI Report 1025286 (Reference 10.2). A member of the Peer Review Team accompanied each of the three walkdown teams on at least one full day of walkdowns. SWE walkdown teams were encouraged and expected to

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carry a copy of Section 4 from the EPRI Report 1025286 (Reference 10.2) and refer to it, as necessary, during conduct of the Seismic Walkdowns and Area Walk-bys.

- Finally, the walkdown Peer Review Team reviewed the Seismic Walkdown and Area Walk-by packages completed during the first week to ensure that the checklists were completed in accordance with the guidance provided in EPRI Report 1025286 (Reference 10.2). The walkdown Peer Review Team confirmed that the Seismic Walkdown and Area Walk-by packages were consistent, thorough, and the packages accurately reflected the results of the walkdowns and walk-bys as witnessed during the first week of walkdowns.

The Peer Review Team concluded that the SWE teams were familiar with the process for Seismic Equipment Walkdowns and Area Walk-bys. The SWE teams adequately demonstrated their ability to identify potentially adverse seismic conditions such as adverse anchorage, adverse spatial interaction, and other adverse conditions related to anchorage, and perform anchorage configuration verifications, where applicable. The SWEs also demonstrated the ability to identify seismically-induced flooding interactions and seismically-induced fire interactions. The SWEs documented the results of the Seismic Walkdowns and Area Walk-bys on the appropriate checklists from Appendix C of EPRI Report 1025286 (Reference 10.2).

The Peer Review Team inspected all the checklists completed during the first week of Seismic Walkdowns, which represents approximately 30% of the total number of the checklists. Peer review of the Seismic Walkdowns and Area Walk-bys identified minor editorial errors and also some instances where comments in the checklists required additional explanation and information. Mr. Ashworth and Mr. Whitmore provided verbal feedback to the SWEs to adjust these entries accordingly. The SWEs understood the comments and incorporated the recommendations and updates from the Peer Review Team.

Since the peer review occurred at the start of the Seismic Walkdowns, the peer reviewers were able to provide comments at the early stages of the walkdown process to ensure consistency in the reporting for all packages. Subsequently, the Peer Review Team considered the number of completed walkdown packages reviewed to be appropriate. In addition, all members of the Peer Review Team, including Mr. Ashworth, Ms. Brown, Mr. Starck and Mr. Whitmore were available by phone as necessary during the entire Walkdown process.

### 9.2.3 Licensing Basis Evaluations

All potentially adverse seismic conditions identified were immediately entered into the plant CAP for further review and disposition as discussed in Section 8.1 of this report. Therefore, the seismic walkdown teams did not perform licensing basis evaluations apart from evaluations

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performed as part for the CAP. The Peer Review Team considers this CAP process approach fully comprehensive and acceptable for addressing the potentially adverse seismic conditions observed during the Seismic Walkdowns.

#### 9.2.4 Submittal Report

The Peer Review Team was provided with drafts of the submittal report. This allowed the Peer Review Team to provide guidance and input and verify the submittal report would meet the objectives and requirements of EPRI Report 1025286 (Reference 10.2).

The Peer Review Team provided both verbal and written comments on the draft reports and was active in ensuring the report was thorough, complete and accurate. The final version of the submittal report includes all necessary elements of the Peer Review and meets the requirements of the 50.54(f) letter.

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## 10.0 REFERENCES

- 10.1 10CFR50.54(f) Letter, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3 and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident, March 12, 2012
- 10.2 EPRI 1025286, Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic, June 2012
- 10.3 Generic Letter No. 88-20, Supplement 4, Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities
- 10.4 Generic Letter No. 87-02, Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, Unresolved Safety Issue (USI) A-46
- 10.5 Regulatory Guide 1.60, Design Response Spectra for Seismic Design of Nuclear Power Plants, December 1973
- 10.6 NMP-GM-033-GL01 Ver. 1.0, SAM NTTF Seismic Walkdowns Guide
- 10.7 VEGP FSAR, Rev.18, September 2012
- 10.8 Individual Plant Examination of External Events (IPEEE) – Seismic, Vogtle Electric Generating Plant, Unit 1 and Unit 2
- 10.9 Document No. 12L0075-RPT-001, Revision 0, May 18, 2012, “Southern Nuclear Company Seismic IPEEE Walkdown of Modified Equipment in Support of 10CFR50.69 Risk Informed Project – Plant Vogtle”
- 10.10 Regulatory Guide 1.61, Damping Values for Seismic Design of Nuclear Power Plants, October 1973
- 10.11 NUREG/CR-0098, Development of Criteria for Seismic Review of Selected Nuclear Power Plants, May 1978
- 10.12 EPRI Report NP-6041, A Methodology for Assessment of Nuclear Power Plant Seismic Margin, Revision 1, August 1991



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## 11.0 ATTACHMENTS

ATTACHMENT 1 – SEISMIC WALKDOWN EQUIPMENT LISTS

ATTACHMENT 2 – PEER REVIEW CHECKLIST FOR THE SWEL 1 AND 2

ATTACHMENT 3 – SEISMIC WALKDOWN CHECKLISTS

ATTACHMENT 4 – AREA WALK-BY CHECKLISTS

ATTACHMENT 5 – IPEEE VULNERABILITIES INFORMATION

ATTACHMENT 6 – SEISMIC WALKDOWN ENGINEER CERTIFICATIONS

**ATTACHMENT 1**

**UNIT 1 – SEISMIC WALKDOWN EQUIPMENT LISTS**

**NO. SNCV061-RPT-01**

<b><u>Equipment List</u></b>	<b><u>Pages</u></b>
Unit 1 – Base List 1	2-30
Unit 1 – SWEL 1	31-39
Unit 1 – Base List 2	40-41
Unit 1 – SWEL 2	42-44

**ATTACHMENT 1**

**SEISMIC WALKDOWN EQUIPMENT LISTS**

**UNIT 1 - BASE LIST 1**

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<b><u>Equipment List</u></b>	<b><u>Pages</u></b>
<b>Unit 1– Base List 1</b>	<b>2-30</b>
Unit 1 – SWEL 1	31-39
Unit 1 – Base List 2	40-41
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LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
01000	00	1-1201-B6-001	STEAM GENERATOR 1	CTB	183'-0"	14AB
01001	00	1-1201-B6-002	STEAM GENERATOR 2	CTB	183'-0"	14BB
01002	00	1-1201-B6-003	STEAM GENERATOR 3	CTB	183'-0"	14CB
01003	00	1-1201-B6-004	STEAM GENERATOR 4	CTB	183'-0"	14DB
01033	18	1-1201-P5-TIAR	RVLIS TRANSMITTER RACK TRAIN A	AUX	180'-0"	RB04
01034	18	1-1201-P5-TIBR	RVLIS TRANSMITTER RACK TRAIN B	FB	180'-0"	RB08
01008	00	1-1201-V6-001	REACTOR VESSEL	CTB	183'-0"	14AB
01009	00	1-1201-V6-002	PRESSURIZER	CTB	183'-0"	14DA
02000	06	1-1202-P4-001	NSCW TRAIN A PUMP NO. 1	NSCT	220'-0"	R103
02001	06	1-1202-P4-002	NSCW TRAIN B PUMP NO. 2	NSCT	220'-0"	R203
02002	06	1-1202-P4-003	NSCW TRAIN A PUMP NO. 3	NSCT	220'-0"	R103
02003	06	1-1202-P4-004	NSCW TRAIN B PUMP NO. 4	NSCT	220'-0"	R203
02004	09	1-1202-W4-001-F01	NSCT FAN NO. 1	NSCT	250'-0"	R105
02005	09	1-1202-W4-001-F02	NSCT FAN NO. 2	NSCT	250'-0"	R108
02006	09	1-1202-W4-001-F03	NSCT FAN NO. 3	NSCT	250'-0"	R106
02036	09	1-1202-W4-001-F04	NSCT FAN NO. 4	NSCT	250'-0"	R106
02007	09	1-1202-W4-002-F01	NSCT FAN NO. 1	NSCT	250'-0"	R205
02008	09	1-1202-W4-002-F02	NSCT FAN NO. 2	NSCT	250'-0"	R208
02009	09	1-1202-W4-002-F03	NSCT FAN NO. 3	NSCT	250'-0"	R206
02037	09	1-1202-W4-002-F04	NSCT FAN NO. 4	NSCT	250'-0"	R206
03000	21	1-1203-E4-001	CCW HEAT EXCHANGER	AUX	245'-0"	R203
03001	21	1-1203-E4-002	CCW HEAT EXCHANGER	AUX	245'-0"	R202
03002	05	1-1203-P4-001	CCW PUMP NO. 1	AUX	195'-0"	RA05
03003	05	1-1203-P4-002	CCW PUMP NO. 2	AUX	195'-0"	RA03

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
03004	05	1-1203-P4-003	CCW PUMP NO. 3	AUX	195'-0"	RA05
03005	05	1-1203-P4-004	CCW PUMP NO. 4	AUX	195'-0"	RA03
03008	21	1-1203-T4-001	CCW SURGE TANK	AUX	245'-0"	R203
03009	21	1-1203-T4-002	CCW SURGE TANK	AUX	245'-0"	R202
04000	05	1-1204-P6-003	SI PUMP A	AUX	180'-0"	RB15
04001	05	1-1204-P6-004	SI PUMP B	AUX	180'-0"	RB19
04002	21	1-1204-T4-001	REFUELING WATER STORAGE TANK	RWST	220'-0"	H OF AUX
04003	21	1-1204-V6-001	BORON INJECTION TANK	AUX	180'-0"	RB11
05000	21	1-1205-E6-001	RHR HEAT EXCHANGER A	AUX	119'-3"	RC90
05001	21	1-1205-E6-002	RHR HEAT EXCHANGER B	AUX	143'-6"	RC91
05002	05	1-1205-P6-001R	RHR PUMP A	AUX	119'-3"	RD48
05003	05	1-1205-P6-002R	RHR PUMP B	AUX	119'-3"	RD49
05004	00	1-1205-U6-019	MANUAL RHR THROTTLING GATE VALVE WITH REACH ROD	AUX	143'-6"	RC90
05005	00	1-1205-U6-020	MANUAL RHR THROTTLING GATE VALVE WITH REACH ROD	AUX	143'-6"	RC91
06000	21	1-1208-E6-001	REGENERATIVE HEAT EXCHANGER	CTB	183'0"	14AB
06004	05	1-1208-P6-002	CCP A	AUX	143'-6"	RC115
06005	05	1-1208-P6-003	CCP B	AUX	143'-6"	RC118
06006	00	1-1208-U6-151	MANUAL SEAL INJECTION VALVE WITH REACH ROD	AUX	143'-6"	RC119
06007	00	1-1208-U6-152	MANUAL SEAL INJECTION VALVE WITH REACH ROD	AUX	143'-6"	RC114
06008	00	1-1208-U6-153	MANUAL CCP DISCH ISO VLV WITH REACH ROD	AUX	143'-6"	RC112
07002	21	1-1213-E6-001	SPENT FUEL PIT HEAT EXCH A	AUX	195'-0"	RA53
07013	21	1-1213-E6-002	SPENT FUEL PIT HEAT EXCH B	FB	200'-0"	RA07
07003	21	1-1217-E4-001	ACCW HEAT EXCHANGER	AUX	220'-0"	R105
07004	21	1-1217-E4-002	ACCW HEAT EXCHANGER	AUX	220'-0"	R104

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
09001	05	1-1302-P4-002	AFW MOTOR DRIVEN PUMP B	AFWP HOUSE	220'-0"	R102
09002	05	1-1302-P4-003	AFW MOTOR DRIVEN PUMP A	AFWP HOUSE	220'-0"	R101
09003	21	1-1302-V4-001	CONDENSATE STORAGE TANK NO. 1 (CST)	CST NO. 1	220'-0"	
21000	18	1-1407-P5-SGS	SGB ISOL SOLENOID RACK	AUX	180'-0"	RB07
10000	20	1-1500-Q5-HVC	HVAC PANEL	CONTROL	220'-0"	R163
10001	20	1-1500-V7-001-CBA	LOCAL CB HVAC PANEL TRAIN A	CONTROL	220'-0"	R163
10002	20	1-1500-V7-001-CBB	LOCAL CB HVAC PANEL TRAIN B	CONTROL	220'-0"	R163
10003	09	1-1501-A7-001-000	CTB COOLING UNIT & MOTOR	CTB	220'-0"	14A1
10004	09	1-1501-A7-002-000	CTB COOLING UNIT & MOTOR	CTB	220'-0"	14A1
10005	09	1-1501-A7-003-000	CTB COOLING UNIT & MOTOR	CTB	220'-0"	14D1
10006	09	1-1501-A7-004-000	CTB COOLING UNIT & MOTOR	CTB	220'-0"	14D1
10139	09	1-1531-B7-002-000	CBCR CHILLER ROOM VENT FAN	CONTROL	260'-0"	R320
10140	09	1-1531-B7-004-000	CBCR CHILLER ROOM VENT FAN	CONTROL	260'-0"	R312
10017	09	1-1531-N7-001-000	CBCR FILTER UNIT	CONTROL	260'-0"	R321
10018	09	1-1531-N7-002-000	CBCR FILTER UNIT	CONTROL	260'-0"	R312
10033	09	1-1532-A7-001-000	CBSF ELEC EQUIP RM AC UNIT	CONTROL	180'-0"	RB60
10034	09	1-1532-A7-002-000	CBSF ELEC EQUIP RM AC UNIT	CONTROL	180'-0"	RB62
10035	09	1-1532-B7-001-000	BATTERY RM EXHAUST FAN & MOTOR	CONTROL	180'-0"	RB55
10036	09	1-1532-B7-002-000	BATTERY RM EXHAUST FAN & MOTOR	CONTROL	180'-0"	RB49
10039	09	1-1539-A7-001-000	CB AUX RELAY RM ESF A/C UNIT	CONTROL	200'-0"	RA82
10040	09	1-1539-A7-002-000	CB AUX RELAY RM ESF A/C UNIT	CONTROL	240'-0"	R226
10041	09	1-1539-A7-005-000	CB NORMAL AC RM ESF A/C UNIT	CONTROL	260'-0"	R325
10042	09	1-1539-A7-006-000	CB ELEC EQUIP RM ESF A/C UNIT	CONTROL	260'-0"	R322
10045	09	1-1540-B7-001-000	DIESEL POWER CABLE TUNNEL EXHAUST FAN UNIT	TUNNEL	195'-0"	@ DGB

ID	Year	Asset ID	Description	Category	Height	Notes
10047	09	1-1540-B7-003-000	NSCW TOWER CABLE TUNNEL EXHAUST FAN UNIT	TUNNEL	220'-0"	@ NSCW
10048	09	1-1540-B7-004-000	NSCW TOWER CABLE TUNNEL EXHAUST FAN UNIT	TUNNEL	220'-0"	@ NSCW
10049	09	1-1540-B7-005-000	AUX BLDG TRAIN A TUNNEL SUPPLY FAN UNIT	AUX	245'-0"	R212
10054	09	1-1555-A7-001-000	ELEC SWGR AND MCC ROOM COOLER A (1AB15)	AUX	119'-3"	RD79
10055	09	1-1555-A7-002-000	ELEC SWGR AND MCC ROOM COOLER B (1BB16)	AUX	245'-0"	R212
10056	09	1-1555-A7-003-000	ELEC SWGR AND MCC ROOM COOLER A (1AB0)	AUX	180'-0"	RB13
10057	09	1-1555-A7-004-000	ELEC SWGR AND MCC ROOM COOLER B (1BBD)	AUX	180'-0"	RB17
10058	09	1-1555-A7-005-000	ELEC SWGR AND MCC ROOM COOLER A (1ABB)	AUX	220'-0"	R118
10059	09	1-1555-A7-006-000	ELEC SWGR AND MCC ROOM COOLER B (1BBB)	AUX	220'-0"	R116
10078	09	1-1561-E7-001-000	PIPING PENETRATION AREA COOLER	AUX	245'-0"	R210
10079	09	1-1561-E7-002-000	PIPING PENETRATION AREA COOLER	AUX	245'-0"	R210
10080	09	1-1561-N7-001-000	PIPING PENETRATION ROOM FILTRATION AND EXHAUST UNIT	AUX	245'-0"	R210
10081	09	1-1561-N7-002-000	PIPING PENETRATION ROOM FILTRATION AND EXHAUST UNIT	AUX	245'-0"	R209
10090	09	1-1566-B7-001-000	DG A BLDG ESF SUPPLY FAN NO. 1	DG	255'-0"	R208
10091	09	1-1566-B7-002-000	DG B BLDG ESF SUPPLY FAN NO. 2	DG	255'-0"	R203
10092	09	1-1566-B7-003-000	DG A BLDG ESF SUPPLY FAN NO. 3	DG	255'-0"	R208
10093	09	1-1566-B7-004-000	DG B BLDG ESF SUPPLY FAN NO. 4	DG	255'-0"	R203
10098	11	1-1592-C7-001	CB ESSENTIAL CHILLER	CONTROL	260'-0"	R320
10099	11	1-1592-C7-002	CB ESSENTIAL CHILLER	CONTROL	260'-0"	R313
10100	05	1-1592-P7-001	ESSENTIAL CHILLED WATER PUMP	CONTROL	260'-0"	R320
10101	05	1-1592-P7-002	ESSENTIAL CHILLED WATER PUMP	CONTROL	260'-0"	R313
10102	21	1-1592-T7-001	ESSENTIAL CHILLED WATER EXPANSION TANK	CONTROL	260'-0"	R316
10103	21	1-1592-T7-002	ESSENTIAL CHILLED WATER EXPANSION TANK	CONTROL	260'-0"	R313

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
10110	09	1-1593-B7-001	AFW PUMP A SUPPLY FAN & MOTOR	AFWP HOUSE	220'-0"	R101
10111	09	1-1593-B7-002	AFW PUMP B SUPPLY FAN & MOTOR	AFWP HOUSE	220'-0"	R102
13000	20	1-1601-Q5-MCB	MAIN CONTROL BOARD	CONTROL	220'-0"	R163
13001	20	1-1601-U3-T03	MN CONT BD TERMINATION CABINET	CONTROL	200'-0"	RA44
13002	20	1-1601-U3-T04	MN CONT BD TERMINATION CABINET	CONTROL	240'-0"	R225
13003	20	1-1601-U3-T05	MN CONT BD TERMINATION CABINET	CONTROL	200'-0"	RA44
13004	20	1-1601-U3-T06	MN CONT BD TERMINATION CABINET	CONTROL	240'-0"	R225
13005	20	1-1601-U3-T07	MN CONT BD TERMINATION CABINET	CONTROL	200'-0"	RA44
13006	20	1-1601-U3-T08	MN CONT BD TERMINATION CABINET	CONTROL	240'-0"	R225
13007	20	1-1601-U3-T10	MN CONT BD TERMINATION CABINET	CONTROL	240'-0"	R225
13008	20	1-1601-U3-T11	MN CONT BD TERMINATION CABINET	CONTROL	200'-0"	RA44
13009	20	1-1601-U3-T14	MN CONT BD TERMINATION CABINET	CONTROL	240'-0"	R225
13010	20	1-1601-U3-T15	MN CONT BD TERMINATION CABINET	CONTROL	200'-0"	RA44
13011	20	1-1601-U3-T19	MN CONT BD TERMINATION CABINET	CONTROL	200'-0"	RA44
13012	20	1-1601-U3-T20	MN CONT BD TERMINATION CABINET	CONTROL	240'-0"	R225
13013	20	1-1601-U3-T27	MN CONT BD TERMINATION CABINET	CONTROL	200'-0"	RA44
	20	1-1602-P5-NFB	GAMMA-METRICS N32/N36 SR/IR Amplifier Train B	CONTROL	180'-0"	RB65
14002	18	1-1602-Q5-NIR	NUCLEAR INST RACKS	CONTROL	220'-0"	R163
15000	20	1-1604-Q5-PC1	PROCESS CONTROL GROUP 1	CONTROL	220'-0"	R163
15001	20	1-1604-Q5-PC2	PROCESS CONTROL GROUP 2	CONTROL	220'-0"	R163
15002	20	1-1604-Q5-PC3	PROCESS CONTROL GROUP 3	CONTROL	220'-0"	R163
15003	20	1-1604-Q5-PC4	PROCESS CONTROL GROUP 4	CONTROL	220'-0"	R163
15013	20	1-1604-Q5-PCG	BOP CONTROL PANEL 1	CONTROL	220'-0"	R163
15004	20	1-1604-Q5-PCP	MISC SYS/EQPT PANEL	CONTROL	220'-0"	R163



LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
15005	20	1-1604-Q5-PP1	BOP PROTECTION CH 1 PANEL	CONTROL	220'-0"	R163
15006	20	1-1604-Q5-PP2	BOP PROTECTION CH 2 PANEL	CONTROL	220'-0"	R163
15007	20	1-1604-Q5-PP3	BOP PROTECTION CH 3 PANEL	CONTROL	220'-0"	R163
15008	20	1-1604-Q5-PP4	BOP PROTECTION CH 4 PANEL	CONTROL	220'-0"	R163
15009	20	1-1604-Q5-PS1	PROCESS I&C PROTECT I	CONTROL	220'-0"	R163
15010	20	1-1604-Q5-PS2	PROCESS I&C PROTECT II	CONTROL	220'-0"	R163
15011	20	1-1604-Q5-PS3	PROCESS I&C PROTECT III	CONTROL	220'-0"	R163
15012	20	1-1604-Q5-PS4	PROCESS I&C PROTECT IV	CONTROL	220'-0"	R163
16000	20	1-1605-C5-ASI	ALTERNATE SHDN IND EAGLE 21 CAB	CONTROL	240'-0"	R230
16001	20	1-1605-P5-SDA	SHUTDOWN PANEL TRN A	CONTROL	200'-0"	RA75
16002	20	1-1605-P5-SDB	SHUTDOWN PANEL TRN B	CONTROL	200'-0"	RA43
16003	20	1-1605-Q5-SPA	SOLID STATE PROT SYS CAB-TRN A	CONTROL	220'-0"	R163
16004	20	1-1605-Q5-SPB	SOLID STATE PROT SYS CAB-TRN B	CONTROL	220'-0"	R163
16005	20	1-1605-Q5-SPC	SOLID STATE PROT SYS CAB-TRN C	CONTROL	220'-0"	R163
16006	20	1-1605-Q5-SPD	SOLID STATE PROT SYS CAB-TRN D	CONTROL	220'-0"	R163
16007	20	1-1605-Q5-STA	SAFEGUARD TEST CAB-TRN A	CONTROL	220'-0"	R163
16008	20	1-1605-Q5-STB	SAFEGUARD TEST CAB-TRN B	CONTROL	220'-0"	R163
21001	20	1-1606-S6-002	REACTOR TRIP SWITCHGEAR	CONTROL	180'-0"	RB71
21002	20	1-1620-Q5-ESF	BOP ESF PANEL	CONTROL	220'-0"	R163
17000	20	1-1623-D5-001	REMOTE PROCESSING UNIT A CAB 1	CONTROL	200'-0"	RA48
17001	20	1-1623-D5-002	REMOTE PROCESSING UNIT A CAB 2	CONTROL	200'-0"	RA48
17002	20	1-1623-D5-003	REMOTE PROCESSING UNIT B CAB 1	CONTROL	240'-0"	R230
17003	20	1-1623-D5-004	REMOTE PROCESSING UNIT B CAB 2	CONTROL	240'-0"	R230
17004	20	1-1623-D5-006A	DISPLAY PROCESSING UNIT A	CONTROL	200'-0"	RA48
17005	20	1-1623-D5-006B	DISPLAY PROCESSING UNIT B	CONTROL	240'-0"	R230

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
18000	03	1-1804-S3-A02	4160V SWITCHGEAR 1AA02	CONTROL	200'-0"	RA48
18001	03	1-1804-S3-A03	4160V SWITCHGEAR 1BA03	CONTROL	200'-0"	RA50
18002	01	1-1805-S3-ABA	480V MOT CONTROL CTR 1ABA	CONTROL	260'-0"	R325
18003	01	1-1805-S3-ABB	480V MOT CONTROL CTR 1ABB	AUX	220'-0"	R118
18004	01	1-1805-S3-ABC	480V MOT CONTROL CTR 1ABC	CONTROL	180'-0"	RB76
18005	01	1-1805-S3-ABD	480V MOT CONTROL CTR 1ABD	AUX	143'-6"	RC109
18006	01	1-1805-S3-ABE	480V MOT CONTROL CTR 1ABE	CONTROL	180'-0"	RB79
18007	01	1-1805-S3-ABF	480V MOT CONTROL CTR 1ABF	DG	220'-0"	R103
18008	02	1-1805-S3-B01	480V SWITCHGEAR 1NB01	CONTROL	180'-0"	RB68
18008	02	1-1805-S3-B01X	480V SWITCHGEAR 1NB01	CONTROL	180'-0"	RB68
18009	02	1-1805-S3-B04	480V SWITCHGEAR 1AB04	CONTROL	180'-0"	RB76
18009	02	1-1805-S3-B04X	480V SWITCHGEAR 1AB04	CONTROL	180'-0"	RB76
18010	02	1-1805-S3-B05	480V SWITCHGEAR 1AB05	CONTROL	180'-0"	RB76
18010	02	1-1805-S3-B05XR	480V SWITCHGEAR 1AB05	CONTROL	180'-0"	RB76
18011	02	1-1805-S3-B06	480V SWITCHGEAR 1BB06	CONTROL	180'-0"	RB61
18011	02	1-1805-S3-B06XR	480V SWITCHGEAR 1BB06	CONTROL	180'-0"	RB61
18012	02	1-1805-S3-B07	480V SWITCHGEAR 1BB07	CONTROL	180'-0"	RB61
18012	02	1-1805-S3-B07X	480V SWITCHGEAR 1BB07	CONTROL	180'-0"	RB61
18013	02	1-1805-S3-B10	480V SWITCHGEAR 1NB10	CONTROL	180'-0"	RB50
18013	02	1-1805-S3-B10X	480V SWITCHGEAR 1NB10	CONTROL	180'-0"	RB50
18014	02	1-1805-S3-B15	480V SWITCHGEAR 1AB15	AUX	119'-3"	RD105
18014	02	1-1805-S3-B15XR	480V SWITCHGEAR 1AB15	AUX	119'-3"	RD105
18015	02	1-1805-S3-B16	480V SWITCHGEAR 1BB16	AUX	245'-0"	R207

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
18015	02	1-1805-S3-B16X	480V SWITCHGEAR 1BB16	AUX	245'-0"	R207
18016	01	1-1805-S3-BBA	480V MOT CONTROL CTR 1BBA	CONTROL	260'-0"	R322
18017	01	1-1805-S3-BBB	480V MOT CONTROL CTR 1BBB	AUX	220'-0"	R116
18018	01	1-1805-S3-BBC	480V MOT CONTROL CTR 1BBC	CONTROL	180'-0"	RB61
18019	01	1-1805-S3-BBD	480V MOT CONTROL CTR 1BBD	AUX	180'-0"	RB16
18020	01	1-1805-S3-BBE	480V MOT CONTROL CTR 1BBE	CONTROL	200'-0"	RA77
18021	01	1-1805-S3-BBF	480V MOT CONTROL CTR 1BBF	DG	220'-0"	R101
18022	02	1-1805-S3-NBR	480V MCC 1NBR	CONTROL	180'-0"	RB50
18023	02	1-1805-S3-NBS	480V MCC 1NBS	CONTROL	180'-0"	RB68
18052	23	1-1805-S3-RHR1A	STARTER/RHR HV-8701B	CONTROL	180'-0"	RB55
18053	23	1-1805-S3-RHR2A	STARTER/RHR HV-8702A	CONTROL	180'-0"	RB48
18054	16	1-1805-Y3-IC5	RHR ISO VLV INVERTER	CONTROL	180'-0"	RB55
18055	16	1-1805-Y3-ID6	RHR ISO VLV INVERTER	CONTROL	180'-0"	RB48
19001	15	1-1806-B3-BN3	125 VDC BATTERY 1ND3AB	CONTROL	280'-0"	R409
19002	15	1-1806-B3-BYA	125 VDC BATTERY 1AD1B	CONTROL	180'-0"	RB54
19003	15	1-1806-B3-BYB	125 VDC BATTERY 1BD1B	CONTROL	180'-0"	RB49
19004	15	1-1806-B3-BYC	125 VDC BATTERY 1CD1B	CONTROL	180'-0"	RB56
19005	15	1-1806-B3-BYD	125 VDC BATTERY 1DD1B	CONTROL	180'-0"	RB44
19006	16	1-1806-B3-CAA	BATTERY CHARGER 1AD1CA	CONTROL	180'-0"	RB52
19007	16	1-1806-B3-CAB	BATTERY CHARGER 1AD1CB	CONTROL	180'-0"	RB52
19008	16	1-1806-B3-CBA	BATTERY CHARGER 1BD1CA	CONTROL	180'-0"	RB47
19009	16	1-1806-B3-CBB	BATTERY CHARGER 1BD1CB	CONTROL	180'-0"	RB47
19010	16	1-1806-B3-CCA	BATTERY CHARGER 1CD1CA	CONTROL	180'-0"	RB55
19011	16	1-1806-B3-CCB	BATTERY CHARGER 1CD1CB	CONTROL	180'-0"	RB55

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
19012	16	1-1806-B3-CDA	BATTERY CHARGER 1DD1CA	CONTROL	180'-0"	RB48
19013	16	1-1806-B3-CDB	BATTERY CHARGER 1DD1CB	CONTROL	180'-0"	RB48
19014	14	1-1806-Q3-DA1	125 VDC DISTR. PANEL 1AD11	CONTROL	180'-0"	RB52
19015	14	1-1806-Q3-DA2	125 VDC DISTR. PANEL 1AD12	CONTROL	180'-0"	RB52
19016	14	1-1806-Q3-DB1	125 VDC DISTR. PANEL 1BD11	CONTROL	200'-0"	RB36
19017	14	1-1806-Q3-DB2	125 VDC DISTR. PANEL 1BD12	CONTROL	200'-0"	RB47
19018	14	1-1806-Q3-DC1	125 VDC DISTR. PANEL 1CD11	CONTROL	200'-0"	RB55
19019	14	1-1806-Q3-DD1	125 VDC DISTR. PANEL 1DD11	CONTROL	200'-0"	RB48
19020	01	1-1806-S3-DCA	125 VDC MCC 1AD1M	CONTROL	200'-0"	RB52
19021	01	1-1806-S3-DCB	125 VDC MCC 1BD1M	CONTROL	200'-0"	RB47
19022	01	1-1806-S3-DCC	125 VDC MCC 1CD1M	CONTROL	200'-0"	RB84
19000	02	1-1806-S3-DN3	125 VDC SWITCHGEAR 1ND3A	CONTROL	280'-0"	R408
19023	02	1-1806-S3-DSA	125 VDC SWITCHGEAR 1AD1	CONTROL	200'-0"	RB52
19024	02	1-1806-S3-DSB	125 VDC SWITCHGEAR 1BD1	CONTROL	200'-0"	RB47
19025	02	1-1806-S3-DSC	125 VDC SWITCHGEAR 1CD1	CONTROL	200'-0"	RB55
19026	02	1-1806-S3-DSD	125 VDC SWITCHGEAR 1DD1	CONTROL	200'-0"	RB48
18024	14	1-1807-Q3-VI1	120 VAC VITAL PANEL 1AY1A	CONTROL	180'-0"	RB52
18025	14	1-1807-Q3-VI2	120 VAC VITAL PANEL 1BY1B	CONTROL	180'-0"	RB47
18026	14	1-1807-Q3-VI3	120 VAC VITAL PANEL 1CY1A	CONTROL	180'-0"	RB55
18027	14	1-1807-Q3-VI4	120 VAC VITAL PANEL 1DY1B	CONTROL	180'-0"	RB48
18028	14	1-1807-Q3-VI5	120 VAC VITAL DIST PANEL 1AY2A	AUX	220'-0"	R118
18029	14	1-1807-Q3-VI6	120 VAC VITAL DIST PANEL 1BY2B	AUX	220'-0"	R116
18030	14	1-1807-Q3-VN1	120 VAC ESSENT PANEL 1NY1N	CONTROL	180'-0"	RB53
18031	14	1-1807-Q3-VN2	120 VAC ESSENT PANEL 1NY2N	CONTROL	180'-0"	RB53

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
18032	14	1-1807-Q3-VN4	120 VAC ESSENT PANEL 1NY4N	CONTROL	260'-0"	R322
		1-1807-Y3-10				
		1-1807-Y3-11R	REGULATED TRANSFORMER			
		1-1807-Y3-12R	REGULATED TRANSFORMER			
		1-1807-Y3-13R	REGULATED TRANSFORMER			
		1-1807-Y3-14R	REGULATED TRANSFORMER			
		1-1807-Y3-15R				
18039	16	1-1807-Y3-I2	ESSENTIAL AC INVERTER IND3I2	CONTROL	180'-0"	RB53
18040	16	1-1807-Y3-I3	ESSENTIAL AC INVERTER IND3I3	CONTROL	180'-0"	RB53
18041	16	1-1807-Y3-I4R	ESSENTIAL AC INVERTER IND3I4	CONTROL	260'-0"	R322
18042	16	1-1807-Y3-IA1R	VITAL AC INVERTER 1AD1I1	CONTROL	180'-0"	RB52
18043	16	1-1807-Y3-IA11R	VITAL AC INVERTER 1AD1I11	AUX	220'-0"	R118
18044	16	1-1807-Y3-IB12R	VITAL AC INVERTER 1BD1I12	AUX	220'-0"	R116
18045	16	1-1807-Y3-IB2	VITAL AC INVERTER 1BD1I2	CONTROL	180'-0"	RB47
18046	16	1-1807-Y3-IC3R	VITAL AC INVERTER 1CD1I3	CONTROL	180'-0"	RB55
18047	16	1-1807-Y3-ID4	VITAL AC INVERTER 1DD1I4	CONTROL	180'-0"	RB48
		1-1807-Y3-RX25R	1-1807-Y3-RX25	1-1807-Y3- RX25	1-1807- Y3-RX25	Y3- RX25
		1-1807-Y3-RX26	1-1807-Y3-RX26	1-1807-Y3- RX26	1-1807- Y3-RX26	Y3- RX26
		1-1807-Y3-RX21R	1-1807-Y3-RX21	1-1807-Y3- RX21	1-1807- Y3-RX21	Y3- RX21
		1-1807-Y3-RX22R	1-1807-Y3-RX22	1-1807-Y3- RX22	1-1807- Y3-RX22	Y3- RX22
22000	14	1-1808-Q3-L12	ESSENTIAL LTG DIST PANEL 1NLP12	AUX	195'-0"	RA22
22001	14	1-1808-Q3-L19	ESSENTIAL LTG DIST PANEL 1NLP19	AUX	143'-6"	RC98
22002	14	1-1808-Q3-L29	EMERGENCY LTG DIST PANEL 1NLP29	CONTROL	220'-0"	R149
22003	14	1-1808-Q3-L32	EMERGENCY LTG DIST PANEL 1NLP32	CONTROL	220'-0"	R149

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
22004	14	1-1808-Q3-L47	EMERGENCY LTG DIST PANEL 1NLP47	DG	220'-0"	R101
22005	14	1-1808-Q3-L50	EMERGENCY LTG DIST PANEL 1NLP50	DG	220'-0"	R103
22010	04	1-1808-T3-105	LTG ISOLATION XFMR 1ABF13X	DG	220'-0"	R103
22011	04	1-1808-T3-106	LTG ISOLATION XFMR 1BBF13X	DG	220'-0"	R101
		1-1808-T3-116R				
		1-1808-T3-113R	REGULATED TRANSFORMER			
		1-1808-T3-114R				
		1-1808-T3-115R				
20000	20	1-1816-U3-001	AUXILIARY RELAY PANEL A	CONTROL	200'-0"	RA45
20001	20	1-1816-U3-002	AUXILIARY RELAY PANEL N-A	CONTROL	200'-0"	RA45
20002	20	1-1816-U3-003	AUXILIARY RELAY PANEL B	CONTROL	240'-0"	R226
20003	20	1-1816-U3-004	AUXILIARY RELAY PANEL N-B	CONTROL	240'-0"	R226
20004	20	1-1816-U3-005	ISOLATION DEVICE PANEL AB	CONTROL	220'-0"	R163
20005	20	1-1816-U3-006	ISOLATION DEVICE PANEL B-C	CONTROL	220'-0"	R163
20006	20	1-1816-U3-007	ELECTRICAL AUXILIARY BOARD	CONTROL	220'-0"	R163
20007	20	1-1816-U3-009	ISOLATION DEVICE PANEL C	CONTROL	220'-0"	R163
20008	20	1-1816-U3-010	ISOLATION DEVICE PANEL	CONTROL	220'-0"	R163
20009	20	1-1816-U3-014	AUXILIARY RELAY PANEL	CONTROL	200'-0"	RA45
20010	20	1-1816-U3-015	AUXILIARY RELAY PANEL	CONTROL	240'-0"	RA226
20011	20	1-1816-U3-017	AUXILIARY RELAY PANEL	CONTROL	200'-0"	RA45
20012	20	1-1816-U3-018	AUXILIARY RELAY PANEL	CONTROL	200'-0"	RA50
21003	20	1-1821-U3-001	SF SEQUENCER BOARD TRAIN A	CONTROL	200'-0"	RA48
21004	20	1-1821-U3-002	SF SEQUENCER BOARD TRAIN B	CONTROL	200'-0"	RA50
21005	20	1-1823-Q5-BPS	SYSTEM STATUS MONITOR PANEL	CONTROL	220'-0"	R163

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
21006	03	1-1825-S3-1AAA	13800V RCP SWITCHGEAR 1AAA	CONTROL	200'-0"	RA64
21007	03	1-1825-S3-1BAB	13800V RCP SWITCHGEAR 1BAB	CONTROL	200'-0"	RA64
21008	03	1-1825-S3-1CAC	13800V RCP SWITCHGEAR 1CAC	CONTROL	200'-0"	RA54
21009	03	1-1825-S3-1DAD	13800V RCP SWITCHGEAR 1DAD	CONTROL	200'-0"	RA54
11002	17	1-2403-G4-001	DIESEL GENERATOR A	DG	220'-0"	R103
11003	24	1-2403-G4-001-F01	DG INTAKE AIR FILTER	DG	255'-0"	R210
11004	24	1-2403-G4-001-F02	DG EXHAUST AIR SILENCER	DG	255'-0"	R209
11005	21	1-2403-G4-001-V01	DG AIR START RECEIVER	DG	220'-0"	R103
11006	21	1-2403-G4-001-V02	DG AIR START RECEIVER	DG	220'-0"	R103
11007	17	1-2403-G4-002	DIESEL GENERATOR B	DG	220'-0"	R101
11008	24	1-2403-G4-002-F01	DG INTAKE AIR FILTER	DG	255'-0"	R205
11009	24	1-2403-G4-002-F02	DG EXHAUST AIR SILENCER	DG	255'-0"	R204
11010	21	1-2403-G4-002-V01	DG AIR START RECEIVER	DG	220'-0"	R101
11011	21	1-2403-G4-002-V02	DG AIR START RECEIVER	DG	220'-0"	R101
11012	06	1-2403-P4-001	DIESEL FUEL OIL TRANSFER PUMP	DFOST	211'-6"	RA01
11013	06	1-2403-P4-003	DIESEL FUEL OIL TRANSFER PUMP	DFOST	211'-6"	RA03
11014	20	1-2403-P5-DG1	DG 1A GEN CTL PNL	DG	220'-0"	R103
11015	20	1-2403-P5-DG2	DG 1A ENG CTL PNL	DG	220'-0"	R103
11016	20	1-2403-P5-DG3	DG 1B GEN CTL PNL	DG	220'-0"	R101
11017	20	1-2403-P5-DG4	DG 1B ENG CTL PNL	DG	220'-0"	R101
11018	20	1-2403-T3-NGA	DG 1A NEUTRAL GND CABINET	DG	220'-0"	R103
11019	20	1-2403-T3-NGB	DG 1B NEUTRAL GND CABINET	DG	220'-0"	R101
11020	21	1-2403-T4-001	DIESEL FUEL OIL STORAGE TANK	DFOST	211'-6"	RA01
11021	21	1-2403-T4-002	DIESEL FUEL OIL STORAGE TANK	DFOST	211'-6"	RA03

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
11022	21	1-2403-T4-003	DIESEL FUEL OIL DAY TANK	DG	220'-0"	R104
11023	21	1-2403-T4-004	DIESEL FUEL OIL DAY TANK	DG	220'-0"	R102
02010	07	1-CV-9446	NSCT BLOWDOWN ISO AOV	NSCT	220'-0"	R102
02011	07	1-CV-9447	NSCT BLOWDOWN ISO AOV	NSCT	220'-0"	R202
05006	19	1-FIS-0610	RHR PUMP A FLOW TO MINIFLOW VALVE	AUX	119'-3"	RD121
05007	19	1-FIS-0611	RHR PUMP B FLOW TO MINIFLOW VALVE	AUX	119'-3"	RD53
02012	19	1-FIT-1640A	NSCW RETURN FLOW	NSCT	195'-0"	EL 1T2A
02013	19	1-FIT-1641A	NSCW RETURN FLOW	NSCT	195'-0"	EL 1T2B
10019	19	1-FSL-12045	INTERLOCK FLOW SWTCH CNTL BLD..CLOSSES ON LOW AIR	CONTROL	260'-0"	R320
10020	19	1-FSL-12046	INTERLOCK FLOW SWTCH CNTL BLD..CLOSSES ON AIR- FLO	CONTROL	260'-0"	R313
06010	19	1-FT-0138	CCP A FLOW	AUX	143'-6"	RC114
06011	19	1-FT-0142	RCP 4 SEAL INJ FLOW	FB	200'-0"	RA10
06012	19	1-FT-0143	RCP 3 SEAL INJ FLOW	FB	200'-0"	RA10
06013	19	1-FT-0144	RCP 2 SEAL INJ FLOW	AUX	195'-0"	RA09
06014	19	1-FT-0145	RCP 1 SEAL INJ FLOW	AUX	195'-0"	RA09
06045	19	1-FT-0406	REACTOR HEAD LETDOWN LINE FLOW	CTB	183'-0"	RB03
06046	19	1-FT-0407	REACTOR HEAD LETDOWN LINE FLOW	CTB	183'-0"	RB03
05008	19	1-FT-0618	RHR A FLOW	AUX	119'-3"	RD121
05009	19	1-FT-0619	RHR B FLOW	AUX	143'-6"	RD53
04004	19	1-FT-0917	FLOW THROUGH BIT	AUX	180'-0"	RB11
04005	19	1-FT-0918R	SIP A FLOW	AUX	180'-0"	RB15
04006	19	1-FT-0922R	SIP B FLOW	AUX	180'-0"	RB19
02014	19	1-FT-1802	NSCW FLOW TO CB ESS CHILLER	CONTROL	260'-0"	R320
02015	19	1-FT-1803	NSCW FLOW TO CB ESS CHILLER	CONTROL	260'-0"	R313



LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
03010	19	1-FT-1876	CCW A FLOW	AUX	195'-0"	RA05
03011	19	1-FT-1877	CCW B FLOW	AUX	195'-0"	RA04
10104	19	1-FT-22425	ECW FLOW	CONTROL	260'-0"	R320
10105	19	1-FT-22426	ECW FLOW	CONTROL	260'-0"	R313
09004	19	1-FT-5150	AFW FLOW TO SG 4	AUX	195'-0"	RA17
09005	19	1-FT-5151	AFW FLOW TO SG 2	CONTROL	200'-0"	RA62
09006	19	1-FT-5152	AFW FLOW TO SG 1	AUX	195'-0"	RA10
09007	19	1-FT-5153	AFW FLOW TO SG 3	CONTROL	200'-0"	RA56
09008	19	1-FT-5154	AFW B FLOW TO MINIFLOW VALVE	AFWP HOUSE	220'-0"	R101
09009	19	1-FT-5155	AFW A FLOW TO MINIFLOW VALVE	AFWP HOUSE	220'-0"	R101
05010	08a	1-FV-0610	RHR PUMP A MINIFLOW MOV	AUX	143'-6"	RC90
05011	08a	1-FV-0611	RHR PUMP B MINIFLOW MOV	AUX	143'-6"	RC91
09010	08a	1-FV-5154	AFW PUMP B MINIFLOW MOV	AFWP HOUSE	220'-0"	R102
09011	08a	1-FV-5155	AFW PUMP A MINIFLOW MOV	AFWP HOUSE	220'-0"	R101
06015	08b	1-HV-0190A	CCP A SAFETY GRADE CHARGING SOLENOID OP VLV	AUX	195'-0"	RA09
06016	08b	1-HV-0190B	CCP B SAFETY GRADE CHARGING SOLENOID OP VLV	AUX	143'-6"	RC119
06047	08b	1-HV-0442A	REACTOR HEAD LETDOWN LINE CONTROL SOV	CTB	183'-0"	RB03
06048	08b	1-HV-0442B	REACTOR HEAD LETDOWN LINE CONTROL SOV	CTB	183'-0"	RB03
12005	07	1-HV-0780	NORMAL CTB SUMP PUMP DISCHARGE AOV	CTB	198'-0"	RB10
12006	07	1-HV-0781	NORMAL CTB SUMP PUMP DISCHARGE AOV	AUX	195'-0"	RA09
04007	08b	1-HV-0943A	ACCUMULATOR NITROGEN HDR VENT--SOLENOID OPERATED VALVE	CTB	180'-0"	RB10
04008	08b	1-HV-0943B	ACCUMULATOR NITROGEN HDR VENT--SOLENOID OPERATED VALVE	CTB	183'-0"	RB10
04009	07	1-HV-10957	RWST TO SLUDGE MIXING PUMP SUCTION AOV	RWST	220'-0"	R101
04010	07	1-HV-10958	RWST TO SLUDGE MIXING PUMP SUCTION AOV	RWST	220'-0"	R101

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
02016	08a	1-HV-11600	NSCW PUMP 1 DISCHARGE MOV	NSCT	220'-0"	R103
02017	08a	1-HV-11606	NSCW PUMP 3 DISCHARGE MOV	NSCT	220'-0"	R103
02018	08a	1-HV-11607	NSCW PUMP 2 DISCHARGE MOV	NSCT	245'-0"	R203
02019	08a	1-HV-11613	NSCW PUMP 4 DISCHARGE MOV	NSCT	245'-0"	R203
10112	08a	1-HV-12005R	AFW PUMP HOUSE AIR SUPPLY DAMPER	AFWP HOUSE	220'-0"	R102
10113	08a	1-HV-12006R	AFW PUMP HOUSE AIR SUPPLY DAMPER	AFWP HOUSE	220'-0"	R101
10094	08a	1-HV-12050R	DG A AIR SUPPLY DAMPER FOR FAN NO. 1	DG	255'-0"	R208
10095	08a	1-HV-12051R	DG A AIR SUPPLY DAMPER FOR FAN NO. 3	DG	255'-0"	R208
10096	08a	1-HV-12053R	DG A AIR SUPPLY DAMPER FOR FAN NO. 2	DG	255'-0"	R203
10097	08a	1-HV-12054R	DG A AIR SUPPLY DAMPER FOR FAN NO. 4	DG	255'-0"	R203
10021	08a	1-HV-12128	CBCR FILTER UNIT AIR SUPPLY DAMPER	CONTROL	220'-0"	R143
10022	08a	1-HV-12129	CBCR FILTER UNIT AIR SUPPLY DAMPER	CONTROL	220'-0"	R143
10023	08a	1-HV-12130	CBCR FILTER UNIT AIR RETURN DAMPER	CONTROL	220'-0"	R143
10024	08a	1-HV-12131	CBCR FILTER UNIT AIR RETURN DAMPER	CONTROL	220'-0"	R143
10025	07	1-HV-12146	CBCR NORMAL AIR SUPPLY DAMPER	CONTROL	240'-0"	R233
10026	07	1-HV-12147	CBCR NORMAL AIR SUPPLY DAMPER	CONTROL	240'-0"	R233
10027	07	1-HV-12148	CBCR NORMAL AIR RETURN DAMPER	CONTROL	240'-0"	R233
10028	07	1-HV-12149	CBCR NORMAL AIR RETURN DAMPER	CONTROL	240'-0"	R233
10082	07	1-HV-12604	PPG PENETRATION NORMAL RETURN AIR ISOLATION DAMPER	AUX	245'-0"	R209
10083	07	1-HV-12605	PPG PENETRATION NORMAL AIR SUPPLY ISOLATION DAMPER	AUX	245'-0"	R209
10084	07	1-HV-12606	PPG PENETRATION NORMAL AIR SUPPLY ISOLATION DAMPER	AUX	245'-0"	R209
10085	07	1-HV-12607	PPG PENETRATION NORMAL RETURN AIR ISOLATION DAMPER	AUX	245'-0"	R209
10086	08c	1-HV-12614	PPG PEN FILTRATION AND EXHAUST UNIT SUCTION DAMPER	AUX	245'-0"	R210
10087	08c	1-HV-12616	PPG PEN FILTRATION AND EXHAUST UNIT SUCTION DAMPER	AUX	245'-0"	R209

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
12021	08b	1-HV-12976	CTB AIR RADIATION MONITOR INLET SOV	AUX	180'-0"	RB08
12022	08b	1-HV-12977	CTB AIR RADIATION MONITOR OUTLET SOV	AUX	180'-0"	RB08
08000	07	1-HV-13005A	INBOARD MSIV BYPASS AOV--SG 1	AUX	220'-0"	R108
08001	07	1-HV-13005B	OUTBOARD MSIV BYPASS AOV--SG 1	AUX	220'-0"	R108
08002	07	1-HV-13006A	INBOARD MSIV BYPASS AOV--SG 4	AUX	220'-0"	R108
08003	07	1-HV-13006B	OUTBOARD MSIV BYPASS AOV--SG 4	AUX	220'-0"	R108
08004	07	1-HV-13007A	INBOARD MSIV BYPASS AOV--SG 2	CONTROL	220'-0"	R123
08005	07	1-HV-13007B	OUTBOARD MSIV BYPASS AOV--SG 2	CONTROL	220'-0"	R123
08006	07	1-HV-13008A	INBOARD MSIV BYPASS AOV--SG 3	CONTROL	220'-0"	R122
08007	07	1-HV-13008B	OUTBOARD MSIV BYPASS AOV--SG 3	CONTROL	220'-0"	R122
07005	07	1-HV-15196	BFIV FOR SG 1	AUX	195'-0"	RA11
07006	07	1-HV-15197	BFIV FOR SG 2	CONTROL	200'-0"	RA56
07007	07	1-HV-15198	BFIV FOR SG 3	CONTROL	200'-0"	RA56
07008	07	1-HV-15199	BFIV FOR SG 4	AUX	195'-0"	RA12
02020	08a	1-HV-1668A	NSCW SPRAY VALVE	NSCT	195'-0"	R102
02021	08a	1-HV-1668B	NSCW TOWER BYPASS MOV	NSCT	220'-0"	R102
02022	08a	1-HV-1669A	NSCW SPRAY VALVE	NSCT	195'-0"	R202
02023	08a	1-HV-1669B	NSCW TOWER BYPASS MOV	NSCT	220'-0"	R202
12007	08a	1-HV-1974	ACCW RETURN FROM RCP COOLERS MOV	CTB	198'-0"	R101
12008	08a	1-HV-1975	ACCW RETURN FROM RCP COOLERS MOV	AUX	195'-0"	RA12
12009	08a	1-HV-1978	ACCW SUPPLY TO RCP COOLERS MOV	CTB	198'-0"	R101
12010	08a	1-HV-1979	ACCW SUPPLY TO RCP COOLERS MOV	AUX	195'-0"	RA12
12015	07	1-HV-2626B	NORMAL CTB PURGE SUPPLY & EQUALIZING AOV	CTB	220'-0"	R101
12016	07	1-HV-2627B	NORMAL CTB PURGE SUPPLY & EQUALIZING AOV	CONTROL	220'-0"	R125
12017	07	1-HV-2628B	NORMAL CTB PURGE EXHAUST & EQUALIZING AOV	CTB	220'-0"	R101

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
12018	07	1-HV-2629B	NORMAL CTB PURGE EXHAUST & EQUALIZING AOV	CONTROL	220'-0"	R117
08008	08c	1-HV-3006A	INBOARD MSIV--SG 1	AUX	220'-0"	R108
08009	08c	1-HV-3006B	OUTBOARD MSIV--SG 1	AUX	220'-0"	R108
08010	08c	1-HV-3016A	INBOARD MSIV--SG 2	CONTROL	220'-0"	R123
08011	08c	1-HV-3016B	OUTBOARD MSIV--SG 2	CONTROL	220'-0"	R123
08012	08c	1-HV-3026A	INBOARD MSIV--SG 3	CONTROL	220'-0"	R123
08013	08c	1-HV-3026B	OUTBOARD MSIV--SG 3	CONTROL	220'-0"	R123
08014	08c	1-HV-3036A	INBOARD MSIV--SG 4	AUX	220'-0"	R108
08015	08c	1-HV-3036B	OUTBOARD MSIV--SG 4	AUX	220'-0"	R108
12023	07	1-HV-3502	HOT LEG SAMPLE & GFF DET AOV	FB	180'-0"	RA10
12024	07	1-HV-3508	PRESSURIZER LIQUID SAMPLE AOV	FB	180'-0"	RA10
12025	07	1-HV-3514	PRESSURIZER STEAM SAMPLE AOV	FB	180'-0"	RA10
09012	08a	1-HV-5132	AFW PUMP B DISCHARGE MOV	CONTROL	195'-0"	RA56
09013	08a	1-HV-5134	AFW PUMP B DISCHARGE MOV	CONTROL	195'-0"	RA56
09014	08a	1-HV-5137	AFW PUMP A DISCHARGE MOV	AUX	195'-0"	RA12
09015	08a	1-HV-5139	AFW PUMP A DISCHARGE MOV	AUX	195'-0"	RA12
07009	08c	1-HV-5227	MFIV FOR SG 1	AUX	195'-0"	RA11
07010	08c	1-HV-5228	MFIV FOR SG 2	CONTROL	200'-0"	RA56
07011	08c	1-HV-5229	MFIV FOR SG 3	CONTROL	200'-0"	RA56
07012	08c	1-HV-5230	MFIV FOR SG 4	AUX	195'-0"	RA12
12019	07	1-HV-7136	REACTOR COOLANT DRAIN TANK PUMP DISCHARGE AOV	FB	200'-0"	RA10

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
12026	07	1-HV-7150	RCDT VENT AOV	FB	180'-0"	RA10
08016	07	1-HV-7603A	SG 1 BLOWDOWN ISOLATION AOV	AUX	180'-0"	RB08
08017	07	1-HV-7603B	SG 2 BLOWDOWN ISOLATION AOV	AUX	180'-0"	RB08
08018	07	1-HV-7603C	SG 3 BLOWDOWN ISOLATION AOV	AUX	180'-0"	RB08
08019	07	1-HV-7603D	SG 4 BLOWDOWN ISOLATION AOV	AUX	180'-0"	RB08
12020	07	1-HV-7699	REACTOR COOLANT DRAIN TANK PUMP DISCHARGE AOV	CTB	183'-0"	RB07
01010	08a	1-HV-8000A	PORV BLOCK VALVE	CTB	220'-0"	R110
01011	08a	1-HV-8000B	PORV BLOCK VALVE	CTB	220'-0"	R110
06041	08b	1-HV-8095A	REACTOR HEAD LETDOWN LINE ISOLATION SOV	CTB	183'-0"	RB02
06042	08b	1-HV-8095B	REACTOR HEAD LETDOWN LINE ISOLATION SOV	CTB	183'-0"	RB02
06043	08b	1-HV-8096A	REACTOR HEAD LETDOWN LINE ISOLATION SOV	CTB	183'-0"	RB02
06044	08b	1-HV-8096B	REACTOR HEAD LETDOWN LINE ISOLATION SOV	CTB	183'-0"	RB02
12003	08a	1-HV-8100	EXCESS LETDOWN & SEAL WATER LEAKOFF ISOLATION MOV	AUX	195'-0"	RA09
06017	08a	1-HV-8105	CHARGING TO REGEN HX MOV	AUX	195'-0"	RA09
06018	08a	1-HV-8106	CHARGING DISCHARGE MOV	AUX	195'-0"	RA09
06019	08a	1-HV-8110	CCP A & B COMMON MINIFLOW MOV	AUX	180'-0"	RB25
06020	08a	1-HV-8111A	CCP A MINIFLOW MOV	AUX	143'-6"	RC114
06021	08a	1-HV-8111B	CCP B MINIFLOW MOV	AUX	143'-6"	RC119
12004	08a	1-HV-8112	EXCESS LETDOWN & SEAL WATER LEAKOFF ISOLATION MOV	CTB	180'-0"	RB03
06022	08a	1-HV-8116	CCP A SAFETY GRADE CHARGING ISO MOV	AUX	195'-0"	RA09
06023	07	1-HV-8149A	LETDOWN ISOLATION AOV	CTB	183'-0"	RB03
06024	07	1-HV-8149B	LETDOWN ISOLATION AOV	CTB	183'-0"	RB03
06025	07	1-HV-8149C	LETDOWN ISOLATION AOV	CTB	183'-0"	RB03
06026	07	1-HV-8152	LETDOWN ISOLATION AOV	AUX	195'-0"	RA09

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
06027	07	1-HV-8154	EXCESS LETDOWN ISOLATION AOV	CTB	183'-0"	RB03
06028	07	1-HV-8160	LETDOWN ISOLATION AOV	CONTROL	220'-0"	R163
06029	08a	1-HV-8485A	CCP A DISCHARGE ISO MOV	AUX	143'-6"	RC114
06030	08a	1-HV-8485B	CCP B DISCHARGE MOV	AUX	143'-6"	RC119
06031	08a	1-HV-8508A	CCP A ALT. MINIFLOW MOV	AUX	143'-6"	RC114
06032	08a	1-HV-8508B	CCP B ALT. MINIFLOW MOV	AUX	143'-6"	RC119
05012	08a	1-HV-8701A	RCS TO RHR PUMP A SUCTION MOV	CTB	180'-0"	RB03
05013	08a	1-HV-8701B	RCS TO RHR PUMP A SUCTION MOV	CTB	180'-0"	RB02
05014	08a	1-HV-8702A	RCS TO RHR PUMP B SUCTION MOV	CTB	180'-0"	RB03
05015	08a	1-HV-8702B	RCS TO RHR PUMP B SUCTION MOV	CTB	180'-0"	RB03
05016	08a	1-HV-8716A	RHR TRAIN A TO RCS HOT LEG ISOLATION MOV	AUX	119'-0"	RD48
05017	08a	1-HV-8716B	RHR TRAIN B TO RCS HOT LEG ISOLATION MOV	AUX	119'-0"	RD49
04011	08a	1-HV-8801A	BIT DISCHARGE TO RCS MOV	AUX	195'-0"	RA13
04012	08a	1-HV-8801B	BIT DISCHARGE TO RCS MOV	AUX	195'-0"	RA13
05018	08a	1-HV-8804A	RHR TO CCP SUCTION HEADER MOV	AUX	143'-6"	RC90
05019	08a	1-HV-8804B	RHR TO SIP SUCTION HEADER MOV	AUX	143'-6"	RC91
04013	08a	1-HV-8807AR	CCP/SIP SUCTION HEADER CROSS-CONNECT MOV	AUX	180'-0"	RB15
04014	08a	1-HV-8807BR	CCP/SIP SUCTION HEADER CROSS-CONNECT MOV	AUX	180'-0"	RB19
05020	08a	1-HV-8811A	CTMT SUMP TO RHR PUMP A SUCTION MOV	AUX	143'-6"	RC105
05021	08a	1-HV-8811B	CTMT SUMP TO RHR PUMP B SUCTION MOV	AUX	143'-6"	RC09
05022	08a	1-HV-8812A	RWST TO RHR PUMP A SUCTION MOV	AUX	119'-0"	RD48
05023	08a	1-HV-8812B	RWST TO RHR PUMP B SUCTION MOV	AUX	119'-0"	RD49
04015	08a	1-HV-8813	SIP COMMON MINIFLOW MOV	AUX	180'-0"	RB19
04016	08a	1-HV-8814	SIP A MINIFLOW MOV	AUX	180'-0"	RB15

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
04017	08b	1-HV-8875A	ACCUMULATOR 1 NITROGEN VENT--SOLENOID OPERATED VALVE	CTB	183'-0"	RB03
04018	08b	1-HV-8875B	ACCUMULATOR 2 NITROGEN VENT--SOLENOID OPERATED VALVE	CTB	183'-0"	RB10
04019	08b	1-HV-8875C	ACCUMULATOR 3 NITROGEN VENT--SOLENOID OPERATED VALVE	CTB	183'-0"	RB10
04020	08b	1-HV-8875D	ACCUMULATOR 4 NITROGEN VENT--SOLENOID OPERATED VALVE	CTB	183'-0"	RB03
04021	08b	1-HV-8875E	ACCUMULATOR 1 NITROGEN VENT--SOLENOID OPERATED VALVE	CTB	183'-0"	RB03
04022	08b	1-HV-8875F	ACCUMULATOR 2 NITROGEN VENT--SOLENOID OPERATED VALVE	CTB	183'-0"	RB10
04023	08b	1-HV-8875G	ACCUMULATOR 3 NITROGEN VENT--SOLENOID OPERATED VALVE	CTB	183'-0"	RB10
04024	08b	1-HV-8875H	ACCUMULATOR 4 NITROGEN VENT--SOLENOID OPERATED VALVE	CTB	183'-0"	RB03
04025	08a	1-HV-8920	SIP B MINIFLOW MOV	AUX	180'-0"	RB19
06054	19	1-HY-0190A	I/P CONVERTER FOR HV-0190A	AUX	195'-0"	RA05
06055	19	1-HY-0190B	I/P CONVERTER FOR HV-0190B	AUX	143'-6"	RC119
06056	19	1-HY-0442A	I/P CONVERTER FOR HV-0442A	CONTROL	180'-0"	RB78
06057	19	1-HY-0442B	I/P CONVERTER FOR HV-0442B	CONTROL	180'-0"	RB74
04030	19	1-HY-0943A	I/P CONVERTER FOR HV-0943A	CONTROL	180'-0"	RB78
04031	19	1-HY-0943B	I/P CONVERTER FOR HV-0943B	CONTROL	180'-0"	RB74
12028	08b	1-HY-7150	SOLENOID VALVE FOR 1-HV-7150	FB	180'-0"	RA10
12027	08b	1-HY-7699	SOLENOID VALVE FOR 1-HV-7699	CTB	183'-0"	RB07
06049	08b	1-HY-8149A	SOLENOID VALVE FOR 1-HV-8149A	CTB	183'-0"	RB03
06050	08b	1-HY-8149B	SOLENOID VALVE FOR 1-HV-8149B	CTB	183'-0"	RB03
06051	08b	1-HY-8149C	SOLENOID VALVE FOR 1-HV-8149C	CTB	183'-0"	RB03
06052	08b	1-HY-8154	SOLENOID VALVE FOR 1-HV-8154	CTB	183'-0"	RB03
06053	08b	1-HY-8160	SOLENOID VALVE FOR 1-HV-8160	CTB	220'-0"	R163
11024	19	1-LSH-9020	F.O. DAY TANK 3 LEVEL	DG	220'-0"	R1102
11025	19	1-LSH-9021	F.O. DAY TANK 4 LEVEL	DG	220'-0"	R1104

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
11026	19	1-LSL-9020	F.O. DAY TANK 3 LEVEL	DG	220'-0"	R1102
11027	19	1-LSL-9021	F.O. DAY TANK 4 LEVEL	DG	220'-0"	R1104
03012	19	1-LSLL-1852	CCW SURGE TK 1 LEVEL	AUX	245'-0"	R203
03013	19	1-LSLL-1853	CCW SURGE TK 2 LEVEL	AUX	245'-0"	R202
03014	19	1-LSLL-1854	CCW SURGE TK 1 LEVEL	AUX	245'-0"	R203
03015	19	1-LSLL-1855	CCW SURGE TK 2 LEVEL	AUX	245'-0"	R202
06033	19	1-LT-0112	VCT LEVEL	AUX	195'-0"	RA30
06034	19	1-LT-0185	VCT LEVEL	AUX	195'-0"	RA30
01012	19	1-LT-0459	PRESSURIZER LEVEL	CTB	183'-0"	RB02
01013	19	1-LT-0460	PRESSURIZER LEVEL	CTB	183'-0"	RB02
01014	19	1-LT-0461	PRESSURIZER LEVEL	CTB	183'-0"	RB02
08020	19	1-LT-0501	SG 1 WIDE RANGE LEVEL	CTB	183'-0"	RB03
08021	19	1-LT-0502	SG 2 WIDE RANGE LEVEL	CTB	183'-0"	RB10
08022	19	1-LT-0503	SG 3 WIDE RANGE LEVEL	CTB	183'-0"	RB10
08023	19	1-LT-0504	SG 4 WIDE RANGE LEVEL	CTB	183'-0"	RB03
08024	19	1-LT-0517	SG 1 NARROW RANGE LEVEL	CTB	220'-0"	R102
08025	19	1-LT-0518	SG 1 NARROW RANGE LEVEL	CTB	220'-0"	R101
08026	19	1-LT-0519	SG 1 NARROW RANGE LEVEL	CTB	220'-0"	R101
08027	19	1-LT-0527	SG 2 NARROW RANGE LEVEL	CTB	220'-0"	R101
08028	19	1-LT-0528	SG 2 NARROW RANGE LEVEL	CTB	220'-0"	R101
08029	19	1-LT-0529	SG 2 NARROW RANGE LEVEL	CTB	220'-0"	R101
08030	19	1-LT-0537	SG 3 NARROW RANGE LEVEL	CTB	220'-0"	R101
08031	19	1-LT-0538	SG 3 NARROW RANGE LEVEL	CTB	220'-0"	R101
08032	19	1-LT-0539	SG 3 NARROW RANGE LEVEL	CTB	220'-0"	R101



LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
08033	19	1-LT-0547	SG 4 NARROW RANGE LEVEL	CTB	220'-0"	R101
08034	19	1-LT-0548	SG 4 NARROW RANGE LEVEL	CTB	220'-0"	R101
08035	19	1-LT-0549	SG 4 NARROW RANGE LEVEL	CTB	220'-0"	R101
08064	19	1-LT-0551	SG 1 NARROW RANGE LEVEL	CTB	220'-0"	R101
08065	19	1-LT-0552	SG 2 NARROW RANGE LEVEL	CTB	220'-0"	R101
08066	19	1-LT-0553	SG 3 NARROW RANGE LEVEL	CTB	220'-0"	R101
08067	19	1-LT-0554	SG 4 NARROW RANGE LEVEL	CTB	220'-0"	R101
05024	19	1-LT-0764	CNMT EMERGENCY SUMP LEVEL	CTB	183'-0"	RB03
05025	19	1-LT-0765	CNMT EMERGENCY SUMP LEVEL	CTB	183'-0"	RB03
04026	19	1-LT-0990	RWST LEVEL	RWST	220'-0"	R101
04027	19	1-LT-0991	RWST LEVEL	RWST	220'-0"	R101
04028	19	1-LT-0992	RWST LEVEL	RWST	220'-0"	R101
04029	19	1-LT-0993	RWST LEVEL	RWST	220'-0"	R101
09016	19	1-LT-5111	CST NO. 1 LEVEL CONDENSATE STORAGE TANK	CST NO. 1	220'-0"	
06035	08a	1-LV-0112B	VCT DISCHARGE ISOLATION MOV	AUX	195'-0"	RA26
06036	08a	1-LV-0112C	VCT DISCHARGE ISOLATION MOV	AUX	195'-0"	RA26
06037	08a	1-LV-0112D	CCP SUCTION FROM RWST MOV	AUX	143'-6"	RC113
06038	08a	1-LV-0112E	CCP SUCTION FROM RWST MOV	AUX	143'-6"	RC120
14003	19	1-NE-0041	NIS DETECTOR--CH.1	CTB		
14004	19	1-NE-0042	NIS DETECTOR--CH.2	CTB		
14005	19	1-NE-0043	NIS DETECTOR--CH.3	CTB		
14006	19	1-NE-0044	NIS DETECTOR--CH.4	CTB		
		1-PS-8508AR				
		1-PS-8508BR	PRESSURE SWITCH			
08036	00	1-PSV-3001	MAIN STEAM SAFETY RELIEF VALVE	AUX	220'-0"	R108

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
08037	00	1-PSV-3011	MAIN STEAM SAFETY RELIEF VALVE	CONTROL	220'-0"	R123
08038	00	1-PSV-3021	MAIN STEAM SAFETY RELIEF VALVE	CONTROL	220'-0"	R123
08039	00	1-PSV-3031	MAIN STEAM SAFETY RELIEF VALVE	AUX	220'-0"	R108
01019	19	1-PT-0455	PRESSURIZER PRESSURE	CTB	183'-0"	RB03
01020	19	1-PT-0456	PRESSURIZER PRESSURE	CTB	183'-0"	RB02
01021	19	1-PT-0457	PRESSURIZER PRESSURE	CTB	183'-0"	RB02
01022	19	1-PT-0458	PRESSURIZER PRESSURE	CTB	183'-0"	RB02
08040	19	1-PT-0514R	SG 1 PRESSURE	AUX	195'-0"	RA09
08041	19	1-PT-0515R	SG 1 PRESSURE	AUX	195'-0"	RA09
08042	19	1-PT-0516R	SG 1 PRESSURE	AUX	195'-0"	RA09
08043	19	1-PT-0524R	SG 2 PRESSURE	CONTROL	200'-0"	RA62
08044	19	1-PT-0525R	SG 2 PRESSURE	CONTROL	200'-0"	RA62
08045	19	1-PT-0526R	SG 2 PRESSURE	CONTROL	200'-0"	RA62
08046	19	1-PT-0534R	SG 3 PRESSURE	CONTROL	200'-0"	RA51
08047	19	1-PT-0535R	SG 3 PRESSURE	CONTROL	220'-0"	RA51
08048	19	1-PT-0536R	SG 3 PRESSURE	CONTROL	220'-0"	RA51
08049	19	1-PT-0544R	SG 4 PRESSURE	AUX	220'-0"	R107
08050	19	1-PT-0545R	SG 4 PRESSURE	AUX	220'-0"	R107
08051	19	1-PT-0546R	SG 4 PRESSURE	AUX	220'-0"	R110
12000	19	1-PT-0934	CNMT PRESSURE	AUX	200'-0"	RA10
12001	19	1-PT-0935	CNMT PRESSURE	AUX	180'-0"	RB08

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
12002	19	1-PT-0936	CNMT PRESSURE	AUX	180'-0"	RB11
08052	19	1-PT-3000	SG 1 PRESSURE TO ARV TRANSMITTER	AUX	195'-0"	RA09
08053	19	1-PT-3010	SG 2 PRESSURE TO ARV TRANSMITTER	CONTROL	200'-0"	RA62
08054	19	1-PT-3020	SG 3 PRESSURE TO ARV TRANSMITTER	CONTROL	200'-0"	RA51
08055	19	1-PT-3030	SG 4 PRESSURE TO ARV TRANSMITTER	AUX	220'-0"	R107
01023	08b	1-PV-0455A	PRESSURIZER PORV	CTB	220'-0"	14D1
01024	08b	1-PV-0456A	PRESSURIZER PORV	CTB	220'-0"	R110
10088	08a	1-PV-2550A	PPG PEN FILTRATION AND EXHAUST UNIT DISCHARGE DAMPER	AUX	245'-0"	R210
10089	08a	1-PV-2551A	PPG PEN FILTRATION AND EXHAUST UNIT DISCHARGE DAMPER	AUX	245'-0"	R209
08056	08c	1-PV-3000	ATMOS. RELIEF VALVE--SG 1	AUX	245'-0"	R206
08057	08c	1-PV-3010	ATMOS. RELIEF VALVE--SG 2	CONTROL	220'-0"	R121
08058	08c	1-PV-3020	ATMOS. RELIEF VALVE--SG 3	CONTROL	220'-0"	R122
08059	08c	1-PV-3030	ATMOS. RELIEF VALVE--SG 4	AUX	220'-0"	R108
08060	19	1-PY-3000	SG 1 PRESSURE TO ARV CONTROLLER	AUX	245'-0"	R204
08061	19	1-PY-3010	SG 2 PRESSURE TO ARV CONTROLLER	CONTROL	200'-0"	RA60
08062	19	1-PY-3020	SG 3 PRESSURE TO ARV CONTROLLER	CONTROL	200'-0"	RA60
08063	19	1-PY-3030	SG 4 PRESSURE TO ARV CONTROLLER	AUX	245'-0"	R204
10106	19	1-TDC-4170	ECW COND/EVAP TEMP DIFF TO NSCW CONTROL VLV 1-TV-11740	CONTROL	260'-0"	R320
10107	19	1-TDC-4193	ECW COND/EVAP TEMP DIFF TO NSCW CONTROL VLV 1-TV-11675	CONTROL	260'-0"	R313
01025	19	1-TE-0413A	RCS HOT LEG TEMP--LOOP 1	CTB	183'-0"	RB02
01026	19	1-TE-0413B	RCS COLD LEG TEMP--LOOP 1	CTB	183'-0"	RB02
01027	19	1-TE-0423A	RCS HOT LEG TEMP--LOOP 2	CTB	183'-0"	RB02
01028	19	1-TE-0423B	RCS COLD LEG TEMP--LOOP 2	CTB	183'-0"	RB02
01029	19	1-TE-0433A	RCS HOT LEG TEMP--LOOP 3	CTB	183'-0"	RB02

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
01030	19	1-TE-0433B	RCS COLD LEG TEMP--LOOP 3	CTB	183'-0"	RB02
01031	19	1-TE-0443A	RCS HOT LEG TEMP--LOOP 4	CTB	183'-0"	RB02
01032	19	1-TE-0443B	RCS COLD LEG TEMP--LOOP 4	CTB	183'-0"	RB02
02027	19	1-TE-11642	NSCW A RETURN TO FAN 2 CONTROL	NSCT	220'-0"	R102
02028	19	1-TE-11643	NSCW A RETURN TO FAN 3 CONTROL	NSCT	220'-0"	R102
02038	19	1-TE-11644	NSCW A RETURN TO FAN 4 CONTROL	NSCT	220'-0"	R102
02030	19	1-TE-11647	NSCW B RETURN TO FAN 2 CONTROL	NSCT	220'-0"	R202
02031	19	1-TE-11648	NSCW B RETURN TO FAN 3 CONTROL	NSCT	220'-0"	R202
02039	19	1-TE-11649	NSCW B RETURN TO FAN 4 CONTROL	NSCT	220'-0"	R202
10029	19	1-TE-12124	CB CR RETURN AIR TEMP	CONTROL	260'-0"	R321
10030	19	1-TE-12125	CB CR RETURN AIR TEMP	CONTROL	260'-0"	R312
10037	19	1-TE-12725	ELEC EQUIP RM TEMP	CONTROL	180'-0"	RB49
10038	19	1-TE-12740	ELEC EQUIP RM TEMP	CONTROL	180'-0"	RB54
02032	19	1-TE-1668	NSCW A RETURN TO SPRAY/BYPASS VALVES	NSCT	220'-0"	R102
02033	19	1-TE-1669	NSCW B RETURN TO SPRAY/BYPASS VALVES	NSCT	220'-0"	R202
10043	19	1-TIC-13150	CB NORMAL A/C RM ESF A/C UNIT CONTROLLER	CONTROL	260'-0"	R325
10044	19	1-TIC-13152	CB ELEC EQUIP RM ESF A/C UNIT CONTROLLER	CONTROL	260'-0"	R325
10114	19	1-TIS-12005	AFW PUMP B ROOM SUPPLY FAN CONTROLLER	HOUSE	220'-0"	R102
10115	19	1-TIS-12006	AFW PUMP A ROOM SUPPLY FAN CONTROLLER	HOUSE	220'-0"	R101
10141	19	1-TIS-12300	CBCR CHILLER RM VENT FAN CONTROLLER	CONTROL	260'-0"	R312
10142	19	1-TIS-12303	CBCR CHILLER RM VENT FAN CONTROLLER	CONTROL	260'-0"	B320
10072	19	1-TISH-12200	ELECT SWGR & MCC RM A7001 COOLER CONTROLLER	AUX	119'-3"	RD105
10073	19	1-TISH-12201	ELECT SWGR & MCC RM A7002 COOLER CONTROLLER	AUX	245'-0"	R207
10074	19	1-TISH-12202	ELECT SWGR & MCC RM A7003 COOLER CONTROLLER	AUX	143'-6"	RC109

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
10075	19	1-TISH-12203	ELECT SWGR & MCC RM A7004 COOLER CONTROLLER	AUX	180'-0"	RB116
10076	19	1-TISH-12204	ELECT SWGR & MCC RM A7005 COOLER CONTROLLER	AUX	220'-0"	R117
10077	19	1-TISH-12205	ELECT SWGR & MCC RM A7006 COOLER CONTROLLER	AUX	220'-0"	R118
10116	19	1-TISH-22501	DIESEL POWER CABLE TUNNEL EXH FAN CONTROLLER	DG	220'-0"	
10050	19	1-TISH-22505	DIESEL POWER CABLE TUNNEL EXH FAN CONTROLLER	TUNNEL	220'-0"	@ DGB
10051	19	1-TISH-22509	TB & AB TRAIN A TUNNEL SUPPLY FAN CONTROLLER	CONTROL	180'-0"	RB41 @
10052	19	1-TISH-22516	NSCW TWR CABLE TUNN TRN A FAN CONTROLLER	TUNNEL	220'-0"	NSCW @
10053	19	1-TISH-22519	NSCW TWR CABLE TUNN TRN B FAN CONTROLLER	TUNNEL	220'-0"	NSCW
02034	08c	1-TV-11675R	NSCW TO ESSENTIAL CHILLER CONDENSER (E/H) CONTROL VLV	CONTROL	260'-0"	R313
02035	08c	1-TV-11740R	NSCW TO ESSENTIAL CHILLER CONDENSER (E/H) CONTROL VLV	CONTROL	260'-0"	R320
10119	07	1-TV-12085	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R101
10120	07	1-TV-12085A	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R101
10121	07	1-TV-12086	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R103
10122	07	1-TV-12086A	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R103
10123	07	1-TV-12094A	DG BLDG OUTSIDE AIR DAMPER	DG	255'-0"	R208
10124	07	1-TV-12094B	DG BLDG OUTSIDE AIR DAMPER	DG	255'-0"	R208
10125	07	1-TV-12094C	DG BLDG OUTSIDE AIR DAMPER	DG	255'-0"	R208
10126	07	1-TV-12094D	DG BLDG OUTSIDE AIR DAMPER	DG	255'-0"	R208
10127	07	1-TV-12095A	DG BLDG OUTSIDE AIR DAMPER	DG	255'-0"	R209
10128	07	1-TV-12095B	DG BLDG OUTSIDE AIR DAMPER	DG	255'-0"	R209
10129	07	1-TV-12095C	DG BLDG OUTSIDE AIR DAMPER	DG	255'-0"	R209
10130	07	1-TV-12095D	DG BLDG OUTSIDE AIR DAMPER	DG	255'-0"	R209
10131	07	1-TV-12096	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R103
10132	07	1-TV-12096A	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R103

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
10133	07	1-TV-12097	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R103
10134	07	1-TV-12097A	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R103
10135	07	1-TV-12098	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R101
10136	07	1-TV-12098A	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R101
10137	07	1-TV-12099	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R101
10138	07	1-TV-12099A	DG BLDG OUTSIDE AIR DAMPER	DG	220'-0"	R101
10031	08c	1-TV-12124R	ECW TEMPERATURE CONTROL VALVE (E/H)	CONTROL	260'-0"	R321
10032	08c	1-TV-12125R	ECW TEMPERATURE CONTROL VALVE (E/H)	CONTROL	260'-0"	R312
02040	19	1-TY-11675	CONVERTER FOR TV-11675	CONTROL	260'-0"	R313
02041	19	1-TY-11740	CONVERTER FOR TV-11740	CONTROL	260'-0"	R320
10143	19	1-TY-12124A	CONVERTER FOR TV-12124	CONTROL	260'-0"	R321
10144	19	1-TY-12125A	CONVERTER FOR TV-12125	CONTROL	260'-0"	R312
01004	00	1-1201-P6-001	REACTOR COOLANT PUMP NO. 1	CTB	183'-0"	14AB
01005	00	1-1201-P6-002	REACTOR COOLANT PUMP NO. 2	CTB	183'-0"	14BB
01006	00	1-1201-P6-003	REACTOR COOLANT PUMP NO. 3	CTB	183'-0"	14CB
01007	00	1-1201-P6-004	REACTOR COOLANT PUMP NO. 4	CTB	183'-0"	14DB
03006	05	1-1203-P4-005	CCW PUMP NO. 5	AUX	195'-0"	RA05
03007	05	1-1203-P4-006	CCW PUMP NO. 6	AUX	195'-0"	RA03
07000	05	1-1206-P6-001	CNTMT SPRAY PUMP A	AUX	119'-3"	RD76
07001	05	1-1206-P6-002	CNTMT SPRAY PUMP B	AUX	119'-3"	RD77
06001	24	1-1208-F4-004	SEAL INJ BACKFLUSHABLE FILTER	AUX	180'-0"	RB151
06002	24	1-1208-F4-005	SEAL INJ BACKFLUSHABLE FILTER	AUX	180'-0"	RB152
06003	05	1-1208-P6-001	POSITIVE DISPLACEMENT CHARGING PUMP (PDP)	AUX	143'-6"	RC111
09000	05	1-1302-P4-001	AFW PUMP C AND TURBINE DRIVER	AFWP HOUSE	220'-0"	R106

LINE NO.	CLASS	MARK_NO	DESCRIPTION	BUILDING	ELEV	ROOM
10007	09	1-1501-A7-005-000	CTB COOLING UNIT	CTB	220'-0"	14C1
10008	09	1-1501-A7-006-000	CTB COOLING UNIT	CTB	220'-0"	14C1
10009	09	1-1501-A7-007-000	CTB COOLING UNIT	CTB	220'-0"	14B1
10010	09	1-1501-A7-008-000	CTB COOLING UNIT	CTB	220'-0"	14B1
10011	09	1-1511-E7-001-000	CTB REACTOR CAVITY COOLING COIL	CTB	220'-0"	14A1
10012	09	1-1511-E7-002-000	CTB REACTOR CAVITY COOLING COIL	CTB	220'-0"	14A1
10013	09	1-1515-A7-001-000	CTB AUX AIR COOLING UNIT (COIL)	CTB	238'-0"	14A2
10014	09	1-1515-A7-002-000	CTB AUX AIR COOLING UNIT (COIL)	CTB	238'-0"	14C2
10015	09	1-1531-B7-005-000	CBCR RETURN AIR FAN	CONTROL	260'-0"	R321
10016	09	1-1531-B7-006-000	CBCR RETURN AIR FAN	CONTROL	260'-0"	R312
10117	09	1-1532-B7-003-000	BATTERY RM EXHAUST FAN & MOTOR	CONTROL	180'-0"	RB55
10118	09	1-1532-B7-004-000	BATTERY RM EXHAUST FAN & MOTOR	CONTROL	180'-0"	RB49
10060	09	1-1555-A7-007-000	RHR PUMP ROOM COOLER A	AUX	119'-3"	RD128
10061	09	1-1555-A7-008-000	RHR PUMP ROOM COOLER B	AUX	119'-3"	RD130
10062	09	1-1555-A7-009-000	CS PUMP ROOM COOLER A	AUX	119'-3"	RD79
10063	09	1-1555-A7-010-000	CS PUMP ROOM COOLER B	AUX	119'-3"	RD77
10064	09	1-1555-A7-011-000	CCW PUMP ROOM COOLER A	AUX	195'-0"	RA05
10065	09	1-1555-A7-012-000	CCW PUMP ROOM COOLER B	AUX	195'-0"	RA03
10066	09	1-1555-A7-013-000	CVCS CHARGING PUMP ROOM COOLER A	AUX	143'-6"	RC115
10067	09	1-1555-A7-014-000	CVCS CHARGING PUMP ROOM COOLER B	AUX	143'-6"	RC118
10068	09	1-1555-A7-015-000	SIS PUMP ROOM COOLER A	AUX	180'-0"	RB15
10069	09	1-1555-A7-016-000	SIS PUMP ROOM COOLER B	AUX	180'-0"	RB19
10070	09	1-1555-A7-017-000	SFP HX AND PUMP ROOM COOLER A	AUX	195'-0"	RA53
10071	09	1-1555-A7-018-000	SFP HX AND PUMP ROOM COOLER B	FB	200'-0"	RA07
06009	21	1-1208-V4-001	PDP SUCTION DAMPENER	AUX	143'-6"	RC111

**ATTACHMENT 1**

**SEISMIC WALKDOWN EQUIPMENT LISTS**

**UNIT 1 – SWEL 1**

**NO. SNCV061-RPT-01**

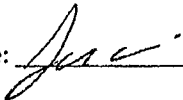
<b><u>Equipment List</u></b>	<b><u>Pages</u></b>
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<b>Unit 1 – SWEL 1</b>	<b>31-39</b>
Unit 1 – Base List 2	40-41
Unit 1 – SWEL 2	42-44

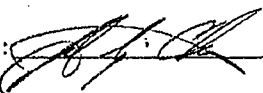


Plant Vogtle Unit 1 SWEL-1

Plant Vogtle Unit 1 SWEL-2

SWEL Revision Date: October 23, 2012

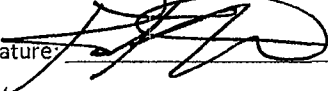
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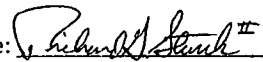
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Ops Reviewer: print: THOMAS G. PETRAK signature:  Date: 10-23-12

Peer Reviewer: print: MELANIE H. BROWN signature:  Date: 10-23-12

Peer Reviewer: print: KENNETH L. WHITMORE signature:  Date: 10-24-12

Peer Reviewer: print: ROBERT ASHWORTH signature:  Date: 10/24/12

Peer Reviewer: print: Richard G. Stark II signature:  Date: 10/24/12





ATTACHMENT 1: SEISMIC WALKDOWN EQUIPMENT LISTS

NO. SNCV061-RPT-01, VERSION 1.0

Vogtle Unit 1 SWEL 1  
 NCTF Recommendation 2.3: Seismic Walkdowns

MPL #	Description	SEISMIC CAT 1 (YES/NO)	Building	Elevation / Location	Drawing or Reference	Screen #1 (Use original/updated IPEE/A-46 lists and Appendix E)					Screen #2										Risk Significance (7)	Walkdown must be deferred to outage?	Comments		
						Reactor Reactivity Control	Reactor Coolant Pressure Control	Reactor Coolant Inventory Control	Decay Heat Removal (including the Ultimate Heat Sink)	Containment	Variety of Systems (App E) (4)	Major new or replaced equipment (5)	Variety of types of equipment (2) Classes from Appendix B)	Variety of environments			Equipment enhanced due to vulnerabilities (located/ identified during the IPEE program (6)		Anchored check required? (8)(% of Column B)						
														Class #	Harsh (Reactor Bldg)	Mild (Control, Diesel Gas Bldg)	Outdoor (Other Structures, Yard/Vehc Pk)	Yes	No	Yes				No	Yes
106	1-1511-E7-001-000 CTB REACTOR CAVITY COOLING COIL	yes	CTB	206'-6"	14B1	1X4DB214-1/6/FF7			X	56		10	X			X	X						NO	Y	
107	1-1511-B7-001-000 REACTOR CAVITY COOLING FAN-1	yes	CTB	206'-6"	14B1	1X4DB214-1			X	56		9	X			X	X						NO	Y	
108	1-1511-B7-002-000 REACTOR CAVITY COOLING FAN-2	yes	CTB	206'-6"	14A1	1X4DB214-1			X	56		9	X			X	X						NO	Y	
109	1-1805-S3-B15X TRANSFORMER	yes	AUX	119'-3"	RD105	1X3D-AA-E16A	X	X	X	51		4		X		X	X						YES	Y	
110	1-1593-B7-001 AFW PUMP A SUPPLY FAN & MOTOR	yes	AFWP HDW	220'-0"	R101	1X4DB227			X	56		9		X		X	X						NO	N	

NOTES:

- Vogtle does not have Seismic Category 1 Air Compressors ( Class 12) or Motor Generators (Class 13)
- These components support the containment function. The containment function is not identified in Appendix E.
- The systems to which these components are part of and not identified as "Frontline Systems" in Appendix E.
- Reference following pages for cross reference to information provided in column P
- Source: Appendix LA of original IPEEE issued in 1995
- Source: Appendix J of original IPEEE issued in 1995
- Source: "Maintenance Rule Risk Ranking and Performance Criteria Assessment", Calc # PRA-BC-V-11-003, version 1.
- These components are not anchored.
- The SWEL was developed from original IPEEE issued in 1995

Table B-1  
SAFETY FUNCTION-SYSTEM MATRIX FOR PWRs

<u>Safety Functions</u>		<u>Frontline Systems That Perform a Safety Function</u>	<u>Important Components in Frontline System</u>
A. Reactivity Control	F1	Reactor Trip System	<ul style="list-style-type: none"> <li>• Reactor Trip Switchgear</li> <li>• Manual Actuation Circuit</li> <li>• Control Rod Drive Assemblies</li> </ul>
	F2	Chemical and Volume Control System (emergency boration)	<ul style="list-style-type: none"> <li>• Charging Pumps</li> <li>• Boron Injection Tanks (BIT)</li> <li>• Heaters; Heat Tracing</li> <li>• Motor-Operated Valves for Suction and Injection Alignment</li> </ul>
B. RCS Pressure Control	F3	Turbine Trip	<ul style="list-style-type: none"> <li>• Turbine Stops Valves</li> <li>• Turbine Control Valves</li> <li>• Electric Trip Solenoid Valves</li> <li>• Electric Trip Valves</li> <li>• Mechanical Trip Pilot Valves</li> </ul>
	F4	Main Steam Isolation Valves	
	F5	Auxiliary Feedwater System	<ul style="list-style-type: none"> <li>• Turbine-Driven Feedwater Pumps (including turbine auxiliaries and steam supply)</li> <li>• Motor-Driven Feedwater Pumps</li> <li>• Motor-Operated Valves for Suction and Injection Alignment</li> <li>• Condensate Storage Tank</li> </ul>
	F6	Steam Generator Power-Operated Atmospheric Relief Valves	
	F7	Pressurizer Power-Operated Relief Valves	
C. RCS Inventory Control	F8	High Pressure Injection System	<ul style="list-style-type: none"> <li>• High Pressure Safety Injection Pumps</li> <li>• Motor-Operated Valves for Suction and Injection Alignment</li> <li>• Refueling Water Storage Tank (i.e., borated water)</li> </ul>

NOTE: This matrix was developed assuming that offsite power is unavailable.

Table B-1 (Continued)  
SAFETY FUNCTION-SYSTEM MATRIX FOR PWRs

<u>Safety Functions</u>	<u>Frontline Systems That Perform a Safety Function</u>	<u>Important Components in Frontline System</u>
D. RCS Heat Removal	F9 Chemical and Volume Control System (operating in the ECCS mode)	<ul style="list-style-type: none"> <li>• Charging Pumps</li> <li>• Motor-Operated Valves for Suction and Injection Alignment</li> <li>• RMST</li> </ul>
	F10 High Pressure Recirculation System	<ul style="list-style-type: none"> <li>• High Pressure Safety Injection Pumps</li> <li>• Charging Pumps</li> <li>• Motor-Operated Valves for Suction and Injection Alignment</li> <li>• Sump Recirculation Valves</li> <li>• RHR Pumps</li> </ul>
	F11 Low Pressure Injection System	<ul style="list-style-type: none"> <li>• RHR Pumps</li> <li>• Motor-Operated Valves for Suction and Injection Alignment</li> <li>• RMST</li> </ul>
	F12 Low Pressure Recirculation System	<ul style="list-style-type: none"> <li>• RHR Pumps</li> <li>• Motor-Operated Valves for Suction and Injection Alignment</li> <li>• Sump Recirculation Vent</li> </ul>
	F13 Auxiliary Feedwater	<ul style="list-style-type: none"> <li>• See Above</li> </ul>
	F14 Steam Generator Power-Operated Atmospheric Relief Valves	
	F15 Pressurizer Power-Operated Relief Valves	
F16 High Pressure Injection or Recirculation System	<ul style="list-style-type: none"> <li>• See Above</li> </ul>	
F17 Residual Heat Removal System	<ul style="list-style-type: none"> <li>• RHR Pumps</li> <li>• RHR Heat Exchangers</li> <li>• Motor-Operated Valves for Suction and Injection Alignment</li> </ul>	

NOTE: This matrix was developed assuming that offsite power is unavailable.

Table B-3

## MAJOR COMPONENTS IN SUPPORT SYSTEMS

Support System	Major Components
1. AC Power S1	4-kV Buses Diesel Generators Diesel Generator Auxiliaries, Fuel Oil Supply, and Air-Start Systems Transformers Automatic Fast Transfer Switchgear Emergency Power Sequencer Other Switchgear (including relays and breakers) Power Cables Cable Trays 480V Unit Substations 480V Buses Motor Control Centers Load Centers Distribution Panels 120V Instrument Buses Inverters Fuses
2. DC Power S2	125V Buses Batteries Battery Racks Battery Chargers Distribution Panels DC Power Cables Cable Trays Ground Detection Equipment
3. Engineered Safety Features Actuation System S3	Sensors Cabling from the Sensors to the Signal Processing Equipment Signal Processing Equipment Actuation Subsystems Cabinets (and associated HVAC) Control Boards Relays Bistables Breakers

Table B-3 (Continued)  
 MAJOR COMPONENTS IN SUPPORT SYSTEMS

Support System	Major Components
4. Service Water and Component Cooling Water Systems S4	Horizontal Pumps Vertical Pumps Motor-Operated Valves Air-Operated Valves Check Valves Manual Valves Relief Valves Piping Heat Exchangers Surge Tanks Makeup Pumps HVAC Systems Traveling Screens and Screen Wash Pumps Strainers Intake Bay Gates Cooling Towers Cooling Tower Pumps Cooling Tower Fans
5. Compressed Air System S5	Compressors Receivers Solenoid-Operated Valves Check Valves Dryers Filters
6. HVAC Systems S6	Fans Dampers Chillers and Refrigeration Units Heaters Ductwork

B-15



**ATTACHMENT 1****SEISMIC WALKDOWN EQUIPMENT LISTS****UNIT 1 – BASE LIST 2****NO. SNCV061-RPT-01**

<b><u>Equipment List</u></b>	<b><u>Pages</u></b>
Unit 1 – Base List 1	2-30
Unit 1 – SWEL 1	31-39
<b>Unit 1 – Base List 2</b>	<b>40-41</b>
Unit 1 – SWEL 2	42-44

## Vogtle Unit 1 BASE LIST 2

Component ID	Description	Unit	Plant System	Seismic Category	Type
11213E6001	SPENT FUEL PIT HX A	1	1213		1 HX
11213E6002	SPENT FUEL PIT HX B	1	1213		1 HX
11213P6002	SFCPS SPENT FUEL PIT COOLING PUMP A	1	1213		1 Pump
11213P6002M01	SPENT FUEL PIT PUMP MTR	1	1213		1 Motor
11213P6005	SFCPS SPENT FUEL PIT COOLING PUMP B	1	1213		1 Pump
11213P6005M01	SPENT FUEL PIT PUMP MTR	1	1213		1 Motor
11213U4054	SFP CLG RMWST ISOLATION VALVE	1	1213		1 Manual Valve
11213U4055	SFP DEMIN WTR SPLY ISO (10P2-297)	1	1213		1 Manual Valve
11213U6001	SFPC SPENT FUEL PIT PUMP A SUCTION	1	1213		1 Manual Valve
11213U6003	SFPC SPENT FUEL PIT PUMP B SUCTION	1	1213		1 Manual Valve
11213U6005	SFPC SPENT FUEL PIT PUMP A DISCHARGE (10P2-291)	1	1213		1 Manual Valve
11213U6007	SFPC SPENT FUEL PIT PUMP B DISCHARGE (10P2-292)	1	1213		1 Manual Valve
11213U6009	SFPC HEAT EXCHANGER A OUTLET (10P2-293)	1	1213		1 Manual Valve
11213U6010	SFPC HEAT EXCHANGER B OUTLET	1	1213		1 Manual Valve
11213U6028	SFCPS SFP A COOLING LOOP DEMIN INLET	1	1213		1 Manual Valve
11213U6030	SFCPS SFP B COOLING LOOP DEMIN INLET	1	1213		1 Manual Valve
11213U6050	SFPCPS RWST SUPPLY TO REFUELING CAVITY ISO (10P2-295)	1	1213		1 Manual Valve
11213U6051	SFPCPS RWST SUPPLY TO REFUELING CAVITY ISO	1	1213		1 Manual Valve
11213U6053	SFPS PURIFICATION LOOP RETURN TO SFP	1	1213		1 Manual Valve
11213U6057	SFPS PURIFICATION LOOP RETURN TO SFP THROTTLE VLV	1	1213		1 Manual Valve
11213U6058	SFPS PURIFICATION LOOP RETURN TO SFP	1	1213		1 Manual Valve
11213U6064	SFPS,PURIFICATION,LOOP RETURN,TO SEP CHECK,*,*,* 12N8E7	1	1213		1 Manual Valve
1HV8754A	SFCS SPENT FUEL PIT HX A OUT THROTTLE VLV	1	1213		1 Manual Valve
1HV8754B	SFCS SPENT FUEL PIT HX B OUT THROTTLE VLV	1	1213		1 Manual Valve

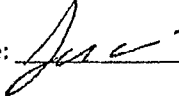
**ATTACHMENT 1****SEISMIC WALKDOWN EQUIPMENT LISTS****UNIT 1 – SWEL 2****SNCV061-RPT-01**

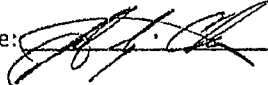
<b><u>Equipment List</u></b>	<b><u>Pages</u></b>
Unit 1 – Base List 1	2-30
Unit 1 – SWEL 1	31-39
Unit 1 – Base List 2	40-41
<b>Unit 1 – SWEL 2</b>	<b>42-44</b>

Plant Vogtle Unit 1 SWEL-1

Plant Vogtle Unit 1 SWEL-2

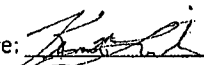
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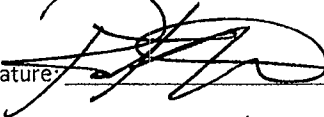
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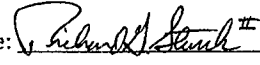
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Peer Reviewer: print: ROBERT ASHWORTH signature:  Date: 10/24/12

Peer Reviewer: print: Richard G Starck II signature:  Date: 10/24/12

**Vogtle Unit 1 SWEL 2 Spent Fuel Pool Related Items**  
**NTTF Recommendation 2.3: Seismic Walkdowns**

MPL #	Description	SEISMIC CAT 1	Building	Elevation	Room	Drawing or Reference	Major new or replcmnt eqpmnt (5)	Variety of types of equipment (21 Classes from Appendix B)	Variety of environments			Anchorage check required? (50% of Column B)		Screen #4		Walkdown must be deferred to outage?	Comments	
									Class #	Submerged	Not Submerged	Other	Yes	No	Rapid Drain-Down			
															Hydraulic lines connected to the SFP and the equipment connected to those lines			
1-1213-E6-001	SFP HX A	Yes	AUX	195'-0"	A53	1X4DB130/F4	21		X		X		(4)		NO			
2-1-1213-P6-005	SFP Pump B	Yes	FHB	195'-0"	A07	1X4DB130/B5	5		X		X		(4)		NO			
3-1-1213-U6-001	SFP Pump A suction isolation valve	Yes	FHB	195'-0"	A06	1X4DB130/F4	0		X			(6)	(4)		NO			
4-1-HV-8754B	SFP B HX outlet isolation valve	Yes	FHB	195'-0"	A07	1X4DB130/H4	0		X			(6)	(4)		NO			
5-1-1213-U6-005	SFP Pump A discharge isolation valve	YES	FHB	195'-0"	A53	1X4DB130	0		X			(6)	(4)		NO			

Notes:

- 1 The Vogtle SFP System has a very basic system design with very limited componenet types. There is only one active component in each train; the SFP Cooling pump.
- 2 The fuel transfer tube is seismic category 1 and therfore is considered part of the SFP structure. Therefore the transfer tube was not included in the SWEL.
- 3 The SFP weir gates are seismic category 1 and therfore considered to be part of the SFP structure. Therefore the weir gates will not be included in the SWEL.
- 4 There are no SFP penetrations below 10ft above the fuel in the SFP. All piping connected to the SFP, either terminate greater than 10ft above the fuel or have anti-siphon holes, located greater than 10 ft above the fuel, to prevent draindown of the SFP.
- 5 There have been no new or replaced SFP system equipment.
- 6 These components are valves and not anchored.

**ATTACHMENT 2**

**UNIT 1 – PEER REVIEW CHECKLIST FOR THE SWEL 1 AND 2**

**NO. SNCV061-RPT-01**

## Peer Review Checklist for SWEL For Vogtle Unit 1

### Instructions for Completing Checklist

This peer review checklist may be used to document the review of the Seismic Walkdown Equipment List (SWEL) in accordance with Section 6: Peer Review. The space below each question in this checklist should be used to describe any findings identified during the peer review process and how the SWEL may have changed to address those findings. Additional space is provided at the end of this checklist for documenting other comments.

1. Were the five safety functions adequately represented in the SWEL 1 selection? Y  N

*SWEL 1 for Vogtle Unit 1 meets the requirements of having 90 to 120 items and addresses all five safety functions. Many components provide safety functions for multiple systems, and/or are part of frontline support systems. All five safety functions discussed in EPRI Report 1025286 are well represented in the SWEL 1.*

2. Does SWEL 1 include an appropriate representation of items having the following sample selection attributes:

- a. Various types of systems? Y  N

*Items included on the SWEL comprise a variety of systems such as Emergency Diesel Generators and Auxiliaries, Service Water System, Component Cooling Water System, Automatic Depressurization, Residual Heat Removal System, Vital A/C and D/C systems.*

- b. Major new and replacement equipment? Y  N

*New and replacement components are identified in SWEL 1.*

- c. Various types of equipment? Y  N

*SWEL 1 includes at least one example of each of the 21 classes of equipment, except Class 12 (Air Compressors) and Class 13 (Motor Generators). These components did not meet the screening criteria for incorporation in the SWEL as discussed in Section 6 of the submittal report.*

*All other equipment classes were well represented. In general, the number of components in each class is proportional to the number of safety-related components of that class in the plant as a whole, except that the number of in-line valves is proportionally smaller than anchored equipment. Anchored equipment is more vulnerable to seismic loads.*

- d. Various environments? Y  N

*The SWEL contains components in mild, harsh, and outdoor environments. The components are located in different buildings, rooms, and/or on different building elevations. The SWEL also includes components located inside primary containment.*

- e. Equipment enhanced based on the findings of the IPEEE (or equivalent) program? Y  N

*The SWEL included equipment that had been modified as a result of the IPEEE program. Section 5 and Attachment 5 of the submittal report provides information on resolution of the IPEEE findings. The SWEL and individual component checklists provide information about the IPEEE modifications and verification of modification incorporation.*

**Peer Review Checklist for SWEL For Vogtle Unit 1**

f. Were risk insights considered in the development of SWEL 1? Y  N   
*SWEL 1 includes high risk components based on risk significance in the plant probabilistic risk assessment (PRA) models. Section 6 of the submittal report discusses the risk insights used for SWEL development.*

3. For SWEL 2:


a. Were spent fuel pool related items considered, and if applicable included in SWEL 2? Y  N   
*SWEL 2 includes components for maintaining cooling of the SFP, which are Seismic Category I components.*

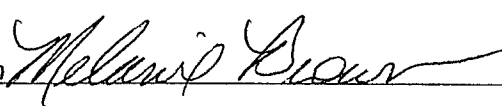
b. Was an appropriate justification documented for spent fuel pool related items not included in SWEL 2? Y  N   
*Section 6.2 of the submittal report provides the justification for excluding items on SWEL 2. There were no components identified that could contribute to rapid SFP drain down. Note that there were no new/replacement equipment in SWEL 2 because there have been no major modifications to the Spent Fuel Pool systems that would have affected equipment that meets the screening requirements to be included on SWEL 2.*

4. Provide any other comments related to the peer review of the SWELs.

*The peer review team reviewed the initial SWEL 1 and SWEL 2 and provided comments and suggestions for enhancement of the SWELs. Comments included suggestions to include additional electrical components and more equipment mounted to the structure, since such equipment has shown more potential to be adversely impacted by seismic loads than in-line mounted components. In addition, comments were made suggesting that certain equipment classes contain more components and that explanations be provided for not including certain equipment (e. g. there are no safety-related or Seismic Category I components in that equipment class installed in the plant). The peer reviewers ensured that the SWELs met the requirements of EPRI Report 1025286. Changes deemed necessary during the walkdown due to inaccessibility were reviewed by the peer reviewers to ensure that the changes did not impact the level of compliance to the EPRI report. The final SWEL meets all requirements of EPRI Report 1025286.*

5. Have all peer review comments been adequately addressed in the final SWEL? Y  N

Peer Reviewer #1: Robert Ashworth  Date: 11/05/2012

Peer Reviewer #2: Melanie Brown  Date: 11/05/2012



**ATTACHMENT 3**

**UNIT 1 – SEISMIC WALKDOWN CHECKLISTS**

**NO. SNCV061-RPT-01**

Sheet 1 of 2  
 Status: (Y) N U

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 1-1201-PS-TIOR Equip. Class<sup>12</sup> 14- Instrument Racks  
 Equipment Description RULES TRANSMITTER RACK TRAINS  
 Location: Bldg: FH3 Floor El. 180'-0" Room, Area RB08  
 Manufacturer, Model, Etc. (optional but recommended) \_\_\_\_\_

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

<sup>12</sup> Enter the equipment class name from Appendix B: Classes of Equipment.

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 1-1201-PS-T188 Equip. Class<sup>12</sup> IS - INSTRUMENT RACKS

Equipment Description RULIS TRANSMITTER RACK TRAIN B

**Interaction Effects**

7. Are soft targets free from impact by nearby equipment or structures?  Y  N  U  N/A

8. Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?  Y  N  U  N/A

9. Do attached lines have adequate flexibility to avoid damage?  Y  N  U  N/A

10. Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?  Y  N  U

**Other Adverse Conditions**

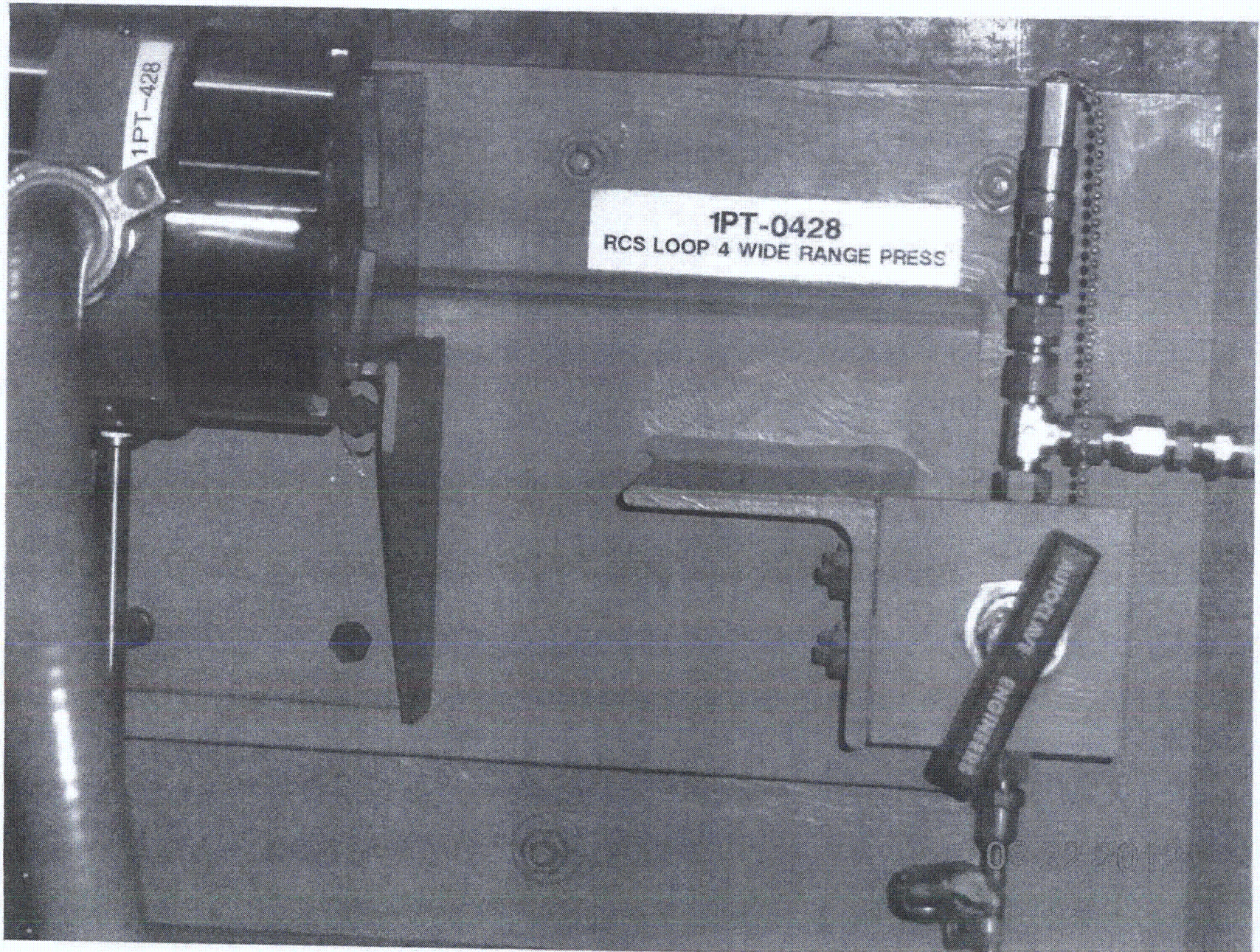
11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment?  Y  N  U

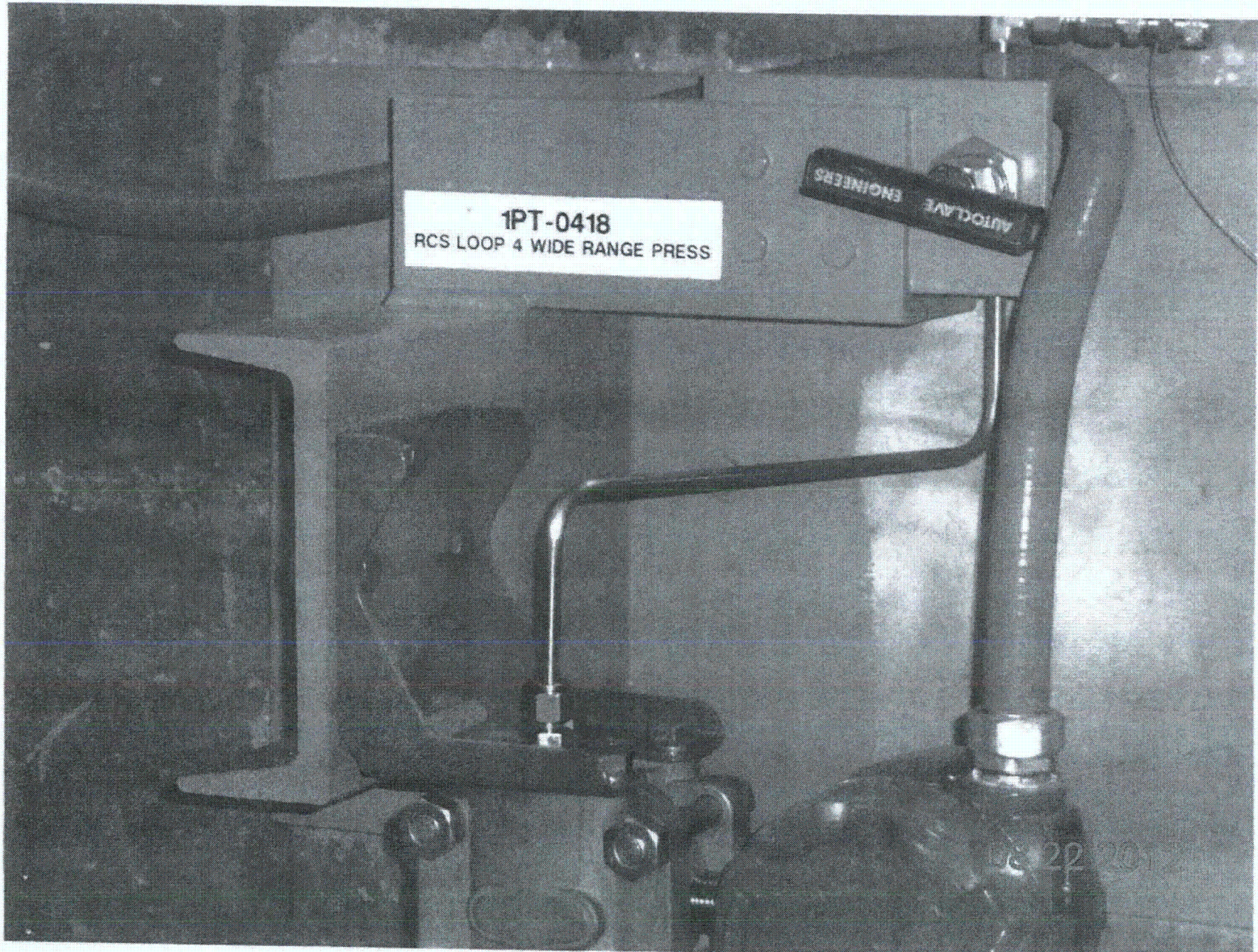
**Comments** (Additional pages may be added as necessary)

NONE

Evaluated by: James Dovel / JAMES DOVEL Date: 8-22-2012

W. Stewart / Winston Stewart 08/22/2012





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Sheet 1 of 2  
Status:  Y  N  U

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 1-1202-~~11~~002 <sup>4 LE 111502</sup> Equip. Class<sup>12</sup> Vertical Pumps - Class 6  
 Equipment Description NSCW TRAIN B PUMP NO. 2  
 Location: Bldg. NSCT Floor El. 220'-0" Room, Area R 203  
 Manufacturer, Model, Etc. (optional but recommended) Bingham-Willanette Company

**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 the anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?  Y  N
  
2. Is the anchorage free of bent, broken, missing or loose hardware?  Y  N  U  N/A
  
3. Is the anchorage free of corrosion that is more than mild surface oxidation?  Y  N  U  N/A
  
4. Is the anchorage free of visible cracks in the concrete near the anchors?  Y  N  U  N/A
  
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.)  
SEI DUB # 1X2005A022 REV. 21  
 Y  N  U  N/A
  
6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?  Y  N  U

<sup>12</sup> Enter the equipment class name from Appendix B: Classes of Equipment.

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 1-120Z-PA-002 Equip. Class<sup>12</sup> VERTICAL PUMPS - CLASS 6

Equipment Description NSCW TRAIN B PUMP NO. 2

**Interaction Effects**

7. Are soft targets free from impact by nearby equipment or structures?  Y  N  U  N/A

8. Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?  Y  N  U  N/A

9. Do attached lines have adequate flexibility to avoid damage?  Y  N  U  N/A

10. Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?  Y  N  U

**Other Adverse Conditions**

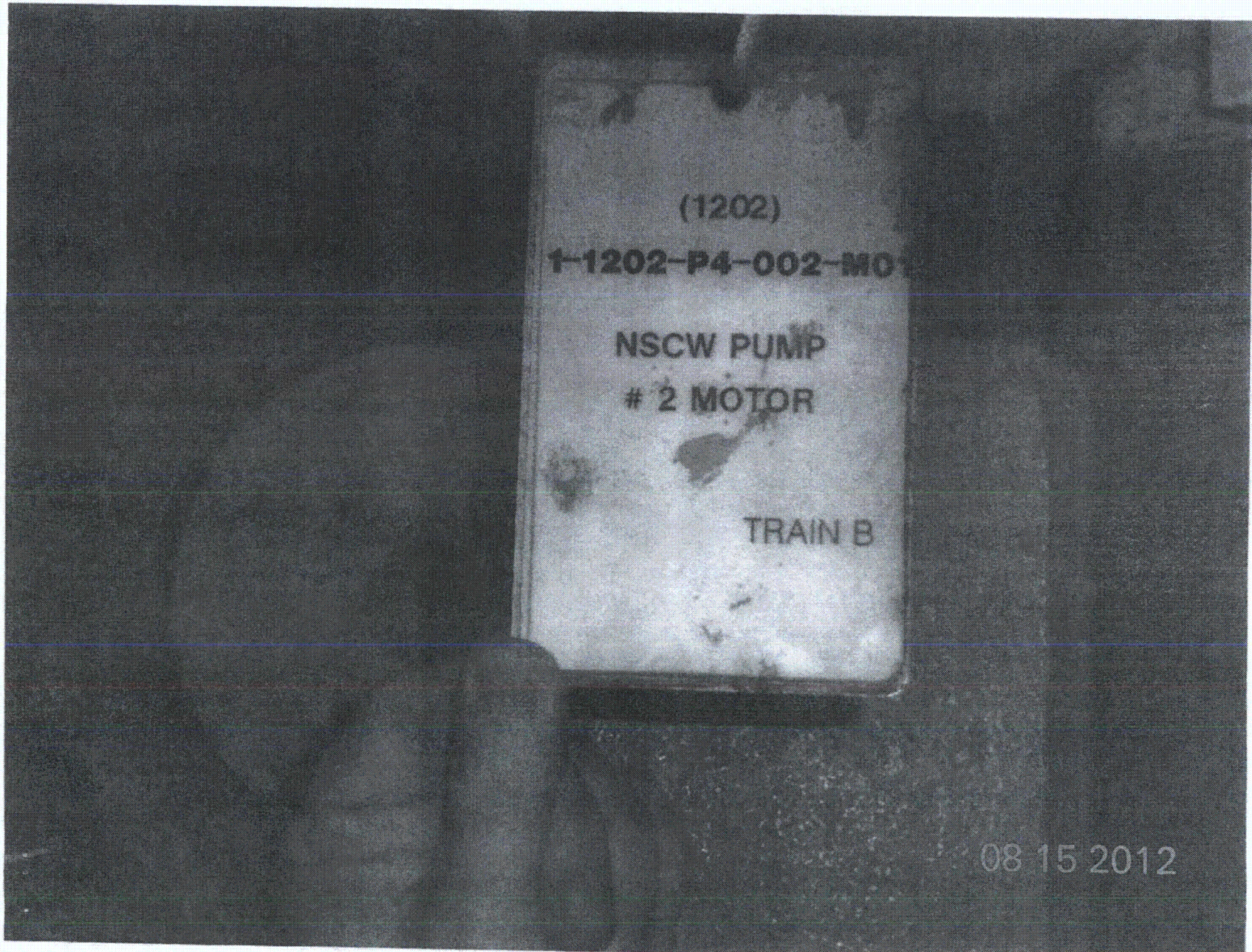
11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment?  Y  N  U

**Comments** (Additional pages may be added as necessary)

NONE

Evaluated by: James Doegl / JAMES DOEGL Date: 8-15-2012  
David Volodarsky / DAVID VOLODARSKY 8-15-2012

<C4>







Sheet 1 of 2  
 Status  Y  N  U

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 1-1203-E4-002 Equip. Class<sup>12</sup> 21  
 Equipment Description CEW Heat Exchanger  
 Location: Bldg. Aux Floor El. 245' Room, Area R202  
 Manufacturer, Model, Etc. (optional but recommended) \_\_\_\_\_

**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 the anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?  Y  N  U  N/A
  
2. Is the anchorage free of bent, broken, missing or loose hardware?  Y  N  U  N/A  
*Slotted holes on four bolts OK.*
  
3. Is the anchorage free of corrosion that is more than mild surface oxidation?  Y  N  U  N/A
  
4. Is the anchorage free of visible cracks in the concrete near the anchors?  Y  N  U  N/A
  
5. Is the anchorage configuration consistent with plant documentation?  Y  N  U  N/A  
 (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)  
*PWG 1X4AE 01-00051-11 Var. 11-0*  
*8/10/12*
  
6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?  Y  N  U

<sup>12</sup> Enter the equipment class name from Appendix B: Classes of Equipment.

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 1-1203-24-002 Equip. Class<sup>12</sup>: 21

Equipment Description CCW Heat Exchanger

Interaction Effects:

7. Are soft targets free from impact by nearby equipment or structures?  Y  N  U  N/A

8. Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?  Y  N  U  N/A

9. Do attached lines have adequate flexibility to avoid damage?  Y  N  U  N/A

10. Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?  Y  N  U

Other Adverse Conditions

11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment?  Y  N  U

Comments (Additional pages may be added as necessary)

None

Evaluated by: Frah Yoo / J. G. Yoo Date: 8/20/12

PARIMAL GANDHI / P. G. Gandhi 8/20/2012



Sheet 1 of 2  
 Status:  Y  N  U

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 1-1203-T4-002 Equip. Class<sup>12</sup> 21 (Tanks & HX's)  
 Equipment Description CCW Surge Tank  
 Location: Bldg. Aux Floor El. 245' Room, Area R202  
 Manufacturer, Model, Etc. (optional but recommended) \_\_\_\_\_

**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 the anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?  Y  N  U
2. Is the anchorage free of bent, broken, missing or loose hardware?  Y  N  U  N/A  
*Slight angularity of some anchors was identified. Bevelled washers used. Therefore, the angularity was considered acceptable.*
3. Is the anchorage free of corrosion that is more than mild surface oxidation?  Y  N  U  N/A
4. Is the anchorage free of visible cracks in the concrete near the anchors?  Y  N  U  N/A
5. Is the anchorage configuration consistent with plant documentation?  Y  N  U  N/A  
 (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)  
*Ref. dwg. 1X4-AH04-00002, Ver. 8.0.*
6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?  Y  N  U

<sup>12</sup> Enter the equipment class name from Appendix B: Classes of Equipment.

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. 1-1203-TA-002 Equip. Class<sup>12</sup> 21 (Tanks & HX's)

Equipment Description CEW Surge Tank

**Interaction Effects**

7. Are soft targets free from impact by nearby equipment or structures?  Y  N  U  N/A

8. Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?  Y  N  U  N/A

9. Do attached lines have adequate flexibility to avoid damage?  Y  N  U  N/A

10. Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?  Y  N  U

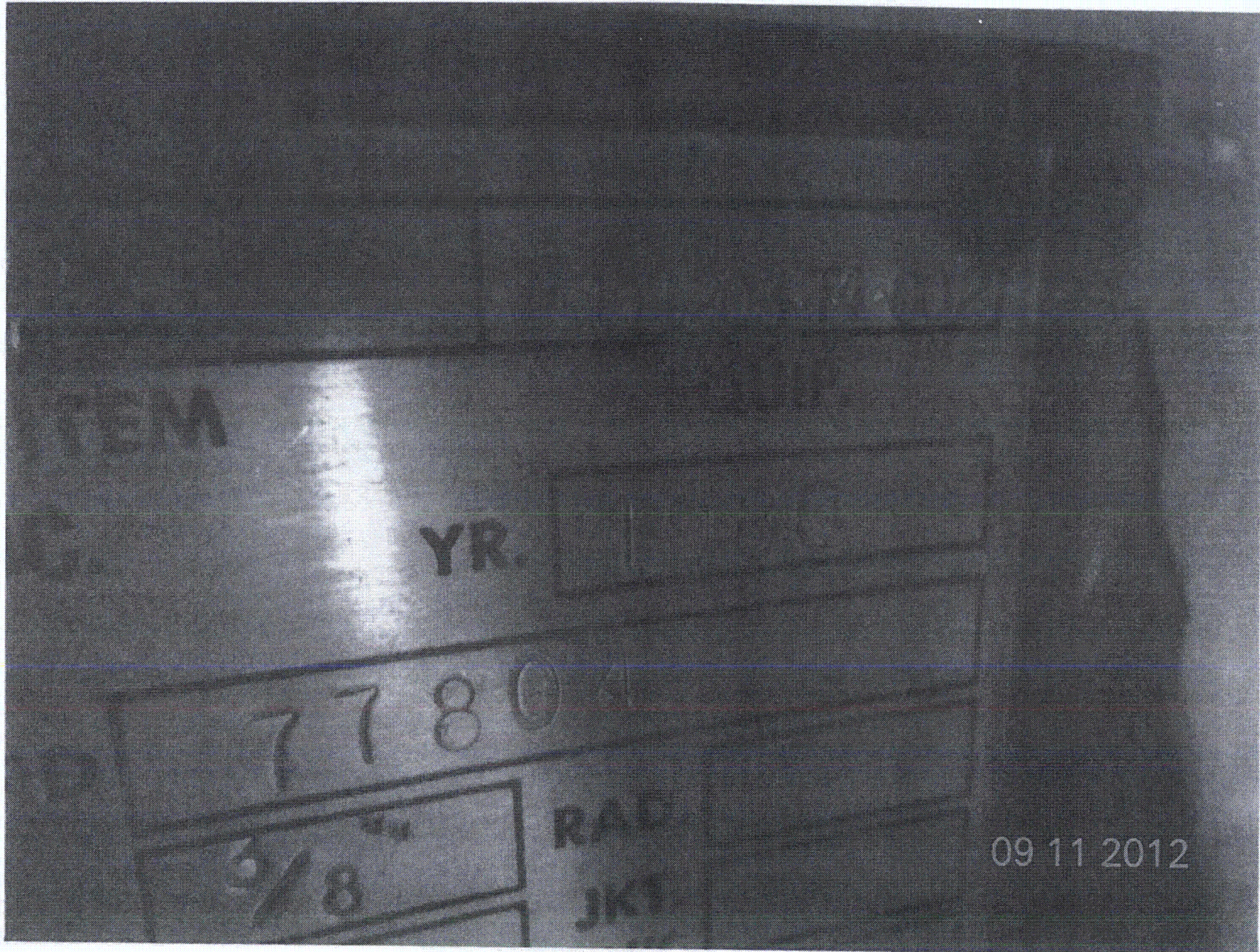
**Other Adverse Conditions**

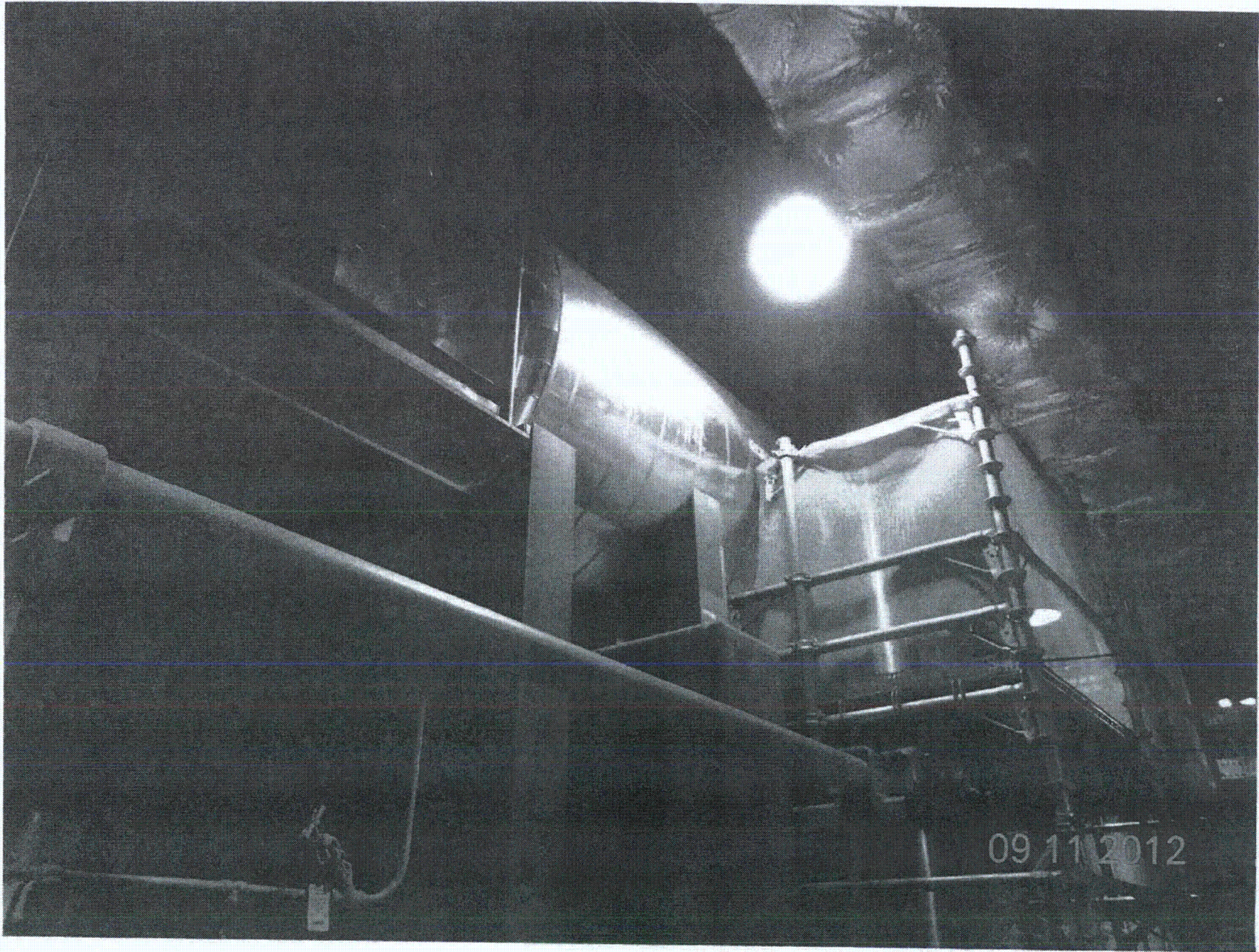
11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment?  Y  N  U

**Comments** (Additional pages may be added as necessary)

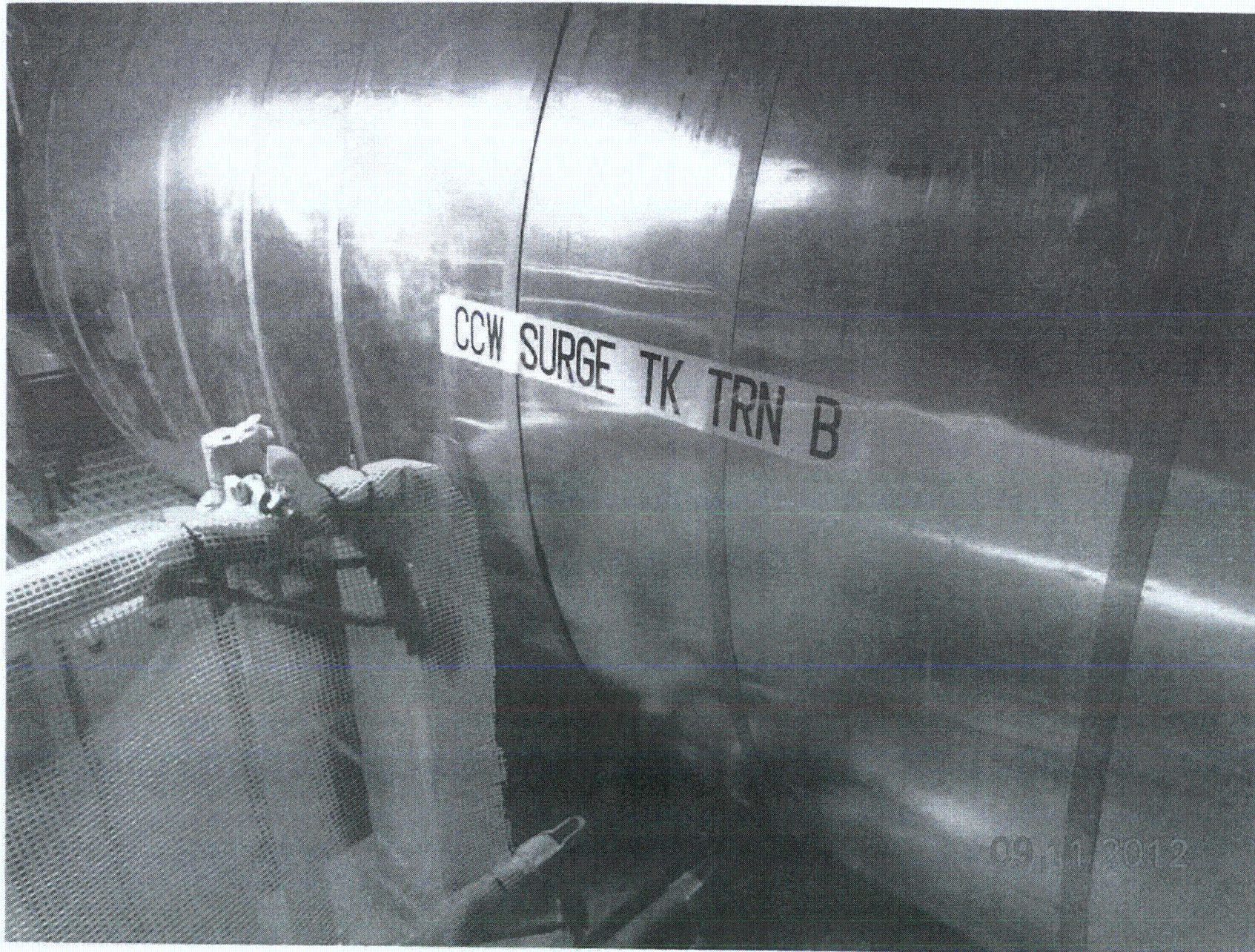
(FOR AREA WALKBY OF RM 202, SEE 1-1203-EA-002)

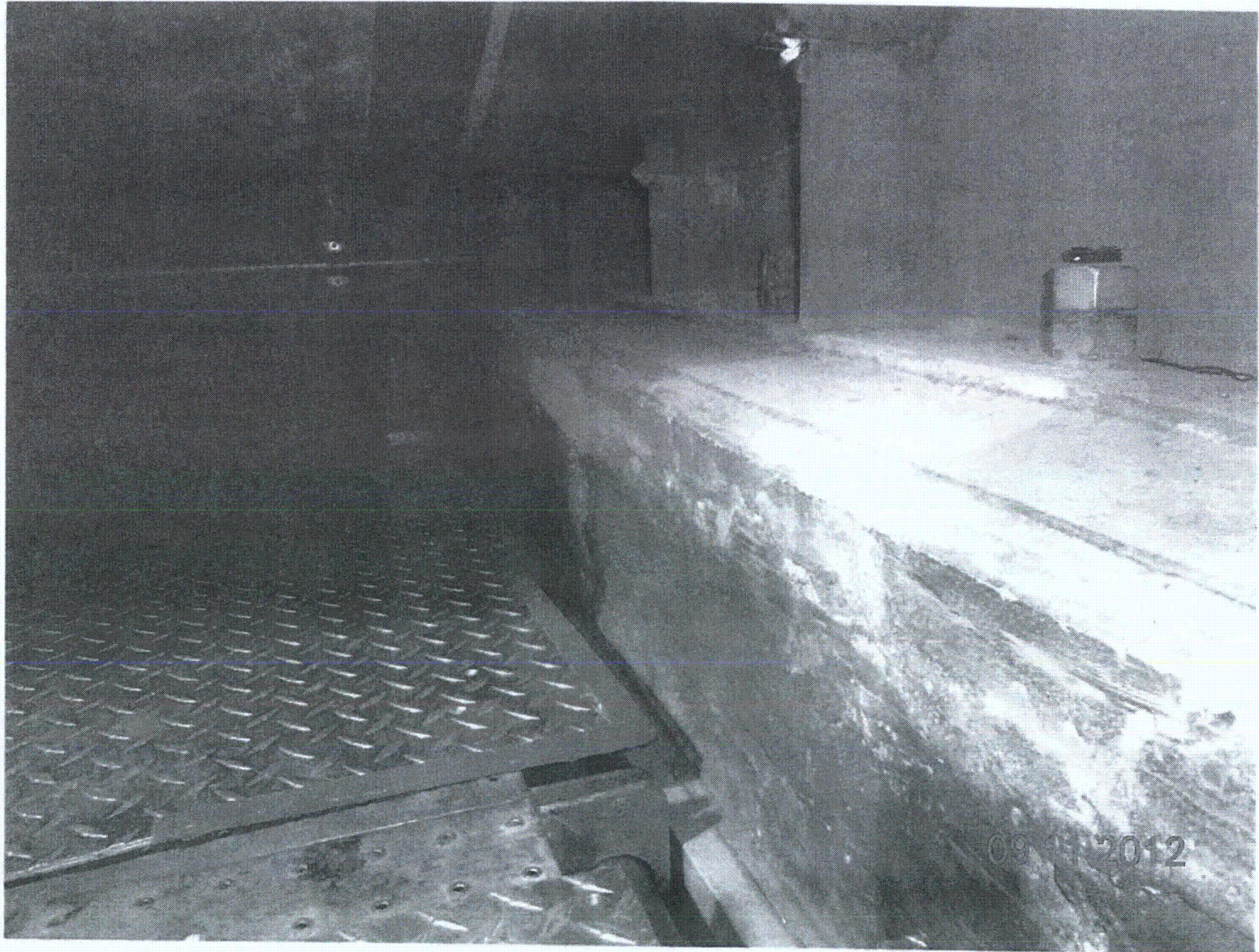
Evaluated by: Matthew Wilbinson Date: 9/11/2012  
Winston Stewart 9/11/2012

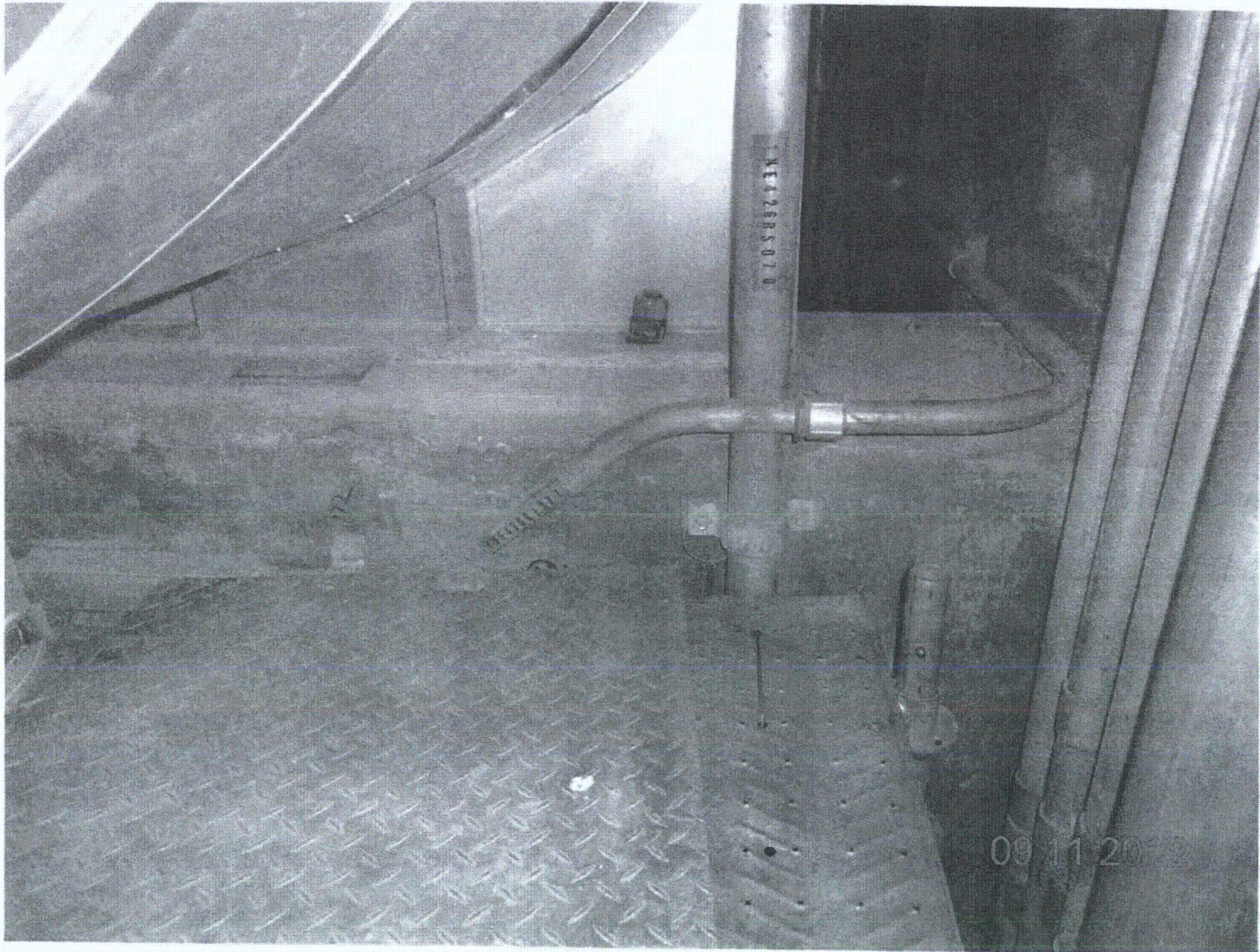












Sheet 1 of 2

Status:  Y  N  U**Seismic Walkdown Checklist (SWC)**Equipment ID No. 1-1204-P6-004 Equip. Class<sup>12</sup> HORIZONTAL PUMPS - CLASS 5Equipment Description SI PUMP BLocation: Bldg. AUX Floor El. 180'-0" Room, Area R619Manufacturer, Model, Etc. (optional but recommended) PACIFIC PUMPS**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 the anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?  Y  N  U
2. Is the anchorage free of bent, broken, missing or loose hardware?  Y  N  U  N/A
3. Is the anchorage free of corrosion that is more than mild surface oxidation?  Y  N  U  N/A
4. Is the anchorage free of visible cracks in the concrete near the anchors?  Y  N  U  N/A
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.)  
SEE DWG # 1X6A602-00010  Y  N  U  N/A
6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?  Y  N  U

<sup>12</sup>Enter the equipment class name from Appendix B: Classes of Equipment.

**Seismic Walkdown Checklist (SWC)**

Equipment ID No: 1-1204-PG-004 Equip. Class<sup>12</sup> HORIZONTAL PUMPS - CLASS 5

Equipment Description: SI PUMP B

Interaction Effects

7. Are soft targets free from impact by nearby equipment or structures?  Y  N  U  N/A

8. Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?  Y  N  U  N/A

9. Do attached lines have adequate flexibility to avoid damage?  Y  N  U  N/A

10. Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?  Y  N  U

Other Adverse Conditions

11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment?  Y  N  U

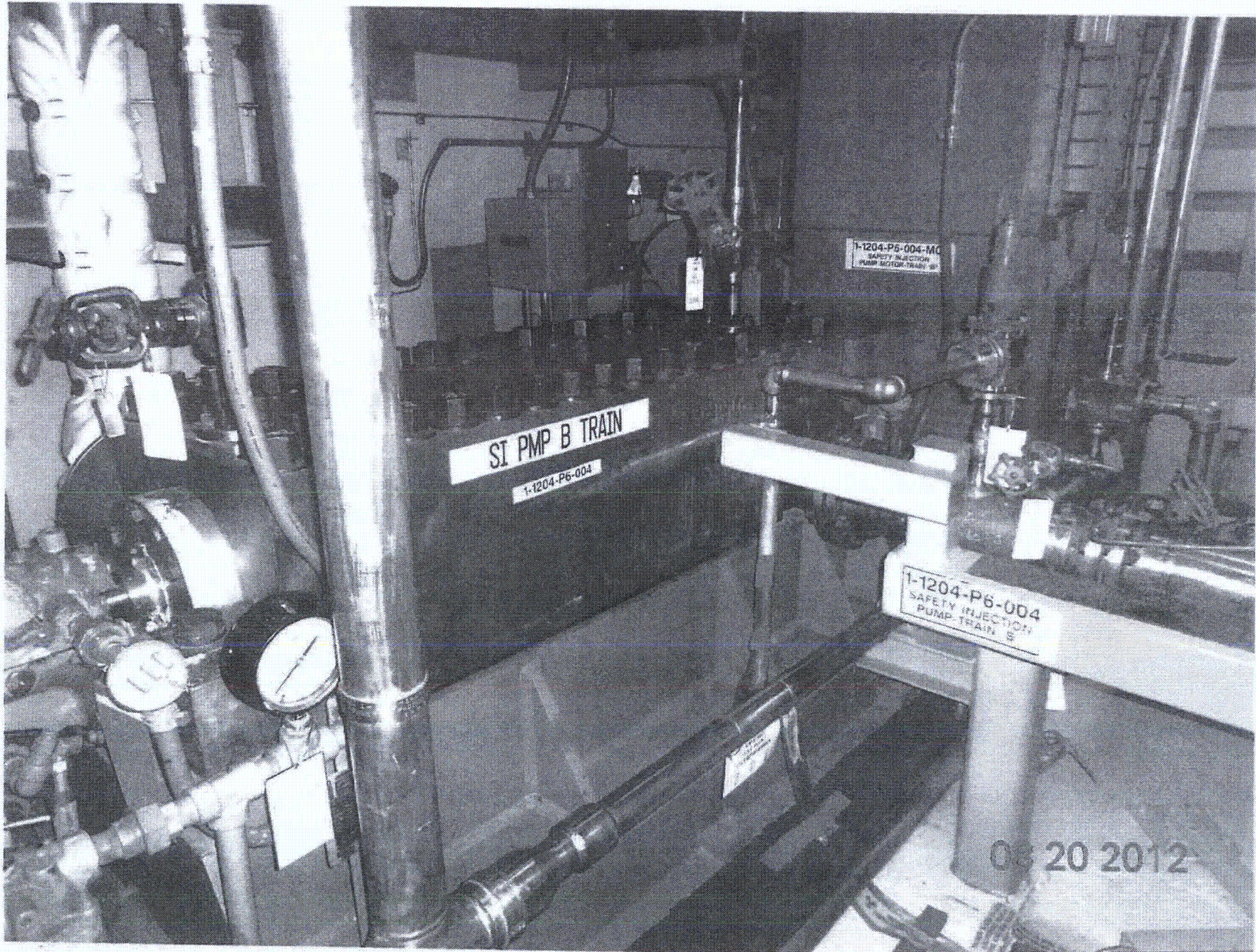
Comments (Additional pages may be added as necessary)

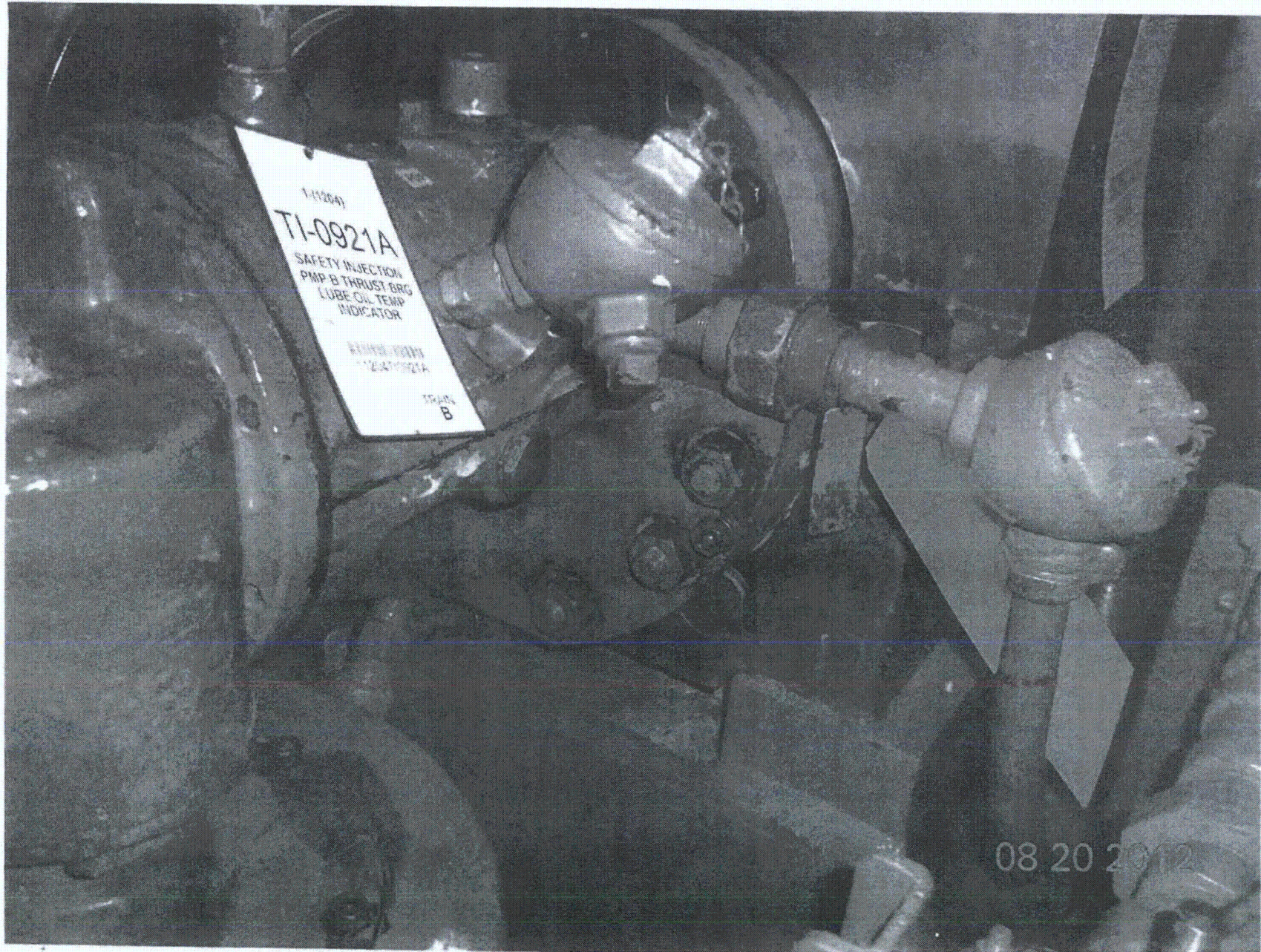
MISSING NUT ON PUMP SCREW.  
THIS SCREW IS A TAPERED DOWEL PIN PER MANUAL 1XGAG02-00016 (SEE SECTION 6C, PAGE 6C-1, P44 PAGE 54). THIS PIN IS USED FOR LOCATING THE BEARING HOUSING UNTIL THE LARGER FASTENERS ARE TORQUED UP. THE MISSING NUT DOES NOT AFFECT PUMP OPERATION.

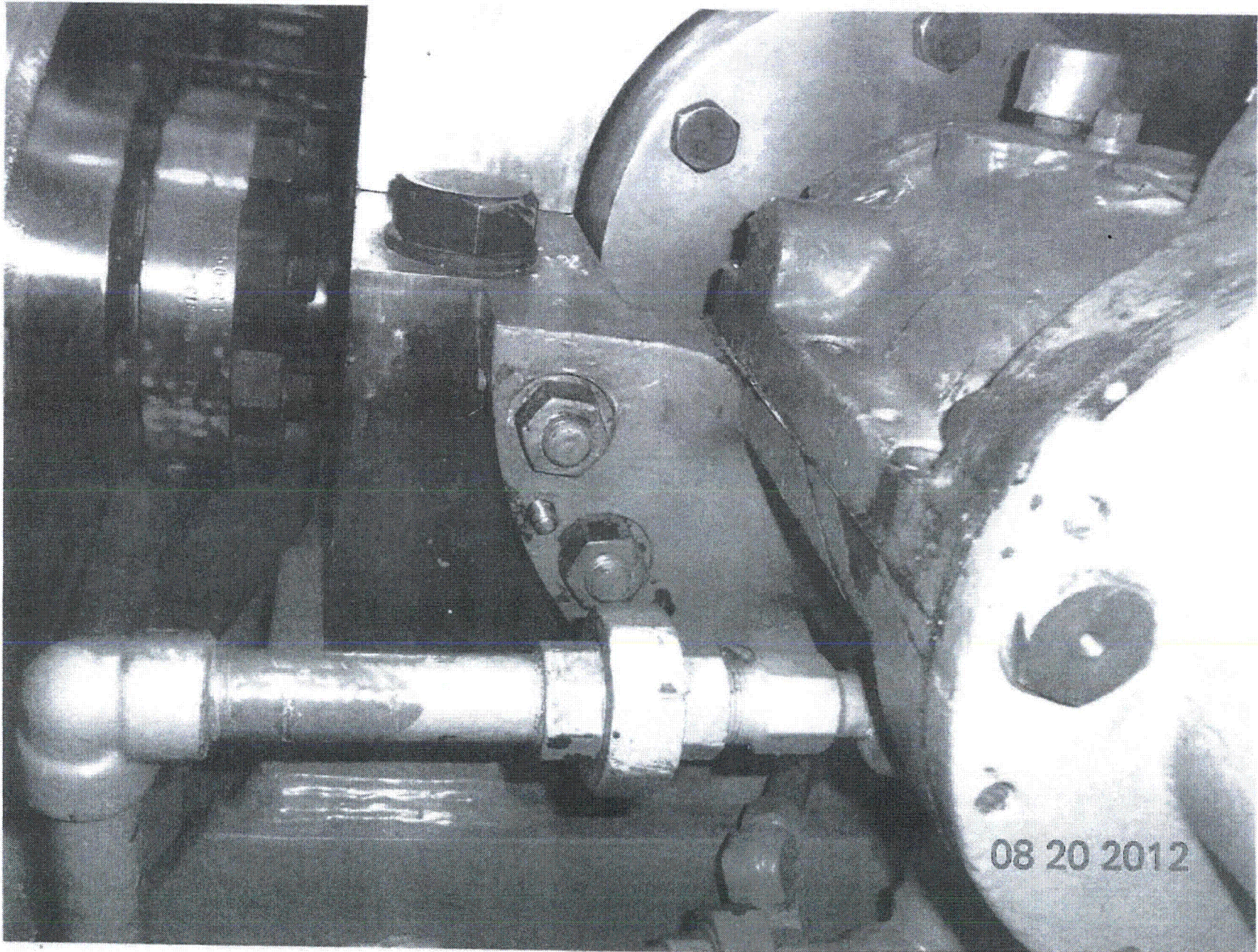
Evaluated by: James Dovel / JAMES DOVEL Date: 8-20-2012

Winston Stewart / Winston Stewart 08/20/2012

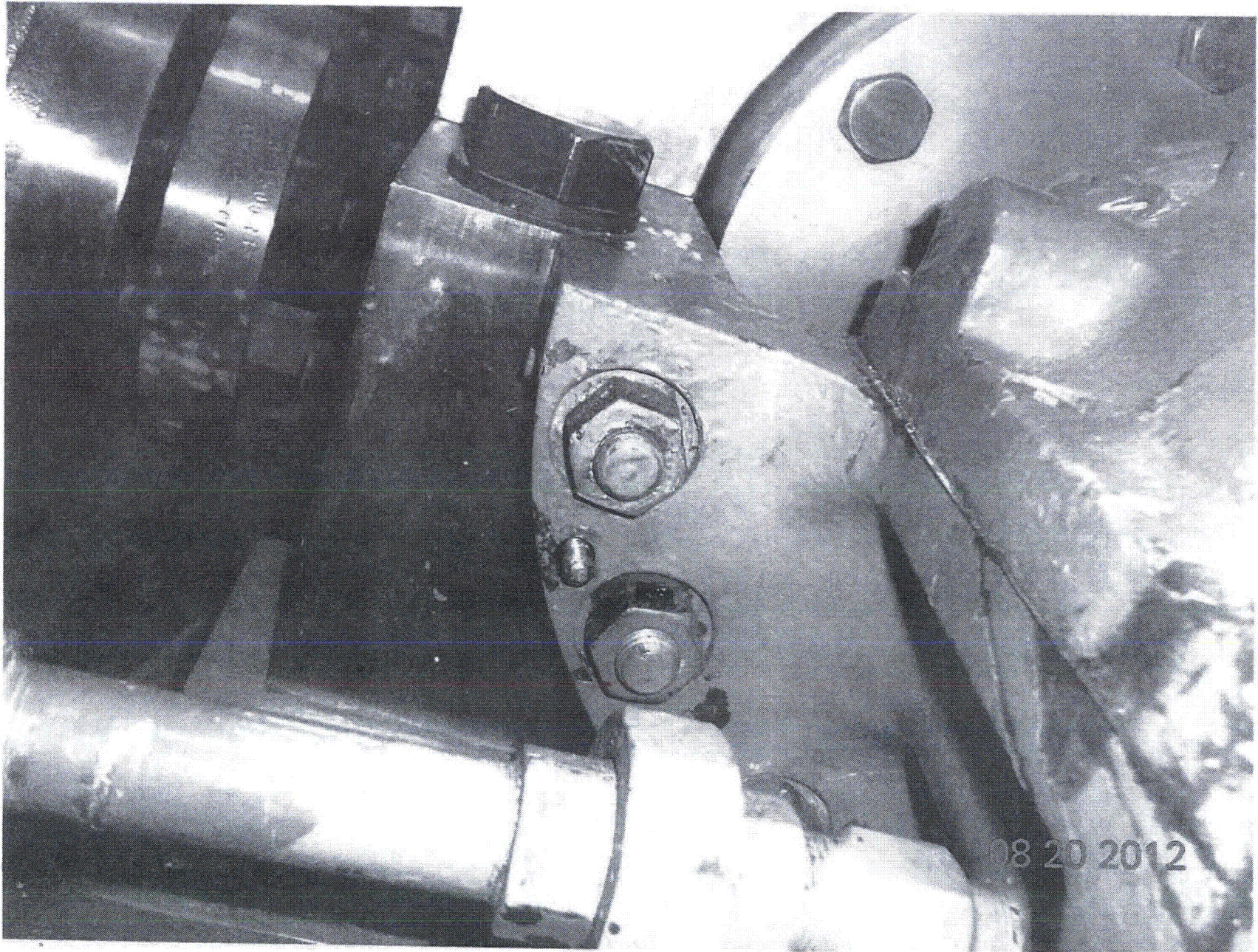
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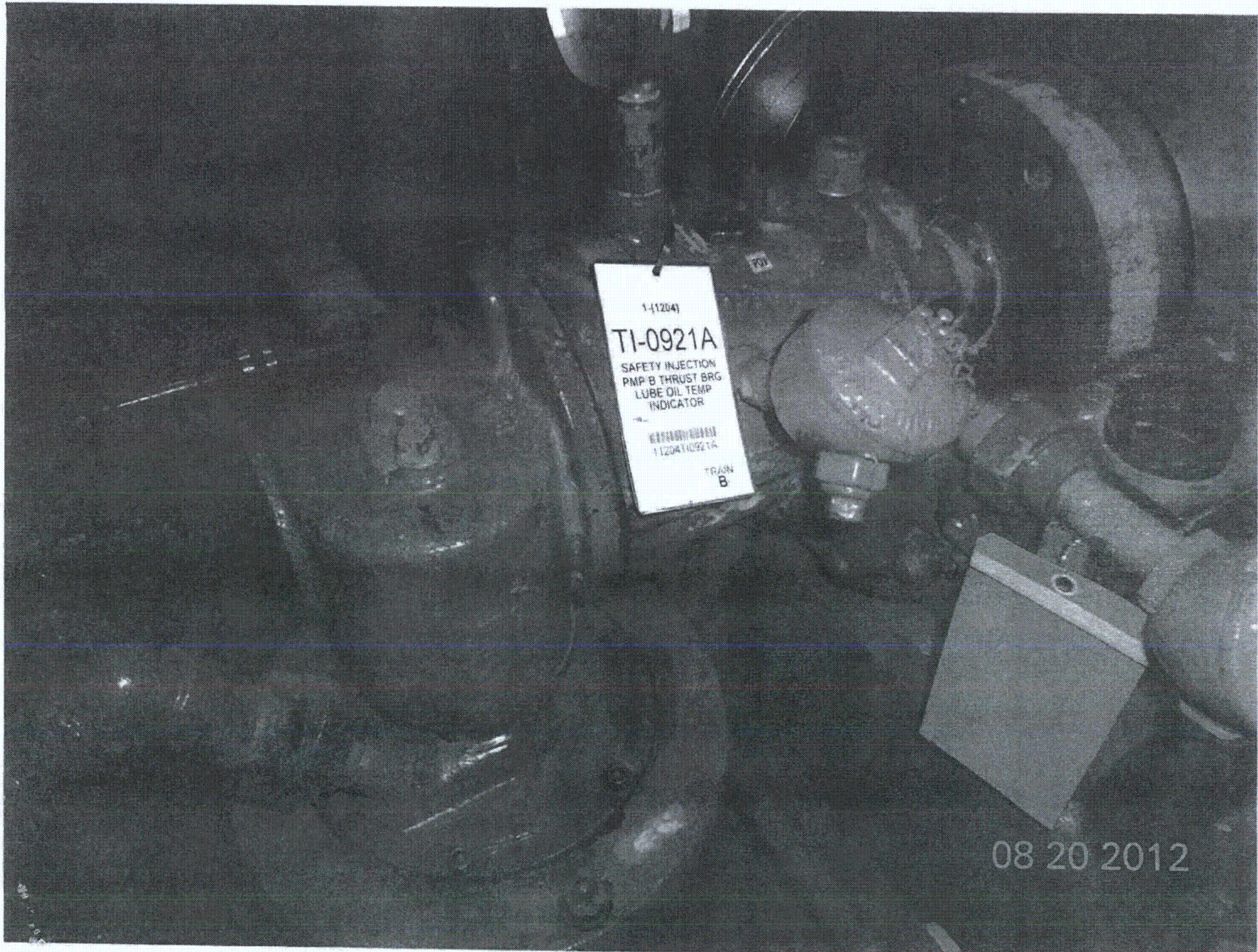












Sheet 1 of 2  
 Status:  Y  N  U

**Seismic Walkdown Checklist (SWC)**

Equipment ID No: 1-1204-T4-01 Equip. Class<sup>12</sup> Tanks and Heat Exchangers - Class 21

Equipment Description REFUELING WATER STORAGE TANK

Location: Bldg. RWST Floor El. 220.0' Room, Area RWST

Manufacturer, Model, Etc. (optional but recommended)

**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 the anchorage configuration verification required (i.e., is the item one of the 50% of SWEL items requiring such verification)?  Y  N  
 CONCRETE TANK ANCHORED TO FOUNDATION VIA EMBEDDED REBAR - NOT USABLE
2. Is the anchorage free of bent, broken, missing or loose hardware?  Y  N  U  N/A
3. Is the anchorage free of corrosion that is more than mild surface oxidation?  Y  N  U  N/A
4. Is the anchorage free of visible cracks in the concrete near the anchors?  Y  N  U  N/A
5. Is the anchorage configuration consistent with plant documentation?  Y  N  U  N/A  
 (Note: This question only applies if the item is one of the 50% for which an anchorage configuration verification is required.)
6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions?  Y  N  U

<sup>12</sup> Enter the equipment class name from Appendix B: Classes of Equipment.

**Seismic Walkdown Checklist (SWC)**

Equipment ID No. I-1204-TH-001 Equip. Class<sup>12</sup> Tanks and Heat exchangers - Class 21

Equipment Description REFUELING WATER STORAGE TANK

**Interaction Effects**

7. Are soft targets free from impact by nearby equipment or structures?  Y  N  U  N/A

8. Are overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls not likely to collapse onto the equipment?  Y  N  U  N/A

9. Do attached lines have adequate flexibility to avoid damage?  Y  N  U  N/A

10. Based on the above seismic interaction evaluations, is equipment free of potentially adverse seismic interaction effects?  Y  N  U

**Other Adverse Conditions**

11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment?  Y  N  U

**Comments** (Additional pages may be added as necessary)

None

Evaluated by: James Dovel / JAMES DOVEL Date: 8-16-2012  
W. Stewart / WINSTON STEWART 8/16/2012

