ENCLOSURE

Updated Seismic Walkdown Report In Response To The 50.54(f) Information Request Regarding Fukushima Near-Term Task Force Recommendation 2.3: Seismic for the Limerick Generating Station, Unit 2, Report No. RS-13-138

(146 Pages)

SEISMIC WALKDOWN REPORT

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

UPDATED TRANSMITTAL # 1

for the

LIMERICK GENERATING STATION UNIT 2
3146 Sanatoga Road, Pottstown, PA 19464
Facility Operating License No. NPF-85
NRC Docket No. STN 50-353
Correspondence No.: RS-13-138

Exelon

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NTTF 2.3 Seismic Walkdown of Limerick Generating Station Unit 2

MPR-3801
Revision 1

November 2012

QUALITY ASSURANCE DOCUMENT
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RECORD OF REVISIONS

Revision	Affected Pages	Description
0	All	Initial Issue
1	All	Added IR numbers and milestone dates to Table E-2 for three items; updated Executive Summary for this change. Some potentially sensitive information in selected Appendix C photos was removed due to security concerns.

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Executive Summary

PURPOSE

This report documents the seismic walkdowns performed at Limerick Generating Station Unit 2 in response to NRC 50.54(f) letter dated March 12, 2012, Enclosure 3, Recommendation 2.3: Seismic. Exelon committed to perform this work in accordance with the NRC-endorsed Seismic Walkdown Guidance document (Electric Power Research Institute (EPRI) Technical Report 1025286, Reference 1).

SCOPE OF WORK

In addition to defining the qualifications of personnel performing this work, the EPRI Seismic Walkdown Guidance identifies the following key activities:

- Selection of Systems, Structures, and Components (SSC) to be included in the sample scope of the seismic walkdowns. Screening criteria are applied to obtain an informed sample of electrical and mechanical equipment that are required to perform the four reactor safety functions and containment function, and address NRC concerns about Spent Fuel Pool related equipment. (see Section 4 of this report)

- Seismic Walkdowns and Area Walk-Bys are performed by trained, two-person teams of Seismic Walkdown Engineers (SWEs), who document their inspections on structured checklists included in the EPRI Guidance. (see Section 5 of this report)

- Seismic Licensing Basis Evaluations are performed for issues identified as "potentially adverse seismic conditions," and all deficiencies are included in the Corrective Action Program (CAP) so that standard plant processes can be used to address the issue. (see Section 6 of this report)

- IPEEE Vulnerabilities Resolution Report is required for plants who identified seismic vulnerabilities during their IPEEE program and made commitments to resolve them. (see Section 7 of this report)

- Peer Review is required by a team comprised of at least two individuals for each of the key activities of this project. (See Section 8 of this report)

RESULTS

The Seismic Walkdown Equipment List (SWEL) for Limerick Unit 2, including the items selected that are common to both Units 1 and 2, e.g., spray pond equipment, is comprised of 113 items. Of this list, 102 equipment items were walked down during the 180-day window of completion of the initial scope of work required by the 50.54(f) letter. Walkdowns for the remaining 11 items were deferred to the Unit 2 Refueling Outage

(RFO) due to accessibility issues, e.g., location inside primary containment. Additionally, confirmation that equipment anchorage is consistent with plant design documentation is required for 50% of the SWEL items having anchorage (e.g., not line-mounted). A total of 55 anchorage configurations were confirmed to be installed in accordance with the design documentation.

All electrical cabinets on the SWEL require assessment of the need for inspections to address the potential for "other adverse seismic conditions" internal to the cabinet. This assessment is required due to an NRC clarification of their expectations for seismic walkdowns, which was received after the online seismic walkdowns were completed. Tables E-2 (for Unit 2) and E-3 (for common equipment) list all electrical items that require assessment. As shown in Tables E-2 and E-3, three internal inspections of electrical cabinets are required for Limerick Unit 2, which are being tracked in the plant's Corrective Action Program (CAP).

None of the issues identified during the walkdowns of Limerick Unit 2 equipment and nearby areas required formal seismic licensing basis evaluations because none of the issues ultimately were assessed to be adverse seismic conditions. Smaller issues, however, such as one of twenty-two anchor bolts in a control cabinet had a loose nut, were identified and entered into the plant's CAP. A total of 5 Issue Reports (IRs) were issued, and the status of IR resolutions is provided in Tables 5-2 and 5-3 for issues identified during equipment walkdowns and area walk-bys, respectively.

As described in Section 7 of this report, no IPEEE seismic vulnerabilities were identified for Limerick Unit 2 due to the conservatism of its original design. As part of the assessment of seismic margins during the IPEEE program, one of the RAI responses identified some items that did not meet the Review Level Earthquake (RLE) screening criteria (which is twice the design basis safe shutdown earthquake) and the subsequent analyses which resolved these margin evaluations are included in Table 7-1.

CONCLUSIONS

1. As confirmed in the Peer Review Report (see Appendix F), all activities required by the 50.54(f) letter were conducted in accordance with the NRC-endorsed EPRI Seismic Walkdown Guidance, except for the following items:

    - Eleven (11) inaccessible equipment items are scheduled to be walked down during the next Unit 2 RFO in 2013.

    - Three (3) electrical cabinets will need to be opened for an internal inspection for "other adverse seismic conditions" in accordance with NRC expectations that were provided to industry after these walkdowns were completed. These inspections are scheduled for the next available electrical outages.

2. None of the 102 equipment items included in the walkdowns have conditions that would prevent them from performing their safety-related functions following a licensing basis seismic event. Additionally, a sample of more than 50% of equipment with anchorage was confirmed to be consistent with design basis documentation.

3. The five (5) anomalies or discrepant conditions identified during the equipment walkdowns or area walk-bys have been assessed in accordance with the plant corrective action program (CAP), and their resolutions are being tracked for timely closure.

4. To address the items deferred due to inaccessibility and the supplemental inspections of electrical cabinets, follow-on Seismic Walkdowns and Area Walk-Bys were conducted during Li2R12 (Spring 2013). A single potentially adverse seismic condition was identified during Area Walk-Bys, noted in Table A5-3, and was resolved during Li2R12. No additional degraded, nonconforming, or unanalyzed conditions that required either immediate or follow-on actions were identified.

   Annex A to this report provides:

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

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

   As of May 20, 2013, follow-on activities required to complete the efforts to address Enclosure 3 of the 50.54(f) letter include inspection of two items deferred due to inaccessibility, as listed on Table AE-2 of Annex A.

1 Introduction

1.1 BACKGROUND

In response to Near-Term Task Force (NTTF) Recommendation 2.3, the Nuclear Regulatory Commission (NRC) issued a 10CFR50.54(f) letter on March 12, 2012 requesting that all licensees perform seismic walkdowns to identify and address plant degraded, non-conforming, or unanalyzed conditions, with respect to the current seismic licensing basis. The Nuclear Energy Institute (NEI), through the Electric Power Research Institute (EPRI), prepared industry guidance to assist licensees in responding to this NRC request. The industry guidance document EPRI Technical Report 1025286, *Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic*, dated June 2012 (Reference 1), was endorsed by the NRC on May 31, 2012.

This report documents the technical basis for Exelon's response to the 10CFR50.54(f) request to conduct seismic walkdowns at Limerick Generating Station Unit 2.

1.2 PLANT OVERVIEW

The Limerick Generating Station (LGS) consists of two boiling water reactor (BWR) generating units, located in southeastern Pennsylvania. Both units have GE Mark II containments, are rated at 3515 MWt power, and were designed and constructed by Bechtel (LGS Updated Final Safety Analysis Report (UFSAR) (Reference 2), Section 1.1). Limerick Unit 2 received its full-power license in June 1989 (Facility Operating License No. NPF-85 (Reference 21)).

1.3 APPROACH

The EPRI Seismic Walkdown Guidance (Reference 1) is used for the Limerick Generating Station Unit 2 engineering walkdowns and evaluations described in this report. In accordance with Reference 1, the following topics are addressed in the subsequent sections of this report:

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

2

Seismic Licensing Basis

2.1 SAFE SHUTDOWN EARTHQUAKE (SSE)

The LGS site design response spectra for the SSE are normalized to a maximum horizontal ground acceleration of 15% of gravity. The values for the vertical component of the design response spectra are 2/3 of the horizontal design response spectra. The response spectra are based on data developed from records of previous earthquake activity and represent an envelope of motion expected at a sound rock site from a nearby earthquake (Reference 2, Section 3.7.1.1).

2.2 DESIGN OF SEISMIC CATEGORY I SSCS

Generic Letter 87-02 issued on February 19, 1987 and Supplement No. 1 issued May 22, 1992, do not list Limerick Unit 2 as an USI A-46 Plant because seismic qualification was addressed during initial operating licensing review (Reference 2, Section 1.12.3).

Seismic Category I mechanical and electrical equipment were originally qualified according to the criteria in IEEE 344-1971, but the qualification methods and procedures for qualification were re-assessed to Standard Review Plan (SRP) 3.10 Seismic Qualification Review Team (SQRT) requirements including IEEE 344-1975, and Reg. Guides 1.100 and 1.92. The SQRT reassessment concluded that the seismic and dynamic qualification program meets the intent of IEEE 344-1975 and Reg. Guides 1.100 and 1.92 (Reference 2, Sections 3.9.2.2 and 3.10.2.1).

3 Personnel Qualifications

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

Table 3-1. Personnel Roles

Name	Equipment Selection Engineer	Plant Operations	Seismic Walkdown Engineer (SWE)	Licensing Basis Reviewer	IPEEE Reviewer	Peer Reviewer
T. King	X		X	X	X	
C. Swanner			X	X		X(note 1)
M. Oghbaei			X	X		
J. Wiggin			X	X		
C. Schlaseman						X
P. Butler						X(note 2)
B. Shultz (Exelon)		X				

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

A description of the responsibilities of each Seismic Walkdown participant's role(s) is provided in Section 2 of the EPRI Seismic Walkdown Guidance (Reference 1). Resumes provided in Appendix A provide detail on each person's qualifications for his or her role.

The SWEL preparer, Thomas King does not have prior experience with the IPEEE program, which was performed during the 1990s. The Peer Reviewers, however, do have experience with IPEEE. For SWEL preparation, Mr. King was provided with the plant's IPEEE submittal report and NRC requests for additional information (RAI) responses, as well as the NRC Safety Evaluation (SE) on the IPEEE program. Mr. King's review of these documents, combined with the reviews by the Peer Reviewers, was sufficient to meet the intent of the guidance in Reference 1 that Equipment Selection Personnel "should also have knowledge of the IPEEE program."

In addition to the MPR personnel listed above, Exelon Plant Operations, Brandon Shultz, reviewed the SWEL. Mr. Shultz is currently a licensed Senior Reactor Operator (SRO) at Limerick Station. Station personnel also provided support to the SWEL preparer in

identifying major equipment or system modifications, equipment and systems located in different environments, and equipment and systems that would be accessible for inspection during the plant walkdowns, in accordance with Reference 1.

4

Selection of SSCs

4.1 SWEL Development Overview

The EPRI Seismic Walkdown Guidance (Reference 1) defines the process used to develop the Seismic Walkdown Equipment List (SWEL) for Limerick Generating Station Unit 2.

In accordance with Reference 1, a SWEL is comprised of two groups of items:

1. SWEL 1 is a sample of items needed to safely shut down the reactor and maintain containment integrity

2. SWEL 2 is a list of spent fuel pool related items

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

The Limerick Unit 2 Seismic Individual Plant Examination for External Events (IPEEE) Success Path Component Lists (SPCL) (Reference 3) and the common equipment from the Limerick Unit 1 and Common Seismic IPEEE SPCL (Reference 4) are considered the "Base List" and are provided in Appendix B of this report. To ensure the SPCL Base List meets the EPRI Seismic Walkdown Guidance, the SPCL was compared with the screens described in the following sections.

4.2.1 Screen #1 – Seismic Category I

As described in Reference 1, only items that have a defined seismic licensing basis are to be included in SWEL 1. The seismic classification was identified for each item on the IPEEE SPCL, and items that were not Seismic Category I were removed from consideration for inclusion in SWEL 1. Seismic classification was determined through a review of current design and licensing basis documentation.

4.2.2 Screen #2 – Equipment or Systems

This screen narrowed the scope of items to include only those that do not regularly undergo inspections to confirm that their configuration is consistent with the plant licensing basis. This screen removed Seismic Category I Structures, Containment Penetrations, Seismic Category I Piping Systems, cable/conduit raceways and HVAC ductwork from consideration for inclusion in SWEL 1.

4.2.3 *Screen #3 – Support for the 5 Safety Functions*

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

1. Reactor Reactivity Control
2. Reactor Coolant Pressure Control
3. Reactor Coolant Inventory Control
4. Decay Heat Removal
5. Containment Function

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

As described in References 3 and 4, the safety function for each item on the SPCL was identified. Items on SWEL 1 which perform a specific safety function(s) are considered frontline systems. Items with a safety function described in the SPCL as 'Auxiliary & Support,' 'Electrical Systems,' or 'Racks & Panels' are considered either a frontline or support system.

4.2.4 *Screen #4 – Sample Considerations*

The items selected from the Base List SPCL for inclusion in SWEL 1 are shown in Tables B-1 through B-3 of this report. As described in Reference 1, Screen #4 is intended to result in a SWEL 1 that sufficiently represents a broad population of plant Seismic Category I equipment and systems to meet the objectives of the NRC 50.54(f) Letter. The following attributes were considered in selecting items from the SPCL for inclusion in SWEL 1:

1. A variety of types of systems

The equipment included on SWEL 1 is a representative sample of several systems that perform one or multiple safety functions. Further, the systems represented include both frontline and support systems as listed in Reference 1 Appendix E: Systems to Support Safety Function(s). Examples include Emergency Diesel Generators and related systems, Emergency Core Cooling systems (Residual Heat Removal, Reactor Core Isolation Cooling, Core Spray, High Pressure Coolant Injection), power systems (125 VDC, 120 VAC, 480 VAC), and Ultimate Heat Sink (Spray Pond). Note, however, that the Reference 1 Appendix E table of generic BWR safety function systems includes some systems that are not applicable for Limerick Unit 2 because the IPEEE SPCL was not required to include all potential shutdown paths, and some systems, e.g., Isolation Condenser, do not exist at Limerick.

2. **Major new and replacement equipment**

The equipment included on SWEL 1 includes some items that have been modified or replaced over the past several years. Each item on SWEL 1 that is new or replaced is identified. Due to the plant vintage, Limerick Unit 2 has not made significant modifications to Seismic Category I equipment. Accordingly, there is not a large number of new and replacement components.

3. **A variety of types of equipment**

The equipment class is identified for each item on SWEL 1. The equipment included on SWEL 1 is a representative sample from each of the classes of IPEEE equipment used in the Base List, which are based on the equipment classes from EPRI NP-6041-SL "A Methodology for Assessment of Nuclear Power Plant Seismic Margin (Revision 1)" (Reference 5). The IPEEE classes used in the Base List can be correlated to the classes of equipment cited in Reference 1, Appendix B. Table 4-1 at the end of this section shows the correlation between the two equipment classification systems. As shown in Table 4-1, at least one piece of equipment from each IPEEE class is included on SWEL 1, except for Class 11, "Motor Generators." No Seismic Category I motor generators were included in the IPEEE SPCL, and none have been identified that support the five Safety Functions included in this project.

4. **A variety of environments**

The location for each item is identified on SWEL 1. The equipment included on SWEL 1 is a representative sample from a variety of environments (locations) in the station. These environments include the Spray Pond Pump House (common to both units), Diesel Oil Storage Tank Underground Structure, Reactor Building, Control Structure and Drywell.

5. **Equipment enhanced due to vulnerabilities identified during the IPEEE program**

As discussed in Section 7 of this report, no IPEEE seismic-related plant improvements were implemented, or were committed to be implemented, for Limerick Unit 2.

6. **Contribution to risk**

In selecting items for SWEL 1 that met the attributes above, some items with similar attributes were selected based on their higher risk-significance. To determine the relative risk-significance, the Risk Achievement Worth (RAW) and Fussell-Vesely (F-V) importance for a Loss of Off-Site Power (LOOP) scenario, Reference 17, from the internal plant PRA were used. The LOOP scenario from the internal plant PRA includes those pieces of equipment and events that result in either a F-V importance greater than 1E-3 or a RAW greater than 2.0. Additionally, the list of risk-significant components for the LOOP PRA, Reference 17, were compared with the draft SWEL 1 to confirm that a reasonable sample of risk-significant components (relevant for a seismic event) were included on SWEL 1.

In accordance with Reference 1, components in lower dose areas were selected for the walkdown sample instead of the same component in a different train, but located in a higher dose area.

Table 4-1. Base List IPEEE Classes vs. EPRI Seismic Walkdown Guidance Equipment Classes

Equipment Class Name	Base List IPEEE Equipment Class	EPRI Seismic Walkdown Guidance Class	Total U2 & U0 SWEL Items per EPRI Guidance Class
Other; Not Specifically Identified	0	0	3
Motor Control Centers	1	1	4
Low Voltage Switchgears	1	2	2
Medium Voltage Switchgears	1	3	1
Transformers	2	4	3
Horizontal Pumps	3	5	3
Vertical Pumps	4	6	5
Fluid (Air/Hyd.) Operated Valves	5	7	9
Motor Operated Valves	6	8	10
Solenoid Operated Valves	7	8	1
Fans	8	9	3
Air Handlers	8	10	10
Chillers	9	11	1
Air Compressors	10	12	1
Motor Generators	11	13	0
Distribution Panels	12	14	3
Battery and Racks	13	15	3
Battery Chargers and Inverters	14	16	3
Engine Generators	15	17	1
Instrument on Racks	16	18	9
Local Instrument (not on rack)	17	18	9
Temperature Sensors	17	19	2
Control Panels and Cabinets	18	20	16
Vertical Tanks or Heat Exchangers	19	21	5
Horizontal Tanks or Heat Exchangers	20	21	6
		Total:	113

4.3 SWEL 2 – SPENT FUEL POOL RELATED ITEMS

In accordance with Reference 1, four screens are used to select the SSCs to be included on the second Seismic Walkdown Equipment List (SWEL 2), as described in the following sections.

4.3.1 Screen #1 - Seismic Category I

Only Seismic Category I SSCs, or SSCs that could result in rapid drain-down of the SFP (see Screen #4 below), are to be considered for inclusion in SWEL 2. As described in Reference 1, the adequacy of SFP structures is assessed by analysis and is not included in the scope of these walkdowns.

The review of the design and licensing basis documentation for the SFP identified no Seismic Category I equipment for Limerick Unit 2, except for the Residual Heat Removal (RHR) cross-tie, Emergency Service Water (ESW) make-up supply line, and the Spent Fuel Pool Skimmer Tank. Considerations for these components are discussed below.

1. **RHR Cross-Tie**

   The RHR cross-tie is separated from the Fuel Pool Cooling and Clean-up (FPCC) System via valves 051-2007 and 051-2023 per References 7 through 9. Valves 051-2007 and 051-2023 are manual valves which are line mounted in Seismic Category I piping. Additionally, the interconnecting piping between the RHR system and FPCC system is provided via one of two spool pieces: either one with blind flanges for normal operation, or one open spool piece for when the cross-tie is required (Reference 2, Section 9.1.3.2.3).

2. **ESW Make-Up Supply Line**

   The ESW make-up supply line is separated from the FPCC System via valve 053-2093. Per Reference 7, this is a manual valve located in Seismic Category I piping.

3. **Spent Fuel Pool Skimmer Tanks**

   The Spent Fuel Pool Skimmer Tanks are located in 24 ft deep, narrow pits between the reactor cavity and the spent fuel pool on the 352 ft elevation (References 10, 11 and 12). The skimmer tanks are 6 ft in diameter, and the clearance around each tank varies between one and three feet. According to Limerick Station personnel, these tanks are in a high radiation field and are not accessible during normal operation or during RFOs.

4.3.2 Screen #2 – Equipment or Systems

This screen considers only those items from Screen #1 that are appropriate for an equipment walkdown process. Specifically,

1. Manual Valves and Spool Pieces--These components are inherently rugged, do not have active safety functions, and are included within their safety-related, ASME Code piping systems.

2. SFP Skimmer Tanks--These tanks are in an extremely high radiation field, and the only way to view the anchorage of the tanks would be with a remote camera due to physical constraints of the tank location. Even if a remote, camera-based inspection were performed, significant dose would be involved in getting access for the camera.

Therefore, no Seismic Category I items are included in SWEL 2.

4.3.3 *Screen #3 – Sample Considerations*

Sample considerations do not apply because no Seismic Category I items were selected in Screen #2.

4.3.4 *Screen #4 – Rapid Drain-Down*

This screen identifies items that could allow the spent fuel pool to drain rapidly. Rapid drain-down is defined as lowering of the water level to the top of the fuel assemblies within 72 hours after the earthquake. Consistent with Reference 1, the scope of items included in this screen is limited to the hydraulic lines connected to the SFP and the equipment connected to those lines. For the purposes of this program the SFP gates are considered to be installed and the SFP cooling system is in its normal alignment for power operations. The SFP gates are passive devices that are integral to the SFP. As such, they are considered capable of withstanding a design basis earthquake and do not allow for a rapid drain-down of the SFP.

Based on review of the Limerick Unit 2 SFP design information, the following penetrations were identified:

- Skimmer surge tank intakes to the Spent Fuel Pool Cooling System are less than 2 feet below the normal surface level of the SFP (Reference 10).
- RHR return line penetrations are less than 4 feet below the normal surface level of the SFP (Reference 2, Section 9.1.3.3, and Reference 12).
- FPCC System Return line penetrations are less than 2 feet below the normal surface level of the SFP (Reference 12).

There is approximately 23 feet of water above the fuel during normal operation (Reference 2, Section 9.1.2.2.2.1), and a minimum of 19 feet of water between the top of the fuel and the penetrations. Therefore, there is no penetration within 10 ft above the top of the SFP fuel assemblies, and consistent with Reference 1, a rapid drain-down evaluation is not required.

In addition to penetration locations, the possibility of siphoning through piping that runs down into the SFP below the water level was evaluated. The FPCC return lines are non-safety related piping that enter the SFP at an elevation of 351'. After entering the SFP, both FPCC return lines run vertically, to an elevation of 328'-0.5", where the pipe ends (References 15 and 16). During normal operation, and with an SFP level of approximately 38', the terminations of these pipes are within 10 feet of the top of the fuel. To prevent lowering of the SFP resulting from siphoning, two 1-1/4 inch anti-siphoning holes have been drilled in the pipes approximately 2 feet below the elevation where the pipe enters the SFP (References 15 and 16), which is not within 10 feet of the top of the

fuel. As a result, no siphoning effect would occur that could cause rapid drain down of the SFP, and no items need to be included in SWEL 2 for Limerick Unit 2.

4.4 COMPOSITE SWEL

As described in Section 4.1 above, the final Seismic Walkdown Equipment List (SWEL) for Limerick Unit 2 is the combined SWEL 1 and SWEL 2. For Limerick Unit 2, there are no items of equipment in SWEL 2, so the composite SWEL is the same as SWEL 1. Appendix B includes the composite SWEL.

5

Seismic Walkdowns and Area Walk-Bys

5.1 OVERVIEW

Seismic Walkdowns and Area Walk-Bys were conducted by 2-person teams of trained Seismic Walkdown Engineers, in accordance with the EPRI Seismic Walkdown Guidance (Reference 1). The Seismic Walkdowns and Area Walk-Bys are discussed in more detail in the following sections.

5.2 SEISMIC WALKDOWNS

An overview of the Seismic Walkdowns is shown on the Limerick Unit 2 SWEL and Unit 0 (common equipment with Unit 1) SWEL in Appendix B, Tables B-1 and B-2, respectively. A Seismic Walkdown Checklist (SWC) from Appendix C of Reference 1 was completed for each item on the SWEL, except for the deferred items identified at the end of the SWEL. Additionally, photos are included with each SWC to provide a visual record of the item and any significant comment noted on the SWC. Drawings and other plant design documents are cited in most of the SWCs, but they are not included with the SWCs because they are readily available in the plant's electronic document management system. Seismic Walkdowns were completed for 87 of the 98 items on the Limerick Unit 2 SWEL, plus all 15 items on the Unit 0 (common) SWEL, for a total of 102 items, not including the 11 deferred.

5.2.1 Anchorage Configuration Confirmation

As required by Reference 1 (page 4-3), the anchorage for at least 50% of the items were confirmed to be consistent with design drawings. The second to last column of Tables C-1 and C-2 in Appendix C document the anchorage confirmation. Specifically, items that are line-mounted (and therefore do not count in the anchorage confirmation total) are marked "N/A," items that were confirmed to be consistent with design drawings are marked "Y," and items for which anchorage drawings were not identified are marked "N.". See Table 5-1 below for the accounting of the 50% anchorage configuration confirmations, and the individual SWC forms in Appendix C for the specific drawings used in each confirmation.

Table 5-1. Anchorage Configuration Confirmation

Unit 2 or Unit 0 (Common)?	No. of SWEL Items (A)	N/A Items (B)	Required to Confirm? (A-B)/2	Items Confirmed
2	87	16	36	49
0	15	6	5	6
Totals	102	22	41	55

5.2.2 Issue Identification

None of the anomalies or issues identified by the SWEs during the equipment walkdowns was ultimately judged to be "Potentially Adverse Seismic Conditions" because in all cases it was concluded the anomaly or issue would not prevent the equipment from performing its safety-related function. Additionally, based on the IRs for each issue, all equipment affected by the as-found condition was determined to be functional. Table 5-2 provides a summary of the issues identified during the Seismic Walkdowns as provided in Reference 22.

Table 5-2. Issues Identified during Seismic Walkdowns

Item ID	Description of Issue	Action Request ID	Actions Complete Y/N(Notes 1, 2)
2AC208	One of the 22 bolts in the rear left of the cabinet was loose.	IR 01398147	No
00B519	A gap of approximately 1/8 to 1/4 inch was identified in the base plate for a lateral brace for an MCC.	IR 01395937	Yes

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

5.3 AREA WALK-BYS

In accordance with Reference 1, Area Walk-bys were performed for each room or area which included one or more items on the SWEL. The last column of Tables C-1 and C-2 show the number of unique Area Walk-By Checklists (AWCs) completed during the walkdowns for Limerick Unit 2 and Unit 0 (common). AWC identifiers with asterisks (*) indicate the second or subsequent SWEL item included with a specific Area Walk-By. All completed AWCs are included in Appendix D. Photos are not included with the AWC forms because they are part of the SWC package of the identified equipment item. A total of 49 AWCs were completed for Unit 2, plus 9 for Unit 0 (common).

None of the anomalies or issues identified by the SWEs during the Area Walk-Bys were judged to be "Potentially Adverse Seismic Conditions" because in all cases the anomaly

or issue would not prevent surrounding equipment from performing its safety-related function. Additionally, based on the IRs for each issue, all equipment affected by the as-is condition was determined to be operable.

Table 5-3 at the end of this section provides a summary of the issues identified in the Area Walk-Bys as provided in Reference 22.

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

Item ID/Area	Description of Issue	Action Request ID	Actions Complete Y/N(Notes 1, 2)
AWC-U0-02	A terminal box was identified with only one bolt securing it door when there were supposed to be three. Further the single bolt was loose.	IR 01395982	No
AWC-U2-26	A gap was identified between the rack and retaining bar in 2A-5924 bottle rack.	IR 01397583	No
AWC-U2-9 & AWC-U2-13	S-hooks of fluorescent light fixtures were found not clamped as required in some areas.	IR 01397686	No

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

6

Licensing Basis Evaluations

As noted in Sections 5.2.2 and 5.3, the issues identified during the Seismic Walkdowns and Area Walk-Bys were not determined to be "Potentially Adverse Seismic Conditions" because in all cases the anomaly or issue would not prevent the equipment from performing its safety-related function. Therefore, no formal Licensing Basis Evaluations were necessary and none were performed.

7

IPEEE Vulnerabilities Resolution Report

The Individual Plant Examination of External Events (IPEEE) report for Limerick Generating Station (Reference 13) and the NRC Safety Evaluation on the IPEEE report (Reference 14), do not identify any seismic vulnerabilities. This was attributed to the conservative nature of the original design, which is a reflection of the relatively new vintage of the plant. Therefore, no seismic-related plant improvements were implemented, or were committed to be implemented, for Limerick Unit 2.

Although there were no equipment-related modifications, the IPEEE report (Reference 13) did commit to improve the seismic housekeeping of the plant. A station housekeeping procedure (Reference 19) and a guidance procedure for storage and housekeeping (Reference 20) are both active to ensure good housekeeping practices at the site.

As noted above, there are no Design Basis vulnerabilities identified for Limerick Generating Station Unit 2 and Unit 0 (common). Some equipment, however, did not meet the IPEEE Review Level Earthquake (RLE) screening criterion of 0.3 g peak ground acceleration (PGA). The RLE is twice the design basis earthquake of 0.15 g. Table 7-1 identifies the equipment that did not initially meet the RLE High Confidence of Low Probability of Failure (HCLPF) value of 0.3 g. As shown in the table, each component has margin above the seismic licensing basis.

Table 7-1. IPEEE Resolutions for Items with HCLPFs Below Review Level Earthquake

Equipment ID	Description of Concern (per Reference 18)	IPEEE Report Proposed Resolution of Condition	Actual Resolution of Condition	Resolution Date
HV-051-2F041A and HV-051-2F041C	Potential seismic spatial interaction between conduit inlet to limit switch and structural member	Reported in RAI Response (Ref. 18), but not in IPEEE Report	Resolved by analyses which assigned a HCLPF of 0.3g (i.e., twice the design basis SSE).	1/02/97
2AD160 and 2BD160	Existing thick shims may result in unacceptable bending of anchor bolts under lateral seismic loading	Reported in RAI Response (Ref. 18), but not in IPEEE Report	Resolved by analyses which assigned a HCLPF of 0.2 g (i.e., which exceeds the design basis SSE).	1/02/97
Diesel Generator Starting Air Tanks (all 8 tanks for Unit 2)	Lack of flexibility in attached safety valve line.	Reported in RAI Response (Ref. 18), but not in IPEEE Report	Resolved by analyses which assigned a HCLPF of greater than 0.3g (i.e., more than twice the design basis SSE).	1/02/97
20NAD160 and 20NBD160	Transfer switches are laterally supported by inverters 2AD160 and 2BD160, which have a HCLPF less than 0.3g.	Reported in RAI Response (Ref. 18), but not in IPEEE Report	Acceptable because considered to have the same HCLPF as 2AD160 & 2BD160, which is 0.2g, per calculation LS-0174 (and which still exceeds the design basis SSE).	1/02/97

8
Peer Review

8.1 OVERVIEW

In accordance with the EPRI Seismic Walkdown Guidance (Reference 1), a peer review of this project was performed during the preparation of the Seismic Walkdown Equipment List (SWEL), during implementation of the seismic walkdowns and area walk-bys, and following completion of the issue resolutions. Specifically, the peer review addresses 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 & Walk-Bys,
- Review of any licensing basis evaluations,
- Review of the decisions for entering the potentially adverse conditions in to the plant's Corrective Action Program (CAP), and
- Review of the final submittal report.

The complete Peer Review Report is included in Appendix F.

8.2 REVIEW OF SWEL

The peer review checklist for SWEL is included as an attachment to the Peer Review Report. This checklist was used to ensure that the SWEL 1, SWEL 2, and composite final SWEL meet the criteria of Reference 1. All peer review comments on the SWEL were resolved.

8.3 REVIEW OF SAMPLE SEISMIC WALKDOWN AND AREA WALK-BY CHECKLISTS

Approximately 25% of the Seismic Walkdown packages, i.e., SWC forms, photographs, and drawings (where applicable) were reviewed by the peer review team. Additionally, interviews were conducted with both teams of Seismic Walkdown Engineers to ensure that the seismic walkdowns and area walk-bys were performed in accordance with Reference 1.

The peer review team recommended that some clarifications be added to the SWC and AWC forms reviewed.

8.4 REVIEW OF LICENSING BASIS EVALUATIONS

As discussed in Sections 5 and 6 of this report, the issues identified during the seismic walkdowns and area walk-bys did not threaten the ability of Seismic Category I equipment for perform its safety functions. The specific items that have been entered in the Limerick Corrective Action Program (CAP) were reviewed, and no concerns with the assessments or proposed resolutions were identified.

8.5 REVIEW OF SUBMITTAL REPORT

The signature of the Peer Review Team Leader on the cover of this report indicates a satisfactory review and resolution of any comments and confirms that all necessary elements of the peer review were completed.

9

References

Reference drawings related to the walkdown of SWEL items are documented on the Seismic Walkdown Checklists (SWCs) in Appendix C, and if applicable, on the Area Walk-By Checklists (AWCs) in Appendix D.

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

2. Limerick Generating Station Updated Final Safety Analysis Report (UFSAR), Revision 16.

3. PECO Document No. N-00E-117-00009, *Success Path Components List (SPCL) for Limerick Generating Station Unit 2*, Revision 0.

4. PECO Document No. N-00E-117-00010, *Success Path Components List (SPCL) for Limerick Generating Station Unit 1 and Common*, Revision 0.

5. EPRI NP-6041-SL, *A Methodology for Assessment of Nuclear Power Plant Seismic Margin (Revision 1)*, dated August 1991.

6. L-S-52, *Spent Fuel Pool Cooling and Cleanup System*, Revision 4.

7. Drawing 8031-M-53, Sheet 3, *P&ID Fuel Pool Cooling & Cleanup (Unit 2)*, Revision 16.

8. Drawing 8031-M-53, Sheet 4, *P&ID Fuel Pool Cooling & Cleanup (Unit 2)*, Revision 16.

9. Drawing 8031-M-51, Sheet 5, *P&ID Residual Heat Removal (Unit 2)*, Revision 30.

10. Drawing No. C-246, Sheet 1, *Reactor Building Units 1 & 2 Pool Liners and Accessories Surge Tank Section & Details*, Revision 13.

11. Drawing No. M-137, *Equipment Location Reactor Enclosure Unit 2 Plan At EL. 352'-0"*, Revision 15.

12. Drawing No. C-0235, *Reactor Building Unit 2 Pool Liners and Accessories Spent Fuel Pool Wall Liner Elevations*, Revision 15.

13. PECO Energy Company, *Limerick Generating Station Units 1 and 2, Individual Plant Examination for External Events*, June 1995.

14. NRC Letter (B. C. Buckley) to PECO (J. A. Hutton), *Review of Individual Plant Examination of External Events (IPEEE) Submittal, Limerick Generating Station, Units 1 and 2, (TAC NOS. M83636 AND M83637)*, dated February 23, 2000.

15. Drawing HCC-201-6, Sheet 1, *Isometric - Reactor Building Fuel Pool Cooling, Clean-up & Filter Demin. - Unit 2*, Revision 13.

16. Drawing HCC-201-7, Sheet 1, *Isometric - Reactor Building Fuel Pool Cooling, Clean-up & Filter Demin. - Unit 2*, Revision 10.

17. Limerick Generating Station Document No. LG-MISC-008, *Limerick Risk Importance Listings to Support Development of the Seismic Walkdown Equipment List (SWEL)*, Revision 0.

18. PECO Letter (G. A. Hunger, Jr.) to NRC, *Limerick Generating Station, Units 1 and 2, Response to Request for Additional Information Regarding Review of Individual Plant Examination of External Events*, dated July 24, 1997.

19. Procedure MA-AA-716-026, *Station Housekeeping/Material Condition Program*, Revision 10.

20. Procedure MA-LG-716-026-1001, *Additional Guidance for In-Plant/Yard Storage and Housekeeping at Limerick*, Revision 15.

21. Facility Operating License No. NPF-85.

22. Email from R. Wehrman (Exelon) to C. Schlaseman (MPR), Subj: Limerick Walkdown IRs, 9/28/12, 11:34 AM.

Annex A

Updated Transmittal #1

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A1 Introduction

A1.1 PURPOSE

This updated transmittal report is being provided in compliance with the requirements contained in the NRC 50.54(f) letter dated March 12, 2012, Enclosure 3, Recommendation 2.3: Seismic. This new report section, Annex A, contains the results of the follow-on inspection activities that have been completed to address commitments contained in Exelon letter to the NRC, "180-day Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated November 19, 2012 (RS-12-171). Annex A includes follow-on Seismic Walkdown results associated with NRC Commitment Nos. 3 and 4 listed in Enclosure 3 of the above Exelon letter. Additionally, the update includes the current status of the resolution of conditions found during the initial Seismic Walkdowns and Area Walk-Bys as documented in Tables 5-2 and Table 5-3, respectively, from Enclosure 2 of the above Exelon letter.

Commitment No. 3, for the completion of the eleven (11) remaining inspection (SWEL) items previously deferred due to inaccessibility listed in Table E-1, has been completed. All eleven (11) inspection items were completed by the commitment date of Li2R12 (Spring 2013) and the results are documented in this update.

Commitment No. 4, for the completion of the three (3) remaining internal electrical cabinet inspections listed in Table E-2, remains open. The remaining three (3) inspection items will be completed by the original December 31, 2014 commitment date. A subsequent NRC transmittal will be issued to document results of this inspection and the completion of Commitment No. 4.

The initial NRC Transmittal report documented that one (1) condition identified during the seismic walkdowns, and listed in Table 5-2, remained open. This update documents that this condition is now resolved with all follow-on actions complete.

The initial NRC Transmittal report documented that three (3) conditions identified during the area walk-bys, and listed in Table 5-3, remained open. This update documents that all three (3) conditions are now resolved with all follow-on actions complete.

Annex A, includes updates to each report section where the status has changed or new information is available in accordance with Section 8 of EPRI 1025286, "Seismic Walkdown Guidance – For Resolution of Fukushima Near Term Task Force Recommendation 2.3 Seismic" (Ref. 1).

A1.2 BACKGROUND

See Section 1.1

A1.3 PLANT OVERVIEW

See Section 1.2

A1.4 APPROACH

See Section 1.3

A1.5 CONCLUSION

As of Li2R12 (Spring 2013), Seismic Walkdowns have been performed at the Limerick Generating Station Unit 2 on 11 of the 11 items deferred due to inaccessibility in accordance with the NRC endorsed walkdown methodology. Area Walk-Bys were also completed, as required, during these follow-on activities. A potentially adverse seismic condition, AWC-U2-50, was identified during Area Walk-Bys, noted in Table A5-3, and actions were taken during Li2R12 to correct the potentially adverse seismic condition. No additional degraded, nonconforming, or unanalyzed conditions that required either immediate or follow-on actions were identified.

Additional follow-on activities required to complete the efforts to address Enclosure 3 of the 50.54(f) letter include inspection of two (2) items deferred due to inaccessibility, as listed in Table AE-2 of this Annex A.

As of May 20, 2013, all conditions identified during the Seismic Walkdowns and Area Walk-Bys as documented in IRs listed in Table 5-2 and Table 5-3 have been corrected.

IR 01496015 was generated during the follow-on walkdowns and can be found in Table A5-3 and has been corrected. The updated completion status for the previous and recently generated IRs is shown in Table A5-2 and Table A5-3 in Section A5 of this Annex A.

A2 Seismic Licensing Basis

See Section 2, no new licensing basis evaluations resulted from the follow-on walkdown activities.

A3 Personnel Qualifications

A3.1 Overview

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

A3.2 Project Personnel

Table A3-1 below summarizes the names and corresponding roles of personnel who participated in the NTTF 2.3 Seismic Walkdown effort for follow-on activities. See Table 3-1 for names and corresponding roles of personnel who participated in the initial NTTF 2.3 Seismic Walkdown effort.

Table A3-1. Personnel Roles

Name	Equipment Selection Engineer	Plant Operations	Seismic Walkdown Engineer (SWE)	Licensing Basis Reviewer	IPEEE Reviewer	Peer Reviewer
T. Gallagher (Exelon)[2]			X			
J. Lucas (Exelon) [2]			X			
J. Narula (Exelon) [2]						X[1]
R. Wehrman (Exelon)						X

Notes:
1. Peer Review Team Leader
2. Personnel for follow-on activities only. Resumes provided in Appendix AA.

A4 Selection of SSCs

See Section 4, no changes were made to the SWEL for the follow-on walkdowns.

A5 Seismic Walkdowns and Area Walk-Bys

A5.1 Overview

Follow-on Seismic Walkdowns and Area Walk-Bys were conducted by a two (2) person team of trained Seismic Walkdown Engineers (SWEs), in accordance with the EPRI guidance document during Li2R12 (Spring 2013). The Seismic Walkdowns and Area Walk-Bys are discussed in more detail in the following sub-sections.

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

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

A5.2 Seismic Walkdowns

These follow-on Seismic Walkdowns focused on the seismic adequacy of the items previously deferred due to inaccessibility listed on Table E-1 of the initial report submitted in November 2012. The Seismic Walkdowns also evaluated the potential for nearby SSCs to cause adverse seismic interactions with the items being inspected. The Seismic Walkdowns focused on the following adverse seismic conditions associated with the subject item of equipment:

- Anchorage Configuration Confirmation
- Issue Identification

The results of the follow-on Seismic Walkdowns were documented in Appendix AC of this Annex A, using the Seismic Walkdown Checklist (SWC) template provided in the EPRI guidance document. Seismic Walkdowns were performed and SWCs were completed for 11 of the 11 items identified on Table E-1 of the initial report submitted in November 2012. Additionally, photos have been included with the SWCs to provide a visual record of the item along with any comments noted on the SWC. Drawings and other plant records are cited in some of the SWCs, but are not included with the SWCs because they are readily retrievable documents through the station's document management system.

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

A5.2.1 Anchorage Configuration Confirmation

See Section 5.2.1, no additional anchorage configuration confirmation was required and none was performed during the follow-on walkdowns.

A5.2.2 Issue Identification

No issues were identified during the follow-on seismic walkdowns.

Per Section 5.2.2 and Table 5-2, during the previous seismic walkdowns two (2) conditions were identified and entered into the Corrective Action Program. Corrective actions were completed to address one (1) of the two (2) conditions. Subsequent to the issuance of the last report corrective actions were completed to address the remaining one (1) condition. Table A5-2 of this Annex A provides an updated summary of the conditions and the status of the corrective actions to address these conditions.

A5.3 AREA WALK-BYS

The purpose of the Area Walk-Bys is to identify potentially adverse seismic conditions associated with other SSCs located in the vicinity of the items being inspected. Vicinity is generally defined as the room containing the item. If the room is very large (e.g., Turbine Hall), then the vicinity is identified based on judgment, e.g., on the order of about 35 feet from the item. Additional vicinity associated with these follow-on Seismic Walkdowns but not covered in Appendix D, is described on the Area Walk-By Checklist (AWC), shown in Appendix AD of this Annex A. A total of six (6) additional AWCs were completed for Limerick Generating Station Unit 2 as a result of these follow-on walkdowns.

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

- Anchorage conditions (if visible without opening equipment)
- Significantly degraded equipment in the area
- A visual assessment (from the floor) of cable/conduit raceways and HVAC ducting (e.g., condition of supports or fill conditions of cable trays)
- Potentially adverse seismic interactions including those that could cause flooding, spray, and fires in the area
- Other housekeeping items that could cause adverse seismic interaction (including temporary installations and equipment storage)
- Scaffold construction was inspected to meet Exelon Procedure MA-AA-796-024, Scaffold Installation, Inspection, and Removal

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

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

Additional details for evaluating the potential for adverse seismic interactions that could cause flooding, spray, or fire in the area are provided in Section 5.3 of this report.

A5.3.1 Issue Identification during Area Walk-Bys

One (1) "Potentially Adverse Seismic Condition" was identified during the Area Walk-Bys associated with the follow-on area walk-bys. See Table A5-3 for a description of the condition identified.

Per Section 5.3 and Table 5-3, during the previous area walk-bys three (3) conditions were identified and entered into the Corrective Action Program. Corrective actions were completed to address zero (0) of the three (3) conditions. Subsequent to the issuance of the last report corrective actions were completed to address three (3) of the three (3) conditions. One (1) condition was identified during the follow-on area walk-bys and entered into the Corrective Action Program and Corrective Actions for this condition were completed. Table A5-3 of this Annex A provides an updated summary of the conditions and the status of the corrective actions to address these conditions.

A5.4 SUPPLEMENTAL INFORMATION ON ELECTRICAL CABINET INSPECTIONS

See Section E.2, these follow-on walkdowns completed the supplemental internal inspections of 2D-D103. No potentially adverse seismic conditions were identified. Two (2) open items on Table E-2 remain and are documented in table AE-2.

The Seismic Walkdown Checklist (SWC) for this component will be documented in a later update of Table E-2 open items to indicate the results of the internal inspection.

Table A5-2. Conditions Identified during Seismic Walkdowns

Item ID	Description of Issue	Action Request ID (IR)	Actions Complete Yes/No[Notes 1,2]
2AC208	One of the 22 bolts in the rear left of the cabinet was loose.	01398147	Yes
00B519	A gap of approximately 1/8 to 1/4 inch was identified in the base plate for a lateral brace for an MCC.	01395937	Yes

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

Table A5-3. Conditions Identified during Area Walk-Bys

Item ID	Description of Issue	Action Request ID (IR)	Actions Complete Yes/No
AWC-U0-02	A terminal box was identified with only one bolt securing its door when there were supposed to be three. Further, the single bolt was loose.	01395982	Yes
AWC-U2-26	A gap was identified between the rack and retaining bar in 2A-5924 bottle rack.	01397583	Yes
AWC-U2-9 & AWC-U2-13	S-hooks of fluorescent light fixtures were found not clamped as required in some areas.	01397686	Yes
AWC-U2-50*	A scaffold knuckle was found attached to the structural steel near the X-59A penetration above the SRVs on elevation 295.	01496015	Yes

Notes:
1. "Yes" indicates that corrective actions resulting from the issue are complete.
2. "No" indicates that corrective actions resulting from the issue are NOT complete. Actions are tracked by the IR number in the station Corrective Action Program.
3. "*" indicates conditions identified during follow-on Area Walk-Bys (Li2R12)

A6 Licensing Basis Evaluations

See Section 6, no new licensing basis evaluations were performed as a result of conditions identified during the follow-on Walkdowns or Area Walk-Bys.

A7 IPEEE Vulnerabilities Resolution Report

See Section 7, no changes to the IPEEE vulnerabilities resolution were made for this Annex A

A8 Peer Review

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

- Review of the selection of SSCs included on the SWEL, if the SWEL has been revised. The SWEL was not revised; therefore a review of the selection of SSCs was not required.
- Review of a sample of the checklists prepared for the Seismic Walkdowns and Area Walk-Bys.
- Review of Licensing basis evaluations, as applicable. No new licensing basis evaluations were performed; therefore a review of licensing basis evaluations was not required.
- Review of the decisions for entering the potentially adverse conditions into the CAP process.
- Review of the submittal report.
- Provide a summary report of the peer review process in the submittal report.

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

A9 References

See Section 9, no new references were added for this Annex A.

Appendix AA
Project Personnel Resumes and SWE Certificates

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

T.Gallagher..... AA-2

J. Lucas..... AA-6

R. Wehrman..... AA-9

J. Narula..... AA-10

Tracey L. Gallagher

EDUCATION

Pennsylvania State University, B.S. Civil Engineering, 2007

EXPERTISE

- Steel Design and Analysis
- Concrete Design and Analysis
- Foundation Design and Analysis
- Nuclear Design Requirements
- Seismic Analysis of New and Existing Structures
- Evaluation of Underground Commodities
- Blast Analysis Requirements
- Design Basis Programs: STAAD Pro., GTStrudl, PCA Column, APlan, MathCAD, Visio, Excel, AutoCAD

EXPERIENCE

Exelon Generation (7/2012 – Present)

Lead Structural Engineer for the Fukushima 2.1 and 2.3 NTTF at Peach Bottom Atomic Power Station. Completed the EPRI Seismic Walkdown Engineer (SWE) Training. Responsible for oversight of vendors performing the seismic walkdowns in the plant. Reviewed reports prepared by vendors for technical accuracy prior to NRC submittal.

Completed design change packages for the Control Rod Blade (CRB) Rack Installation in the Unit 3 Spent Fuel Pool at PBAPS. Reviewed design drawings and calculations submitted by vendors. Responsible for ensuring that the lifting devices were in compliance with the station heavy load procedures, NUREG 0612 and ANSI N14.6-1978. Provided installation support and interfaced with multiple vendors to support the fast tracked schedule.

Completed design change package for the NETCO rack inserts in the Unit 2 Spent Fuel Pool rack cells as part of the implementation process to resolve the degraded boraflex issue. Responsible for reviewing test results and calculations that evaluate the structural and seismic aspects of the inserts as well as the associated impacts on the existing storage racks and structures. Interfaced with Regulatory Assurance to revise the UFSAR licensing basis to document the neutron absorbing capability of the new inserts after the receipt of the NRC approval of the license amendment.

Lead Structural Engineer on the Adjustable Speed Drive (ASD) project. Completed structural review for fatal flaws of ASD conceptual design submitted by vendor.

Sargent & Lundy, LLC – Wilmington, DE (7/2007 – 6/2012)

Structural Associate 3 – Design Engineering in the nuclear power industry.

- *Duke Power Company*
  - Provided design engineering and onsite installation support for the Protected Service Water (PSW) Building Project associated with Oconee Nuclear Station's

Tornado and High Energy Line Break (HELB) Mitigation License Amendment. Performed calculations for seismic equipment mounting, pipe supports and embedded plates.

- *PSE&G (Salem & Hope Creek Power Stations)*
  - Worked on a team which performed a Site Extent of Condition Assessment for the Unattended Openings Program (Security).
  - Design of concrete and steel Blast Proof Enclosures for Security Upgrades.
  - Design and Analysis of various lifting lugs/steel structures to meet the regulatory requirements of NUREG 0612 and ANSI 14.6 "Special Lifting Devices"
  - Lead Engineer on the Feedwater Heater Tube Bundle Replacement Project. Completed the analysis of the existing Turbine Building structure and sub grade concrete vaults for heavy load paths associated with the Rigging Plan and provided field installation/outage support.
  - Lead Engineer on the replacement of the Reactor Pressure Vessel (RPV) Head Strongback and Carousel. Completed the analysis of the existing RPV Head Pedestals to meet seismic II/I requirements. Knowledge of safe load path requirements for equipment on the refueling floor of the reactor building.
  - Seismic analysis of proposed and existing pipe supports, conduit supports and cabinets/panels for new loads.
- *Dominion Power Company*
  - Provided installation support for refueling outages at North Anna and Surry Power Stations. These consisted of major capacity up-rate upgrade projects which included the replacement of the Feedwater Heater Tube Bundles and the Generator Stator/Rotor.
    - Evaluated underground commodities in support of the heavy haul path and performed the evaluation of the existing Turbine Bldg. steel for the additional lifted load of the new generator which exceeded the allowable load in the original design calculation.
- *Exelon*
  - Peach Bottom Fall 2007 outage support

Borough of State College – State College, PA (5/2006 – 8/2006)
Engineering Intern, Public Works Dept.

PENNDOT – District 5-0 – Allentown, PA (5/2005 – 8/2005)
Engineering Intern

QUALIFICATIONS AND TRAINING

EPRI Seismic Walkdown Engineer (SWE) training, 2012

MEMBERSHIPS

Member, Phi Sigma Rho - National Engineering Sorority
Member, Women in Nuclear (WIN)
Member, North American Young Generation in Nuclear (NAYGN)

EPRI | ELECTRIC POWER RESEARCH INSTITUTE

Certificate of Completion

Tracey Gallagher

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

July 27, 2012
Date

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

Jesse Lucas, P.E
Senior Engineer
Exelon Generation

EDUCATION

Texas Christian University – MBA Finance – 1991

Pennsylvania State University – B.S. Nuclear Engineering – 1986

REGISTRATIONS

Professional Engineer – Delaware (Mechanical Engineering)

EXPERTISE

- Project Engineering and Task Management
- Design Engineering and Plant Modifications
- Equipment Reliability, Equipment Lifecycle Management

Mr. Lucas is a Senior Engineer with more than 20 years experience in engineering and client management. He has experience in system and design engineering at nuclear power stations. He has experience in oversight of engineering contracts, and preparation of the long-term asset management plan.

RESPONSIBILITIES

Mr. Lucas is the Lead Responsible Engineer for the Fukushima Project at the Peach Bottom Atomic Power Station. Mr. Lucas is responsible for engineering aspects of individual projects including external flooding feature inspections, seismic inspections, severe accident containment vent modifications, spent fuel pool instrumentation installation, and FLEX response modifications.

Mr. Lucas is responsible for determining scope, selecting vendor engineering support, and reviewing all vendor technical submittals. Mr. Lucas is responsible for site review and approval of regulatory reports prior to NRC submittal, including technical accuracy and compliance with guidance and orders.

Mr. Lucas is responsible for oversight of vendors performing inspection walkdowns for conformance with external flooding and seismic requirements. Mr. Lucas has completed Training on NTTF 2.3 for Plant Seismic Walkdowns.

EXPERIENCE

Exelon Generation 2004 – Present

Prior to serving as Lead Responsible Engineer for Peach Bottom Fukushima, Mr. Lucas served as the Equipment Reliability (ER) Engineer. Mr. Lucas had responsibility for weekly report-out to Senior Management team on plant system status, proposed improvements, program status, and work activities. Mr. Lucas prepared the semi-annual ER and asset management plan reports to the corporate senior leadership team. Mr. Lucas had overall responsibility for department budget, including contractual relationships with engineering service providers. Mr. Lucas represents the engineering department at daily station ownership committee (SOC) meetings, and weekly station budget meetings.

Responsible for department and station performance in long-range planning and asset management, engineering budget, critical component performance, obsolescence process, system performance monitoring, seasonal readiness work scheduling, and system health reporting.

- 2012 INPO E&A – Strength in ER program for Margin Management
- 2012 INPO E&A – Beneficial Practice for Long Term Planning

Prior to work as ER and SOC Engineer, Mr. Lucas was a design engineer in the Electrical Engineering group. Mr. Lucas was responsible for technical evaluations and plant modifications. Modifications included replacement of condenser level controllers, high voltage line connectors, transformer sudden pressure relays, and Hydrogen Water Chemistry PLC and UPS.

RCM Technologies 1993 – 2004

Mr. Lucas was Client Manager for design services to Exelon, responsible for business development. Also reviewed and approved technical deliverables.

ABB Impell 1991 – 1993

Mr. Lucas wrote design baseline documents, and prepared calculations for nuclear HVAC systems.

Stone & Webster Engineering (engineer at Comanche Peak Station) 1986 – 1990

PP&L (co-op at Susquehanna Steam Electric Station) 1984 - 1985

EPRI | ELECTRIC POWER RESEARCH INSTITUTE

Certificate of Completion

Jesse Lucas

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

June 21, 2012
Date

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

Robert Brian Wehrman

621 Highland Ave
Boyertown, PA 19512

(814)360-0934 (Cell)
(610)718-3597 (Work)
robert.wehrman@exeloncorp.com

EXPERIENCE

November 2011, Exelon Nuclear-Limerick Generating Station, Limerick, PA
Mechanical Design Engineer - Projects

- Fukushima Lead Responsible Engineer
  - Lead for both 2.3 Seismic and Flooding Walkdowns
  - Lead Engineer for Hardened Vents and FLEX

October 2006-November 2011 Exelon Nuclear-Quad Cities Generating Station, Cordova, Il
Mechanical Design Engineer

- Performed several calculations supporting the design basis of the plant including:
  - Several of the ECCS Suction and Discharge Pressure Requirement Calculations
  - Diesel Fuel Oil Volume and Consumption
  - Vortexing Calculations for CCSTs and Fuel Oil tanks
  - Fire Protection Design Basis Flow for all plant areas
  - CCST and Well Water Tanks Time to Freeze with reduced or no internal heaters
- Cognizant Engineer on several modifications including:
  - Lead Engineer on the 1A and 2B Reactor Recirc Pump and Motor Replacement Project
  - Lead Mechanical Engineer on both Unit 1 and Unit 2 ASD Projects
  - Unit 1 Turbine Extraction Steam Bellows Replacement (Part of Turbine Retrofit)
  - Floor Drain Surge Tank Sample Line Modification
  - Diesel Generator Heat Exchanger Replacement
- Coating Program Owner for Safety Related Service Level 1 Coatings. Responsibilities include:
  - Performing walkdowns of Service Level 1 Coatings (All of Primary Containment) with qualified inspector
  - Prepared License Renewal Binder for Quad Cities
- Calculation Improvement Plan Owner
  - Prepared and Developed list of Key Calculations for Quad Cities Station
  - Ensure reviews of calculations are completed as required (30 per year at Quad Cities)
  - Update station management of progress through PHC presentations
- Mentor to new engineers in Mechanical Design Group
- Part of the Exelon Emerging Leader Program
- Qualifications Include:
  - Engineering Calculations, Configuration Change, Reviewer, EP Mechanical Eng.
  - 50.59 BWR Screener, VT-1, -2, and -3 Level II

EDUCATION

The Pennsylvania State University — University Park, PA
Masters of Science in Mechanical Engineering — GPA: 3.40/4.00
Thesis Title "Flow and Heat-Transfer Characteristics in the Simulated Fin-Slot Region of the Space Shuttle Booster"
Anticipated Graduation: August 2006

The Pennsylvania State University — University Park, PA
Bachelor of Science in Mechanical Engineering — GPA: 3.30/4.00

August 2003-Current The Pennsylvania State University University Park, PA
Graduate Research - High Pressure Combustion Laboratory

- Participated in an integrated rocket ramjet design project which included programming a performance code that incorporated pre-made chemical equilibrium and trajectory codes using Power Basic.
- Designed modifications to a $1/10^{th}$ scale "fin slot" test rig of the Space Shuttle booster rockets. Performed a heat transfer analysis of the fin area with a team of three students.

AWARDS

Two Best papers awarded by the AIAA Hybrid Rocket Committee, 2002 and 2004
A third place prize in the 2002 graduate research exhibition.

REFERENCES

Available upon request.

JAGDISH NARULA

Senior Engineer, Exelon Nuclear

610-718-3581

Jagdish.narula@exeloncorp.com

SUMMARY

Registered Professional Civil Structural Engineer with extensive experience in design, construction, project engineering management related to Nuclear Power Plants, Fossil power Plants, Refineries, Petrochemical Plants, Industrial and commercial facilities.

Core Competencies include: Seismic Qualification of Nuclear Power Plant Equipment, Seismic analysis and design of Nuclear Plant structures, systems and components, development of modification packages, Technical Evaluations, safety analysis reports, supervision and oversight of contracts and contract project personnel, Evaluation and development of Design Criteria, supervision of Technical personnel, leading projects from conceptual to completion and teaching.

EXPERIENCE

Exelon Corporation (Limerick Generating Station) – senior Engineer (Present)

Working as a Lead Civil Structural Engineer at the plant, I have supported and provided guidance to almost every seismic issue at the plant over the years. Performed Seismic qualification of safety related plant equipment, structures, systems and components, determining and evaluating seismic requirements for safety related electrical and mechanical components, reviewing vendor seismic testing and analysis reports. Have performed numerous seismic II/I evaluations in the plant, prepared modification packages, guided and performed seismic interface review of numerous plant modifications as well as being an Engineering lead on various projects.

Prepared lesson plans and delivered lectures on seismic qualification of equipment on various occasions to engineering population in the plant. Attended and participated in EPRI (SQURTS) meetings.

Recently attended and satisfactorily completed NRC approved EPRI Training on Fukushima Near-Term Task Force Recommendation 2.3 "Plant Seismic Walkdowns" in 2012.

As a seismic SME at Limerick, provided plant related Geotechnical input for development of updated GMRS in support of Fukushima "Near-Term Task Force Recommendation 2.1: Seismic" and

performed Limerick review on EPRI document "Guidelines for Nuclear Plant Response to an Earthquake" developed in response to North Anna Project.

As an SME on Heavy Loads at Limerick, I provided guidance on "heavy load" lifts. Prepared lesson plans and delivered lecture on Heavy Loads (NUREG 612).

Performed numerous technical structural evaluations and provided structural interface on numerous plant modifications.

Bechtel Corporation (Senior Engineer) – 4 years

Lead Civil/Structural Engineer for capital projects involved in the upgrading of Chevron USA's Philadelphia Refinery and was also the Civil/Structural group supervisor. Developed project estimate & schedule input for the projects, prepared designs and calculations for structural steel & concrete structures as well as foundation design for piping, equipment, the process columns & buildings. Prepared and wrote specification for procurement of materials and construction. Prepared the "Civil/Structural Design Criteria" for Chevron USA's Philadelphia Refinery. Performed inspection of existing refinery structures and bridges etc. on request. Prepared design for site development, paving, grading and drainage for the project site.

United Engineers&Constructors (Senior Engineer) – 2 years

As a Senior Structural Engineer on projects for Savannah River Site, I was responsible for preparing project estimates and was also responsible for structural steel design for the "Replacement High Level Waste Evaporator" project. Earlier, I worked on Allegheny Power project and was responsible for design of reinforced concrete and soil stabilized catchment basins in addition to other civil jobs on the project.

Stone & Webster Engineering Corp. (Senior Engineer - Design) – 2 1/2 Years

Responsible for design and analysis of plant structures and pipe supports for Texas Utilities Generating Co.'s Comanche Peak Steam Electric Station Unit 1.

United Engineers&Constructors (Senior Engineer) – 6 years

Group Leader and responsible for design of various support structures for Public Service Co. of New Hampshire's Seabrook Station. Was closely associated and actively engaged in creating "clamping criteria" for I & c tubing. Earlier, worked as a design engineer on Delmarva Power & Light's Coal conversion project and was responsible for design of pressurized structural steel ducts for flue gases & their support structures. I was responsible for the design of support structure for the precipitator and other equipments for the station.

All-states Design & Engineering Co. (Design Engineer) – 1 year

Assigned to DuPont's Maydown & Victoria Plant Projects, I was engaged in structural design of process buildings and foundation design of process columns/tanks & building structures. I was also involved in design of under-ground piping and surface run-off calculations.

International Airports Authority (Executive Engineer) – 2 years

As Executive Engineer (Structural Design) in the planning division of International Airports Authority of India, I was intimately involved in the design of cargo buildings, hangers, additions and alterations to terminal buildings, office complexes and residential buildings.

Delhi College of Engineering (Assistant Professor) – 10 years

In this span of 10 years in teaching at Delhi College of Engineering, I have taught various Civil/Structural Engineering courses to B.S. and M.S. level students and offered consultancy to construction companies. I was also the department in-charge of the college concrete lab.

EDUCATION:
B.S. Civil Engineering
M.S. Structural Engineering

PROFESSIONAL AFFILIATIONS:
Registered Professional Civil Engineer, Pennsylvania

Appendix AC
Seismic Walkdown Checklists (SWCs)

Table AC-1 provides a description of each item, anchorage verification confirmation, a list of Area Walk-By Checklists associated with each item and comments of each Seismic Walkdown Checklist. All items in Table AC-1 were deferred items listed in Table E-1 of the initial report submitted in November 2012, and were accessible during the follow-on walkdowns.

Table AC-1. Summary of Seismic Walkdown Checklists

Component ID	Description	Anchorage Configuration Confirmed?	Area Walk-By	Comments
HV-041-2F022A	Inboard Main Steam Isolation Valve	N/A	51	Not one of the 50% for which an anchor configuration verification is required
HV-041-2F028A	Outboard Main Steam Isolation Valve	N/A	54	Not one of the 50% for which an anchor configuration verification is required
HV-041-2F074A	FDWTR Inboard Isolation Valve	N/A	54	Not one of the 50% for which an anchor configuration verification is required
HV-051-2F041A	2A LPCI HDR Testable Check And Bypass PCIV	N/A	53	Not one of the 50% for which an anchor configuration verification is required
HV-051-2F041C	2C LPCI HDR Testable Check And Bypass PCIV	N/A	53	Not one of the 50% for which an anchor configuration verification is required
PSV-041-2F013E	Main Steam Line Safety/Relief Valve On MSL 'A'	N/A	52	Not one of the 50% for which an anchor configuration verification is required
2A-V212	DW Chiller Fan	N/A	50	Not one of the 50% for which an anchor configuration verification is required
TE-041-201D	Suppression Pool Temperature Division I	N/A	55	Not one of the 50% for which an anchor configuration verification is required
20-E210	HPCI Turbine Barometric Condenser	N/A	35	Not one of the 50% for which an anchor configuration verification is required
2E-T003	E Main Steam Relief Valve (MSRV) Accumulator Tank	N/A	52	Not one of the 50% for which an anchor configuration verification is required
2S-T003	MSRV Accumulator Tank	N/A	51	Not one of the 50% for which an anchor configuration verification is required

Seismic Walkdown Checklist (SWC)

Equipment ID No. HV-041-2F022A Equip. Class[12] (07) Pneumatic-Operated Valves

Equipment Description 'A' MAIN STM ISOL VLV INBD PCIV (MAIN STEAM INBOARD A)

Location: Bldg. *Drywell* Floor El. *273* Room, Area *473*

Manufacturer, Model, Etc. (optional but recommended) *WEIR VALVES & CONTROLS USA INC, 48223-706-7503*

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.) Y☐ N☐ U☐ N/A☑

6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y☑ N☐ U☐

[12] Enter the equipment class name from **Appendix B:** Classes of Equipment.

Equipment ID No. HV-041-2F022A Equip. Class[12] (07) Pneumatic-Operated Valves

Equipment Description 'A' MAIN STM ISOL VLV INBD PCIV (MAIN STEAM INBOARD A)

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☐

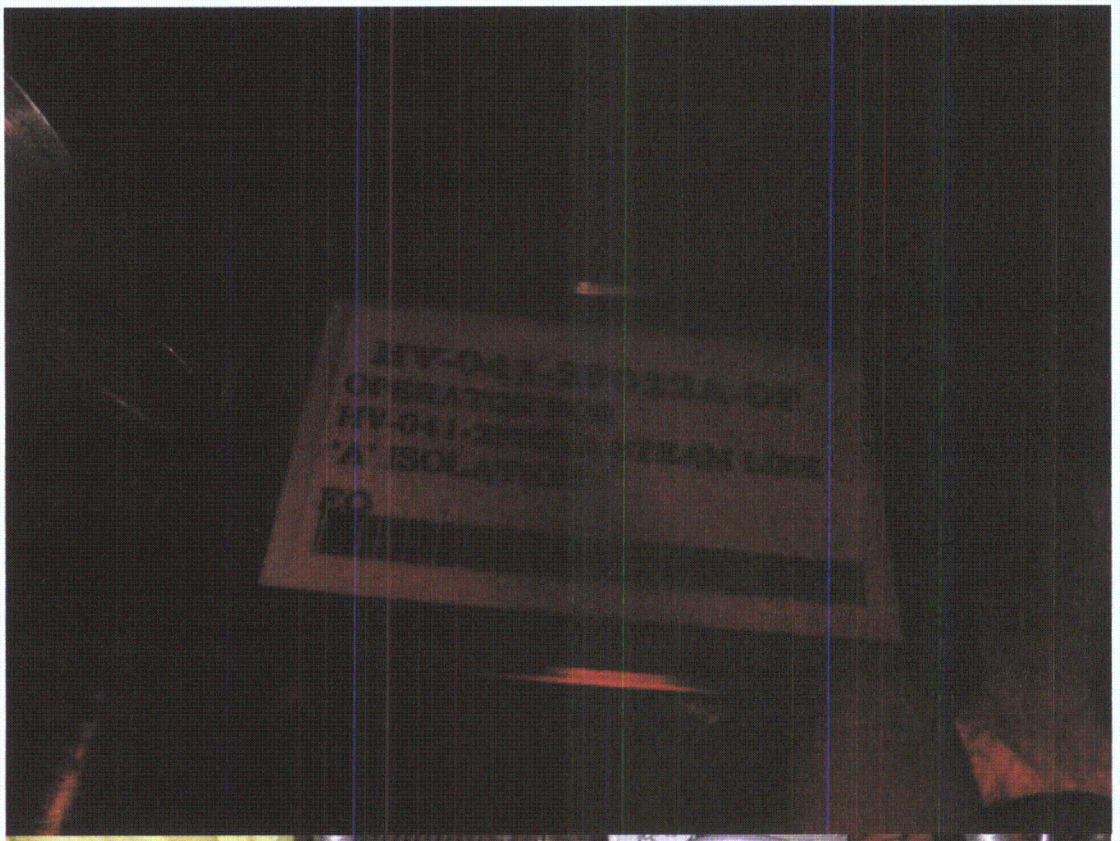
Other Adverse Conditions

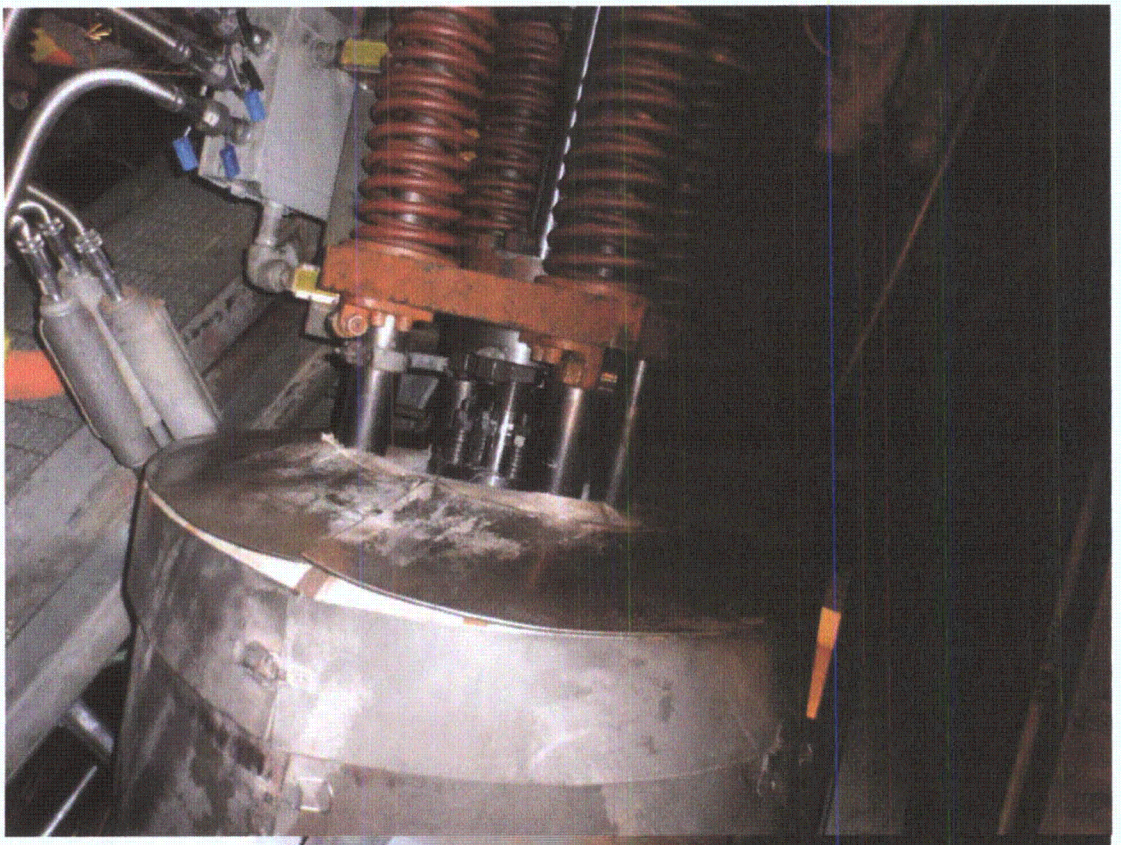
11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment? Y☑ N☐ U☐

Comments (Additional pages may be added as necessary)

Evaluated by: Tracey Gallagher Tracey Gallagher Date: 4/1/13

Jesse Lucas 4/1/13



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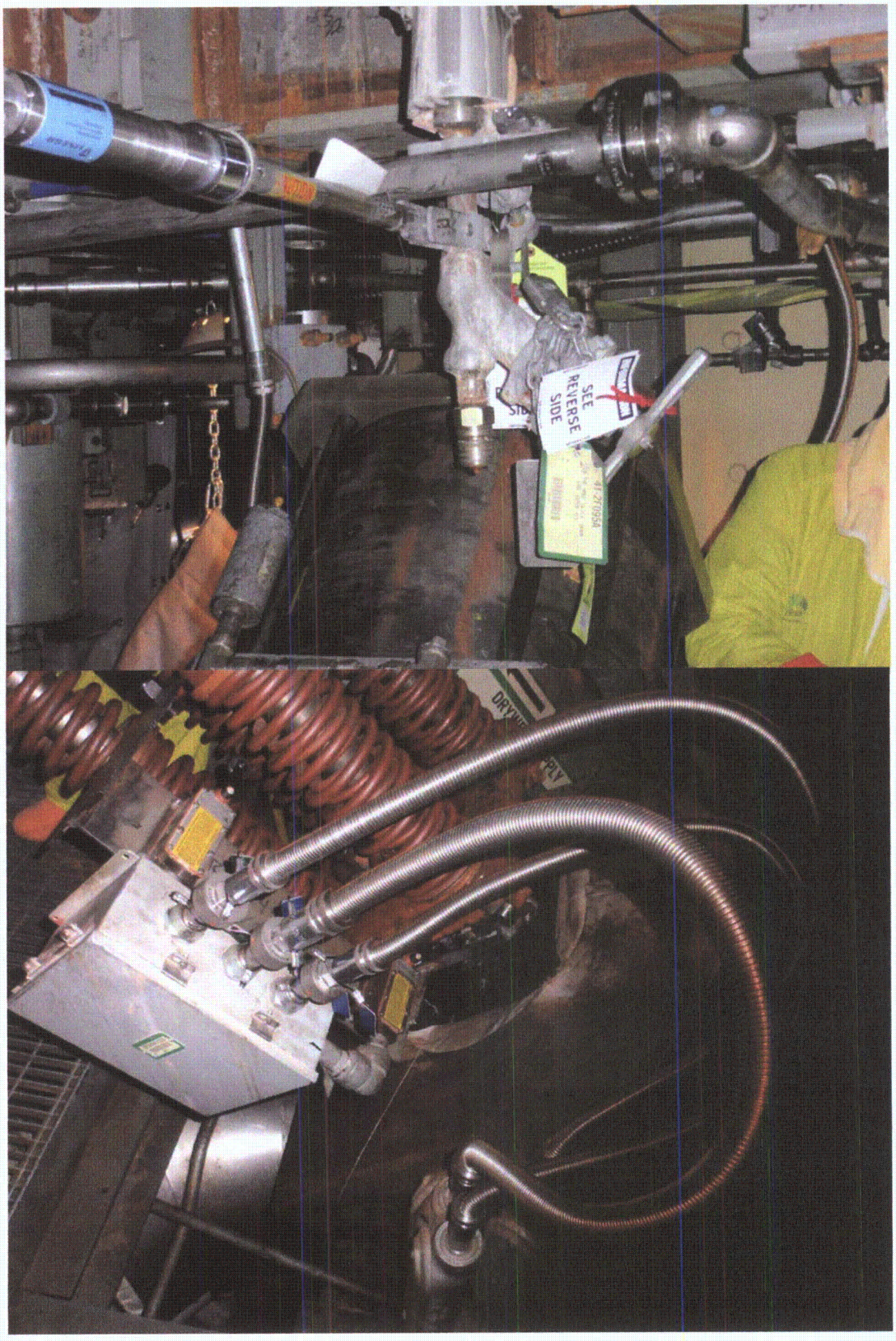

SEE
REVERSE
SIDE

Seismic Walkdown Checklist (SWC)

Equipment ID No. HV-041-2F028A Equip. Class[12] (07) Pneumatic-Operated Valves

Equipment Description 'A' MAIN STM ISOL VLV OUTBD PCIV (MAIN STEAM OUTBOARD A)

Location: Bldg. *Unit 2 Steam Chase* Floor El. *273* Room, Area *587*

Manufacturer, Model, Etc. (optional but recommended) WEIR VALVES & CONTROLS, 48223-706-7503

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.) Y☐ N☐ U☐ N/A☑

6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y☑ N☐ U☐

[12] Enter the equipment class name from **Appendix B:** Classes of Equipment.

Equipment ID No. HV-041-2F028A Equip. Class[12] (07) Pneumatic-Operated Valves

Equipment Description 'A' MAIN STM ISOL VLV OUTBD PCIV (MAIN STEAM OUTBOARD A)

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

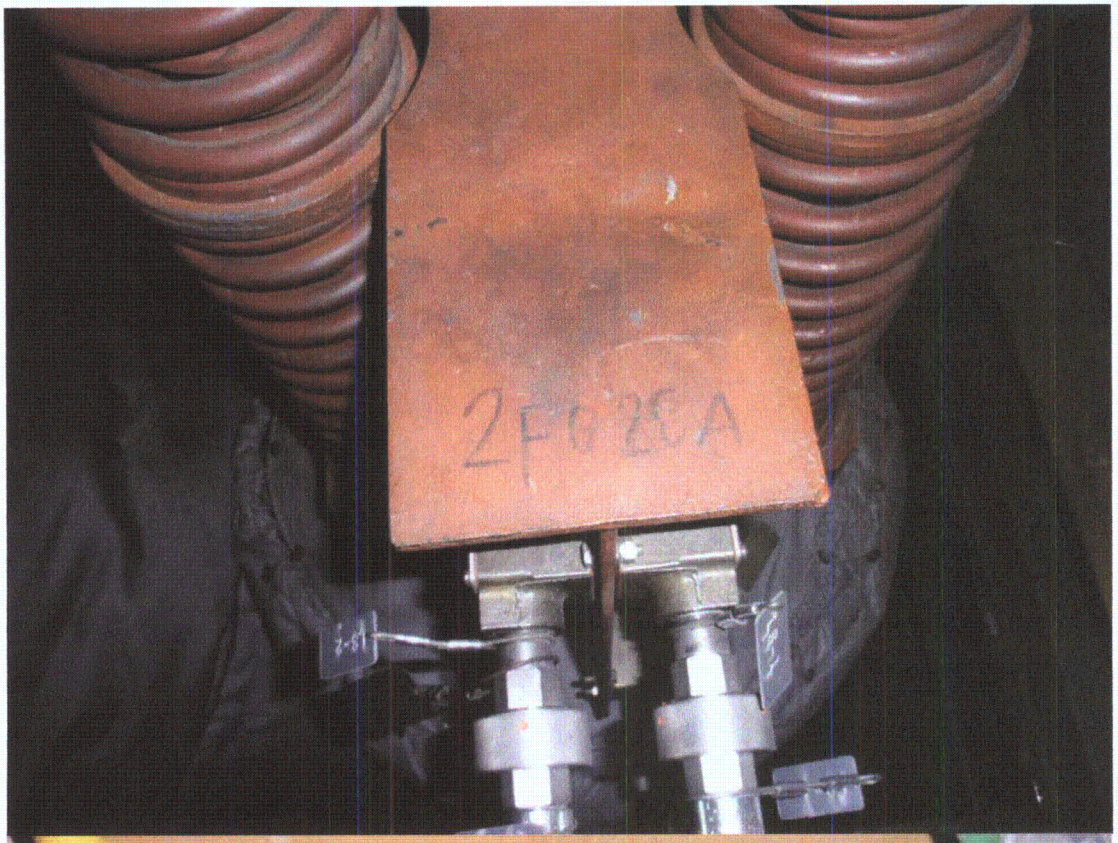
11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment? Y☑ N☐ U☐

Comments (Additional pages may be added as necessary)

Evaluated by: Tracey Gallagher Tracey Gallagher Date: 4/2/13

Jesse Lucas 4/2/13

Limerick Generating Station Unit 2 **HV-041-2F028A Pictures**
Correspondence No.: RS-13-138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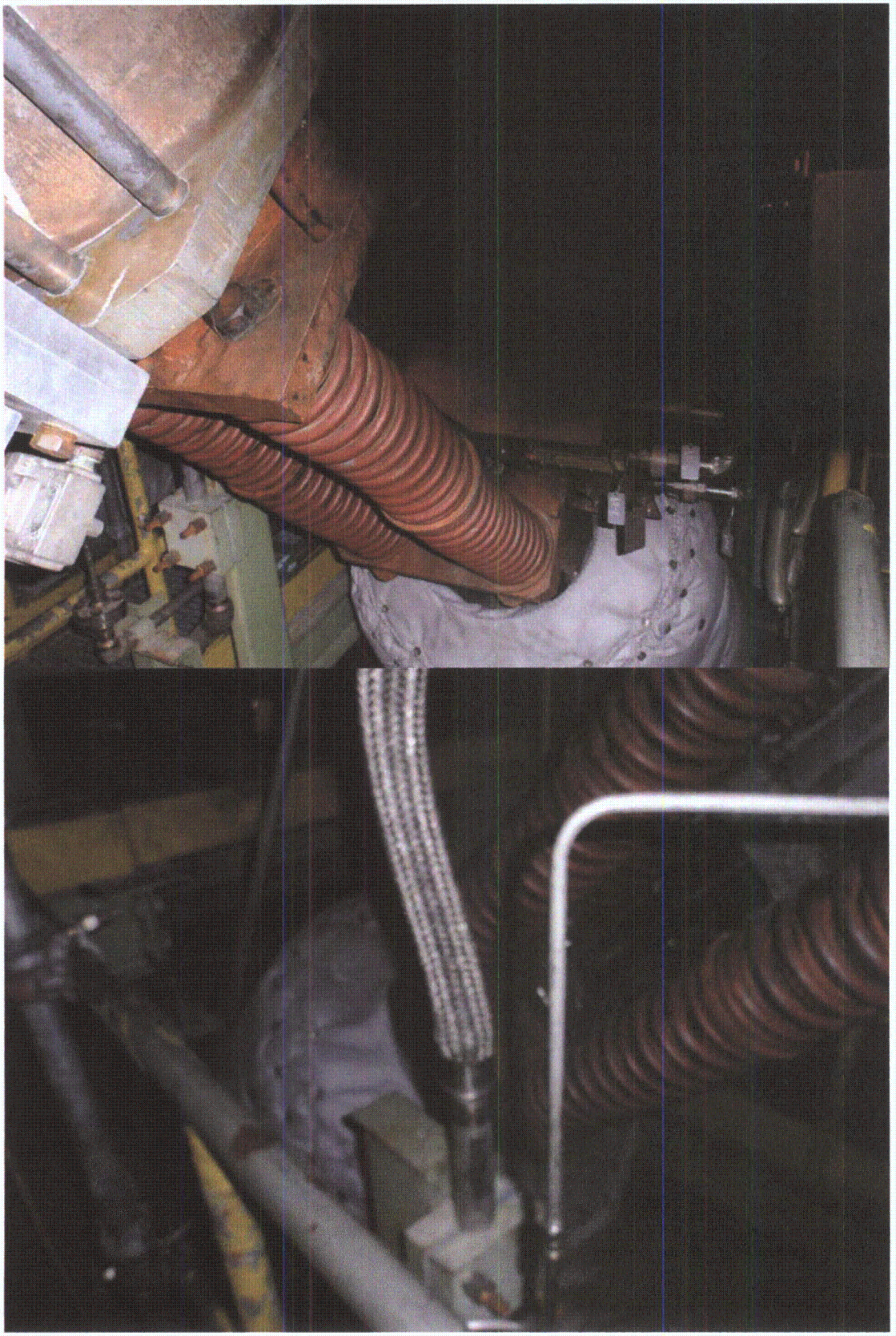


Limerick Generating Station Unit 2
Correspondence No.: RS-13-138

Status: (Y) N U

Seismic Walkdown Checklist (SWC)

Equipment ID No. HV-041-2F074A Equip. Class[12] (07) Pneumatic-Operated Valves

Equipment Description 'A' FEED WATER LOOP SUPPLY OUTBRD PCIV (CHECK A)

Location: Bldg. *Unit 2 Steam Chase* Floor El. *283* Room, Area *587*

Manufacturer, Model, Etc. (optional but recommended) WEIR VALVES & CONTROLS, 21357M-H DWG

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.) Y☐ N☐ U☐ N/A☑

6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y☑ N☐ U☐

[12] Enter the equipment class name from **Appendix B:** Classes of Equipment.

Limerick Generating Station Unit 2
Correspondence No.: RS-13-138

Equipment ID No. HV-041-2F074A Equip. Class[12] (07) Pneumatic-Operated Valves

Equipment Description 'A' FEED WATER LOOP SUPPLY OUTBRD PCIV (CHECK A)

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

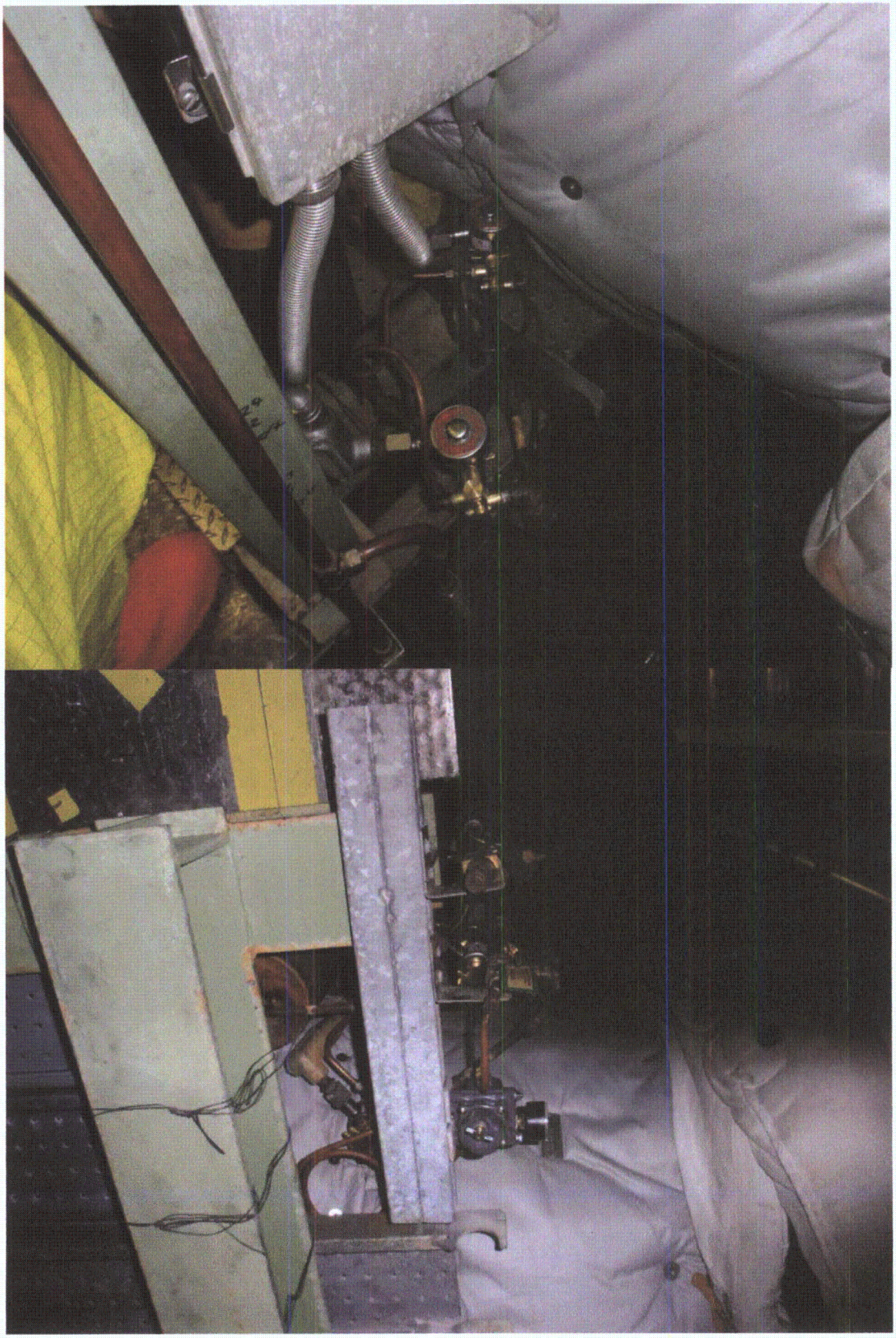
11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment? Y☑ N☐ U☐

Comments (Additional pages may be added as necessary)

Evaluated by: Tracy Gallagher Tracy Gallagher Date: 4/2/13

Jesse Lucas 4/2/13


HV-041-2F074A
'A' FEED WATER LOOP
SUPPLY OUTBRD PCIV
(CHECK A)



Seismic Walkdown Checklist (SWC)

Equipment ID No. HV-051-2F041A Equip. Class[12] (05) Fluid (Air/Hyd) Valves

Equipment Description 2A LPCI INJ HDR Testable Check and Bypass PCIV

Location: Bldg. *Drywell* Floor El. ~~286~~ 296 3/4/13 Room, Area *473*

Manufacturer, Model, Etc. (optional but recommended) WEIR VALVES & CONTROLS, 13673-02-H

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.) Y☐ N☐ U☐ N/A☑

6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y☑ N☐ U☐

[12] Enter the equipment class name from **Appendix B:** Classes of Equipment.

Equipment ID No. HV-051-2F041A Equip. Class[12] (05) Fluid (Air/Hyd) Valves

Equipment Description 2A LPCI INJ HDR Testable Check and Bypass PCIV

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)

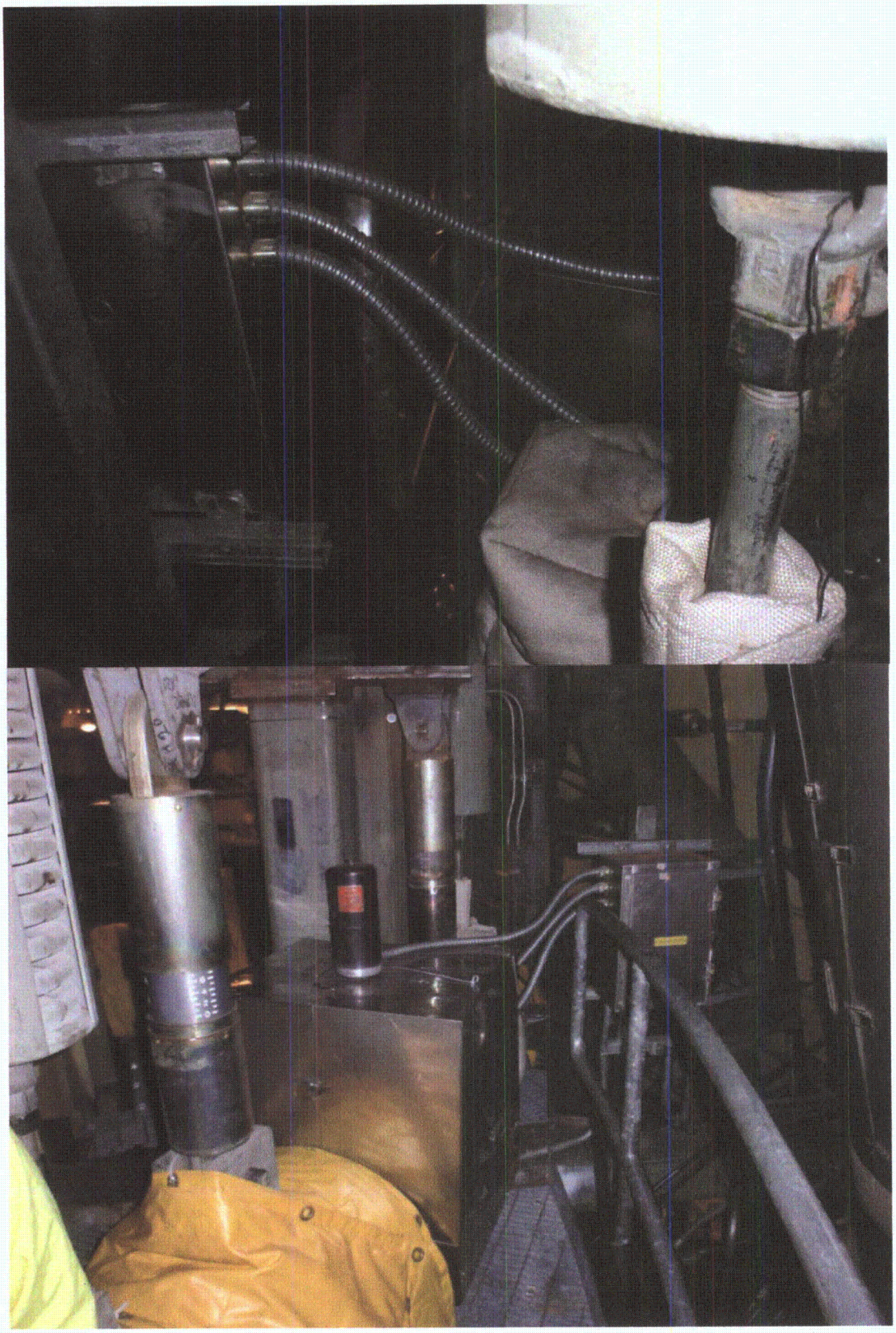
Equipment covered in lead shielding.

Evaluated by: Tracey Gallagher Tracey Gallagher Date: 4/1/13

Jesse Lucas 4/1/13


HV-51-2F041A
INJ HDR TESTABLE
AND BYPASS PCIV
(INBOARD CHECK A)
1E-A
103018


DCA H18-H8-
ITEM-# 4
DO NOT REMOVE



Limerick Generating Station Unit 2
Correspondence No.: RS-13-138

Status: (Y) N U

Seismic Walkdown Checklist (SWC)

Equipment ID No. HV-051-2F041C Equip. Class[12] (05) Fluid (Air/Hyd) Valves

Equipment Description 2C LPCI INJ HDR TESTABLE CHK AND BYPASS PCIV (INBOARD CHECK C)

Location: Bldg. *Drywell* Floor El. *296* Room, Area *473*

Manufacturer, Model, Etc. (optional but recommended) WEIR VALVES & CONTROLS, 13673-02-H

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.) Y☐ N☐ U☐ N/A☑

6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y☑ N☐ U☐

[12] Enter the equipment class name from **Appendix B:** Classes of Equipment.

Limerick Generating Station Unit 2
Correspondence No.: RS-13-138

Equipment ID No. HV-051-2F041C Equip. Class[12] (05) Fluid (Air/Hyd) Valves

Equipment Description 2C LPCI INJ HDR TESTABLE CHK AND BYPASS PCIV (INBOARD CHECK C)

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☐

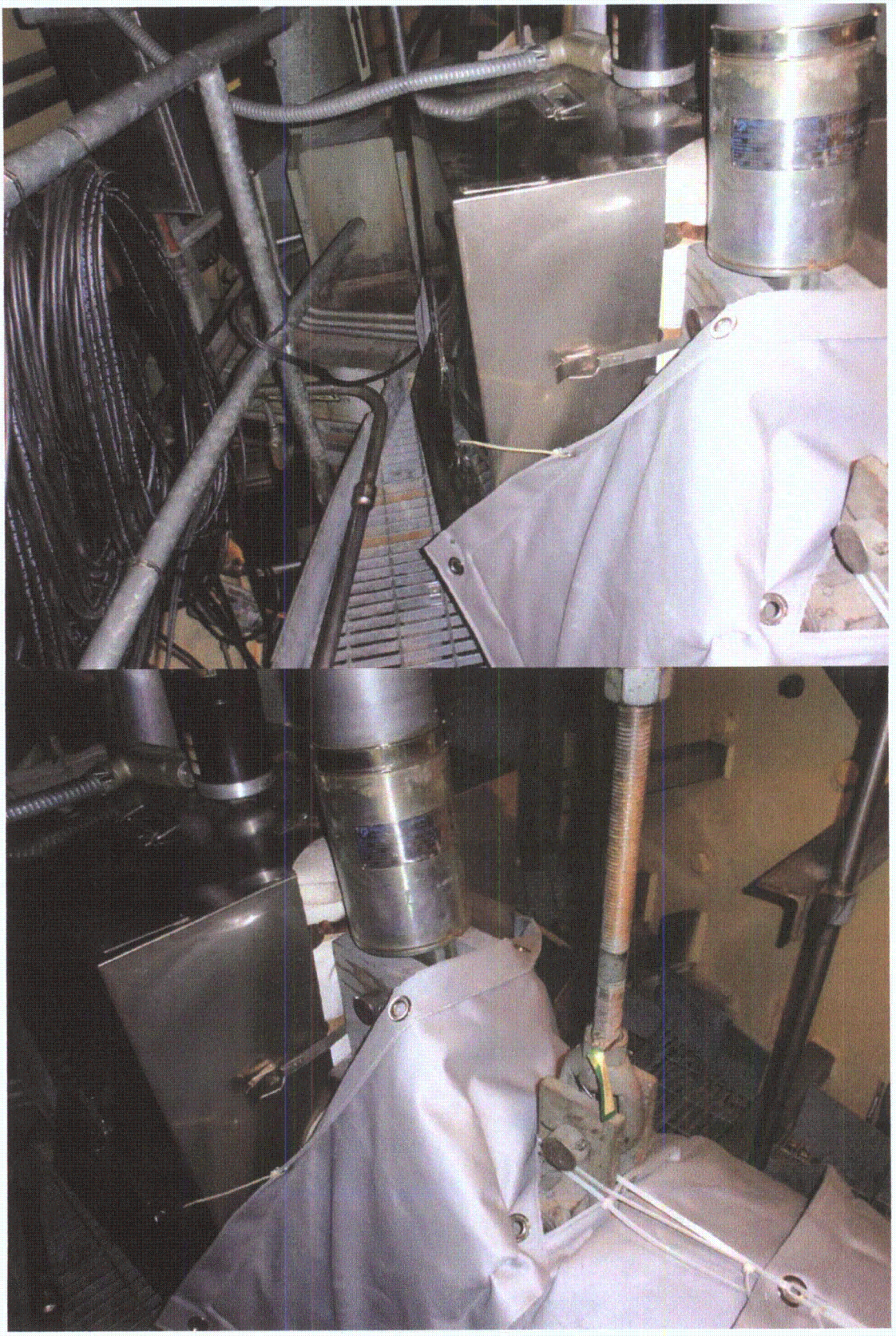
Other Adverse Conditions

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)

Evaluated by: Tracey Gallagher Tracey Gallagher Date: 4/1/13

Jesse Lucas 4/1/13




ZS-51-241C
ZS-51-241C

Seismic Walkdown Checklist (SWC)

Equipment ID No. PSV-041-2F013E Equip. Class[12] (07) Pneumatic-Operated Valves

Equipment Description MAIN STEAM LINE SAFETY/RELIEF VALVE ON MSL 'A'

Location: Bldg. *Drywell* Floor El. *286* Room, Area *473*

Manufacturer, Model, Etc. (optional but recommended) TARGET ROCK, 9867F

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☐
Multiple flange bolts were missing. (Stored nearby)
↳ The SRV is being replaced. Verified per A/R # A1806912.

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.) Y☐ N☐ U☐ N/A☑

6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y☑ N☐ U☐

[12] Enter the equipment class name from **Appendix B:** Classes of Equipment.

Limerick Generating Station Unit 2
Correspondence No.: RS-13-138

Equipment ID No. PSV-041-2F013E Equip. Class[12] (07) Pneumatic-Operated Valves

Equipment Description MAIN STEAM LINE SAFETY/RELIEF VALVE ON MSL 'A'

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

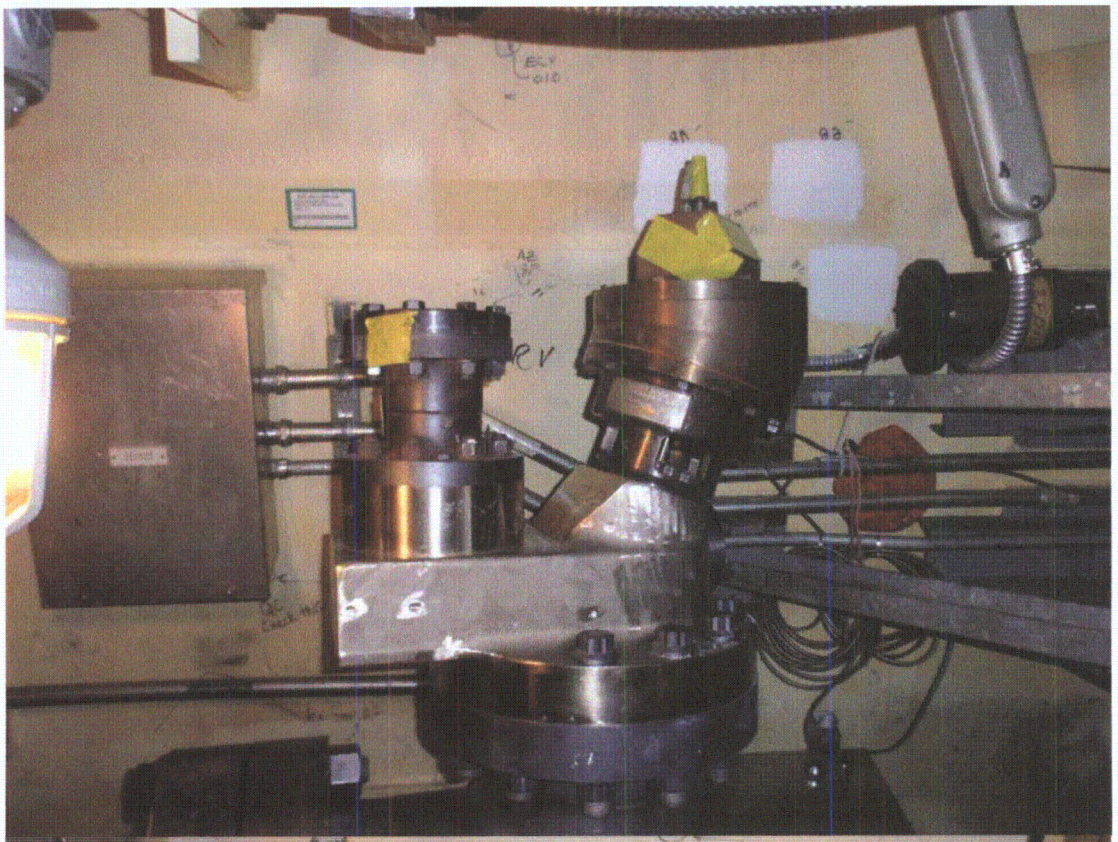
11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment? Y☑ N☐ U☐

Comments (Additional pages may be added as necessary)

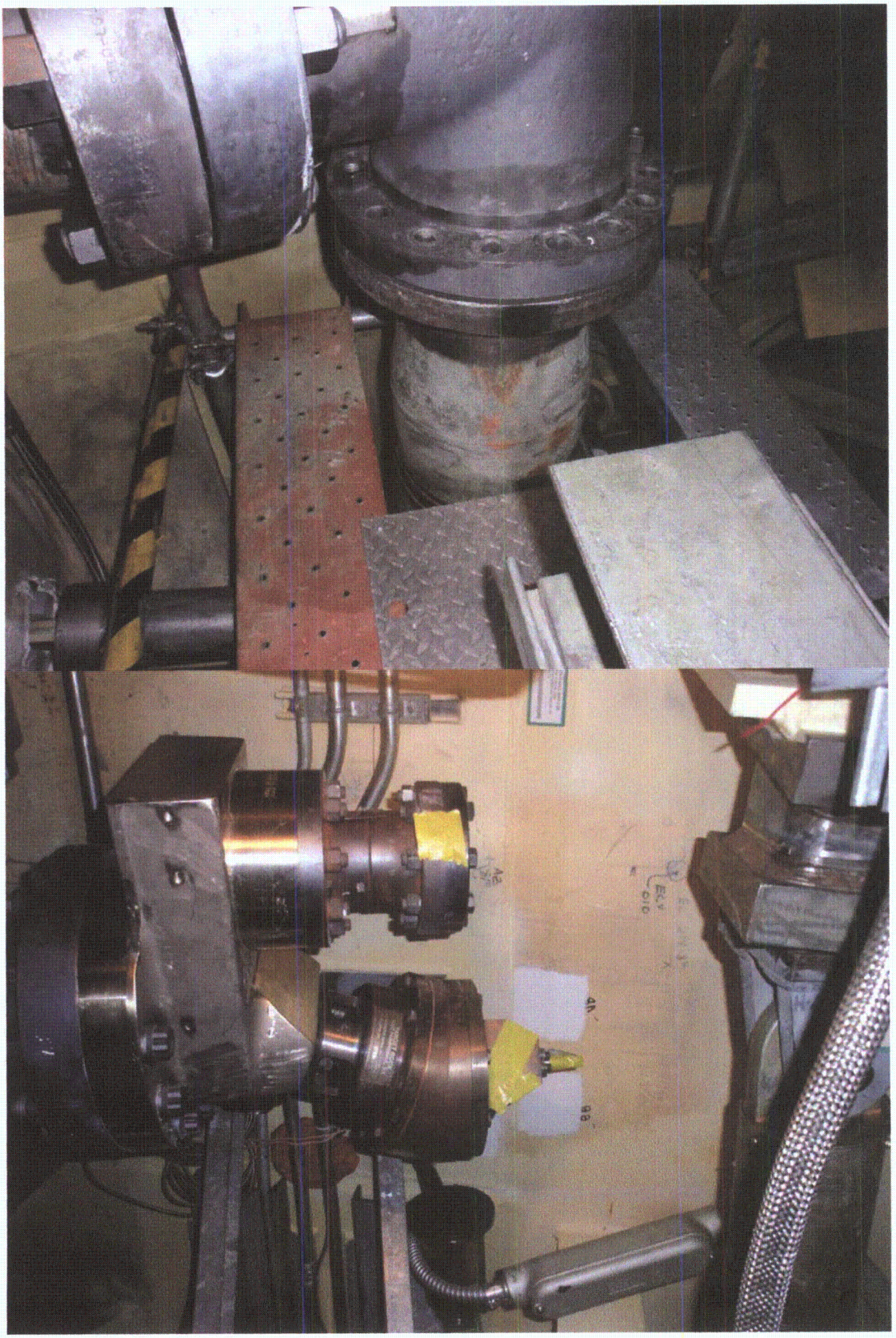
Evaluated by: Tracey Gallagher Tracey Gallagher Date: 4/1/13

Jesse Lucas 4/1/13


ECV
010
AZ
310
E




QC
Check this



Seismic Walkdown Checklist (SWC)

Equipment ID No. 2A-V212 Equip. Class[12] (09) Fans

Equipment Description A Drywell Unit Cooler Fan

Location: Bldg. *Drywell* Floor El. *238* Room, Area *473*

Manufacturer, Model, Etc. (optional but recommended) AAF INTERNATIONAL, 107D-153908-J DWG

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.) Y☐ N☐ U☐ N/A☑

6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y☑ N☐ U☐

[12] Enter the equipment class name from **Appendix B:** Classes of Equipment.

Equipment ID No. 2A-V212 Equip. Class[12] (09) Fans

Equipment Description A Drywell Unit Cooler Fan

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)

Evaluated by: Tracey Gallagher Tracey Gallagher Date: 4/1/13

Jesse Lucas 4/1/13

2A-V212 Pictures

2A-V212 Pictures

2A-V212 Pictures

Seismic Walkdown Checklist (SWC)

Equipment ID No. TE-041-201D Equip. Class[12] (19) Temperature Sensors

Equipment Description Suppression Pool Temperature Division I

Location: Bldg. *Suppresion Pool* Floor El. *217* Room, Area *172*

Manufacturer, Model, Etc. (optional but recommended) WEED INSTRUMENT CO, 611D-1B-C-6-C-342.5

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? TLG 4/12/13 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.) Y☐ N☐ U☐ N/A☑

6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y☑ N☐ U☐

[12] Enter the equipment class name from **Appendix B:** Classes of Equipment.

Limerick Generating Station Unit 2
Correspondence No.: RS-13-138

Equipment ID No. TE-041-201D Equip. Class[12] (19) Temperature Sensors

Equipment Description Suppression Pool Temperature Division I

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

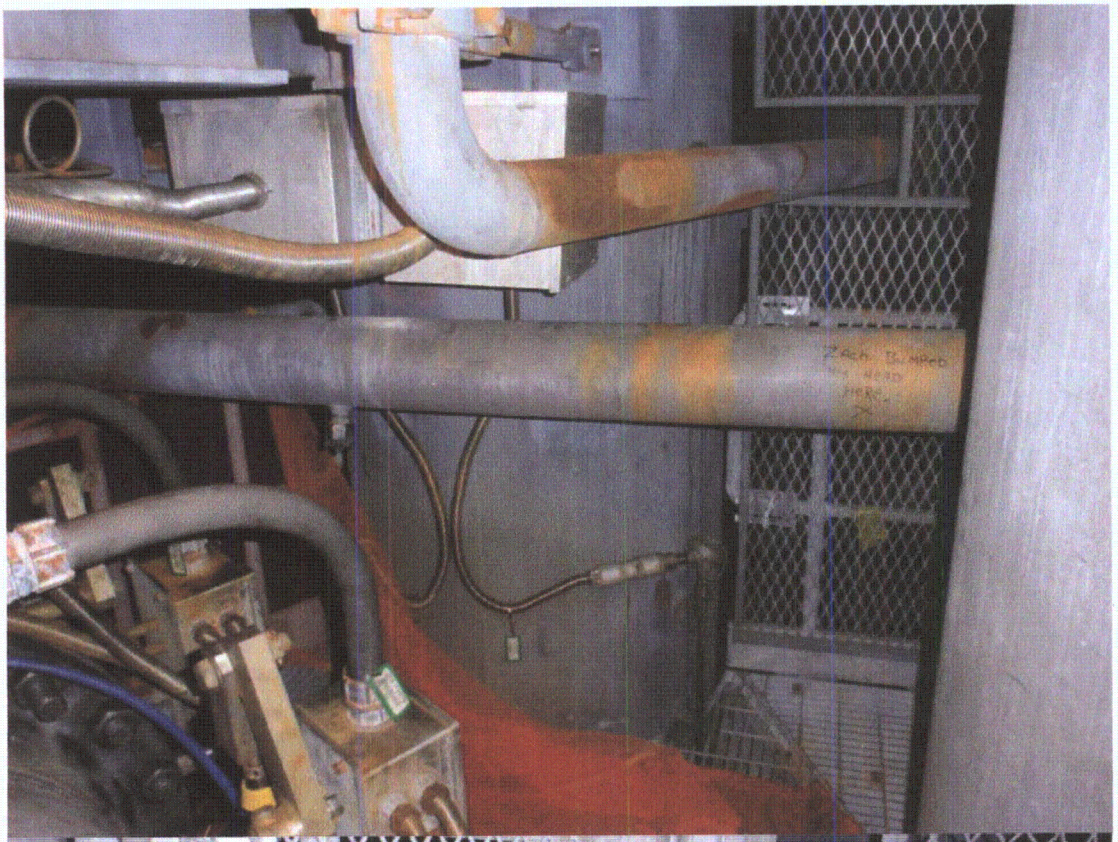
11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment? Y☑ N☐ U☐

Comments (Additional pages may be added as necessary)

Evaluated by: Tracey Gallagher Tracey Gallagher Date: 4/2/13

Jesse Lucas 4/2/13


TE-41-201D



Seismic Walkdown Checklist (SWC)

Equipment ID No. 20-E210 Equip. Class[12] (21) Tanks and Heat Exchangers

Equipment Description HPCI TURBINE BAROMETRIC CONDENSER

Location: Bldg. *Unit 2 Reactor Enclosure* Floor El. *177* Room, Area *180*

Manufacturer, Model, Etc. (optional but recommended) *NASH ENG CO, CSM-40*

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.) Y☐ N☐ U☐ N/A☑

6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y☑ N☐ U☐

[12] Enter the equipment class name from **Appendix B:** Classes of Equipment.

Equipment ID No. 20-E210 Equip. Class[12] (21) Tanks and Heat Exchangers

Equipment Description HPCI TURBINE BAROMETRIC CONDENSER

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

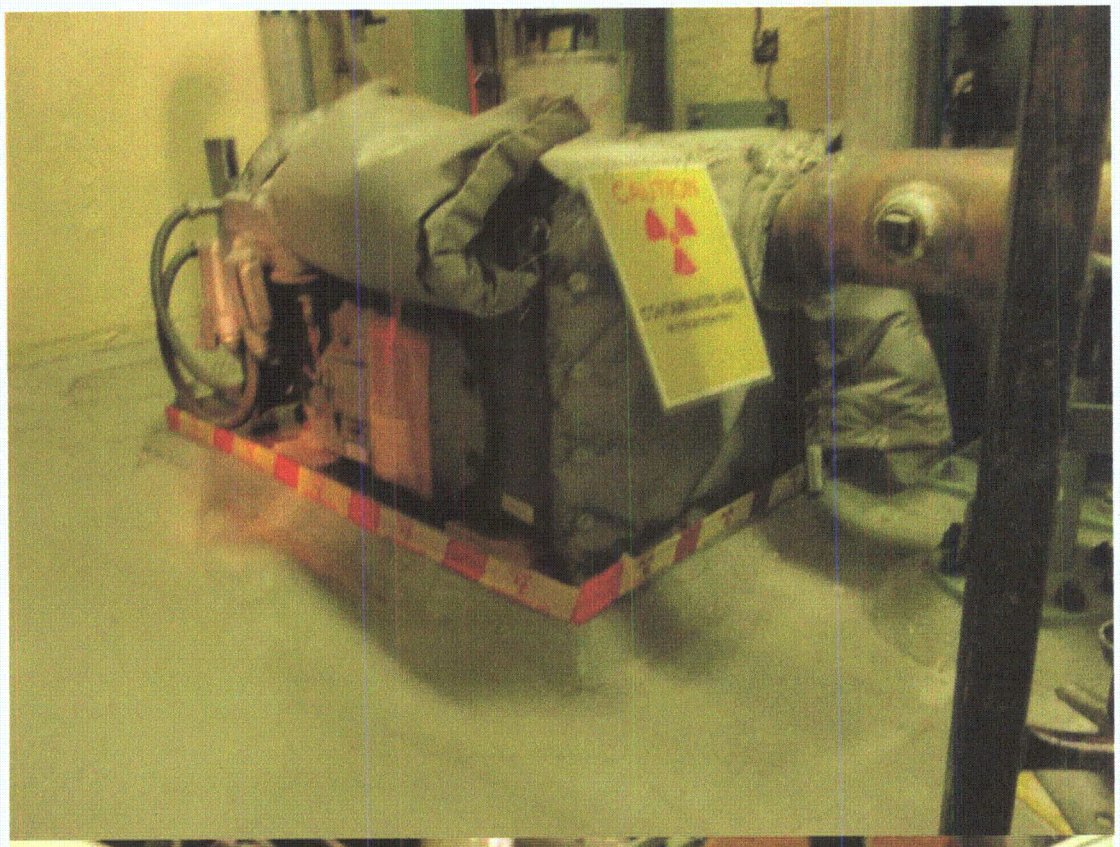
11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment? Y☑ N☐ U☐

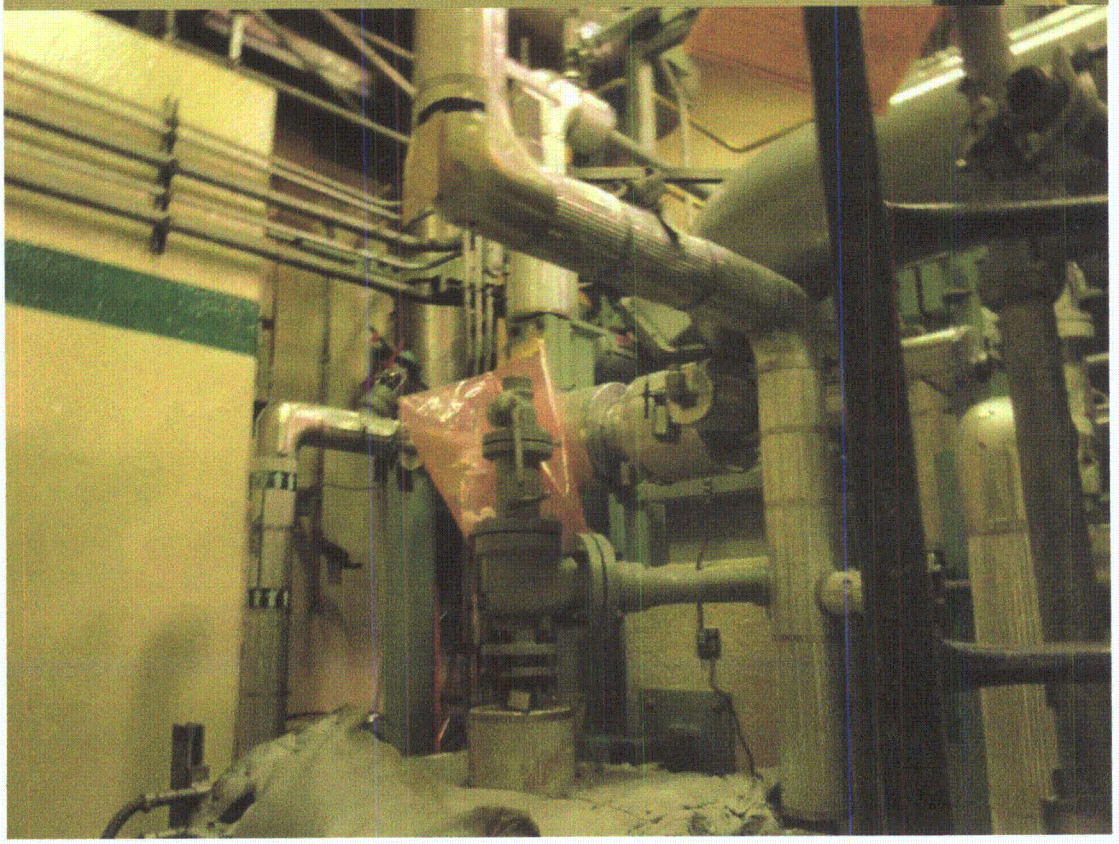
Comments (Additional pages may be added as necessary)

Evaluated by: Tracey Gallagher Tracey Gallagher Date: 4/2/13

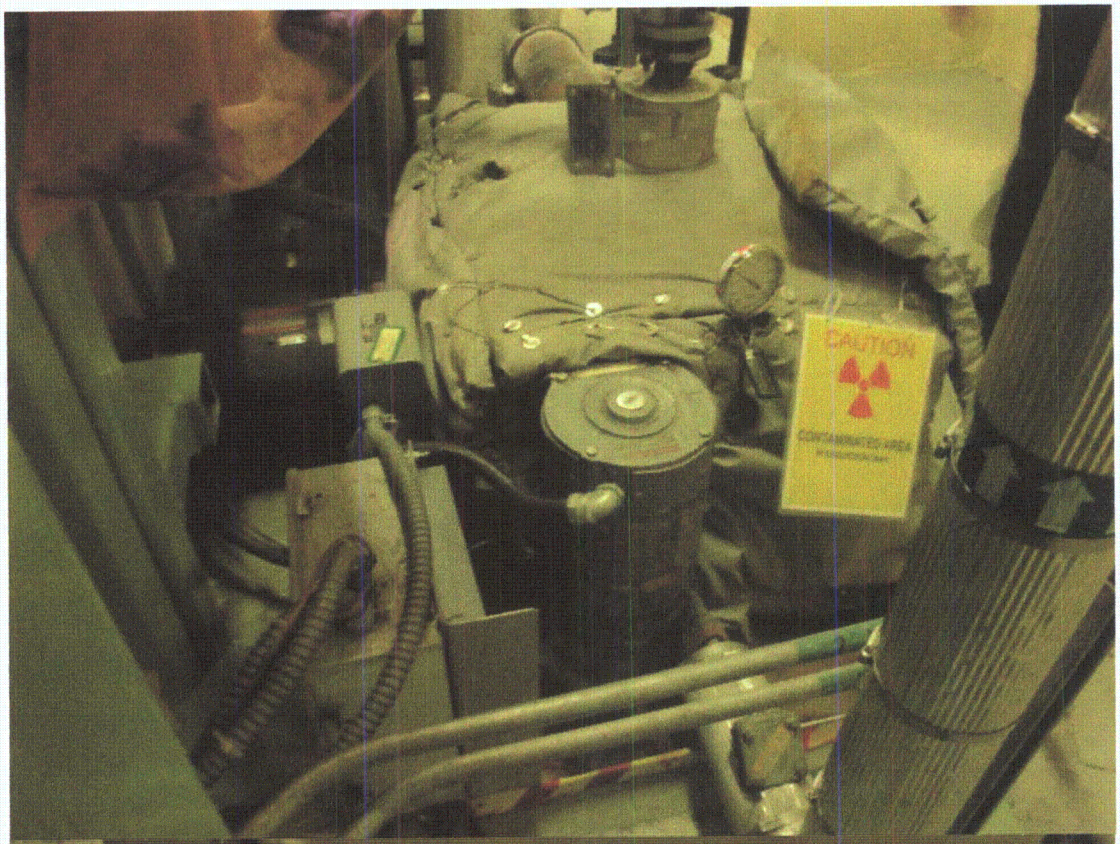
Jesse Lucas 4/2/13

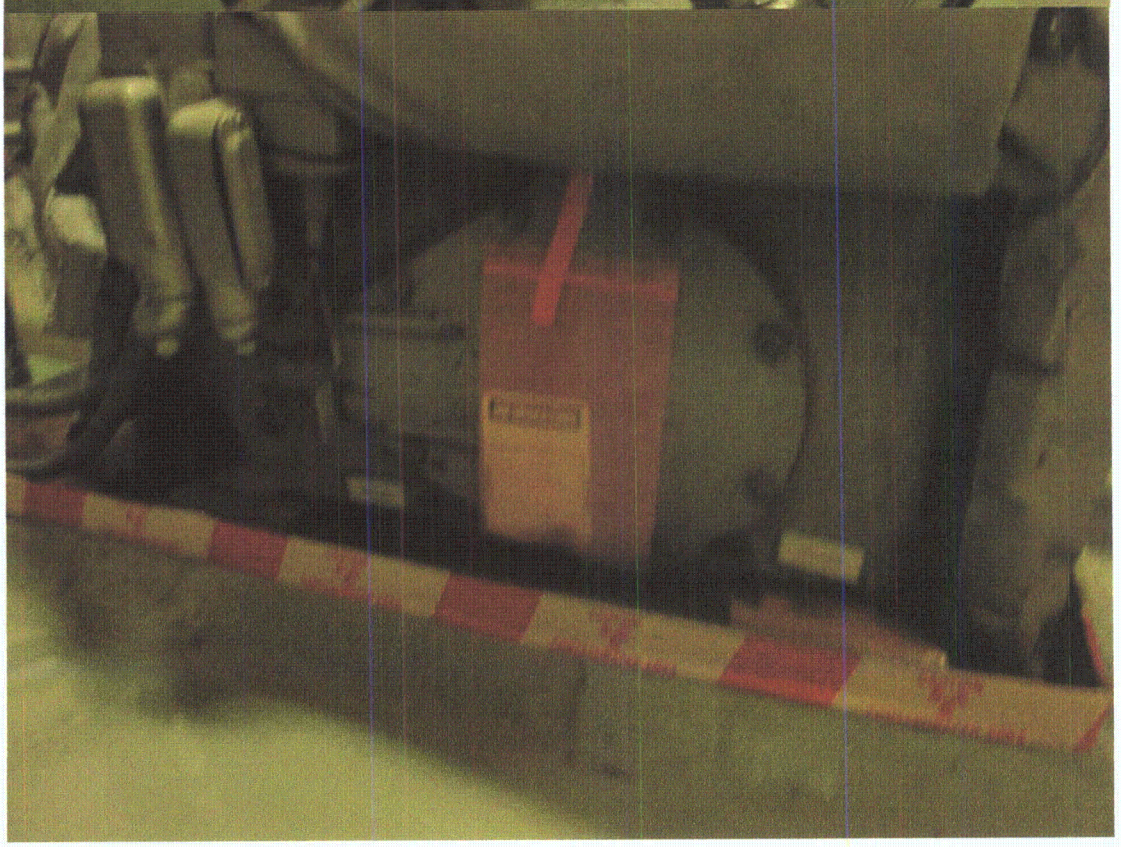
20-E210 Pictures





20-E210 Pictures





Seismic Walkdown Checklist (SWC)

Equipment ID No. 2E-T003 Equip. Class[12] 21- Tanks and Heat Exchangers

Equipment Description E Main Steam Relief Valve (MSRV) Accumulator Tank

Location: Bldg. *Drywell* Floor El. *286* Room, Area *473*

Manufacturer, Model, Etc. (optional but recommended) WESTERN PIPING, B82-303 DWG

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.) Y☐ N☐ U☐ N/A☑

6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y☑ N☐ U☐

[12] Enter the equipment class name from **Appendix B:** Classes of Equipment.

Equipment ID No. 2E-T003 Equip. Class[12] 21- Tanks and Heat Exchangers

Equipment Description E Main Steam Relief Valve (MSRV) Accumulator 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

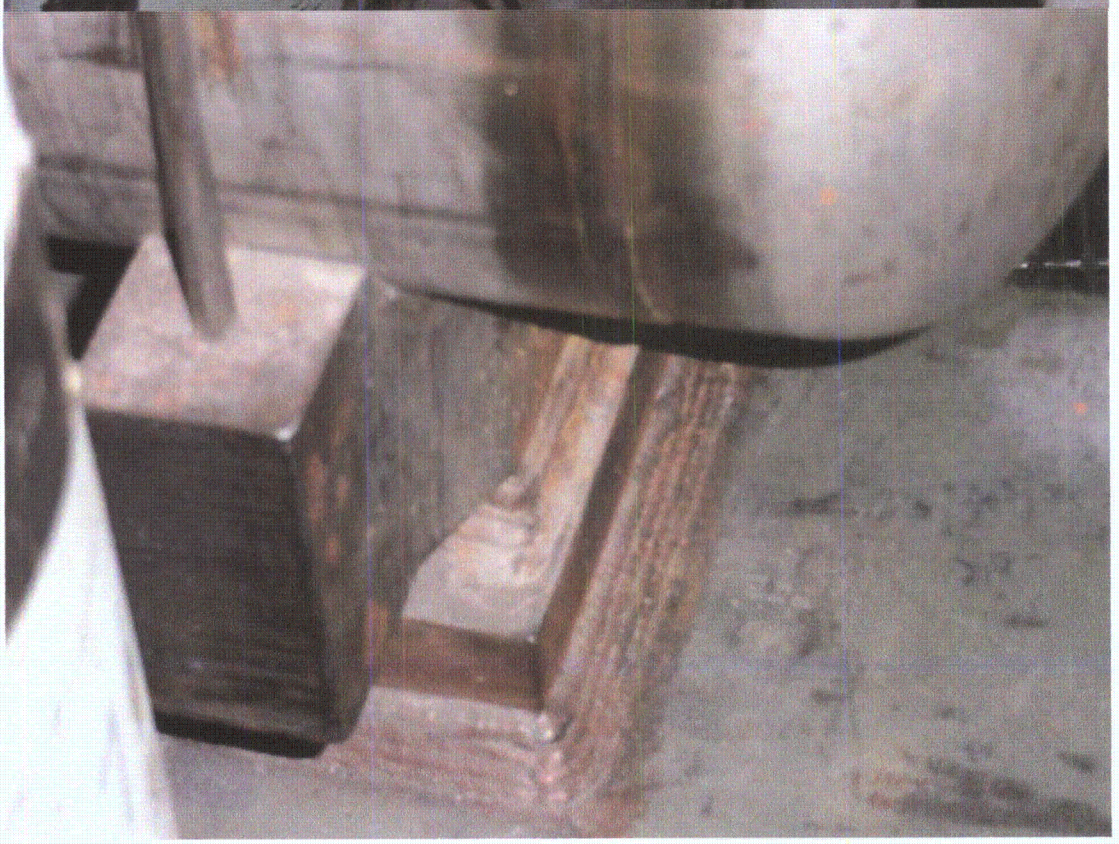
11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment? Y☑ N☐ U☐

Comments (Additional pages may be added as necessary)

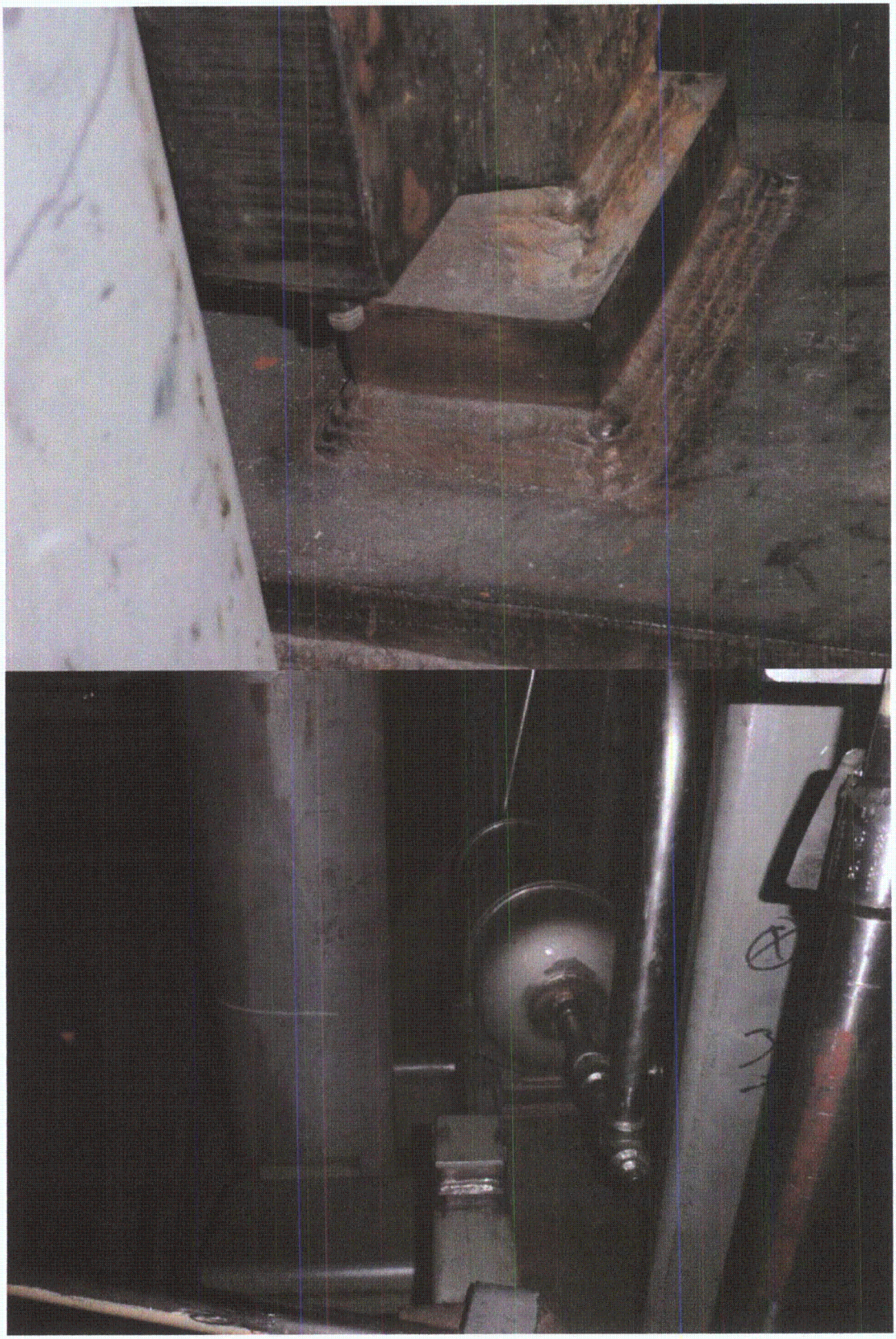
Evaluated by: Tracey Gallagher Tracey Gallagher Date: 4/1/13

Jesse Lucas 4/1/13

2E-T003 Pictures



2E-T003 Pictures



2E-T003 Pictures

Seismic Walkdown Checklist (SWC)

Equipment ID No. 2S-T003 Equip. Class[12] 21- Tanks and Heat Exchangers

Equipment Description S MAIN STEAM RELIEF VALVE (MSRV) ACCUMULATOR TANK

Location: Bldg. *Drywell* Floor El. *273* Room, Area *473*

Manufacturer, Model, Etc. (optional but recommended) *N/A*

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.) Y☐ N☐ U☐ N/A☑

6. Based on the above anchorage evaluations, is the anchorage free of potentially adverse seismic conditions? Y☑ N☐ U☐

[12] Enter the equipment class name from **Appendix B:** Classes of Equipment.

Equipment ID No. 2S-T003 Equip. Class[12] 21- Tanks and Heat Exchangers

Equipment Description S MAIN STEAM RELIEF VALVE (MSRV) ACCUMULATOR 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

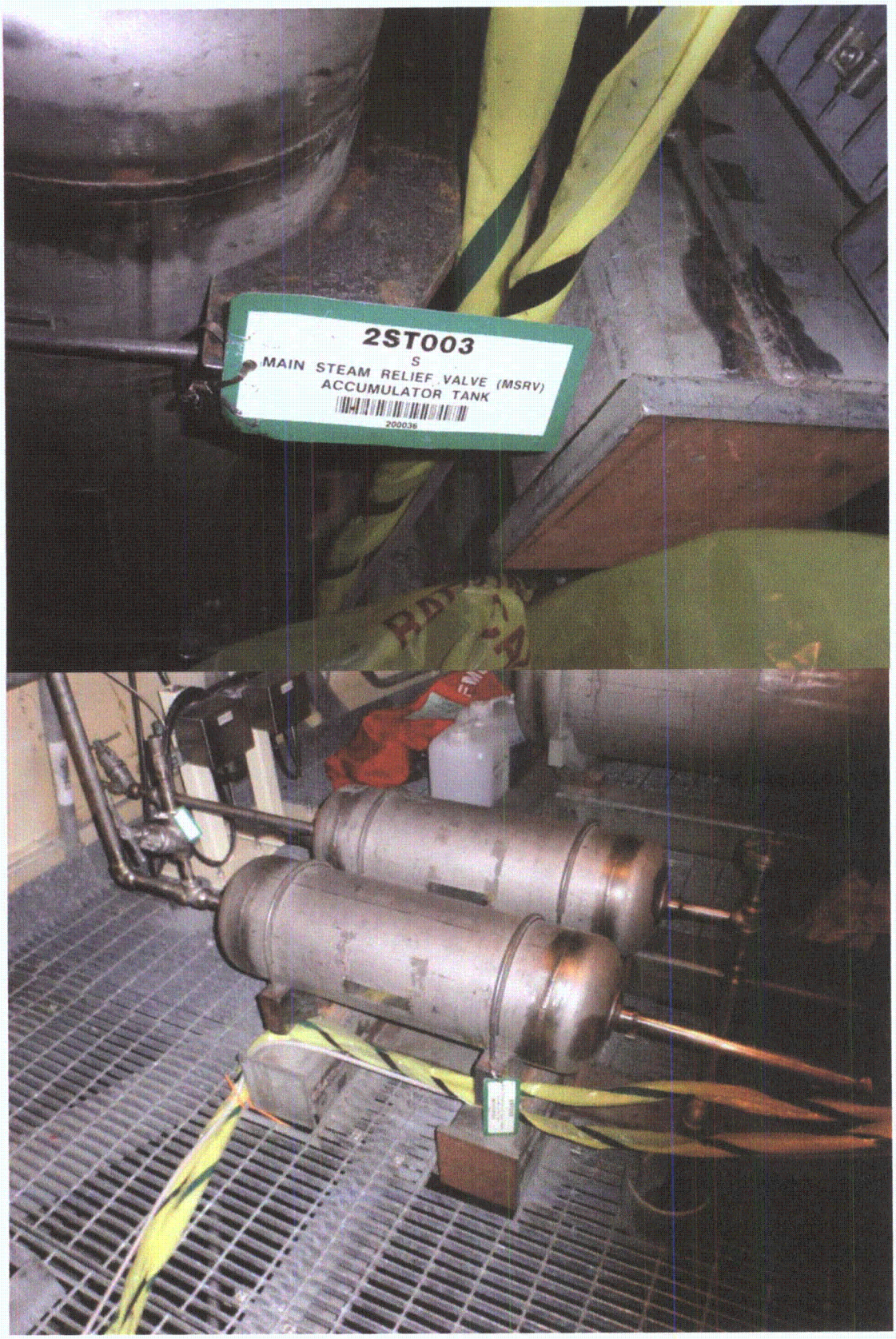
11. Have you looked for and found no other seismic conditions that could adversely affect the safety functions of the equipment? Y☑ N☐ U☐

Comments (Additional pages may be added as necessary)

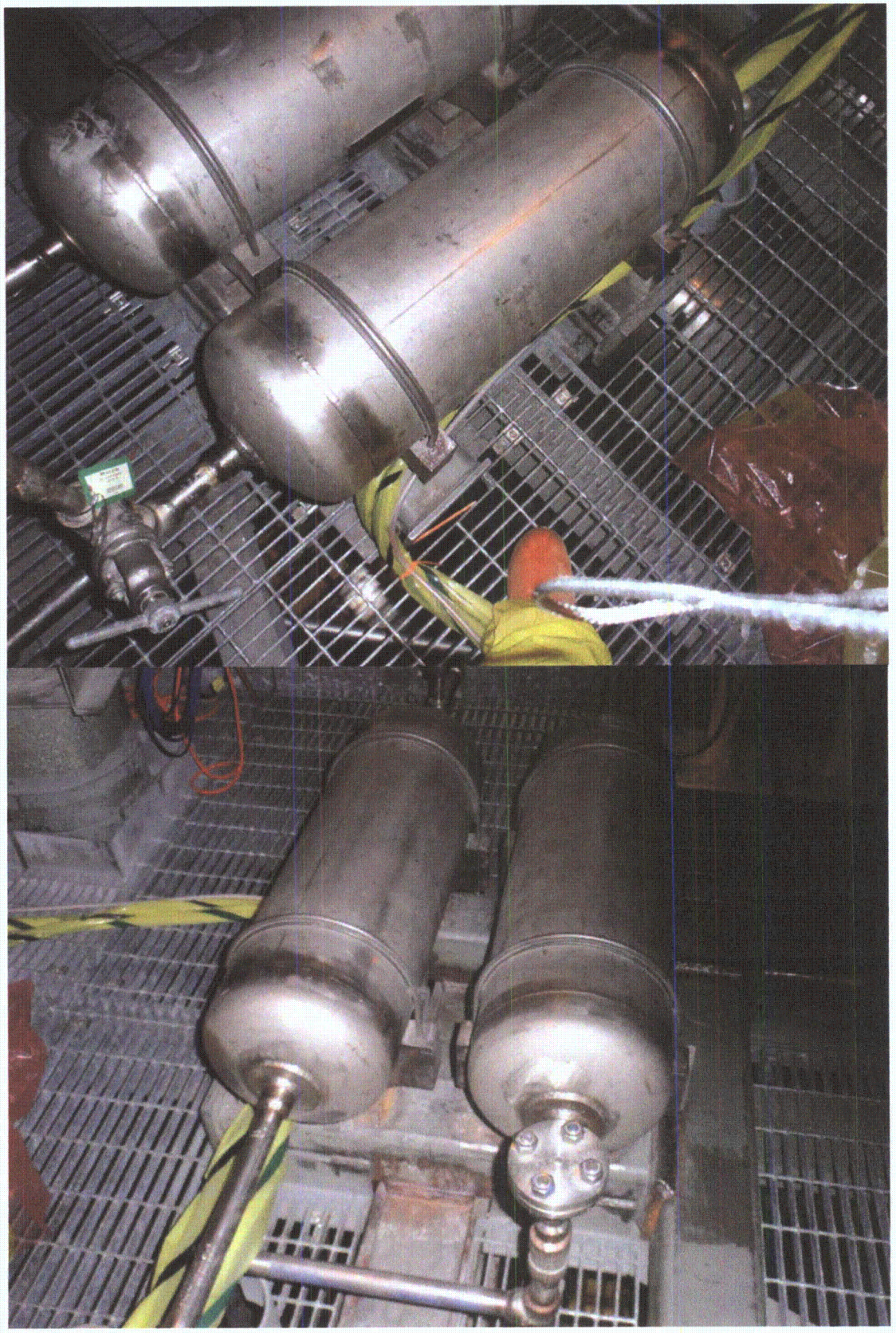
Evaluated by: Tracey Gallagher Tracey Gallagher Date: 4/1/13

Jesse Lucas 4/1/13

2S-T003 Pictures



2S-T003 Pictures



2S-T003 Pictures