



**ZACHRY NUCLEAR, INC.**  
ENGINEERING EVALUATION 12-E18  
COOPER NUCLEAR STATION SEISMIC WALKDOWN REPORT FOR  
RESOLUTION OF FUKUSHIMA NEAR-TERM TASK FORCE  
RECOMMENDATION 2.3: SEISMIC

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*ZNI Document Type: QAPD*

Attachment E  
Condition Reports (CRs)

**Originator:** Bon,Matthew A**Originator Phone:** 4028255187**Originator Site Group:** CNS PLT Eng Design DFIN Staff CNS**Operability Required:** Y**Supervisor Name:** Able,Alan L**Reportability Required:** Y**Discovered Date:** 09/13/2012 15:32**Initiated Date:** 09/13/2012 16:22**Condition Description:**

Seismic and general housekeeping issues

Condition: A ladder and scaffolding stored beneath the stairs could potentially impact the side of EE-DS-125ASD during a seismic event. See attachments for more information.

A folder was found stored on top of EE-DS-125ASD, presenting a fire risk. See attachments for more information.

Requirement not met: Failure to follow seismic and general housekeeping practices.

Method of Discovery: During a walk-down in the area surrounding EE-STRR-125B

**Immediate Action Description:**

Contacted Supervisor and STE

**Suggested Action Description:**

Recommmend moving the scaffolding and ladder to a new location in order to adhere to Seismic Housekeeping principles.

Recommmend moving the folder immediately to avoid having unnecessary combustibles in the area.

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P301
PROGRAM FUNCTION	P412
KEYWORDS	SEISMIC
REPORT WEIGHT	1
CONSEQUENCES	C09
DEPT CAUSING	MNT
KEYWORDS	LADDER STORAGE

**Attachments:**

Condition Description  
Folder  
Scaffold\_1  
Seismic checklist  
Seismic Walkdown checklist

**Initiated Date:** 9/13/2012 16:22    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway,Tricia D

10/24/2012 9:57

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**Summary Description:**

Seismic and general housekeeping issues

**Condition:** A ladder and scaffolding stored beneath the stairs could potentially impact the side of EE-DS-125ASD during a seismic event. See attachments for more information.

A folder was found stored on top of EE-DS-125ASD, presenting a fire risk. See attachments for more information.

**Requirement not met:** Failure to follow seismic and general housekeeping practices.

**Method of Discovery:** During a walk-down in the area surrounding EE-STRR-125B

**Remarks Description:**

**Closure Description:**

This condition report has been closed because of actions taken as documented were considered adequate for this condition. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Martin,Curtis R

09/14/2012 12:34

**Approved By:** Murphy,Brian P

09/14/2012 13:58

**Operability Description:**

CNS-1-EE-DSC-125ASD, ALT SD FDR DISC.

TS 3.3.3.2. The Alternate Shutdown System provides the control room operator with sufficient instrumentation and controls to place and maintain the plant in a safe shutdown condition from a location other than the control room. This capability is necessary to protect against the possibility of the control room becoming inaccessible. With the plant in safe shutdown condition, the High Pressure Coolant Injection (HPCI) System, the safety/relief valves, the Reactor Equipment Cooling (REC) System, and the Residual Heat Removal (RHR) Shutdown Cooling System can be used to remove core decay heat and meet all safety requirements. The long term supply of water for the HPCI System and the ability to operate shutdown cooling from outside the control room allow extended operation in a shutdown condition above 212 deg F. The Alternate Shutdown System is required to provide equipment at appropriate locations outside the control room with a design capability to promptly shut down the reactor, including the necessary instrumentation and controls, to maintain the plant in a safe shutdown condition.

The referenced material (folder and scaffold pipes) were moved away (> 1ft) from the panel upon validation of the condition. With exception of the paper folder, the material was hanging in the designated hard mounted wall racks and restrained by steel chain. No contact occurred between the material and the EE disconnect. EE-DSC-125ASD remains functional and the ASD function required by LCO 3.3.3.2 remains OPERABLE for this condition per 0.5.OPS.

**Approval Comments:****Attachments:**Operability Description  
checklist

**Version:** 1

**Significance Code:** D

**Classification Code:** CBOAT

**Owner Site and Group:** CNS Mnt Mgmt CNS

**Performed By:** Anderson,Donny L

09/18/2012 11:57

**Assignment Description:**

XV.B.4

Pending information added to the CR. (from the 09/18/12 CRG meeting)

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** LOSF NA

**Performed By :** Madsen,David N

09/24/2012 07:34

**Reportability Description:**

No loss of nuclear safety function. Condition affects safety related equipment, but does not affect ability to perform the safety function. (elm 9/17/12 pending CRG disposition of Cat B or A., dnm 9/24/12 based on "D" classification)

**Originator:** Forbes, Jared A.**Originator Phone:** 4028252918**Originator Site Group:** CNS PLT Eng Design DFIN Staff CNS**Operability Required:** Y**Supervisor Name:** Able, Alan L**Reportability Required:** Y**Discovered Date:** 09/13/2012 16:03**Initiated Date:** 09/13/2012 17:13**Condition Description:**

Seismic and general housekeeping issues

Condition: A light in the SE-Quad RX BLDG El. 881 up in the overhead is in contact with tubing. During a seismic event, the swaying of the lamp could potentially cause damage to the tubing. The tubing is associated with PC-238.

Requirement not met: Failure to follow seismic and general housekeeping practices.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the walkdown team was required to do an area walk-by in the vicinity around CS-MOV-MO26B. During this walk-by, the team observed a light in the overhead that is in contact with tubing.

**Immediate Action Description:**

Contacted Supervisor and STE

**Suggested Action Description:**

It is recommended that the configuration of the light is moved away from the tubing as to allow sufficient space to avoid contact with the tubing.

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	SEISMIC
REPORT WEIGHT	1
CONSEQUENCES	C09
PROGRAM FUNCTION	P301

**Attachments:**

- Condition Description
- Light Fixture 1
- Light Fixture 2
- Area walk-by checklist
- Seismic Walkdown Checklist

CA Number: 1

	Site	Group	Name
Assigned By:	CNS	Ops AOM Shift Staff CNS	Beger,Nathan L
Assigned To:	CNS	PLT Eng Sys Mgmt CNS	Dia,Khalil M

**Subassigned To :**

Originated By: Myers,John R 9/15/2012 03:43:42

Performed By: Dia,Khalil M 9/20/2012 17:25:16

**Subperformed By:****Approved By:**

Closed By: Dedic,James R 9/21/2012 00:50:39

**Current Due Date:** 09/21/2012**Initial Due Date:** 09/21/2012**CA Type:** OPERABILITY INPUT**CA Priority:****Plant Constraint:** NON-OUTAGE**CA Description:**

Provide a prompt determination per 0.5.OPS. Include checklist per 0.5.OPS Attachment 3.

**Response:**

Operability evaluation, NEDC 12-036 and 0.5OPS, Attachment 3 are attached. This action is complete and ready for closure. SJJ, 9/20/12 KMDIA 9/20/2012

**Subresponse :****Closure Comments:**

Prompt determination accepted.

**Attachments:**Resp Description  
0.5OPS attachment 3 6128.pdf  
Operability Evaluation  
NEDC 12-036



CA Number: 2

	Site	Group	Name
Assigned By:	CNS	Licensing Staff CNS	McCutchen,Edward L
Assigned To:	CNS	Licensing Mgmt CNS	Vanderkamp,David W
Subassigned To :	CNS	Licensing Staff CNS	McCutchen,Edward L

Originated By: McCutchen,Edward L 9/17/2012 08:42:42

Performed By: Vanderkamp,David W 9/24/2012 12:09:26

Subperformed By: McCutchen,Edward L 9/24/2012 11:24:25

Approved By:

Closed By: Vanderkamp,David W 9/24/2012 12:09:26

Current Due Date: 09/25/2012

Initial Due Date: 09/25/2012

CA Type: REGULATORY

CA Priority:

Plant Constraint: NON-OUTAGE

**CA Description:**

Review the operability evaluation, and determine if new evidence reveals a reportable condition.

**Response:**

Approved.

**Subresponse :**

Reviewed the Operability Evaluation attached to CA#1 which concluded the configuration of the tubing and lamp is acceptable. Therefore, no past operability concern is found. No new reportable condition was revealed.

**Closure Comments:**

CA Number: 3

	Site	Group	Name
Assigned By:	CNS	CA&A Mgmt CNS	Dewhirst,Linda
Assigned To:	CNS	PLT Eng Design Mgmt CNS	Estrada,Roman M
Subassigned To :	CNS	PLT Eng Design Proj Staff CNS	Marotz,Mitchell M

**Originated By:** Hathaway,Tricia D 9/18/2012 14:10:50  
**Performed By:** Estrada,Roman M 10/16/2012 13:31:06  
**Subperformed By:** Marotz,Mitchell M 10/16/2012 09:01:47  
**Approved By:**  
**Closed By:** Estrada,Roman M 10/16/2012 13:31:06

**Current Due Date:** 10/17/2012**Initial Due Date:** 10/17/2012**CA Type:** DISP - CA**CA Priority:****Plant Constraint:** NON-OUTAGE**CA Description:**

Validate and establish action plan necessary to fix identified condition.

**CA REFERENCE ITEMS:**Type Code

PRIORITY

Description

4

**Response:**

Concur. BTW 10/16/12  
 concur  
 RME

**Subresponse :**

See Attached.

**Closure Comments:**

10/3/12 - Per 10/2/12 CRG, CR assignment changed from MNT to DED. (thath91)

**Attachments:**

Subresp Description  
 CAT C Fix (CR-CNS-2012-6128 CA#3)

**CA Number:** 4

	Site	Group	Name
<b>Assigned By:</b>	CNS	PLT Eng Design Proj Staff CNS	Marotz,Mitchell M
<b>Assigned To:</b>	CNS	PLT Eng Design Mgmt CNS	Estrada,Roman M
<b>Subassigned To :</b>	CNS	PLT Eng Design Programs Staff CNS	

**Originated By:** Marotz,Mitchell M

10/16/2012 09:02:18

**Performed By:****Subperformed By:****Approved By:****Closed By:****Current Due Date:** 04/10/2013**Initial Due Date:** 04/12/2013**CA Type:** ACTION**CA Priority:****Plant Constraint:** NON-OUTAGE**CA Description:**

Design Engineering to determine the proper course of action to resolve this issue (removing/moving the light fixture, evaluating/justifying the configuration, etc.).

**Response:****Subresponse :****Closure Comments:**

**Initiated Date:** 9/13/2012 17:13    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** C

**Closed by:**

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**Summary Description:**

Seismic and general housekeeping issues

Condition: A light in the SE-Quad RX BLDG El. 881 up in the overhead is in contact with tubing. During a seismic event, the swaying of the lamp could potentially cause damage to the tubing. The tubing is associated with PC-238.

Requirement not met: Failure to follow seismic and general housekeeping practices.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the walkdown team was required to do an area walk-by in the vicinity around CS-MOV-MO26B. During this walk-by, the team observed a light in the overhead that is in contact with tubing.

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1**Operability Code:** OPERABLE-OP EVAL**Immediate Report Code:** NONE**Performed By:** Myers,John R

09/15/2012 04:05

**Approved By:** Beger,Nathan L

09/15/2012 04:17

**Operability Description:**

The correct valve number is PC-V-328. PC-DPT-3B2 HI SIDE ISO. Per a review of SAP and the drawings below, the following instruments are attached to the associated tubing. In addition, the tubing is part of the primary containment boundary.

PC-PT-30B WIDE RANGE TORUS PRESS DIV II EQ -5 to 70 psig Output to PC-PR-2B, PMIS N344,  
PC-SC-4B - DW TORUS PRESS SIGNAL DISTR MODULE TS 3.3.3.1 Function 7c - PC Pressure, SP - Wide Range

PC-DPT-3B2 TORUS LEVEL DP T EQ 0 to 30 feet Output to PC-LR-1B, PMIS N020,  
PC-SC-1B - DW TORUS LEVEL SIGNAL DISTR MODULE TS 3.3.3.1 Function 3 - SP Level - Wide Range

PC-DPIS-516A ATM TO TORUS DIFF PRESS EQ -2 to + 2 psid Output to Alarm H-1/A-5,  
PC-SOV-SPV243 TS 3.6.1.7, Reactor Building to Suppression Chamber Vacuum Breakers

Based on the attached evaluation, there is reasonable assurance the tubing could survive an impact with the light during a seismic event. An OE will be required to confirm this conclusion.

**Approval Comments:**

Concur.

**Attachments:**

- Operability Description
- Instrument tubing drawing
- Material specification
- Evaluation
- Engineering Input
- Checklist

**Version:** 1

**Significance Code:** C

**Classification Code:** RCR (FIX)

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson,Donny L

09/18/2012 11:57

**Assignment Description:**

II.B.4 Operable- Op Eval

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** LOSF NA

**Performed By :** McCutchen,Edward L

09/17/2012 08:43

**Reportability Description:**

No loss of nuclear safety function. Condition affects safety related equipment, but does not affect ability to perform the safety function. Licensing has opened an action to itself (CA#2) to review the operability evaluation, and determine if new evidence reveals a reportable condition.

**Originator:** Metzger,Adam**Originator Phone:** 4028255111**Originator Site Group:** CNS PLT Eng Design DFIN Staff CNS**Operability Required:** Y**Supervisor Name:** Able,Alan L**Reportability Required:** Y**Discovered Date:** 09/13/2012 16:02**Initiated Date:** 09/13/2012 17:22**Condition Description:**

Seismic and general housekeeping issues

**Condition:**

During 50.54(F) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Area Walk-bys. During the walk-by it was observed that SGT-FAN-1F damper arm and the lever for SGT-AD-B could affect the operation for each other during a seismic event due to a small gap that is present between the two.

**Requirement not met:**

Failure to follow seismic and general housekeeping practices.

**Method of Discovery:**

During a walk-down in the area surrounding SGT-FAN-1F and SGT-AD-B .

**Immediate Action Description:**

Contacted Supervisor and STE

**Suggested Action Description:**

Recommend that DED determine if the current configuration is a potential issue.

**EQUIPMENT:**

<u>Tag Name</u>	<u>Tag Suffix Name</u>	<u>Component Code</u>	<u>Process System Code</u>
AD-B	1	2	SGT

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06232
CR NUMBER TIED	CR-CNS-2012-06238
CR NUMBER TIED	CR-CNS-2012-06487
CR NUMBER TIED	CR-CNS-2012-06497
CR NUMBER TIED	CR-CNS-2012-06500
CR NUMBER TIED	CR-CNS-2012-06501
CR NUMBER TIED	CR-CNS-2012-06573
CR NUMBER TIED	CR-CNS-2012-06579
CR NUMBER TIED	CR-CNS-2012-06582
CR NUMBER TIED	CR-CNS-2012-06647
CR NUMBER TIED	CR-CNS-2012-06648
CR NUMBER TIED	CR-CNS-2012-06650



**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-066051
CR NUMBER TIED	CR-CNS-2012-06654
CR NUMBER TIED	CR-CNS-2012-06657
CR NUMBER TIED	CR-CNS-2012-06467
CR NUMBER TIED	CR-CNS-2012-06486
CR NUMBER TIED	CR-CNS-2012-06498
CR NUMBER TIED	CR-CNS-2012-06502

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P501
PROGRAM FUNCTION	P412
REPORT WEIGHT	1

**Attachments:**

Condition Description  
Area Walk-by Checklist  
Seismic Walkdown Checklist

CA Number: 1

	Site	Group	Name
Assigned By:	CNS	CA&A Mgmt CNS	Dewhirst,Linda
Assigned To:	CNS	PLT Eng Design Mgmt CNS	Estrada,Roman M
Subassigned To :	CNS	PLT Eng Design Proj Staff CNS	Wolken,Brian

**Originated By:** Hathaway,Tricia D 9/17/2012 15:32:11  
**Performed By:** Estrada,Roman M 10/16/2012 17:22:40  
**Subperformed By:** Marotz,Mitchell M 10/16/2012 13:47:30  
**Approved By:**  
**Closed By:** Estrada,Roman M 10/16/2012 17:22:40

**Current Due Date:** 10/16/2012**Initial Due Date:** 10/16/2012**CA Type:** DISP - CA**CA Priority:****Plant Constraint:** NON-OUTAGE**CA Description:**

Validate and establish action plan necessary to fix identified condition. Ensure concerns from CR-CNS-2012-06232, CR-CNS-2012-06238, CR-CNS-2012-06257, CR-CNS-2012-06294, CR-CNS-2012-06312, CR-CNS-2012-06332, CR-CNS-2012-06467, CR-CNS-2012-06486, CR-CNS-2012-06498, CR-CNS-2012-06502, CR-CNS-2012-06487, CR-CNS-2012-06497, CR-CNS-2012-06500, CR-CNS-2012-06501, CR-CNS-2012-06573, CR-CNS-2012-06579, CR-CNS-2012-06582, CR-CNS-2012-06647, CR-CNS-2012-06647, CR-CNS-2012-06648, CR-CNS-2012-06650, CR-CNS-2012-06651, CR-CNS-2012-06654, and CR-CNS-2012-06657 are adequately addressed along with this CR.

**CA REFERENCE ITEMS:**

<u>Type Code</u>	<u>Description</u>
PRIORITY	4

**Response:**

concur  
RME

**Subresponse :**

See Attached.

**Closure Comments:****Attachments:**

Subresp Description  
CR-CNS-2012-6130 Action Plan

CA Number: 2

	Site	Group	Name
Assigned By:	CNS	PLT Eng Design Proj Staff CNS	Marotz,Mitchell M
Assigned To:	CNS	PLT Eng Design Mgmt CNS	Estrada,Roman M
Subassigned To :	CNS	PLT Eng Design Proj Staff CNS	Marotz,Mitchell M

Originated By: Marotz,Mitchell M

10/16/2012 13:30:17

Performed By:

Subperformed By:

Approved By:

Closed By:

Current Due Date: 04/10/2013

Initial Due Date: 04/12/2013

CA Type: ACTION

CA Priority:

Plant Constraint: NON-OUTAGE

**CA Description:**

Configuration Control Update

CR-CNS-2012-6294 - DED to update plant drawing(s) to be in compliance with current configuration and calculations.

CR-CNS-2012-6163 - DED to update plant drawing(s) to be in compliance with current configuration.

Response:

Subresponse :

Closure Comments:

CA Number: 3

	Site	Group	Name
Assigned By:	CNS	PLT Eng Design Proj Staff CNS	Marotz,Mitchell M
Assigned To:	CNS	PLT Eng Design Mgmt CNS	Estrada,Roman M
Subassigned To :	CNS	PLT Eng Design Proj Staff CNS	Marotz,Mitchell M

Originated By: Marotz,Mitchell M 10/16/2012 13:33:06

Performed By:

Subperformed By:

Approved By:

Closed By:

Current Due Date: 03/18/2013

Initial Due Date: 03/20/2013

CA Type: ACTION

CA Priority:

Plant Constraint: NON-OUTAGE

**CA Description:**

DED to research and determine if further action is necessary

CR-CNS-2012-6232 - DED to research the configuration of the support in CNS documentation and determine if further action is needed.

CR-CNS-2012-6238 - DED to research the configuration of the rack in CNS documentation and determine if further action is needed.

CR-CNS-2012-6257 - DED to research the configuration of the conduit with respect to the valve. If no justification documentation exists, DED to generate the appropriate actions to resolve the issue.

CR-CNS-2012-6312 - DED to determine an alternative configuration for the light fixture.

CR-CNS-2012-6467 - DED to determine if the current configuration has been documented appropriately. If it is not, DED to generate the appropriate analysis and documentation.

CR-CNS-2012-6498 - DED to determine if further bracing is necessary or recommended.

CR-CNS-2012-6502 - DED to determine if the current configuration matches the documented configuration and update the applicable documents accordingly.

CR-CNS-2012-6497 - Engineering to research alternative methods of Ethernet cable restraint.

CR-CNS-2012-6501 - DED to determine if this configuration is a potential issue and if a cage is required for installation.

CR-CNS-2012-6651 - DED Civil to research cracking in the floor slab of the Control Building Basement. If this issue has no history, include inspection of this specific item in the Maintenance rule walkdowns.

Response:

Subresponse :

Closure Comments:

CA Number: 4

	Site	Group	Name
Assigned By:	CNS	PLT Eng Design Proj Staff CNS	Marotz,Mitchell M
Assigned To:	CNS	Mnt Mgmt CNS	
Subassigned To :	CNS	Mnt Fin Team Staff CNS	Sarver,Andrew J

Originated By: Marotz,Mitchell M 10/16/2012 13:36:04

Performed By:

Subperformed By:

Approved By:

Closed By:

Current Due Date: 04/10/2013

Initial Due Date: 04/12/2013

CA Type: ACTION

CA Priority:

Plant Constraint: NON-OUTAGE

**CA Description:**

Maintenance to complete in-the-field action

CR-CNS-2012-6312 - Maintenance to implement the configuration in the field. (Reference CR-CNS-2012-6130 CA#2)

CR-CNS-2012-6332 - Maintenance to tighten the anchor bolts in accordance with CNS procedure.

CR-CNS-2012-6486 &amp; 6487 - Maintenance to determine if improvement of the lug engagement into the "saddle" of the spade is achievable. If it is achievable, Maintenance to reseal the "saddle" next to the lug.

CR-CNS-2012-6497 - Maintenance to reapply adhesive clips to the Ethernet cable and hub.

CR-CNS-2012-6500 - Maintenance to repair the conduit raceway support as to be consistent with the adjacent supports.

CR-CNS-2012-6573 - Maintenance to reattach the missing clip.

CR-CNS-2012-6647 - Maintenance to verify that the pin has been installed on the machine guard in question. If it has not, Maintenance to immediately install a pin.

CR-CNS-2012-6650 - Repair the degraded grout that is surrounding some of the floor mounted pipe supports in the basement of the Control Building.

CR-CNS-2012-6130 - DED to determine if the condition is an issue based on existing CNS documentation. DED to generate appropriate documentation, as applicable.

**Response:**

Need you to help drive this, not sure where it came from, your team may not do it all but you can help coordinate it with you planning support. Good job for one of your guys to run with for you...thanks

**Subresponse :****Closure Comments:**

CA Number: 5

	Site	Group	Name
<b>Assigned By:</b>	CNS	PLT Eng Design Proj Staff CNS	Marotz,Mitchell M
<b>Assigned To:</b>	CNS	Work Control Plan Sch Out Mgr CNS	Houston,Jeffrey
<b>Subassigned To :</b>	CNS	Work Control Plan Sch Out Mgr CNS	Woerth,Steven C

**Originated By:** Marotz,Mitchell M 10/16/2012 13:43:10  
**Performed By:** Houston,Jeffrey 10/21/2012 21:56:41  
**Subperformed By:** Woerth,Steven C 10/19/2012 12:08:35  
**Approved By:**  
**Closed By:** Houston,Jeffrey 10/21/2012 21:56:41

**Current Due Date:** 01/05/2013**Initial Due Date:** 01/05/2013**CA Type:** ACTION**CA Priority:****Plant Constraint:** NON-OUTAGE**CA Description:**

Planning to complete Work Orders for activities associated with CR-CNS-2012-6130 CA# 5. Tasks to be completed are:  
 CR-CNS-2012-6312 - Maintenance to implement the configuration in the field. (Reference CR-CNS-2012-6130 CA#2)  
 CR-CNS-2012-6332 - Maintenance to tighten the anchor bolts in accordance with CNS procedure.  
 CR-CNS-2012-6486 & 6487 - Maintenance to determine if improvement of the lug engagement into the "saddle" of the spade is achievable. If it is achievable, Maintenance to reseal the "saddle" next to the lug.  
 CR-CNS-2012-6497 - Maintenance to reapply adhesive clips to the Ethernet cable and hub.  
 CR-CNS-2012-6500 - Maintenance to repair the conduit raceway support as to be consistent with the adjacent supports.  
 CR-CNS-2012-6573 - Maintenance to reattach the missing clip.  
 CR-CNS-2012-6647 - Maintenance to verify that the pin has been installed on the machine guard in question. If it has not, Maintenance to immediately install a pin.  
 CR-CNS-2012-6650 - Repair the degraded grout that is surrounding some of the floor mounted pipe supports in the basement of the Control Building.  
 CR-CNS-2012-6130 - DED to determine if the condition is an issue based on existing CNS documentation. DED to generate appropriate documentation, as applicable.

**Response:**

See response for this CA. Working with originator to resolve. No actions under this CA as it would violate PS&O procedures to comply.

**Subresponse :**

This action is being closed because PS&O was not contracted before the action was generated. The action is inappropriate as written and cannot be implemented by the assigned due date. This condition was documented in CR-CNS-2012-7550. I will provide a current status for the tasks that were listed for information to the originator. In addition PS&O will work with the originator to develop correct actions with proper due dates that can be supported.

CR-CNS-2012-6312 - Maintenance to implement the configuration in the field. (Reference CR-CNS-2012-6130 CA#2) Right now this is not a work item in that the corrective actions for this have not been determined.

CR-CNS-2012-6332 - Maintenance to tighten the anchor bolts in accordance with CNS procedure. Work Item 4914662 generated, scheduled, and being processed.

CR-CNS-2012-6486 & 6487 - Maintenance to determine if improvement of the lug engagement into the "saddle" of the spade is achievable. If it is achievable, Maintenance to reseal the "saddle" next to the lug. Work Items 4915291 and 4915293 have been generated, scheduled and are being processed.

CR-CNS-2012-6497 - Maintenance to reapply adhesive clips to the Ethernet cable and hub. TSP 4916446 to IT has been created - this will be completed by IT.

CR-CNS-2012-6500 - Maintenance to repair the conduit raceway support as to be consistent with the adjacent supports. Has been screened but no order created yet.

CR-CNS-2012-6573 - Maintenance to reattach the missing clip. Has been screened but no order created yet.

CR-CNS-2012-6647 - Maintenance to verify that the pin has been installed on the machine guard in question. If it has not, Maintenance to immediately install a pin. (Completed by FIN Spot)

CR-CNS-2012-6650 - Repair the degraded grout that is surrounding some of the floor mounted pipe supports in the basement of the Control Building. WO 4915713 generated, scheduled, and being processed.

CR-CNS-2012-6130 - DED to determine if the condition is an issue based on existing CNS documentation. DED to generate appropriate documentation, as applicable. This is not a work item - Engineering item.

**Closure Comments:**

CA Number: 6

	Site	Group	Name
Assigned By:	CNS	PLT Eng Design Proj Staff CNS	Marotz, Mitchell M
Assigned To:	CNS	PLT Eng Design Mgmt CNS	Estrada, Roman M
Subassigned To :	CNS	PLT Eng Design Proj Staff CNS	Marotz, Mitchell M

Originated By: Marotz, Mitchell M

10/16/2012 13:44:28

Performed By:

Subperformed By:

Approved By:

Closed By:

Current Due Date: 04/03/2013

Initial Due Date: 04/05/2013

CA Type: ACTION

CA Priority:

Plant Constraint: NON-OUTAGE

**CA Description:**

DED to track completion of work

CR-CNS-2012-6579 & CR-CNS-2012-6582 - DED to track the completion of the replacement activity and ensure that all appropriate documentation exists and is accurate. Following the full installation of the Voltage Regulator Cabinet, this Corrective Action may be closed.

Response:

Subresponse :

Closure Comments:



CA Number: 7

	Site	Group	Name
Assigned By:	CNS	PLT Eng Design Proj Staff CNS	Marotz, Mitchell M
Assigned To:	CNS	PLT Eng Sys Mgmt CNS	
Subassigned To :	CNS	PLT Eng Sys NSSS Staff CNS	Walters, Chad L

Originated By: Marotz, Mitchell M

10/16/2012 13:45:42

Performed By:

Subperformed By:

Approved By:

Closed By:

Current Due Date: 04/10/2013

Initial Due Date: 04/12/2013

CA Type: ACTION

CA Priority:

Plant Constraint: NON-OUTAGE

**CA Description:**

Develop and implement an inspection plan  
CR-CNS-2012-6654 & CR-CNS-2012-6648 - Develop and implement an inspection plan for the SW Booster Pump instrument racks to determine the extent of the corrosion. Include removal of paint and surface corrosion on the floor mounted pipe supports (with visible corrosion), as well as repainting. Determine any further action necessary based on the results of the inspection.

Response:

Subresponse :

Closure Comments:

**Initiated Date:** 9/13/2012 17:22    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** C

**Closed by:**

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**Summary Description:**

Seismic and general housekeeping issues

Condition:

During 50.54(F) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Area Walk-bys. During the walk-by it was observed that SGT-FAN-1F damper arm and the lever for SGT-AD-B could affect the operation for each other during a seismic event due to a small gap that is present between the two.

Requirement not met:

Failure to follow seismic and general housekeeping practices.

Method of Discovery:

During a walk-down in the area surrounding SGT-FAN-1F and SGT-AD-B .

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Myers,John R

09/14/2012 01:38

**Approved By:** Beger,Nathan L

09/14/2012 03:41

**Operability Description:**

SGT-AO-VD543B, SGT UNIT B EF-R-1F VORTEX DMPR INLET - Essential Q2, Q3  
SGT-AD-VD543B, SGT UNIT B EF-R-1F VORTEX DMPR INLET - Essential Q1, Q2, Q3  
SGT-AD-B, SGT UNIT B EF-R-1F OUTLET DMPR, Essential - Q1, Q2, Q3

## SAP Questions:

1. Equipment functions as a pressure boundary for a portion of the system being used to accomplish the safety-related function.
2. Equipment actively operates (change states) for the system to accomplish a safety-related function.
3. Maloperation of the equipment has the potential to prevent or inhibit safety-related operation of the system.

Note the manual damper is only moved when it is necessary to adjust flow or dP.

This condition was previously evaluated under CR 2011-06448. See the attached pictures for a better understanding of the existing condition. See the attached for an evaluation of this condition including supplemental technical data. Based on this evaluation, SGT is operable.

WO 4842039 was performed in June 2012 to invert the linkage rod from the position identified in the 2011 CR and in the first photos attached. As seen in the Later Photos attached, there is now clearance.

**Approval Comments:**

concur

**Attachments:**

Operability Description  
Pictures  
Latest Photos  
Work Order List  
Checklist  
Evaluation

**Version:** 1

**Significance Code:** C

**Classification Code:** RCR (FIX)

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/17/2012 13:58

**Assignment Description:**

Ref: CR 2011-06448

XIII.B.3

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** McCutchen,Edward L

09/17/2012 08:52

**Reportability Description:**

Component or System remains operable, and no past operability issue identified. Reportability for CR 2011-06448 noted, "Reasonable assurance exists that SGT-B remained operable and capable of performing it required function and remained capable of meetings its required 30 day mission time."

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028255187**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/14/2012 10:01**Initiated Date:** 09/14/2012 11:15**Condition Description:**

Housekeeping issues near LRP-RACK-139

**Condition:**

A c-clamp vice grip was found being used as a wheel chuck on a large tool box supported by 4 wheels.

There was a heavy chain around the toolbox that could be used for seismic housekeeping, however only one of the chain's clips was attached to the eyebolt in the wall.

The other end of the chain was connected to the eyebolt by the walkdown engineer when the condition was discovered.

Two oxygen tanks were found less than 25 feet away from the tool box and could become missiles or explosion hazards if the tool box were to impact them.

See attachments for more information.

Requirement not met: Failure to follow general housekeeping practices.

Method of Discovery: During a walk-down in the vicinity of LRP-RACK-139

**Immediate Action Description:**

Walkdown engineer took the action to reattach the chain to the eyebolt.

**Suggested Action Description:**

Recommend that Maintenance be notified as to correct the issue in the future.

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	SEISMIC
REPORT WEIGHT	1
CONSEQUENCES	C09
PROGRAM FUNCTION	P301

**Attachments:**

## Condition Description

Wheel chuck

tool box

tool box 2

tool box chain

**Initiated Date:** 9/14/2012 11:15    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/24/2012 10:02

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**Summary Description:**

Housekeeping issues near LRP-RACK-139

**Condition:**

A c-clamp vice grip was found being used as a wheel chuck on a large tool box supported by 4 wheels.

There was a heavy chain around the toolbox that could be used for seismic housekeeping, however only one of the chain's clips was attached to the eyebolt in the wall.

The other end of the chain was connected to the eyebolt by the walkdown engineer when the condition was discovered.

Two oxygen tanks were found less than 25 feet away from the tool box and could become missiles or explosion hazards if the tool box were to impact them.

See attachments for more information.

Requirement not met: Failure to follow general housekeeping practices.

Method of Discovery: During a walk-down in the vicinity of LRP-RACK-139

**Remarks Description:**

**Closure Description:**

This condition report has been closed because of actions taken as documented were considered adequate for this condition. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Stander,Brian R

09/15/2012 12:43

**Approved By:** Murphy,Brian P

09/15/2012 14:04

**Operability Description:**

LRP-RACK-139, Containment Pressure & Level Local Rack 139, supports PC-PT-1A1, DW LEVEL PRESS T LO, PC-PT-4A, DW PRESS T, and PC-PT-5A1, CONTAINMENT PRESS T. There associated isolation and calibration valves are also supported by LRP-RACK-139. All of these components per their Q-list are essential as a pressure boundary for primary containment. PC-PT-4A1 also provides information for a regulatory 1.97 instrument for drywell pressure.

LCO 3.3.3.1 is applicable.

The primary purpose of the PAM instrumentation is to display plant variables that provide information required by the control room operators during accident situations. This information provides the necessary support for the operator to take the manual actions for which no automatic control is provided and that are required for safety systems to accomplish their safety functions for Design Basis Events.

LCO 3.6.1 is applicable.

The function of the primary containment is to isolate and contain fission products released from the Reactor Primary System following a design basis Loss of Coolant Accident and to confine the postulated release of radioactive material. The primary containment consists of a steel pressure vessel in the shape of an inverted light bulb with a torus?-shaped suppression chamber located below and encircling the drywell, which surrounds the Reactor Primary System and provides an essentially leak tight barrier against an uncontrolled release of radioactive material to the environment.

This CR documents a concern with the storage of a temporary item in a seismic sensitive area as defined by procedure 0.41. Per procedure 0.41, unrestrained Temporary Items are specific exclusions that have a pre-established Seismic Safe Standoff Distance of 1 ft to Safety-Related equipment. Per procedure 0.41, a tool box with wheels that are chocked/locked is an unrestrained temporary item. Chocking is a method used to secure the equipment which could otherwise roll (e.g., a multi wheel cart or dolly has at least two wheels secured, a straight pipe spool staged on a floor is blocked, etc.). The tool box has 2 wheels that are chocked by the tool boxes already installed wheel stops. Therefore the C clamp is not required. Also the use of a C clamp for this application is not prohibited. The tool box is under the 2 over 1 for height versus width, therefore the chain restraint is also not required. The tool box is not within 4 feet of any shock sensitive electrical equipment as defined by procedure 0.41, therefore only the 1 foot distance requirement needs to be met. The tool box is located over 1 foot from any plant equipment. Therefore this tool box is meeting the requirements of procedure 0.41 for seismic concerns and the equipment located on LRP-RACK-139 is operable. There is no immediate reportability associated with this issue per procedure 2.0.5 or NUREG 1022.

**Approval Comments:****Attachments:**

Operability Description  
0.5.OPS attachment 2



**Version:** 1

**Significance Code:** D

**Classification Code:** CBOAT

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Anderson, Donny L

09/18/2012 11:57

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/17/2012 08:41

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz, Mitchell M**Originator Phone:** 4028255270**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken, Brian**Reportability Required:** Y**Discovered Date:** 09/14/2012 15:03**Initiated Date:** 09/14/2012 15:15**Condition Description:**

General housekeeping issues.

Condition: It was noticed that a piece of metal was found behind panel EE-PNL-AA3. The piece of metal was not found on the configuration drawings.

Requirement not met: Failure to follow general housekeeping practices.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Walkdown Engineers were completing a Seismic Walkdown of EE-PNL-AA3 and noticed the foreign object located behind EE-PNL-AA3.

**Immediate Action Description:**

Contacted Supervisor and STE

**Suggested Action Description:**

It is recommended that the metal object be removed to adhere to good housekeeping practices.

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	SEISMIC
REPORT WEIGHT	1
CONSEQUENCES	C09
PROGRAM FUNCTION	P301

**Attachments:**Condition Description  
Metal Object

**Initiated Date:** 9/14/2012 15:15    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/24/2012 9:57

**Summary Description:**

General housekeeping issues.

Condition: It was noticed that a piece of metal was found behind panel EE-PNL-AA3. The piece of metal was not found on the configuration drawings.

Requirement not met: Failure to follow general housekeeping practices.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Walkdown Engineers were completing a Seismic Walkdown of EE-PNL-AA3 and noticed the foreign object located behind EE-PNL-AA3.

**Remarks Description:**

Info from MNT Mgr - 2012-6159 piece of metal was found to be a crescent wrench and was removed on 9/17

**Closure Description:**

This condition report has been closed because of actions taken as documented were considered adequate for this condition. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Stander,Brian R

09/15/2012 07:28

**Approved By:** Murphy,Brian P

09/15/2012 07:45

**Operability Description:**

LCO 3.8.7 is applicable.

The AC and DC electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded.

Per procedure 0.41, EE-PNL-AA3 is not listed as one of the seismic shock sensitive electrical equipment and therefore does not have electrical relays with special vulnerability to chatter due to bumping and jarring. Per the attached picture to this CR, the crescent wrench did not have very much room to move and would not have been able to generate any significant velocity during a seismic event to impact EE-PNL-AA3 based on engineering judgment. The weight of the crescent wrench is less than the force an individual would place on the panel during normal usage. Therefore based on engineering judgment the complete weight of the 12" wrench being forced against the side of EE-PNL-AA3 would not have caused any damage during a safe shutdown earthquake. The crescent wrench has been removed. With the wrench removed, there are no material concerns in the plant relative to this CR. Therefore panel EE-PNL-AA3 is operable. There is no immediate reportability associated with this issue per procedure 2.0.5 or NUREG 1022.

**Approval Comments:****Attachments:**

Operability Description

0.5.OPS

**Version:** 1

**Significance Code:** D

**Classification Code:** CBOAT

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Anderson, Donny L

09/18/2012 11:57

**Assignment Description:**

XV.B.4

Wrench removed. (from the 09/18/12 CRG meeting)

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/17/2012 08:11

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Sup Elec Prog Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/14/2012 16:27**Initiated Date:** 09/14/2012 16:54**Condition Description:**

Anchorage doesn't match plant drawings.

Condition: SEWS noted that the anchorage for LRP-PNL-(25-7) used 1/2" inserts, which was verified by the SWE team. However Drawing #4244 describes anchorage as 3/8" diameter. The installed anchorage is more conservative and doesn't need to be removed however there is still a discrepancy between the as-built condition and the plant drawings.

Requirement not met: As built conditions do not match plant drawings.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Walkdown Engineers were completing a Seismic Walkdown of LRP-PNL-(25-7). During this walkdown, it was noticed that the anchor bolts don't match plant drawings.

**Immediate Action Description:**

Contacted Supervisor and STE

**Suggested Action Description:**

Update plant drawings to match As-Built conditions.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	DRAWING DEFICIENCY
REPORT WEIGHT	1
CONSEQUENCES	C02
PROGRAM FUNCTION	P316

**Attachments:**

Condition Description  
Anchorage



CA Number: 1

	<u>Site</u>	<u>Group</u>	<u>Name</u>
<b>Assigned By:</b>	CNS	CA&A Mgmt CNS	Dewhirst,Linda
<b>Assigned To:</b>	CNS	PLT Eng Design Mgmt CNS	Estrada,Roman M
<b>Subassigned To :</b>	CNS	PLT Eng Design Proj Staff CNS	Marotz,Mitchell M

**Originated By:** Hathaway,Tricia D 9/18/2012 14:45:20  
**Performed By:** Estrada,Roman M 10/16/2012 17:44:37  
**Subperformed By:** Marotz,Mitchell M 10/16/2012 13:48:25  
**Approved By:**  
**Closed By:** Estrada,Roman M 10/16/2012 17:44:37

**Current Due Date:** 10/17/2012**Initial Due Date:** 10/17/2012**CA Type:** ENHANCE**CA Priority:****Plant Constraint:** NON-OUTAGE**CA Description:**

Resolve Identified Condition.

**CA REFERENCE ITEMS:**

<u>Type Code</u>	<u>Description</u>
PRIORITY	4

**Response:**concur  
RME**Subresponse :**

This corrective action is to be closed to CR-CNS-2012-6130 CA#2. (See Attached)

**Closure Comments:****Attachments:**Subresp Description  
CR-CNS-2012-6130 Action Plan

**Initiated Date:** 9/14/2012 16:54    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** E

**Closed by:**

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**Summary Description:**

Anchorage doesn't match plant drawings.

Condition: SEWS noted that the anchorage for LRP-PNL-(25-7) used 1/2" inserts, which was verified by the SWE team. However Drawing #4244 describes anchorage as 3/8" diameter. The installed anchorage is more conservative and doesn't need to be removed however there is still a discrepancy between the as-built condition and the plant drawings.

Requirement not met: As built conditions do not match plant drawings.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Walkdown Engineers were completing a Seismic Walkdown of LRP-PNL-(25-7). During this walkdown, it was noticed that the anchor bolts don't match plant drawings.

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Stander,Brian R

09/15/2012 13:59

**Approved By:** Murphy,Brian P

09/15/2012 14:06

**Operability Description:**

LCOs 3.3.1.1 and 3.6.1 are applicable.

LRP-PNL-(25-7) provides structural support for instruments that support RPS and for tubing connected to primary containment. Therefore the structural integrity of LRP-PNL-(25-7) is necessary to ensure that these components will operate properly when required. This CR identifies that the anchorage bolts for LRP-PNL-(25-7) are larger and therefore more conservative than what is listed on drawing 4244. Drawing 4244 for structural reactor building equipment foundations is a status 3 document and is not as built. Having larger anchor bolts provides better structural support for LRP-PNL-(25-7) during a seismic event. Therefore the structural integrity of LRP-PNL-(25-7) is functional in its supporting role for equipment which is installed on it and the equipment supported by LRP-PNL-(25-7) is operable. There is no immediate reportability associated with this issue per procedure 2.0.5 or NUREG 1022.

**Approval Comments:****Attachments:**

Operability Description  
0.5.OPS attachment 2

**Version:** 1

**Significance Code:** E

**Classification Code:** DD

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

09/18/2012 11:57

**Assignment Description:**

Initiate DCN.

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** DOCUMENTATION

**Performed By :** Madsen,David N

09/17/2012 08:15

**Reportability Description:**

This is a question or issue of proper documentation and does not introduce or identify an equipment, radiological nor security problem. Should the question's answer reveal a CNS condition, a new CR will be written.

**Originator:** Marotz, Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken, Brian**Reportability Required:** Y**Discovered Date:** 09/17/2012 18:08**Initiated Date:** 09/17/2012 18:10**Condition Description:**

Corrosion on Intake Structure Local Racks.

Condition: It was noticed the strainer instrument racks in the Intake Structure have moderate to severe corrosion. The anchorage bolt heads are rounded off due to corrosion.

Requirement not met: Supports should be cleaned and painted to prevent corrosion from affecting the support.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Walkdown Engineers were completing an Area Walk-By in the Service Water Pump Room.

**Immediate Action Description:**

Contacted Supervisor and STE

**Suggested Action Description:**

It is recommended that DED be contacted to determine the current structural adequacy of the racks.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
AGING MANAGEMENT	

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1
PROGRAM FUNCTION	P501

CA Number: 1

	Site	Group	Name
Assigned By:	CNS	Ops AOM Shift Staff CNS	Penfield,Rod L
Assigned To:	CNS	PLT Eng Sys NSSS Staff CNS	Dia,Khalil M
Subassigned To :	CNS	PLT Eng Sys NSSS Staff CNS	Walters,Chad L

Originated By: Wheeler,Steven C 9/18/2012 00:58:19  
Performed By: Dia,Khalil M 9/24/2012 17:24:44  
Subperformed By: Walters,Chad L 9/24/2012 17:22:29  
Approved By:  
Closed By: Beger,Nathan L 9/24/2012 17:32:11

Current Due Date: 09/25/2012

Initial Due Date: 09/25/2012

CA Type: OPERABILITY INPUT

CA Priority:

Plant Constraint: NON-OUTAGE

**CA Description:**

Provide a prompt determination per 0.5.OPS. Include checklist per 0.5.OPS Attachment 3.

**Response:**

Agree with the evaluation. KMDIA

**Subresponse :**

See Attached.

**Closure Comments:**

Concur with OE. Closed CA-1.

**Attachments:**

Subresp Description  
Operability Evaluation  
Attachment #3

**Corrective Action : CR-CNS-2012-06208 CA-00001****Version:** 1**Approved:** **Requested Duedate:** 09/25/2012**Previous Duedate:** 09/21/2012**Requested By:** Dia,Khalil M

09/20/2012

**Approved By:** Beger,Nathan L

09/20/2012

**Request Description:**

Need more time to allow inspection of DIV 1 SW racks. The racks will be inspected this weekend. OPS manager and GMPO provided verbal approval. KMDIA

**Approved Description:**

Concur with extension.



**CA Number:** 2

	Site	Group	Name
<b>Assigned By:</b>	CNS	Licensing Staff CNS	McCutchen,Edward L
<b>Assigned To:</b>	CNS	Licensing Mgmt CNS	Vanderkamp,David W
<b>Subassigned To :</b>	CNS	Licensing Staff CNS	McCutchen,Edward L

**Originated By:** McCutchen,Edward L 9/18/2012 08:12:45**Performed By:** Vanderkamp,David W 9/26/2012 16:16:49**Subperformed By:** McCutchen,Edward L 9/26/2012 10:35:38**Approved By:****Closed By:** Vanderkamp,David W 9/26/2012 16:16:49**Current Due Date:** 09/26/2012**Initial Due Date:** 09/26/2012**CA Type:** ACTION**CA Priority:****Plant Constraint:** NON-OUTAGE**CA Description:**

Review the operability evaluation, and determine if new evidence reveals a reportable condition

**Response:**

Approved.

**Subresponse :**

NEW RESPONSE AND APPROVALS ATTACHED.

**OLD RESPONSE:**

Licensing reviewed the Operability Evaluation (OpEval) in CA#1 and discussed it with the author, i.e. the System Engineer (SE). From the discussion with the SE, of those instrument racks identified in the OpEval, Rack #5 is the only one that was likely to have failed in the event of a barge impact or seismic event. Rack #5 contains SW-PI-364B and SW-PI-365B (local indicators), SW-PS-364B (actuates auto-isolation of non-essential loads on low pressure), and SW-PS-365B (auto-starts SWP 'B' on low pressure).

The impact of the rack failing in the worst manner possible can be postulated. If the rack failed such that PS-364B and PS-365B did not fail low, then the auto isolation of non-essential loads would not occur and SWPs in Division 2 would not auto-start on low pressure. The OpEval identifies the mechanism of stanchion degradation to be rust and corrosion. These are time dependent mechanisms which have been occurring over the life of the plant. No firm evidence is presented pointing to a specific time in the past at which the corrosion became excessive to the point of failure in a seismic event or barge impact. Therefore, SW Division 2 was appropriately called INOPERABLE at the time of discovery, and the period of time for any past-operability concern cannot be determined. Therefore, CNS was not in a Condition Prohibited by TS per NUREG 1022 Section 3.2.2.

Similarly, for a loss of safety function (LOSF) to have occurred, both SW Divisions would have to become INOPERABLE at the same time. Since CNS cannot determine the specific time in the past at which the corrosion became excessive to the point of failure in a seismic event or barge impact in either division, then we cannot determine if Division 1 and 2 were both INOPERABLE at the same time. Per NUREG 1022 Section 3.2.7, the level of judgement for reporting an event under this criterion is a reasonable expectation of preventing fulfillment of a safety function. Because CNS has had at least one Division of SW in operation while at power over the last three years and since we can assume the INOPERABILITY of the Division 2 occurred at the time of discovery, then we have a reasonable expectation that the safety function could have been accomplished. Therefore, no LOSF occurred.

However, the mechanism of corrosion in instrument racks for both divisions of SW does represent a Common-cause Inoperability of Independent Trains or Channels. NUREG 1022 Section 3.2.8 notes that an event is reportable if the independent trains or channels were inoperable at the same time, regardless of whether or not they were discovered at the same time. Further, NUREG 1022 Section 3.2.8 Example 2, Marine Growth Causing Emergency Service Water To Become Inoperable (Common-Mode Failure Mechanism), says "With Unit 1 at 74 percent power and Unit 2 at 100 percent power, ESW pump 1A was declared inoperable because its flow rate was too low to meet acceptance criteria. Three days later, with both units at the same conditions, ESW pump 1C was declared inoperable for the same reason. The ESW pumps provide the source of water from the intake canal during a design-basis accident. In both cases, the cause was marine growth of hydroids and barnacles on the impeller and suction of the pumps. Following maintenance, both pumps passed their performance tests and were placed in service. Pump testing frequency was increased to more closely monitor pump performance." Example (2) is similar to the SW situation at CNS identified in CR-CNS-2012-01597 (Div 1 SW Instrument Rack) in March and CR-CNS-2012-06208 (Div 2 SW Instrument Rack) in September.

Thus, this condition is REPORTABLE as an LER per 10 CFR 50.73(a)(2)(vii)(D)]. There is no corresponding requirement for immediate reporting in 10 CFR 50.72. The LER is reportable in 60 days from the date of discovery (9/17/12). The LER is due 11/16/12.

**Closure Comments:**

10/5/12-Revised CA SubResponse per ca originator and Resp Mgr. See attachment on SubResponse. (thath91)

**Attachments:**

Subresp Description  
Updated Response with Mgr Approval

CA Number: 3

	Site	Group	Name
Assigned By:	CNS	CA&A Mgmt CNS	Dewhirst,Linda
Assigned To:	CNS	PLT Eng Sys Mgmt CNS	Dia,Khalil M
Subassigned To :	CNS	PLT Eng Sys NSSS Staff CNS	Walters,Chad L

**Originated By:** Hathaway,Tricia D 9/20/2012 15:09:36  
**Performed By:** Gardner,Gabriel G 10/11/2012 10:50:14  
**Subperformed By:** Walters,Chad L 10/11/2012 10:18:35  
**Approved By:**  
**Closed By:** Dia,Khalil M 10/11/2012 12:32:58

**Current Due Date:** 10/14/2012**Initial Due Date:** 10/14/2012**CA Type:** DISP - ACE/LT**CA Priority:****Plant Constraint:** NON-OUTAGE**CA Description:**

Perform apparent cause evaluation in accordance with EN-LI-119. Per CRG, ensure to review CA's from CR-CNS-2012-01597 when completing this evaluation. Also ensure that CR-CNS-2012-06289, CR-CNS-2012-06296 and CR-CNS-2012-06384 are adequately addressed along with this CR.

**CA REFERENCE ITEMS:**

<u>Type Code</u>	<u>Description</u>
PRIORITY	4

**Response:**

Concur with sub-response. - GGG

**Subresponse :**

See the attached evaluation, barrier analysis and EFE.

**Closure Comments:**

Agree with the evaluation two new corrective actions will be assigned. KMDIA

**Attachments:**

Subresp Description  
 Barrier Analysis  
 Equipment Failure Evaluation  
 ACE

CA Number: 4

	Site	Group	Name
Assigned By:	CNS	CA&A Mgmt CNS	Dewhirst,Linda
Assigned To:	CNS	PLT Eng Sys Mgmt CNS	Dia,Khalil M
Subassigned To :	CNS	PLT Eng Sys NSSS Staff CNS	Walters,Chad L

**Originated By:** Hathaway,Tricia D 9/20/2012 15:17:35  
**Performed By:** Dia,Khalil M 9/26/2012 06:46:39  
**Subperformed By:** Walters,Chad L 9/25/2012 16:43:03  
**Approved By:**  
**Closed By:** Dia,Khalil M 9/26/2012 06:46:39

**Current Due Date:** 09/27/2012**Initial Due Date:** 09/27/2012**CA Type:** ACTION**CA Priority:****Plant Constraint:** NON-OUTAGE**CA Description:**

As Responsible Manager you are to:

1.  Perform a pre-job brief with the apparent cause evaluator, using the guidance provided by CA&A; and
2.  Ensure evaluator completes JIT with CA&A manager or designee if not qualified to TQD CAP200 or TQD SCR100.

**CA REFERENCE ITEMS:**

<u>Type Code</u>	<u>Description</u>
PRIORITY	4

**Response:**

Perform a pre-job brief with the apparent cause evaluator was performed, the individual is qualified to TQD CAP200 see attached document. KMDIA

**Subresponse :**

SED Manager conducted a PJB with SW system engineer on 9/24/12. Documentation is attached.

**Closure Comments:****Attachments:**

Subresp Description  
PJB Documentation

CA Number: 5

	Site	Group	Name
Assigned By:	CNS	CA&A Mgmt CNS	Dewhirst,Linda
Assigned To:	CNS	PLT Eng Sys Mgmt CNS	Dia,Khalil M
Subassigned To :	CNS	PLT Eng Sys NSSS Staff CNS	Walters,Chad L

**Originated By:** Hathaway,Tricia D 9/20/2012 15:18:28  
**Performed By:** Gardner,Gabriel G 10/11/2012 10:46:27  
**Subperformed By:** Walters,Chad L 10/11/2012 10:23:03  
**Approved By:**  
**Closed By:** Dia,Khalil M 10/11/2012 12:18:38

**Current Due Date:** 10/14/2012**Initial Due Date:** 10/14/2012**CA Type:** ACTION**CA Priority:****Plant Constraint:** NON-OUTAGE**CA Description:**

Determine if an effectiveness review is appropriate per EN-LI-119, Step 5.3[3](k)(9). If appropriate, utilize the guidance in EN-LI-119, Attachment 9.10. Ensure the plan is documented in the Proposed Corrective Action section of the Apparent Cause Evaluation including the criteria specified in Attachment 9.10 Step 1. Effectiveness Review action(s) should be issued under LO-CNSLO-2012-00011.

**CA REFERENCE ITEMS:**

<u>Type Code</u>	<u>Description</u>
PRIORITY	4

**Response:**

Concur with sub-response. - GGG

**Subresponse :**

The failure was associated with instrument racks due to internal corrosion. These racks were original plant equipment and the failure occurred after nearly 40 years. No effectiveness review is appropriate for the identified condition.

**Closure Comments:**

Agree with the response close based on actions taken. KMDIA

CA Number: 6

	Site	Group	Name
Assigned By:	CNS	PLT Eng Sys NSSS Staff CNS	Walters,Chad L
Assigned To:	CNS	PLT Eng Sys Mgmt CNS	Dia,Khalil M
Subassigned To :	CNS	PLT Eng Sys NSSS Staff CNS	Walters,Chad L

Originated By: Walters,Chad L

10/11/2012 13:25:55

Performed By:

Subperformed By:

Approved By:

Closed By:

Current Due Date: 02/26/2013

Initial Due Date: 02/28/2013

CA Type: ACTION

CA Priority:

Plant Constraint: NON-OUTAGE

**CA Description:**

Identify and track the associated work orders to complete extent of condition examinations of SW system instrument racks.

**Response:****Subresponse :****Closure Comments:**

CA Number: 7

	Site	Group	Name
Assigned By:	CNS	PLT Eng Sys NSSS Staff CNS	Walters,Chad L
Assigned To:	CNS	PLT Eng Sys Mgmt CNS	Dia,Khalil M
Subassigned To :	CNS	PLT Eng Sys NSSS Staff CNS	Walters,Chad L

Originated By: Walters,Chad L 10/11/2012 13:26:53

Performed By:

Subperformed By:

Approved By:

Closed By:

Current Due Date: 05/30/2013

Initial Due Date: 06/01/2013

CA Type: ACTION

CA Priority:

Plant Constraint: NON-OUTAGE

**CA Description:**

Determine if PM is required based on the AS-LEFT configuration of the SWP room instrument racks.

**Response:****Subresponse :****Closure Comments:**

**Initiated Date:** 9/17/2012 18:10    **Owner Site and Group:** CNS    PLT Eng Sys Mgmt CNS

**Current Contact:** needs indep review (SW)

**Current Significance:** B

**Closed by:**

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**Summary Description:**

Corrosion on Intake Structure Local Racks.

Condition: It was noticed the strainer instrument racks in the Intake Structure have moderate to severe corrosion. The anchorage bolt heads are rounded off due to corrosion.

Requirement not met: Supports should be cleaned and painted to prevent corrosion from affecting the support.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Walkdown Engineers were completing an Area Walk-By in the Service Water Pump Room.

**Remarks Description:**

**Closure Description:**



**OperabilityVersion:** 1**Operability Code:** OPERABLE-OP EVAL**Immediate Report Code:** NONE**Performed By:** Wheeler, Steven C

09/18/2012 04:46

**Approved By:** Kahanca, John R

09/18/2012 05:00

**Operability Description:**

LCO 3.7.2 Service Water.

The safety objective of the Service Water (SW) system is to provide a heat sink for the Reactor Equipment Cooling (REC), Residual Heat Removal (RHR), and diesel generator cooling systems under transient and accident conditions. The system provides a continuous supply of cooling water directly to the diesel generator and to the secondary side of the REC heat exchangers and to the RHR Service Water Booster Pumps adequate for the requirements under both normal operations and under transient and accident conditions. The system shall be capable of providing direct cooling to essential REC heat loads following an accident or after a passive REC failure.

The affected instrument racks support equipment that provides indications and interlocks for SW strainer and system operation.

The ACE completed in April, 2012 for CR-CNS-2012-1597, "SW Pump Room Instrument Rack Failure" and CR-CNS-2012-2056 reference the extent of condition performed for the rack failure that found no "soft spots" and no evidence that the SW pump room instrument racks were not solidly attached.

Additionally, the SW pump room was walked down this shift by DED Civil Engineers and the instrument racks were inspected. No physical evidence of loose racks or cracking in the racks was identified. Inspections of the instrument rack base plates did not identify anything more than surface rust or staining. This inspection concluded that the conditions have not changed since the extent of condition was completed for the ACE in April, 2012. Reasonable Expectation of Operability of the SW system exists. SED has been contacted to complete an Operability Evaluation by Friday, September 21.

**Approval Comments:**

Concur.

**Attachments:**Operability Description  
checklist

**OperabilityVersion:** 2

**Operability Code:** INOPERABLE

**Immediate Report Code:** NONE

**Performed By:** Schizas,Fred A

09/19/2012 14:59

**Approved By:** Beger,Nathan L

09/19/2012 15:10

**Operability Description:**

Evaluation by engineering after paint and rust removal determined that Div. 2 SW subsystem operability cannot be supported.

Div 2 SW was declared inoperable 19SEP12/1030. LCOs 3.7.2.A, 3.3.3.2.A, 3.6.1.3.A and 3.8.1.B were entered.

**Approval Comments:**

Concur - CR added to LCO tracker TS12-SW DIV 2 INST RACKS -01

**Version:** 1

**Significance Code:** B

**Classification Code:** RCR (AC - L)

**Owner Site and Group:** CNS      PLT Eng Sys Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/20/2012 08:55

**Assignment Description:**

II.B.4 Operable - Op Eval

Ensure eval looks at CAs from 2012-01587 and timeliness.

**Reportability Version:** 2**Report Number:****Report Code:** NOT REPORTABLE**Boilerplate Code:** TS**Performed By :**

00/00/0000 00:00

**Reportability Description:**

Licensing reviewed the OpEval in CA#1 and discussed it with the author, the System Engineer (SE). From the SE, of those instrument racks identified in the OpEval, Rack #5 is the only one that was likely to have failed in the event of a barge impact or seismic event which bounds seismic events. Rack #5 contains SW-PI-364B and SW-PI-365B (local indicators), SW-PS-364B (actuates auto-isolation of non-essential loads on low pressure), and SW-PS-365B (auto-starts SWP 'B' on low pressure).

The impact of the rack failing in worst manner possible can be postulated. If the rack failed such that PS-364B and PS-365B did not fail low, then the auto isolation of non-essential loads would not occur and SWPs in Division 2 would not auto-start on low pressure. The OpEval identifies the mechanism of stanchion degradation to be rust and corrosion. These are time dependent mechanisms which have been occurring over the life of the plant. No firm evidence is presented pointing to a specific time in the past at which the corrosion became excessive to the point of failure in a seismic event or barge impact. Therefore, SW Division 2 was appropriately called INOPERABLE at the time of discovery, and the period of time for any past-operability concern cannot be determined. Therefore, CNS was not in a Condition Prohibited by TS per 10 cFR 50.73(a)(i)(b).

Similarly, for a loss of safety function (LOSF) to have occurred, both SW Divisions would have to become INOPERABLE at the same time. Since CNS cannot determine the specific time in the past at which the corrosion became excessive to the point of failure in a seismic event or barge impact in either division, then CNS cannot determine if Division 1 and 2 were both INOPERABLE at the same time. Per NUREG 1022 Section 3.2.7, the level of judgment for reporting an event under this criterion is a reasonable expectation of preventing fulfillment of a safety function. Because CNS has had at least one Division of SW in operation while at power over the last three years and since we can assume the INOPERABILITY of the Division 2 occurred at the time of discovery, then we have a reasonable expectation that the safety function could have been accomplished. Therefore, no LOSF occurred per 10 CFR 50.73(a)(2)(v).

NUREG 1022 Section 3.2.8 notes that an event is reportable if the independent trains or channels were inoperable at the same time, regardless of whether or not they were discovered at the same time. Example 2 in that section of NUREG 1022 presents a somewhat similar situation of marine growth causing Emergency Service Water to become inoperable (a Common-Mode Failure Mechanism). This example says "With Unit 1 at 74 percent power and Unit 2 at 100 percent power, ESW pump 1A was declared inoperable because its flow rate was too low to meet acceptance criteria. Three days later, with both units at the same conditions, ESW pump 1C was declared inoperable for the same reason. ..." Example (2) appears similar to the CNS SW instrument racks situation because The mechanism of corrosion in instrument racks for both divisions of SW does represent a Common-cause Inoperability of Independent Trains or Channels. However, CNS identified the Division 1 SW Instrument Rack corrosion in March (CR-CNS-2012-01597) and identified the Division 2 SW Instrument Rack corrosion in September (CR-CNS-2012-06208). Since a point in time prior to the CRs being written cannot be identified when the corrosion became excessive, then the inoperability may be assumed to occur at the time of discovery. Restoration of Division 1 OPERABILITY in the spring enabled CNS to rely on it during the period of Division 2 inoperability. Both SW sub-systems were not INOPERABLE at the same time; therefore this condition is not a common cause inoperability of 2 independent trains per 10 CFR 50.73(a)(2)(vii).

Therefore, this condition is NOT REPORTABLE. (elm 10/1/12)

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** LOSF NA

**Performed By :** McCutchen,Edward L

09/18/2012 08:14

**Reportability Description:**

No loss of nuclear safety function. Condition affects safety related equipment, but does not affect ability to perform the safety function. Licensing has opened an action to itself (CA#2) to review the operability evaluation, and determine if new evidence reveals a reportable condition.

**Originator:** Marotz,Mitchell M**Originator Phone:** 2527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/17/2012 18:08**Initiated Date:** 09/17/2012 18:16**Condition Description:**

HOUSEKEEPING ISSUE IN ECST ROOM

Condition:

During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by of the area surrounding the Emergency Condensate Storage Tanks. During the walk-by, it was noticed that past ground water intrusion (through the wall) was present. The SWEs commented: "Traces of Ground water Intrusion w/ injected foam repair". The SWEs stated that a ground water intrusion spot was previously repaired using injected foam. However, the area was not cleaned following the repair.

Requirement not met:

Failure to follow CNS housekeeping practices.

Method of Discovery:

Discovered during 50.54(F) Section 2.3 Seismic Walkdowns.

**Immediate Action Description:**

Initiated Condition Report and Contacted Control Room STE.

**Suggested Action Description:**

Recommend that the area be cleaned per CNS housekeeping procedure at next available chance.

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1
CONSEQUENCES	C09
PROGRAM FUNCTION	P412

**Initiated Date:** 9/17/2012 18:16    **Owner Site and Group:** CNS    Ops Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway,Tricia D

10/24/2012 10:13

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**Summary Description:**

HOUSEKEEPING ISSUE IN ECST ROOM

Condition:

During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by of the area surrounding the Emergency Condensate Storage Tanks. During the walk-by, it was noticed that past ground water intrusion (through the wall) was present. The SWEs commented: "Traces of Ground water Intrusion w/ injected foam repair". The SWEs stated that a ground water intrusion spot was previously repaired using injected foam. However, the area was not cleaned following the repair.

Requirement not met:

Failure to follow CNS housekeeping practices.

Method of Discovery:

Discovered during 50.54(F) Section 2.3 Seismic Walkdowns.

**Remarks Description:**

**Closure Description:**

Trend. Close CR.

**OperabilityVersion:** 1**Operability Code:** ADMIN - NA**Immediate Report Code:** NONE**Performed By:** Wheeler,Steven C

09/17/2012 20:44

**Approved By:** Kahanca,John R

09/17/2012 21:06

**Operability Description:**

Walkdowns identified that the ECST area was not cleaned up following maintenance activities. This is characterized as a housekeeping issue only. No degraded or non conforming condition is identified.

**Approval Comments:**

Concur.



**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      Ops Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/20/2012 08:55

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** HOUSEKEEPING

**Performed By :** Madsen,David N

09/18/2012 07:46

**Reportability Description:**

No equipment operability, radiological, security nor industrial safety issues that meet criteria for reporting.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/17/2012 18:49**Initiated Date:** 09/17/2012 19:01**Condition Description:**

GENERAL HOUSEKEEPING ISSUES.

Condition: It was noticed that there was water pooled on the floor next to SW-P-C and in the back Northwest corner of the SW Pump Room.

Requirement not met: Failure to follow general housekeeping practices.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Walkdown Engineers were completing an Area Walk-By in the Service Water Pump Room.

**Immediate Action Description:**

Contacted Supervisor and STE

**Suggested Action Description:**

It is recommended that the water be cleaned up at the next available opportunity.

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1
PROGRAM FUNCTION	P412
CONSEQUENCES	C09

**Initiated Date:** 9/17/2012 19:01    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/24/2012 10:14

**Summary Description:**

GENERAL HOUSEKEEPING ISSUES.

**Condition:** It was noticed that there was water pooled on the floor next to SW-P-C and in the back Northwest corner of the SW Pump Room.

**Requirement not met:** Failure to follow general housekeeping practices.

**Method of Discovery:** During the 50.54(F) Section 2.3 Seismic Walkdowns, the Walkdown Engineers were completing an Area Walk-By in the Service Water Pump Room.

**Remarks Description:**

**Closure Description:**

Trend. Close CR.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Wheeler,Steven C

09/17/2012 22:51

**Approved By:** Kahanca,John R

09/18/2012 01:18

**Operability Description:**

SW Loop A. LCO 3.7.2.

The safety objective of the Service Water (SW) system is to provide a heat sink for the Reactor Equipment Cooling (REC), Residual Heat Removal (RHR), and diesel generator cooling systems under transient and accident conditions. The system provides a continuous supply of cooling water directly to the diesel generator and to the secondary side of the REC heat exchangers and to the RHR Service Water Booster Pumps adequate for the requirements under both normal operations and under transient and accident conditions. The system shall be capable of providing direct cooling to essential REC heat loads following an accident or after a passive REC failure.

The water originates from the SW pump gland seal leak off which is normal, and from the previously identified SW piping weld leak. The leak rate of the SW piping weld remains bounded by the Operability Evaluation previously completed per CR-CNS-2012-05723. The leakage is minor and is characterized as a housekeeping issue. SW remains operable.

**Approval Comments:**

Concur. Current SW Piping leak rate as documented in the narrative logs shiftly is steady at 5 ml/hour, well below the 5 gpm leakage identified as being acceptable in the evaluation for CR-CNS-2012-05723.

**Attachments:**

Operability Description  
checklist

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Deatz, Ronnie C

09/20/2012 08:55

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/18/2012 07:47

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/18/2012 10:10**Initiated Date:** 09/18/2012 11:18**Condition Description:**

INADEQUATE CONDUIT SUPPORT

**Condition:**

The conduit is associated with LRP-PNL-S191 (SW Pumps A & C Strainer S191 control panel) has a support directly above the panel. The support at the conduit is comprised of a horizontal unistrut which is connected back to a strut multiframe system. The conduit appears to have an excessively long cantilever length and no bracket attaching it to the wall. SWEs were unable to verify from drawings that this configuration required a bracket securing it to the North wall to support the long strut span.

The conduit hanger in question was identified as hanger 7. The conduit that is attached to the hanger is ML52 (MLX 31, MLX 30) and the hanger nearest to the one in question is hanger 68. The general conduit layout can be seen on drawing 3169 SHT 1. The individual hanger drawing for hangers 7 and 68 could not be located.

Pictures regarding this CR can be found at T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)

**Requirement not Met:**

Potentially a failure to provide adequate seismic support for conduit.

**Method of Discovery:**

During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by of the Service Water Pump Room. During the walk-by, the engineers noticed an excessively long cantilever conduit support.

**Immediate Action Description:**

Condition Report Generated, DED notified, and Control Room STE notified.

**Suggested Action Description:**

Recommend that DED be consulted to determine the adequacy of the support. If the support is not adequate, it is recommended that a new support be installed that will extend to, and bolt into the wall.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-6130

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1



**Initiated Date:** 9/18/2012 11:18    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

9/20/2012 15:39

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**Summary Description:**

INADEQUATE CONDUIT SUPPORT

**Condition:**

The conduit is associated with LRP-PNL-S191 (SW Pumps A & C Strainer S191 control panel) has a support directly above the panel. The support at the conduit is comprised of a horizontal unistrut which is connected back to a strut multiframe system. The conduit appears to have an excessively long cantilever length and no bracket attaching it to the wall. SWEs were unable to verify from drawings that this configuration required a bracket securing it to the North wall to support the long strut span.

The conduit hanger in question was identified as hanger 7. The conduit that is attached to the hanger is ML52 (MLX 31, MLX 30) and the hanger nearest to the one in question is hanger 68. The general conduit layout can be seen on drawing 3169 SHT 1. The individual hanger drawing for hangers 7 and 68 could not be located.

Pictures regarding this CR can be found at T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)

**Requirement not Met:**

Potentially a failure to provide adequate seismic support for conduit.

**Method of Discovery:**

During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by of the Service Water Pump Room. During the walk-by, the engineers noticed an excessively long cantilever conduit support.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/18/2012 17:25

**Approved By:** Beger,Nathan L

09/18/2012 17:29

**Operability Description:**

LCOs 3.7.1 and 3.7.2 are applicable

The SW System is designed to provide cooling water for the removal of heat from equipment, such as the diesel generators (DGs) and Reactor Equipment Cooling (REC) System heat exchangers, and to provide a supply of water for the Residual Heat Removal Service Water Heat Exchangers through the Residual Heat Removal Service Water Booster (RHRSWB) System pumps, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The SW System also provides cooling to unit components, as required, during normal operation. The SW System also provides cooling water to turbine building non-essential loads. If SW header pressure falls below 20 psig, the system automatically isolates the non-essential header by closing the discharge cross-tie valves. The SW system can be manually aligned as a backup to the REC System through remotely controlled motor operated valves. This configuration would be used in the event that the REC System becomes incapable of performing its essential cooling function and in this configuration the SW System provides cooling water to the room coolers for the Emergency Core Cooling System (Core Spray, RHR, HPCI) pump rooms and the RHR pump seal water coolers.

The conduit in question meets the requirements for Seismic class 1S equipment per NEDC 88-285. Hangar H-68 is on SKE-EE2279 Sh.4 Rev. 0, NEDC 88-285 analyzed this hangar for a maximum span of 8 ft. 6 in. for Seismic Class 1S. Per field walkdown the span for this hangar is 8 ft. which is within the allowable range and is therefore seismaically qualified to Class 1S.

Div 1 SW remains operable.

**Approval Comments:**

Concur

**Attachments:**Operability Description  
CHECKLIST

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/20/2012 08:55

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** McCutchen,Edward L

09/19/2012 07:39

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 2527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/18/2012 13:05**Initiated Date:** 09/18/2012 13:08**Condition Description:**

SW INSTRUMENT RACK SPACIAL CONCERN

**Condition:**

During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by of the Service Water Pump Room. During the walk-by, the SWEs noted a single leg instrument rack for SW-PI-383B that is touching a large pipe. This is an adverse spatial interaction because movement of the large pipe could potentially cause rack damage.

A photo of this spacial concern can be found at T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

Adequate space between equipment to allow for seismic movement.

**Method of Discovery:**

Discovered during 50.54(F) Section 2.3 Seismic Walkdowns.

**Immediate Action Description:**

Condition Report Generated, DED notified, and Control Room STE notified.

**Suggested Action Description:**

Recommend that DED be consulted to determine if the force on the rack due to the pipe movement during a seismic event is enough to cause a failure of the rack.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1
KEYWORDS	SEISMIC
CONSEQUENCES	C09
PROGRAM FUNCTION	P301

**Initiated Date:** 9/18/2012 13:08    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway,Tricia D

9/20/2012 15:40

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**Summary Description:**

SW INSTRUMENT RACK SPACIAL CONCERN

**Condition:**

During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by of the Service Water Pump Room. During the walk-by, the SWEs noted a single leg instrument rack for SW-PI-383B that is touching a large pipe. This is an adverse spatial interaction because movement of the large pipe could potentially cause rack damage.

A photo of this spacial concern can be found at T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

Adequate space between equipment to allow for seismic movement.

**Method of Discovery:**

Discovered during 50.54(F) Section 2.3 Seismic Walkdowns.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/18/2012 17:34

**Approved By:** Beger,Nathan L

09/18/2012 17:37

**Operability Description:**

LCOs 3.7.1 and 3.7.2 are applicable

The SW System is designed to provide cooling water for the removal of heat from equipment, such as the diesel generators (DGs) and Reactor Equipment Cooling (REC) System heat exchangers, and to provide a supply of water for the Residual Heat Removal Service Water Heat Exchangers through the Residual Heat Removal Service Water Booster (RHRSWB) System pumps, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The SW System also provides cooling to unit components, as required, during normal operation. The SW System also provides cooling water to turbine building non-essential loads. If SW header pressure falls below 20 psig, the system automatically isolates the non-essential header by closing the discharge cross-tie valves. The SW system can be manually aligned as a backup to the REC System through remotely controlled motor operated valves. This configuration would be used in the event that the REC System becomes incapable of performing its essential cooling function and in this configuration the SW System provides cooling water to the room coolers for the Emergency Core Cooling System (Core Spray, RHR, HPCI) pump rooms and the RHR pump seal water coolers.

The PI is essential as a pressure boundary only. It is normally valved out of service by its isolation valve. It current condition is valved out. Seismic interaction with the SW pipe insulation is not a concern as the rack is attached to the same structure as the piping. The rack and piping will not move independently during a postulated seismic event, they will move together. This condition does not affect DIV 2 SW operability or the operability of the valve out instrument.

**Approval Comments:**

Concur

**Attachments:**Operability Description  
CHECKLIST

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/20/2012 08:55

**Assignment Description:**

Tie to CR 2012-06130



**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** McCutchen,Edward L

09/19/2012 07:47

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz, Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken, Brian**Reportability Required:** Y**Discovered Date:** 09/18/2012 13:37**Initiated Date:** 09/18/2012 13:53

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**Condition Description:****TUBING TRAY MISSING BOLTS**

Condition: Tubing trays to rack LR-25-58 have several connections where one of the two screws per side of the tray connectors are loose or missing. Since each connector has at least one screw secured tightly per side, the overall tubing tray system is acceptable per Seismic Walkdown Engineers (SWE).

Pictures of the tubing tray can be found at T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

Requirement not Met: Tubing tray bolting loose and/or missing.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by in the Reactor building NE-Quad 881 elevation.

**Immediate Action Description:**

Condition Report Generated and contacted Supervisor and Control Room STE notified.

**Suggested Action Description:**

Recommend that the loose and missing bolting in the tubing tray be tightened and replaced at the next available opportunity.

**Initiated Date:** 9/18/2012 13:53    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** W

**Closed by:** Anderson,Donny L

9/25/2012 13:13

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**Summary Description:**

TUBING TRAY MISSING BOLTS

Condition: Tubing trays to rack LR-25-58 have several connections where one of the two screws per side of the tray connectors are loose or missing. Since each connector has at least one screw secured tightly per side, the overall tubing tray system is acceptable per Seismic Walkdown Engineers (SWE).

Pictures of the tubing tray can be found at T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

Requirement not Met: Tubing tray bolting loose and/or missing.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by in the Reactor building NE-Quad 881 elevation.

**Remarks Description:**

**Closure Description:**

This condition report has been classified as a CAT W and will not be addressed by the 0.5 CAP Procedures. Correction of this condition will be scheduled and completed in accordance with the work management process. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the Work Control Manager.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/19/2012 15:28

**Approved By:** Beger,Nathan L

09/19/2012 15:48

**Operability Description:**

LCOs 3.5.1 and 3.5.3 apply

The RCIC System is designed to operate either automatically or manually following reactor pressure vessel (RPV) isolation accompanied by a loss of coolant flow from the feedwater system to provide adequate core cooling and control of the RPV water level. The RCIC System is designed to provide core cooling for a wide range of steam inlet pressures, 150 to 1120 psia. Upon receipt of an initiation signal, the RCIC turbine accelerates to a specified speed. As the RCIC flow increases, the turbine control valve is automatically adjusted to maintain design flow. Exhaust steam from the RCIC turbine is discharged to the suppression pool. The function of the RCIC System is to respond to transient events by providing makeup coolant to the reactor. The RCIC System is neither an ECCS nor an Engineered Safety Feature System and no credit is taken in the safety analyses for RCIC System operation. It can, however, provide a high pressure backup to supply water to the vessel in the event of a system break.

The Core Spray system is designed to maintain continuity of reactor core cooling for the spectrum of loss-of-coolant accidents ranging from those for which adequate core cooling is supplied by the High Pressure Coolant Injection system up to and including the design basis Loss of Coolant Accident (LOCA).

Tubing tray is based on B-Line catalog for 1-1/2" by 3/4" high by 16' long, 16 gauge tray bounding dimension with 2 copper 1/2" tubing runs being supported. The support is one 1/4" by 3/4" A36 bolt. The total weight being supported by the bolt is estimated to be 16 lbs. This equates to the most bounding seismic loading of 21 lbs of shear force and a 110 psi of shear stress on the bolt. The allowable shear stress for the bolt is 14,400 psi. A single bolt is adequate to meet all seismic requirements. RCIC AND CS-A operability is not challenged by this condition.

**Approval Comments:**

Concur

**Attachments:**Operability Description  
CHECKLIST

**Version:** 1

**Significance Code:** W

**Classification Code:** WORK ITEM

**Owner Site and Group:** CNS Mnt Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/20/2012 08:55

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/24/2012 07:35

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/18/2012 15:50**Initiated Date:** 09/18/2012 15:58**Condition Description:**

FIRE SEAL MISSING LABEL

Condition: It was noticed the CIC tag for fire seal BLDG-FSEAL-R3B16E in Critical Switchgear Room 1G is missing.

Requirement not Met: Plant components should be properly labeled per procedure 0.35.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by in Critical Switchgear Room 1G when they noticed that the CIC tag is missing.

**Immediate Action Description:**

Condition Report Generated and contacted Supervisor and Control Room STE notified.

**Suggested Action Description:**

Recommend that the CIC tag for fire seal BLDG-FSEAL-R3B16E be rehung at the next available opportunity.

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	LABEL
REPORT WEIGHT	1
CONSEQUENCES	C02
PROGRAM FUNCTION	P108

**Attachments:**Condition Description  
Missing Fire Seal Label

CA Number: 1

	<u>Site</u>	<u>Group</u>	<u>Name</u>
<b>Assigned By:</b>	CNS	CA&A Mgmt CNS	Dewhirst,Linda
<b>Assigned To:</b>	CNS	Ops Mgmt CNS	Penfield,Rod L
<b>Subassigned To :</b>	CNS	Ops AOM Sup Staff CNS	Ashbridge,Ronald J

**Originated By:** Hathaway,Tricia D 9/20/2012 15:49:18**Performed By:** Goodman,Daniel J 10/4/2012 15:03:33**Subperformed By:** Ashbridge,Ronald J 10/1/2012 10:59:21**Approved By:****Closed By:** Goodman,Daniel J 10/4/2012 15:03:33**Current Due Date:** 10/19/2012**Initial Due Date:** 10/19/2012**CA Type:** ENHANCE**CA Priority:****Plant Constraint:** NON-OUTAGE**CA Description:**

Resolve Identified Condition.

**CA REFERENCE ITEMS:**Type Code

PRIORITY

Description

4

**Response:**

concur with closure. Label request is appropriate and has its own process to drive completion of activity

**Subresponse :**

I have filled out the label request with the originator of this notification as the requestor. Once the label is fabricated, it will be forwarded to this engineer for installation be 0.35 and will be verified by operations. Procedure 0.35 addresses missing CIC labels. A notification is not required for this condition.

**Closure Comments:**



**Initiated Date:** 9/18/2012 15:58    **Owner Site and Group:** CNS    Ops Mgmt CNS

**Current Contact:**

**Current Significance:** E

**Closed by:**

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**Summary Description:**

FIRE SEAL MISSING LABEL

Condition: It was noticed the CIC tag for fire seal BLDG-FSEAL-R3B16E in Critical Switchgear Room 1G is missing.

Requirement not Met: Plant components should be properly labeled per procedure 0.35.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by in Critical Switchgear Room 1G when they noticed that the CIC tag is missing.

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1

**Operability Code:** ADMIN - NA

**Immediate Report Code:** NONE

**Performed By:** Schizas,Fred A

09/18/2012 16:06

**Approved By:** Beger,Nathan L

09/18/2012 16:27

**Operability Description:**

Labels are not considered installed plant equipment.

This issue is administrative in nature and documented for tracking purposes. The condition described does not affect the operability of any equipment required by the TS/TRM, does not affect risk significant SSCs modeled in Maintenance Rule, and does not affect required support functions per the UFSAR or other LBDs. The condition described in the CR does not meet the criteria specified by G.O.P. 2.0.5 and NUREG 1022 for an event or condition immediately reportable to the NRC.

**Approval Comments:**

Concur

**Version:** 1

**Significance Code:** E

**Classification Code:** DD

**Owner Site and Group:** CNS      Ops Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/20/2012 08:55

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** ADMIN

**Performed By :** Madsen,David N

09/19/2012 07:48

**Reportability Description:**

This is a equipment labeling issue and does not involve an equipment, radiological, nor security issue.

**Originator:** Jackson,Justin L**Originator Phone:** 4028255724**Originator Site Group:** CNS PLT Eng Design Programs Staff CNS**Operability Required:** Y**Supervisor Name:** Ocken,Trevor**Reportability Required:** Y**Discovered Date:** 09/18/2012 16:08**Initiated Date:** 09/18/2012 16:11**Condition Description:**

Substance/Rust found on RHR-MOV-MO25A

During the Beyond Design Basis Walkdowns on 9/18/12 being performed as a result of the incident in Japan, RHR-MOV-MO25A and the surrounding area were reviewed to determine whether or not there were any potential seismic issues. During the walkdown, a substance that appears to look like extensive rusting was found on the RHR-MOV-MO25A. The substance was located on the valve stem inside the yoke assembly. Refer to the attached pdf for pictures of the associated area.

Requirements Not Met: This substance does not belong on the exterior of the valve.

Method of Discovery: During the Beyond Design Basis Walkdowns.

**Immediate Action Description:**

A review of previous CR's using keywords MO25A and rust were performed on PCRS to find relevant previously evaluated CR's. No CR's were found that document this particular event but CR-CNS-2004-02326 was found discussing rust on MO25B. After searching PCRS, this CR was generated.

**Suggested Action Description:**

The substance should be identified and corrective actions created to stop and prevent this issue from occurring.

**EQUIPMENT:**

<u>Tag Name</u>	<u>Tag Suffix Name</u>	<u>Component Code</u>	<u>Process System Code</u>
MOV-MO25A	1	1	RHR

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P501

**Attachments:**

Immediate Action Description  
MO25A Rust

**Initiated Date:** 9/18/2012 16:11    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** W

**Closed by:** Anderson,Donny L

9/20/2012 13:12

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**Summary Description:**

Substance/Rust found on RHR-MOV-MO25A

During the Beyond Design Basis Walkdowns on 9/18/12 being performed as a result of the incident in Japan, RHR-MOV-MO25A and the surrounding area were reviewed to determine whether or not there were any potential seismic issues. During the walkdown, a substance that appears to look like extensive rusting was found on the RHR-MOV-MO25A. The substance was located on the valve stem inside the yoke assembly. Refer to the attached pdf for pictures of the associated area.

Requirements Not Met: This substance does not belong on the exterior of the valve.

Method of Discovery: During the Beyond Design Basis Walkdowns.

**Remarks Description:**

**Closure Description:**

This condition report has been classified as a CAT W and will not be addressed by the 0.5 CAP Procedures. Correction of this condition will be scheduled and completed in accordance with the work management process. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the Work Control Manager.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Wheeler,Steven C

09/18/2012 22:58

**Approved By:** Kahanca,John R

09/19/2012 02:08

**Operability Description:**

## LCO 3.5.1 RHR

The ECCS is designed, in conjunction with the primary and secondary containment, to limit the release of radioactive materials to the environment following a loss of coolant accident (LOCA). The ECCS uses two independent methods (flooding and spraying) to cool the core during a LOCA. The ECCS network consists of the High Pressure Coolant Injection (HPCI) System, the Core Spray (CS) System, the low pressure coolant injection (LPCI) mode of the Residual Heat Removal (RHR) System, and the Automatic Depressurization System (ADS). The suppression pool provides the required source of water for the ECCS. The emergency condensate storage tanks (ECSTs) are capable of providing a source of water for the HPCI System. Although no credit is taken in the safety analyses for the condensate storage tank (CST), it is capable of providing a source of water for the CS System and LPCI subsystems.

On receipt of an initiation signal, ECCS pumps automatically start; simultaneously, the system aligns and the pumps inject water, taken either from the ECSTs or suppression pool, into the Reactor Coolant System (RCS) as RCS pressure is overcome by the discharge pressure of the ECCS pumps. Although the system is initiated, ADS action is delayed, allowing the operator to interrupt the timed sequence if the system is not needed. The HPCI pump discharge pressure almost immediately exceeds that of the RCS, and the pump injects coolant into the vessel to cool the core. If the break is small, the HPCI System will maintain coolant inventory as well as vessel level while the RCS is still pressurized. If HPCI fails, it is backed up by ADS in combination with LPCI and CS. In this event, if the ADS timed sequence is allowed to time out, the selected safety/relief valves (SRVs) would open, depressurizing the RCS, thus allowing the LPCI and CS to overcome RCS pressure and inject coolant into the vessel. If the break is large, RCS pressure initially drops rapidly and the LPCI and CS cool the core.

RHR-MO25A is the inboard RHR injection isolation valve.

Surface rust is evident on the valve externals. The rust is not impacting the valve stem. Review of recent IST stroke times of RHR-25A indicates no degradation. RHR-MO25A operability is not affected by this condition and RHR remains operable.

**Approval Comments:**

Concur.

**Attachments:**Operability Description  
checklist

**Version:** 1

**Significance Code:** W

**Classification Code:** WORK ITEM

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Deatz, Ronnie C

09/20/2012 08:55

**Assignment Description:**



**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** McCutchen,Edward L

09/19/2012 08:02

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Jackson,Justin L**Originator Phone:** 4028255724**Originator Site Group:** CNS PLT Eng Design Programs Staff CNS**Operability Required:** Y**Supervisor Name:** Ocken,Trevor**Reportability Required:** Y**Discovered Date:** 09/18/2012 16:11**Initiated Date:** 09/18/2012 16:12**Condition Description:**

Conduit found to close to RHR-MOV-MO25A

During the Beyond Design Basis Walkdowns on 9/18/12 being performed as a result of the incident in Japan, RHR-MOV-MO25A and the surrounding area were reviewed to determine whether or not there were any potential seismic issues. During the walkdown, it was found that a piece of conduit was approximately 0.5 inches from the valve stem housing assembly. Refer to the attached pdf for pictures of the associated area. After reviewing the positioning of the conduit it was found that no extensive damage would occur during a seismic event which would impair the operability of the valve. The conduit could potentially be damaged during the event which would cause it to be dented.

Requirements Not Met: Potential seismic concern associated with this interaction which should be analyzed.

Method of Discovery: During the Beyond Design Basis Walkdowns.

**Immediate Action Description:**

A review of previous CR's using keywords MO25A and conduit were performed on PCRS to find relevant previously evaluated CR's. No CR's were found. After searching PCRS, this CR was generated.

**Suggested Action Description:**

The movement during a seismic event of the conduit and valve should be reviewed to determine the necessary distance that the conduit should be moved. If movement is not available, supports to restrain either component during a seismic event should be looked into.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
CONSEQUENCES	C09
PROGRAM FUNCTION	P302
REPORT WEIGHT	1

**Attachments:**

Immediate Action Description  
MO25A Conduit

**Initiated Date:** 9/18/2012 16:12    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway,Tricia D

9/25/2012 14:23

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**Summary Description:**

Conduit found to close to RHR-MOV-MO25A

During the Beyond Design Basis Walkdowns on 9/18/12 being performed as a result of the incident in Japan, RHR-MOV-MO25A and the surrounding area were reviewed to determine whether or not there were any potential seismic issues. During the walkdown, it was found that a piece of conduit was approximately 0.5 inches from the valve stem housing assembly. Refer to the attached pdf for pictures of the associated area. After reviewing the positioning of the conduit it was found that no extensive damage would occur during a seismic event which would impair the operability of the valve. The conduit could potentially be damaged during the event which would cause it to be dented.

Requirements Not Met: Potential seismic concern associated with this interaction which should be analyzed.

Method of Discovery: During the Beyond Design Basis Walkdowns.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/19/2012 13:08

**Approved By:** Beget,Nathan L

09/19/2012 15:03

**Operability Description:**

LCO?s 3.5.1, 3.5.2, 3.6.2.3, 3.9.7, 3.9.8 and TLCO T3.6.1 potentially apply

The safety design bases of the RHR system are to:

1. Restore and maintain the coolant inventory in the reactor vessel after a loss of coolant accident as required for core cooling in conjunction with other Emergency Core Cooling systems (Low Pressure Coolant Injection Mode, LPCI).
2. Provide cooling for the suppression pool and thereby remove heat from the containment following a loss of coolant accident to reduce containment pressure (either Suppression Pool Cooling Mode or spray mode can be used to accomplish this function).
3. Maintain suppression pool temperature during normal operation to within the limits assumed in the "Station Safety Analysis," (USAR Chapter XIV).
4. The suppression pool is the source of water for the LPCI mode of operation of the RHR system in order to provide a complete recycle path for water lost from the reactor vessel following reflooding.
5. To provide a high degree of assurance that the RHR system operates satisfactorily during a loss of coolant accident, each active component shall be capable of being tested during operation of the nuclear system.
6. Provide cooling for the drywell and thereby remove heat from the primary containment following a loss of coolant accident to reduce containment temperature.

The power generation design bases of the RHR SDC function is to remove residual heat from the nuclear system so that refueling and nuclear system servicing can be performed.

Per drawing RH-H120A and RH-S20, the maximum calculated displacement that will occur on the piping/valve is 0.375". this is the most limiting load case calculated in the analysis for movement of the piping/valve. The current 0.5" clearance is sufficient to preclude seismic interaction.

All equipment remains operable.

**Approval Comments:**

Concur

**Attachments:**Operability Description  
CHECKLIST

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/24/2012 10:06

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/20/2012 07:36

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/18/2012 16:34**Initiated Date:** 09/18/2012 17:08**Condition Description:**

HOUSEKEEPING ISSUE

Condition: Retractable gate posts and a filter assembly skid was found under the stairs that lead up to the MPF 923?-5? elevation.

Requirement not Met: Items not stored in their proper locations.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by in the MPF for EE-XFMR-RPS1B.

**Immediate Action Description:**

Condition Report Generated and contacted Supervisor and Control Room STE notified.

**Suggested Action Description:**

Recommend that the items be stored in their proper locations.

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1
CONSEQUENCES	C09
PROGRAM FUNCTION	P412

**Attachments:**

Condition Description  
Misc. Items Under Stairs

**Initiated Date:** 9/18/2012 17:08    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/24/2012 10:22

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**Summary Description:**

HOUSEKEEPING ISSUE

**Condition:** Retractable gate posts and a filter assembly skid was found under the stairs that lead up to the MPF 923?-5? elevation.

**Requirement not Met:** Items not stored in their proper locations.

**Method of Discovery:** During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by in the MPF for EE-XFMR-RPS1B.

**Remarks Description:**

**Closure Description:**

Trend. Close CR.



**OperabilityVersion:** 1

**Operability Code:** NOT REQUIRED

**Immediate Report Code:** NONE

**Performed By:** Wheeler,Steven C

09/18/2012 19:54

**Approved By:** Kahanca,John R

09/19/2012 02:11

**Operability Description:**

No Technical Specification specified SSCs and no SSCs discussed in the definition of Functionality are affected by this condition. OPERABILITY is Not Required per procedure 0.5.OPS. There is no immediate reportability associated with this issue per procedure 2.0.5 or NUREG 1022.

**Approval Comments:**

Concur.

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/20/2012 08:55

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** HOUSEKEEPING

**Performed By :** Madsen,David N

09/19/2012 08:03

**Reportability Description:**

No equipment operability, radiological, security nor industrial safety issues that meet criteria for reporting.

**Originator:** Jackson,Justin L**Originator Phone:** 4028255724**Originator Site Group:** CNS PLT Eng Design Programs Staff CNS**Operability Required:** Y**Supervisor Name:** Ocken,Trevor**Reportability Required:** Y**Discovered Date:** 09/18/2012 18:04**Initiated Date:** 09/18/2012 18:06**Condition Description:**

REC-MOV-697MV appears to be leaking oil

During the Beyond Design Basis Walkdowns on 9/18/12 being performed as a result of the incident in Japan, REC-MOV-697MV and the surrounding area were reviewed to determine whether or not there were any potential seismic issues. During the walkdown, a substance that appears to be oil was found leaking out of REC-MOV-697MV. Refer to the attached pdf for picture of the associated area.

Requirements Not Met: Oil should not be leaking out of valves. 

Method of Discovery: During the Beyond Design Basis Walkdowns.

**Immediate Action Description:**

A review of previous CR's using keywords 697MV with oil or leak was performed on PCRS to find relevant previously evaluated CR's. No CR's were found that document this particular event. After searching PCRS, this CR was generated.

**Suggested Action Description:**

Determine the source of the oil like substance and provide a means of repair.

**Attachments:**

Condition Description  
Leaking Valve

**Initiated Date:** 9/18/2012 18:06    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** W

**Closed by:** Anderson,Donny L

9/19/2012 12:43

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**Summary Description:**

REC-MOV-697MV appears to be leaking oil

During the Beyond Design Basis Walkdowns on 9/18/12 being performed as a result of the incident in Japan, REC-MOV-697MV and the surrounding area were reviewed to determine whether or not there were any potential seismic issues. During the walkdown, a substance that appears to be oil was found leaking out of REC-MOV-697MV. Refer to the attached pdf for picture of the associated area.

Requirements Not Met: Oil should not be leaking out of valves.

Method of Discovery: During the Beyond Design Basis Walkdowns.

**Remarks Description:**

**Closure Description:**

This condition report has been classified as a CAT W and will not be addressed by the 0.5 CAP Procedures. Correction of this condition will be scheduled and completed in accordance with the work management process. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the Work Control Manager.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Wheeler,Steven C

09/19/2012 01:27

**Approved By:** Kahanca,John R

09/19/2012 01:31

**Operability Description:****LCO 3.7.3 REC**

The REC System is designed to provide cooling water for the removal of heat from equipment, such as the room coolers for the core spray pump rooms, RHR pump rooms, and HPCI pump room, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient and the RHR pump seal water coolers (essential loads). The REC System also provides cooling to unit components, as required, during normal operation (non-essential loads). In the event of a loss of REC System pressure, automatic valving is provided to shut off all supply to nonessential loads, thus assuring supply to the essential loads.

The REC System consists of two subsystems, each consisting of two 1350 gpm pumps, a heat exchanger, valves, piping and associated instrumentation. A 550 gallon capacity surge tank, located at the highest point of the system, accommodates system volume changes, maintains static pressure in the loops to ensure adequate net positive suction head (NPSH), detects gross leaks in the REC System by providing a point to monitor inventory, and provides a means for adding water. Either of the two subsystems with one REC pump operating or the Service Water supply, is capable of providing the required cooling capacity to support the required essential systems. The two subsystems have sufficient redundancy and independence from each other such that no active component failure in one subsystem will affect the OPERABILITY of the other.

Additionally, each subsystem is provided with Service Water supply and return valves to provide required component cooling in the event of REC leakage in excess of limits or a passive failure, such as a Class 1E pipe break.

The Service Water (SW) System provides two subsystems for backup to the REC critical loops. The Service Water supply is a fully qualified essential supply to the REC critical loops. This configuration would be used in the event that the REC system becomes incapable of performing its essential cooling function. Because of the cross-tie capability in the critical REC loops either SW backup subsystem can supply the required cooling to the REC System.

REC-MO697 is the North REC Critical Loop Return valve. This valve is normally open to provide REC return flow and can be closed to allow SW to cross tie to REC.

Discussion with Valve Team Supervision identified that the MOV is lubricated with grease. Any noted seepage is insignificant as the grease is a colloidal substance that does not flow like oil. A review of the IST data taken per 6.REC.201 for REC-MO697 shows no degradation over time for the valve stroke times. REC-MO697 and the REC system remain operable.

**Approval Comments:**

Concur.

**Attachments:**Operability Description  
checklist

**Version:** 1

**Significance Code:** W

**Classification Code:** WORK ITEM

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Anderson, Donny L

09/19/2012 11:11

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/19/2012 08:02

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.



**Originator:** Marotz,Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/19/2012 13:05**Initiated Date:** 09/19/2012 13:12**Condition Description:**

DWG INCONSISTENT WITH PLANT CONFIGURATION

Condition: Drawing 127857 Rev. B SHT. 1 of 2 shows anchor bolts in six places for EE-XFMR-CDP1A and EE-XMFR-CDP1B. This drawing also states "AS-BUILT," however, the AS-BUILT configuration is not the same as the drawing. The units have four 5/8" shell anchors in the field, which is consistent with the seismic anchorage calculation as developed for the IPEEE program.

Requirement not Met: Drawings should match plant configurations.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walkdown of EE-XFMR-CDP1B.

**Immediate Action Description:**

Contacted Supervisor and Control Room STE notified.

**Suggested Action Description:**

Update drawing 127857 to show four anchor bolts which is consistent with field conditions and calculations.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	DRAWING DEFICIENCY
REPORT WEIGHT	1
CONSEQUENCES	C02
PROGRAM FUNCTION	P316

**Attachments:**

Condition Description  
EE-XMFR-CDP1B PICTS

**Initiated Date:** 9/19/2012 13:12    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

9/25/2012 14:23

**Summary Description:**

DWG INCONSISTENT WITH PLANT CONFIGURATION

Condition: Drawing 127857 Rev. B SHT. 1 of 2 shows anchor bolts in six places for EE-XFMR-CDP1A and EE-XMFR-CDP1B. This drawing also states "AS-BUILT," however, the AS-BUILT configuration is not the same as the drawing. The units have four 5/8" shell anchors in the field, which is consistent with the seismic anchorage calculation as developed for the IPEEE program.

Requirement not Met: Drawings should match plant configurations.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walkdown of EE-XFMR-CDP1B.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** ADMIN - NA**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/19/2012 15:21

**Approved By:** Beger,Nathan L

09/19/2012 15:39

**Operability Description:**

This issue is administrative in nature and documented for tracking purposes. The condition described does not affect the operability of any equipment required by the TS/TRM, does not affect risk significant SSCs modeled in Maintenance Rule, and does not affect required support functions per the UFSAR or other LBDs. The condition described in the CR does not meet the criteria specified by G.O.P. 2.0.5 and NUREG 1022 for an event or condition immediately reportable to the NRC.

Any specific equipment conditions discovered will have separate CRs written with operability assessed on that specific notification.

**Approval Comments:**

Concur

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/24/2012 10:06

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** DOCUMENTATION

**Performed By :** McCutchen,Edward L

09/24/2012 07:45

**Reportability Description:**

This is an issue of proper documentation and does not introduce or identify an equipment, radiological nor security problem.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/19/2012 15:33**Initiated Date:** 09/19/2012 15:46**Condition Description:**

MINOR SURFACE RUST

Condition: Service water hanger SW-H234A in the Reactor Building 903 elevation was found to have some minor surface rust.

Requirement not Met: Hanger should be painted to protect it from corrosion.

Method of Discovery: During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by in the area of SW-MOV-888MV.

**Immediate Action Description:**

Contacted Supervisor and Control Room STE notified.

**Suggested Action Description:**

Recommend that the surface rust is ground off and the hanger then be painted at the next available opportunity.

**EQUIPMENT:**Tag Name

HANGER

Tag Suffix Name Component Code Process System Code

SW

**TRENDING (For Reference Purposes Only):**Trend Type

PROGRAM FUNCTION

Trend Code

P501

**Attachments:**

Condition Description

SW-H234A

SW-H234A DWG

**Initiated Date:** 9/19/2012 15:46    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** W

**Closed by:** Anderson,Donny L

9/25/2012 13:27

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**Summary Description:**

MINOR SURFACE RUST

**Condition:** Service water hanger SW-H234A in the Reactor Building 903 elevation was found to have some minor surface rust.

**Requirement not Met:** Hanger should be painted to protect it from corrosion.

**Method of Discovery:** During the 50.54(F) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were performing a walk-by in the area of SW-MOV-888MV.

**Remarks Description:**

**Closure Description:**

This condition report has been classified as a CAT W and will not be addressed by the 0.5 CAP Procedures. Correction of this condition will be scheduled and completed in accordance with the work management process. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the Work Control Manager.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/19/2012 16:02

**Approved By:** Beger,Nathan L

09/19/2012 16:05

**Operability Description:**

LCOs 3.7.1 and 3.7.2 are applicable

The SW System is designed to provide cooling water for the removal of heat from equipment, such as the diesel generators (DGs) and Reactor Equipment Cooling (REC) System heat exchangers, and to provide a supply of water for the Residual Heat Removal Service Water Heat Exchangers through the Residual Heat Removal Service Water Booster (RHRSWB) System pumps, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The SW System also provides cooling to unit components, as required, during normal operation. The SW System also provides cooling water to turbine building non-essential loads. If SW header pressure falls below 20 psig, the system automatically isolates the non-essential header by closing the discharge cross-tie valves. The SW system can be manually aligned as a backup to the REC System through remotely controlled motor operated valves. This configuration would be used in the event that the REC System becomes incapable of performing its essential cooling function and in this configuration the SW System provides cooling water to the room coolers for the Emergency Core Cooling System (Core Spray, RHR, HPCI) pump rooms and the RHR pump seal water coolers.

Surface rust is a cosmetic issue only. It does not affect the structural integrity of the hangar and therefore does not challenge SW system operability.

SW remains operable.

**Approval Comments:**

Concur

**Attachments:**Operability Description  
CHECKLIST



**Version:** 1

**Significance Code:** W

**Classification Code:** WORK ITEM

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/20/2012 10:01

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** McCutchen,Edward L

09/24/2012 07:55

**Reportability Description:**

SW System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/19/2012 17:22**Initiated Date:** 09/19/2012 17:29**Condition Description:****CABINET SEISMIC INTERACTION WITH LIGHT**

Condition: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting "Area Walk-Bys" in the Diesel Generator Room 2. During the walk-by it was observed that a chain hung lighting fixture is in close proximity to the upper sheet steel extension of Switchgear Cabinet EE-SWGR-4160DG2. The extension appears to be attached to the cabinet. There is a potential for seismic interaction since the light fixture could sway which could potentially impact the cabinet. This issue is also present with Switchgear Cabinet EE-SWGR-4160DG1.

Design civil was consulted and approximated that the impact force of the light on the cabinet could reach 30lbs. Design electrical was consulted and reviewed the equipment within the cabinet. Their review yielded that the loss of relays contained within the cabinet will not impact safe shutdown. As the impact force is not enough to cause damage to the cabinets there is no condition.

Requirement not met: None, the light fixture holds the potential to impact the extension atop the cabinets but no further adverse condition is expected from this action.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "Area Walk-By" in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Immediate Action Description:**

Contacted Supervisor and STE

**Suggested Action Description:**

No action necessary.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	SEISMIC
REPORT WEIGHT	1
CONSEQUENCES	C09
PROGRAM FUNCTION	P301

**Attachments:**

Condition Description  
Switchgear Cabinet Picts

**Initiated Date:** 9/19/2012 17:29    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

9/25/2012 14:23

**Summary Description:**

**CABINET SEISMIC INTERACTION WITH LIGHT**

**Condition:** During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting "Area Walk-Bys" in the Diesel Generator Room 2. During the walk-by it was observed that a chain hung lighting fixture is in close proximity to the upper sheet steel extension of Switchgear Cabinet EE-SWGR-4160DG2. The extension appears to be attached to the cabinet. There is a potential for seismic interaction since the light fixture could sway which could potentially impact the cabinet. This issue is also present with Switchgear Cabinet EE-SWGR-4160DG1.

Design civil was consulted and approximated that the impact force of the light on the cabinet could reach 30lbs. Design electrical was consulted and reviewed the equipment within the cabinet. Their review yielded that the loss of relays contained within the cabinet will not impact safe shutdown. As the impact force is not enough to cause damage to the cabinets there is no condition.

**Requirement not met:** None, the light fixture holds the potential to impact the extension atop the cabinets but no further adverse condition is expected from this action.

**Method of Discovery:** During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "Area Walk-By" in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Wheeler,Steven C

09/19/2012 21:16

**Approved By:** Kahanca,John R

09/20/2012 01:22

**Operability Description:**

## LCO 3.8.1

Each DG must be capable of starting, accelerating to rated speed and voltage, and connecting to its respective 4.16 kV critical bus on detection of bus undervoltage. This sequence must be accomplished within 14 seconds. Each DG must also be capable of accepting required loads within the assumed loading sequence intervals, and must continue to operate until offsite power can be restored to the ESF buses. These capabilities are required to be met from a variety of initial conditions, such as DG in standby with the engine hot and DG in standby with the engine at ambient condition. Proper sequencing of loads, including load shedding, is a required function for DG OPERABILITY.

## USAR II.5.2.4 Application of Design Earthquake Criteria.

The characteristics of the selected design earthquakes are given in Table II 5 1. The Maximum Possible Design Earthquake previously referred to is now termed the Safe Shutdown Earthquake (SSE). The Maximum Probable Design Earthquake is the Operating Basis Earthquake (OBE). The seismic design for

Class I structures and equipment is based on dynamic analyses using acceleration response spectrum curves which are based on a ground motion of 0.1g. This OBE ground acceleration corresponds to an intensity of MM VI. The combined stresses resulting from dead, live, pressure, thermal and earthquake having a ground acceleration of 0.2g are applied to Structures, Systems, and Components (SSCs) that are necessary to achieve safe shutdown. This SSE ground acceleration corresponds to an intensity of MM VII.

For the design of Class I structures and equipment, the maximum horizontal and vertical accelerations were considered to occur simultaneously. Where applicable, stresses were added directly.

The DG output breaker functions to connect the DG to the respective critical 4160 bus.

Design civil was consulted and approximated that the impact force of the light on the cabinet could reach 30lbs. Design electrical was consulted and reviewed the equipment within the cabinet. Their review yielded that the loss of relays contained within the cabinet will not impact safe shutdown. As the impact force is not enough to cause damage to the cabinets there is no condition.

Based on there being no impact to safe shutdown equipment, safe shutdown functions are not affected.

Based on the robust construction of the cabinet and Civil Engineering's conservative estimate that the force of impact to the DG cabinet by the lamp would only be 30 lbs, no affect on the ability of the breaker to open or close as needed is expected.

EDG operability is not affected by this condition.

**Approval Comments:**

Concur.

**Attachments:**Operability Description  
Checklist

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/24/2012 10:06

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** McCutchen,Edward L

09/24/2012 08:04

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Nienaber, Matthew**Originator Phone:** 4028255639**Originator Site Group:** CNS PLT Eng Design Analysis Staff CNS**Operability Required:** Y**Supervisor Name:** Van Winkle, Marshall B**Reportability Required:** Y**Discovered Date:** 09/20/2012 13:00**Initiated Date:** 09/20/2012 13:06**Condition Description:**

LOOSE BOLT ON SUPPORT FOR SW VALVES IN DG2 ROOM

Condition: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting "Area Walk-Bys" in the Diesel Generator Room 2. During the walk-by it was observed that one of two anchor bolts which secure a bracket to the concrete wall for a valve manifold (associated with Valves SW-1350, SW-1351, SW-1353 and SW-1354) has loosened. The bolt head projects approximately 1/2 inch from the bracket surface.

Drawing 2077 provides a flow diagram for the parts. Their purpose is for calibration of a low indicator on the SW discharge piping. SAP rates them as essential as they provide a pressure boundary for SW. Design I&C was contacted and concurred that their essential status is due to the components being a pressure boundary. All components are absent from the SSEL and have no ranking for criticality in SAP. The shear and tensile strength of a single 1/4" bolt can at worst be 400 lbs and 397 lbs respectively. The worst seismic loading in the building is 6g's. With an estimated equipment weight of 30lbs and conservatively accounting for unknown multimodal effects this gives a seismic loading of 270lbs, far below the 400 that is allowable. (Realistically the bolts are stronger, the seismic acceleration is .4g and the equipment weight is closer to 10lbs).

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "Area Walk-By" in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Immediate Action Description:**

Contacted Supervisor and STE

**Suggested Action Description:**

It is recommended that both bolts be tightened in accordance with plant procedures.

**EQUIPMENT:**Tag NameTag Suffix Name Component Code Process System Code

SW

**TRENDING (For Reference Purposes Only):**Trend TypeTrend Code

PROGRAM FUNCTION

P501

**Attachments:**

Immediate Action Description  
pictures of loose bolt



**Initiated Date:** 9/20/2012 13:06    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway,Tricia D

9/26/2012 15:30

**Summary Description:**

LOOSE BOLT ON SUPPORT FOR SW VALVES IN DG2 ROOM

**Condition:** During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting "Area Walk-Bys" in the Diesel Generator Room 2. During the walk-by it was observed that one of two anchor bolts which secure a bracket to the concrete wall for a valve manifold (associated with Valves SW-1350, SW-1351, SW-1353 and SW-1354) has loosened. The bolt head projects approximately 1/2 inch from the bracket surface.

Drawing 2077 provides a flow diagram for the parts. Their purpose is for calibration of a low indicator on the SW discharge piping. SAP rates them as essential as they provide a pressure boundary for SW. Design I&C was contacted and concurred that their essential status is due to the components being a pressure boundary. All components are absent from the SSEL and have no ranking for criticality in SAP. The shear and tensile strength of a single 1/4" bolt can at worst be 400 lbs and 397 lbs respectively. The worst seismic loading in the building is 6g's. With an estimated equipment weight of 30lbs and conservatively accounting for unknown multimodal effects this gives a seismic loading of 270lbs, far below the 400 that is allowable. (Realistically the bolts are stronger, the seismic acceleration is .4g and the equipment weight is closer to 10lbs).

**Method of Discovery:** During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "Area Walk-By" in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/20/2012 13:50

**Approved By:** Beger,Nathan L

09/20/2012 14:37

**Operability Description:**

LCO 3.8.1, 3.8.2

The onsite standby power source for 4.16 kV critical buses 1F and 1G consists of two DGs. DG-1 and DG-2 are dedicated to critical buses 1F and 1G, respectively. A DG starts automatically on a loss of coolant accident (LOCA) signal (i.e., low reactor water level signal or high drywell pressure signal) or on a critical bus degraded voltage or undervoltage signal. After the DG has started, it automatically ties to its respective bus after offsite power is tripped as a consequence of critical bus undervoltage or degraded voltage, independent of or coincident with a LOCA signal. The DGs also start and operate in the standby mode without tying to the critical bus on a LOCA signal alone. Following the trip of offsite power, all loads are shed from the critical bus. When the DG is tied to the critical bus, loads are then sequentially connected to its respective critical bus. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG.

Drawing 2077 provides a flow diagram for the parts. Their purpose is for calibration of a low indicator on the SW discharge piping. SAP rates them as essential as they provide a pressure boundary for SW. Design I&C was contacted and concurred that their essential status is due to the components being a pressure boundary. All components are absent from the SSEL and have no ranking for criticality in SAP. The shear and tensile strength of a single 1/4" bolt can at worst be 400 lbs and 397 lbs respectively. The worst seismic loading in the building is 6g's. With an estimated equipment weight of 30lbs and conservatively accounting for unknown multimodal effects this gives a seismic loading of 270lbs, far below the 400 that is allowable. (In reality, the bolts are 3/8 in diameter (1/4 in bolts were used as an absolute worst case), the seismic acceleration is .4g and the equipment weight is closer to 10lbs).

This condition has no effect on DG-2 operability.

**Approval Comments:**

Concur

**Attachments:**Operability Description  
CHECKLIST

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/26/2012 07:08

**Assignment Description:**

Tie to CR 2012-06130 (Cat C)

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** McCutchen,Edward L

09/24/2012 08:24

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028253620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/26/2012 08:46**Initiated Date:** 09/26/2012 12:36**Condition Description:**

EQ BOX NOT PROPERLY MOUNTED

Condition: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting area walk-bys. During the area walk-by, it was observed that EQ box TB-1210 is not attached to bent with bottom tabs. The top of EQ Box TB-1210 has tabs attached to a b-line strut on the bent in Reactor Building 881-NE-Torus. Photos can be found in a folder with the CR number under: T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)\

The EQ Box TB-1210 is assumed to be an 8" wide x 10" long x 4" deep electrical box conservatively assumed to weigh 25 lbs including the attached cables. The top connections of the box are connected to a 1-5/8" unistrut by a 1/4" diameter, 20 threads per inch, bolts. These bolts are listed to have an allowable pullout of 600 lbs per nut and a resistance to slip of 300 lbs. The worst seismic loading at the elevation of the reactor building is 4 g's. With an estimated weight of 25 lbs and conservatively accounting for multimodal effects by increasing the loading by 1.5, this gives a seismic loading of 150 lbs. The bolted connection to the unistrut can resist 300 lbs per bolt for shear shipping and 600 lbs per bolt for tensile pullout of the unistrut. the 150 lbs seismic loading is far below the allowables. We have two bolts connecting the box, the actual acceleration value is realistically under 1g and the actual weight is less than 25 lbs.

Requirement not met: Having only the top two tabs attached is not in accordance with seismic mounting for this box.

Method of Discovery: During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "area walk-by" in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Immediate Action Description:**

Contacted Supervisor and Shift Technical Engineer in the control room.

**Suggested Action Description:**

Tabs at the bottom of box should be secured.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	SEISMIC
REPORT WEIGHT	1
CONSEQUENCES	C09
PROGRAM FUNCTION	P301

**Initiated Date:** 9/26/2012 12:36    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/2/2012 10:24

**Summary Description:**

**EQ BOX NOT PROPERLY MOUNTED**

**Condition:** During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting area walk-bys. During the area walk-by, it was observed that EQ box TB-1210 is not attached to bent with bottom tabs. The top of EQ Box TB-1210 has tabs attached to a b-line strut on the bent in Reactor Building 881-NE-Torus. Photos can be found in a folder with the CR number under: T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)\

The EQ Box TB-1210 is assumed to be an 8" wide x 10" long x 4" deep electrical box conservatively assumed to weigh 25 lbs including the attached cables. The top connections of the box are connected to a 1-5/8" unistrut by a 1/4" diameter, 20 threads per inch, bolts. These bolts are listed to have an allowable pullout of 600 lbs per nut and a resistance to slip of 300 lbs. The worst seismic loading at the elevation of the reactor building is 4 g's. With an estimated weight of 25 lbs and conservatively accounting for multimodal effects by increasing the loading by 1.5, this gives a seismic loading of 150 lbs. The bolted connection to the unistrut can resist 300 lbs per bolt for shear shipping and 600 lbs per bolt for tensile pullout of the unistrut. the 150 lbs seismic loading is far below the allowables. We have two bolts connecting the box, the actual acceleration value is realistically under 1g and the actual weight is less than 25 lbs.

**Requirement not met:** Having only the top two tabs attached is not in accordance with seismic mounting for this box.

**Method of Discovery:** During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "area walk-by" in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Sayler,Kyle

09/26/2012 16:15

**Approved By:** Murphy,Brian P

09/26/2012 22:07

**Operability Description:**

LCO 3.7.3 and 3.7.2 are applicable

The REC System is designed to provide cooling water for the removal of heat from equipment, such as the room coolers for the core spray pump rooms, RHR pump rooms, and HPCI pump room, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient, and the RHR pump seal water coolers (essential loads). The REC System also provides cooling to unit components, as required, during normal operation (non-essential loads). In the event of a loss of REC System pressure, automatic valve operation is provided to shut off all REC supply to nonessential loads, thus assuring REC is supplied to the essential loads. The Service Water (SW) System provides two subsystems for backup to the REC critical loops. The Service Water supply is a fully qualified essential supply to the REC critical loops. This configuration would be used in the event that the REC system becomes incapable of performing its essential cooling function. Because of the cross-tie capability in the critical REC loops either SW backup subsystem can supply the required cooling to the REC System.

The SW System is designed to provide cooling water for the removal of heat from equipment, such as the diesel generators (DGs) and Reactor Equipment Cooling (REC) System heat exchangers, and to provide a supply of water for the Residual Heat Removal Service Water Heat Exchangers through the Residual Heat Removal Service Water (RHRSW) System pumps, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The SW System also provides cooling to unit components, as required, during normal operation. The SW System also provides cooling water to turbine building non-essential loads. If SW header pressure falls below 20 psig, the system automatically isolates the non-essential header by closing the discharge cross-tie valves.

TB-1210 contains wiring associated with SW-SOV-SPV-451. Per discussions with DED NEDC 00-50 Rev 1 this box was installed per CED 2000-0115 and is installed correctly per these documents. Thus, no degraded or non-conforming condition exists. The Service Water and REC systems are Operable for this condition.

Per 2.0.5 and NUREG 1022 this condition is not reportable.

**Approval Comments:****Attachments:**

Operability Description  
checklist  
checklist

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/01/2012 10:32

**Assignment Description:**

Tie to CR 2012-06130



**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/27/2012 09:10

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028253620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/26/2012 16:41**Initiated Date:** 09/26/2012 16:58**Condition Description:****MISSING SHEET METAL SCREWS**

Condition: Missing sheet metal screws on top of 9-4 control room panels and nearby panels. Each side has at least one screw out of the three. By engineering review, one screw is sufficient to support the dead load of the panel which is used to vent heat from the components inside. Pictures located in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)\ under CR folder.

Requirement not met: All screws should be in place to provide redundant support of the panel.

Method of Discovery: During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "area walk-by" in the vicinity of the 9-4 Panel in the control room.

**Immediate Action Description:**

Contacted operators in control room.

**Suggested Action Description:**

Replace missing screws.

**EQUIPMENT:**

<u>Tag Name</u>	<u>Tag Suffix Name</u>	<u>Component Code</u>	<u>Process System Code</u>
PNL- 9-4	2	9	LRP

**Initiated Date:** 9/26/2012 16:58    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** W

**Closed by:** Anderson,Donny L

10/1/2012 12:02

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**Summary Description:**

MISSING SHEET METAL SCREWS

**Condition:** Missing sheet metal screws on top of 9-4 control room panels and nearby panels. Each side has at least one screw out of the three. By engineering review, one screw is sufficient to support the dead load of the panel which is used to vent heat from the components inside. Pictures located in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)\ under CR folder.

**Requirement not met:** All screws should be in place to provide redundant support of the panel.

**Method of Discovery:** During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "area walk-by" in the vicinity of the 9-4 Panel in the control room.

**Remarks Description:**

**Closure Description:**

This condition report has been classified as a CAT W and will not be addressed by the 0.5 CAP Procedures. Correction of this condition will be scheduled and completed in accordance with the work management process. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the Work Control Manager.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/26/2012 21:30

**Approved By:** Murphy,Brian P

09/26/2012 22:58

**Operability Description:**

There are no specific tech specs associated with this issue.

The panels in question are panels associated with th annunciator system which itself is non-essential. Operability with respect to seismic considerations is not challenged by this condition. The panels are normally held on by nine (9) sheet metal screws. No panel has less than six (6) screws currently installed and are adequately restrained.

No equipment operability issues exist with respect to this condition.

**Approval Comments:****Attachments:**

Operability Description  
CHECKLIST

**Version:** 1

**Significance Code:** W

**Classification Code:** WORK ITEM

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/27/2012 11:54

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/27/2012 09:30

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028253620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/26/2012 17:02**Initiated Date:** 09/26/2012 17:23**Condition Description:**

ADHESIVE CLIPS NOT ATTACHED

Condition: Adhesive clips/ glue shoes found inside LRP-H-PNL were no longer attached to metal enclosure. Glue shoes/clips appear to be supporting ethernet cables. Without the clips the cables could interact with other components inside the panel. There is what appears to be a yellow ethernet hub attached to the roof of the panel by adhesive tape. The hub is sagging and is only supported by adhesive clips and connections to the hub by the ethernet cords. The weight of the hub is very small and the impact to other components inside the panel will not damage them.

Requirement not met: Adhesive clips restraining cables inside the panel are not attached, and hub should not be sagging.

Method of Discovery: During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to walkdown LRP-H-PNL.

**Immediate Action Description:**

Contacted Operators in the control room.

**Suggested Action Description:**

Reattach with more permanent fixtures.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**Initiated Date:** 9/26/2012 17:23    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/4/2012 7:17

**Summary Description:**

ADHESIVE CLIPS NOT ATTACHED

Condition: Adhesive clips/ glue shoes found inside LRP-H-PNL were no longer attached to metal enclosure. Glue shoes/clips appear to be supporting ethernet cables. Without the clips the cables could interact with other components inside the panel. There is what appears to be a yellow ethernet hub attached to the roof of the panel by adhesive tape. The hub is sagging and is only supported by adhesive clips and connections to the hub by the ethernet cords. The weight of the hub is very small and the impact to other components inside the panel will not damage them.

Requirement not met: Adhesive clips restraining cables inside the panel are not attached, and hub should not be sagging.

Method of Discovery: During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to walkdown LRP-H-PNL.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.



**OperabilityVersion:** 1**Operability Code:** NOT REQUIRED**Immediate Report Code:** NONE**Performed By:** Saylor, Kyle

09/27/2012 11:28

**Approved By:** Long, Jerry J

09/27/2012 20:17

**Operability Description:**

Per SAP, PC-FQ-513 Nitrogen Makeup Supply Integrator is classified as Non-Essential and is the only component in danger of being struck should the remaining adhesive clips detach. The cabling is rigidly attached to a conduit ~1ft from the hub which effectively limits the swing path of the hub should it detach. Per discussions with engineering the hub and cabling is all coated in a non-conductive plastic and rubber material so in the event that they detached there low weight and non-conductive construction posses no threat to the surrounding equipment. Per 0.5OPS this condition screens as operability Not Required.

Per 2.0.5 and NUREG 1022 this condition is not reportable.

**Approval Comments:**

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** NON-SAFETY EQUII

**Performed By :** Madsen,David N

09/28/2012 07:44

**Reportability Description:**

Not an SSC that affects safety function, and does not meet criteria for reportability.

**Originator:** Marotz,Mitchell M**Originator Phone:** 3620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/26/2012 17:23**Initiated Date:** 09/26/2012 17:37**Condition Description:**

CONTROL ROOM ELECTRICAL BOX BRACING

**Condition:**

During 50.54(f) Section 2.3 Seismic Walkdowns it was noticed that an electrical box (possibly a Computer CPU) is not strapped or fastened down. The box is directly behind a monitor located in Control Room Panel 9-4 and located on the same bracket support as the monitor.

Peak vertical acceleration for the control room El. 932' is 0.31 g's (bracket support is considered rigid). Since the vertical acceleration is less than 1.0, no uplift shall occur and since the bracket support has vertical sheet steel sides, the electrical box cannot fall and damage any safety related components. Therefore this is not a seismic interaction concern.

A photo of this configuration can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

Bracing of the box to discourage dynamic motion during a seismic event.

**Method of Discovery:**

During 50.54(f) Section 2.3 Seismic Walkdowns.

**Immediate Action Description:**

Discussed with Control Room STE and contacted DED Civil.

**Suggested Action Description:**

Assign DED Civil to evaluate the necessity of bracing the box.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS- 2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	SEISMIC
REPORT WEIGHT	1
CONSEQUENCES	C09
PROGRAM FUNCTION	P301

**Initiated Date:** 9/26/2012 17:37    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/2/2012 10:25

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**Summary Description:**

CONTROL ROOM ELECTRICAL BOX BRACING

**Condition:**

During 50.54(f) Section 2.3 Seismic Walkdowns it was noticed that an electrical box (possibly a Computer CPU) is not strapped or fastened down. The box is directly behind a monitor located in Control Room Panel 9-4 and located on the same bracket support as the monitor.

Peak vertical acceleration for the control room El. 932' is 0.31 g's (bracket support is considered rigid). Since the vertical acceleration is less than 1.0, no uplift shall occur and since the bracket support has vertical sheet steel sides, the electrical box cannot fall and damage any safety related components. Therefore this is not a seismic interaction concern.

A photo of this configuration can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

Bracing of the box to discourage dynamic motion during a seismic event.

**Method of Discovery:**

During 50.54(f) Section 2.3 Seismic Walkdowns.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** NOT REQUIRED**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/27/2012 03:39

**Approved By:** Murphy,Brian P

09/27/2012 04:19

**Operability Description:**

As stated in the CR no seismic issues exist with this equipment configuration. The computer equipment is associated with the annunciator system.

The equipment is not safety related and performs no active or passive safety function that would either prevent or mitigate any analyzed accident or transient. The equipment performs no support function that would cause safety related or important to safety equipment to become inoperable or incapable of performing the intended safety or support function. Per 0.5OPS, this condition screens out as Operability Determination: NOT REQUIRED. Per Procedure 2.0.5 and NUREG 1022 this condition is not reportable.

A Functionality assessment is also NOT REQUIRED as this equipment provides no support function to any TS SSC?s or SSC?s required by the TRM, or ODAM or any function specified in 0.5OPS.

**Approval Comments:**

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/01/2012 10:32

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** NON-SAFETY EQUIP

**Performed By :** Madsen,David N

09/27/2012 09:34

**Reportability Description:**

Not an SSC that affects safety function, and does not meet criteria for reportability.



**Originator:** Marotz,Mitchell M**Originator Phone:** 4028253620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/26/2012 17:25**Initiated Date:** 09/26/2012 17:53**Condition Description:****MISSING CLIP ON CONDUIT RACEWAY**

Condition: When performing the area walkdown for P-4 in the control room, a clip was found missing from the support below the conduit raceway on Div I C235A. The conduit raceway is in the Control Room on the backside of Panel 9-4 next to bay 6. No immediate concern was identified due to the length of the raceway. Due to the configuration of the adjacent supports, the lateral movement of the raceway is not possible without the failure of the adjacent supports. No concerns were found in the walkdown in regards to the adjacent supports. No pictures were acquired of the missing clip.

Requirement not met: Strut was not long enough to accomodate raceway fastener.

Method of Discovery: During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "area walk-by" in the vicinity of Safe Shutdown Equipment (SSEL) components.

**Immediate Action Description:**

Contacted operations personnel within the control room and reviewed the area in question.

**Suggested Action Description:**

Repair the conduit raceway with applicable B-Line components.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P501
REPORT WEIGHT	1

**Initiated Date:** 9/26/2012 17:53    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/4/2012 7:18

**Summary Description:**

**MISSING CLIP ON CONDUIT RACEWAY**

**Condition:** When performing the area walkdown for P-4 in the control room, a clip was found missing from the support below the conduit raceway on Div I C235A. The conduit raceway is in the Control Room on the backside of Panel 9-4 next to bay 6. No immediate concern was identified due to the length of the raceway. Due to the configuration of the adjacent supports, the lateral movement of the raceway is not possible without the failure of the adjacent supports. No concerns were found in the walkdown in regards to the adjacent supports. No pictures were acquired of the missing clip.

**Requirement not met:** Strut was not long enough to accomodate raceway fastener.

**Method of Discovery:** During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "area walk-by" in the vicinity of Safe Shutdown Equipment (SSEL) components.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1

**Operability Code:** OPERABLE

**Immediate Report Code:** NONE

**Performed By:** Schizas,Fred A

09/27/2012 23:52

**Approved By:** Long,Jerry J

09/28/2012 00:36

**Operability Description:**

No specific equipment is identified therefore specific LCOs and Safety Functions cannot be listed.

Evaluation of the condition is attached. All associated equipment remains operable.

**Approval Comments:**

**Attachments:**

Operability Description

Evaluation

CHECKLIST

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N .

09/28/2012 07:45

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz, Mitchell M**Originator Phone:** 4028253620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken, Brian**Reportability Required:** Y**Discovered Date:** 09/26/2012 17:44**Initiated Date:** 09/26/2012 17:55**Condition Description:**

LIGHTS IN FIXTURES NOT RESTRAINED

Condition: Small florescent light fixtures inside bays of panels in the control room do not have cages around them to keep the light bulb from falling out. Due to the low mass of the small light bulb, it does not have the capacity to damage components inside if it were to fall out. Photos are under CR folder in: T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)

Requirement not met: Light bulbs should be restrained with cages to ensure they do not fall out of housings.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walkdowns, the walkdown team was performing walkdowns of SSEL components located inside the control room.

**Immediate Action Description:**

Contacted STE on duty

**Suggested Action Description:**

Lights should have restraints to ensure they do not fall out of housings.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1
PROGRAM FUNCTION	P501

**Initiated Date:** 9/26/2012 17:55    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway,Tricia D

10/4/2012 7:18

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**Summary Description:**

LIGHTS IN FIXTURES NOT RESTRAINED

**Condition:** Small florescent light fixtures inside bays of panels in the control room do not have cages around them to keep the light bulb from falling out. Due to the low mass of the small light bulb, it does not have the capacity to damage components inside if it were to fall out. Photos are under CR folder in: T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)

**Requirement not met:** Light bulbs should be restrained with cages to ensure they do not fall out of housings.

**Method of Discovery:** During 50.54(f) Section 2.3 Seismic Walkdowns, the walkdown team was performing walkdowns of SSEL components located inside the control room.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** ADMIN - NA**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/27/2012 03:59

**Approved By:** Long,Jerry J

09/27/2012 20:12

**Operability Description:**

The current installation is part of original construction. The panels were supplied that way from GE (REF GE dwg 791E257, sh. 2 R10 as an example).

This issue is administrative in nature and documented for tracking purposes. The condition described does not affect the operability of any equipment required by the TS/TRM, does not affect risk significant SSCs modeled in Maintenance Rule, and does not affect required support functions per the UFSAR or other LBDs. The condition described in the CR does not meet the criteria specified by G.O.P. 2.0.5 and NUREG 1022 for an event or condition immediately reportable to the NRC.

**Approval Comments:**

No degraded or non-conforming condition.



**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** UNANALYZED CON

**Performed By :** Madsen,David N

09/28/2012 07:47

**Reportability Description:**

The nuclear power plant was not in an un-analyzed condition that significantly degraded plant safety.

**Originator:** Marotz,Mitchell M

**Originator Phone:** 3620

**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS

**Operability Required:** Y

**Supervisor Name:** Wolken,Brian

**Reportability Required:** Y

**Discovered Date:** 09/26/2012 17:40

**Initiated Date:** 09/26/2012 17:55

**Condition Description:**

INCONSISTENT FASTENER CONFIGURATION

**Condition:**

During 50.54(f) Section 2.3 Seismic Walkdowns, the walkdown teams were conducting Area Walk-bys. During the walk-by it was observed that a splice plate on a cable tray only has seven fasteners (Bolts) instead of eight (which is typical for the other splice plates on the same cable tray. This cable tray is located in the Control Room, no label was located on the tray. The cable tray does not appear to have an additional hole for an 8th bolt.

Splice plate integrity is maintained since there are a minimum of three bolts per splice side. The couple force due to the moment demand can be resisted by the bolt's shear capacity.

A photo of the cable tray splice plate can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

There is an inconsistent fastener configuration throughout the cable tray leading to the possibility of a configuration control issue.

**Method of Discovery:**

Consult DED Civil to confirm that the configuration is as designed and is present in current plant documentation.

**Immediate Action Description:**

Discussed with Control Room STE and contacted DED Civil.

**Suggested Action Description:**

Consult DED Civil to determine if the configuration control documents match the current configuration.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	SEISMIC
REPORT WEIGHT	1
CONSEQUENCES	C09
PROGRAM FUNCTION	P301

**Initiated Date:** 9/26/2012 17:55    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/2/2012 10:26

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**Summary Description:**

INCONSISTENT FASTENER CONFIGURATION

**Condition:**

During 50.54(f) Section 2.3 Seismic Walkdowns, the walkdown teams were conducting Area Walk-bys. During the walk-by it was observed that a splice plate on a cable tray only has seven fasteners (Bolts) instead of eight (which is typical for the other splice plates on the same cable tray). This cable tray is located in the Control Room, no label was located on the tray. The cable tray does not appear to have an additional hole for an 8th bolt.

Splice plate integrity is maintained since there are a minimum of three bolts per splice side. The couple force due to the moment demand can be resisted by the bolt's shear capacity.

A photo of the cable tray splice plate can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

There is an inconsistent fastener configuration throughout the cable tray leading to the possibility of a configuration control issue.

**Method of Discovery:**

Consult DED Civil to confirm that the configuration is as designed and is present in current plant documentation.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/27/2012 00:11

**Approved By:** Murphy,Brian P

09/27/2012 01:22

**Operability Description:**

No specific LCOs or safety functions can be identified.

There is no indication that this is a degraded or non-conforming condition. The 7 bolt configuration is consistent in that the joining plates on both sides are connected with 7 bolts. The eighth bolt could not have been installed due to the configuration of the structural ribbing of the cable tray. A hole drilled in that spot would have damaged the joining rib of the cable tray. As stated in the CR, the 3 bolts on the one side of the joining plate is sufficient to maintain structural and seismic integrity.

**Approval Comments:****Attachments:**

Operability Description  
checklist

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/01/2012 10:32

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/27/2012 09:36

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028253620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/26/2012 17:54**Initiated Date:** 09/26/2012 18:07**Condition Description:**

MISSING HOLD DOWN SCREWS

Condition: During the 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Area Walk-Bys. During the walk-by it was observed that the Kaman Effluent Radiation Monitors, located in the Control Room, have various cover plates that are missing a cover plate hold down screw (3 instead of 4). Due to the small mass of the cover plates, three screws will hold it in place.

Requirement not met: Three of four hold screws in place.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "Area Walk-by" in the vicinity of Safe Shutdown Equipment (SSEL) components.

**Immediate Action Description:**

Notified the operators within the control room and walked them down.

**Suggested Action Description:**

Attempt to replace screws if not stripped.

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1
PROGRAM FUNCTION	P501



**Initiated Date:** 9/26/2012 18:07    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** W

**Closed by:** Anderson,Donny L

10/1/2012 12:03

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**Summary Description:**

MISSING HOLD DOWN SCREWS

**Condition:** During the 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Area Walk-Bys. During the walk-by it was observed that the Kaman Effluent Radiation Monitors, located in the Control Room, have various cover plates that are missing a cover plate hold down screw (3 instead of 4). Due to the small mass of the cover plates, three screws will hold it in place.

**Requirement not met:** Three of four hold screws in place.

**Method of Discovery:** During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "Area Walk-by" in the vicinity of Safe Shutdown Equipment (SSEL) components.

**Remarks Description:**

**Closure Description:**

This condition report has been classified as a CAT W and will not be addressed by the 0.5 CAP Procedures. Correction of this condition will be scheduled and completed in accordance with the work management process. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the Work Control Manager.

**OperabilityVersion:** 1

**Operability Code:** EQUIPMENT FUNCTIONAL

**Immediate Report Code:** NONE

**Performed By:** Schizas,Fred A

09/27/2012 03:32

**Approved By:** Murphy,Brian P

09/27/2012 04:20

**Operability Description:**

The equipment is functional as it does continue to operate as required. These bezels serve no seismic function and cannot damage safety related equipment if they were to come off. The loss of the bezel would not affect the Kaman's ability to function.

This Bezel does not support any TS required or CLB functions. No Compensatory Measures were required and the equipment remains in service.

There is no immediate reportability associated with this condition per procedure 2.0.5 or NUREG 1022.

**Approval Comments:**

**Version:** 1

**Significance Code:** W

**Classification Code:** WORK ITEM

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Deatz,Ronnie C

09/27/2012 11:54

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** TS

**Performed By :** Madsen,David N

09/27/2012 09:38

**Reportability Description:**

This is not a condition prohibited by TS and is not reportable.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/27/2012 13:35**Initiated Date:** 09/27/2012 14:20**Condition Description:**

CLIP NOT ATTACHED TO CABLE

Condition: A grounding wire that runs into and out of Aux Relay Room in Control Building 903 has one clip that has come off that restrains it to the wall. This cable is located near column line G.7 on the north wall of the room. The clip was near where the wire entered the room from the ceiling. There are other clips engaged nearby that properly secure it to the wall. Besides the one clip, the cable appears properly secured to the wall and there is not a concern with it detaching.

The photo is located in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs) under the CR number.

Requirement not met: Ground wire should be fully attached to the wall with all available clips.

Method of Discovery: During 50.54(f) Seismic walkdowns the Seismic Engineers conducted an area walk-by of the Control Room 903 Aux Relay Room.

**Immediate Action Description:**

Contacted STE in the Control Room

**Suggested Action Description:**

Reattach the clip to the cable.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1
PROGRAM FUNCTION	P501

**Initiated Date:** 9/27/2012 14:20    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/4/2012 7:19

**Summary Description:**

CLIP NOT ATTACHED TO CABLE

Condition: A grounding wire that runs into and out of Aux Relay Room in Control Building 903 has one clip that has come off that restrains it to the wall. This cable is located near column line G.7 on the north wall of the room. The clip was near where the wire entered the room from the ceiling. There are other clips engaged nearby that properly secure it to the wall. Besides the one clip, the cable appears properly secured to the wall and there is not a concern with it detaching.

The photo is located in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs) under the CR number.

Requirement not met: Ground wire should be fully attached to the wall with all available clips.

Method of Discovery: During 50.54(f) Seismic walkdowns the Seismic Engineers conducted an area walk-by of the Control Room 903 Aux Relay Room.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/27/2012 23:44

**Approved By:** Long,Jerry J

09/28/2012 00:34

**Operability Description:**

No specific equipment is identified as such, there are no specific LCOs to list and no specific safety functions to describe. However since this is described as a ground cable, it is fair to assume that this supports the AC Distribution system. Therefore LCO 3.8.1 potentially applies.

The AC and DC electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.5, Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling (RCIC) System; and Section 3.6 Containment Systems.

The OPERABILITY of the AC and DC electrical power distribution subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining distribution systems OPERABLE during accident conditions in the event of:

- a. An assumed loss of all offsite power or all onsite AC electrical power; and
- b. A postulated worst case single failure.

The cable is adequately restrained even with the one clip not being attached. The remaining clips are sufficient to provide adequate restraint to the cable. All associated equipment remains operable.

**Approval Comments:****Attachments:**

Operability Description  
CHECKLIST

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130



**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/28/2012 10:36

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/27/2012 14:24**Initiated Date:** 09/27/2012 15:07**Condition Description:****ANCHORAGE DRAWING INCONSISTENT**

Condition: The voltage regulator cabinet DG1 EXCIT REG PNL as-built configuration for connection to embedded equipment base differs plant drawings. Drawing 4124 and Burns and Roe calculation state that the base channel (seen in drawing 14DSB-0209) is welded with fillet welds to the embedded steel. The base is welded to the embedded steel on the back and underneath the cabinet, but the front of the cabinet has plates welded to the front that are attached to the concrete pedestal with approximately 1 inch anchors. The current configuration is consistent with the seismic anchorage calculations, but differs from drawing 4124. Refer to T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs) under the CR number for photos.

Requirement not met: Configuration Control should match as-built conditions.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walkdown team was required to do a walkdown of the Diesel Generator 1 Voltage Regulator Cabinet.

**Immediate Action Description:**

Contacted STE in the control room.

**Suggested Action Description:**

Action to DED to verify and correct plant drawings.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	DRAWING DEFICIENCY
PROGRAM FUNCTION	P301
KEYWORDS	CALC
REPORT WEIGHT	1
CONSEQUENCES	C02
DEPT CAUSING	DED
PROGRAM FUNCTION	P316

**Initiated Date:** 9/27/2012 15:07    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:**

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**Summary Description:**

ANCHORAGE DRAWING INCONSISTENT

Condition: The voltage regulator cabinet DG1 EXCIT REG PNL as-built configuration for connection to embedded equipment base differs plant drawings. Drawing 4124 and Burns and Roe calculation state that the base channel (seen in drawing 14DSB-0209) is welded with fillet welds to the embedded steel. The base is welded to the embedded steel on the back and underneath the cabinet, but the front of the cabinet has plates welded to the front that are attached to the concrete pedestal with approximately 1 inch anchors. The current configuration is consistent with the seismic anchorage calculations, but differs from drawing 4124. Refer to T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs) under the CR number for photos.

Requirement not met: Configuration Control should match as-built conditions.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walkdown team was required to do a walkdown of the Diesel Generator 1 Voltage Regulator Cabinet.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

10/09/12 - Reopened for a new Operability Review.

**OperabilityVersion:** 2**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Sayler,Kyle

10/10/2012 19:55

**Approved By:** Dedic,James R

10/10/2012 21:16

**Operability Description:**

DG-VRG-DG1

TS 3.3.3.2, 3.8.1 and 3.8.2 apply. DG provides electrical power if off site power is lost. DG must start automatically, accelerate to rated speed and voltage, and connect to its respective 4.16 kV critical bus on detection of undervoltage. The sequence must be accomplished within 14 seconds. The DG must be capable of accepting required loads within the assumed loading sequence intervals, and provide uninterrupted power. Proper sequencing of loads, including load shedding, is a required function for DG Operability. DG2 shall be used as the power source for AC powered alternate shutdown components in the special event that the Control Room control capability is damaged by fire and the Alternate Shutdown controls are to be utilized.

Voltage regulator changes the output voltage when the diesel generator is operating independently or changes the VAR load if the diesel generator is operating in parallel with off-site power.

This is a large cabinet, and the concern of this CR is the seismic mounting configuration. The original design of the cabinet mounting was welded to the embedments in the concrete. The as built configuration has the front mounting utilizing two welded on blocks with an anchor bolt in each one. Per the Screening Evaluation Worksheet, which evaluated this configuration for seismic loading, the factor of safety for mounting this equipment is > 2.3. See SEWS worksheet attached. This estimate is based on the GIP 3 Experience Based Method as described in the USAR Section XII-2.3.5.2.4. See Attached USAR excerpt.

Based on adequate and satisfactory evaluation of the as found condition per the SEWS worksheet, DG 1 and the DG 1 Voltage Regulator cabinet mounting satisfy seismic requirements, and the DG will start and load as required by its design requirements following a seismic event. DG 1 is Operable.

Ref drawings 4123, 4124

**Approval Comments:****Attachments:**

Operability Description  
Screening Evaluation Worksheet  
2012-06579 USAR Excerpt  
Original B&R Calculation  
Checklist

**OperabilityVersion:** 1

**Operability Code:** ADMIN - NA

**Immediate Report Code:** NONE

**Performed By:** Schizas,Fred A

09/27/2012 22:45

**Approved By:** Long,Jerry J

09/28/2012 00:31

**Operability Description:**

This is a drawing issue, not an equipment issue.

This issue is administrative in nature and documented for tracking purposes. The condition described does not affect the operability of any equipment required by the TS/TRM, does not affect risk significant SSCs modeled in Maintenance Rule, and does not affect required support functions per the UFSAR or other LBDs. The condition described in the CR does not meet the criteria specified by G.O.P. 2.0.5 and NUREG 1022 for an event or condition immediately reportable to the NRC.

**Approval Comments:**

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** DOCUMENTATION

**Performed By :** Madsen,David N

09/28/2012 10:40

**Reportability Description:**

This is a question or issue of proper documentation and does not introduce or identify an equipment, radiological nor security problem. Should the question's answer reveal a CNS condition, a new CR will be written.

**Originator:** Marotz,Mitchell M**Originator Phone:** 4028252527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/27/2012 15:09**Initiated Date:** 09/27/2012 15:27**Condition Description:**

NUTS ON COMPONENTS INCONSISTENT

Condition: The voltage regulator cabinet DG1 EXCIT REG PNL was found to have internal components attached with nuts and bolts that differ from adjacent nuts restraining the same component. In the back of the DG1 Voltage Regulator Cabinet there are 3 large components that look like transformers that are mounted to the bottom of the cabinet. One of the nuts on the bolts is different from the others having a smaller length. The internal components are rigidly connected with all the nuts fully engaged, the only difference being the nut on the bolt. It is unclear why this difference exists, this CR is being written to document this condition. Refer to T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs) under the CR folder number for photos.

Requirement not met: nuts should match other nuts if they were replaced like for like within the cabinet

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walkdown team was required to do a walkdown of the Diesel Generator 1 Voltage Regulator Cabinet.

**Immediate Action Description:**

Contacted STE in the control room.

**Suggested Action Description:**

Action to DED to verify configuration.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P501
REPORT WEIGHT	1



**Initiated Date:** 9/27/2012 15:27    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/4/2012 7:20

**Summary Description:**

NUTS ON COMPONENTS INCONSISTENT

Condition: The voltage regulator cabinet DG1 EXCIT REG PNL was found to have internal components attached with nuts and bolts that differ from adjacent nuts restraining the same component. In the back of the DG1 Voltage Regulator Cabinet there are 3 large components that look like transformers that are mounted to the bottom of the cabinet. One of the nuts on the bolts is different from the others having a smaller length. The internal components are rigidly connected with all the nuts fully engaged, the only difference being the nut on the bolt. It is unclear why this difference exists, this CR is being written to document this condition. Refer to T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs) under the CR folder number for photos.

Requirement not met: nuts should match other nuts if they were replaced like for like within the cabinet

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walkdown team was required to do a walkdown of the Diesel Generator 1 Voltage Regulator Cabinet.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/27/2012 22:36

**Approved By:** Long,Jerry J

09/28/2012 00:30

**Operability Description:**

LCO 3.8.1, 3.8.2

The onsite standby power source for 4.16 kV critical buses 1F and 1G consists of two DGs. DG-1 and DG-2 are dedicated to critical buses 1F and 1G, respectively. A DG starts automatically on a loss of coolant accident (LOCA) signal (i.e., low reactor water level signal or high drywell pressure signal) or on a critical bus degraded voltage or undervoltage signal. After the DG has started, it automatically ties to its respective bus after offsite power is tripped as a consequence of critical bus undervoltage or degraded voltage, independent of or coincident with a LOCA signal. The DGs also start and operate in the standby mode without tying to the critical bus on a LOCA signal alone. Following the trip of offsite power, all loads are shed from the critical bus. When the DG is tied to the critical bus, loads are then sequentially connected to its respective critical bus. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG.

During 50.54(f) seismic walkdowns, two engineers were conducting a walkdown of the DG Voltage Regulator Cabinet. During the inspection of the cabinet internals, a question was raised regarding the presence of a hex head nut differs from the other nuts in the configuration. Under further investigation it appears that the nut has different exterior dimensions. This leads to the assumption that the other nuts in the configuration are heavy hex while the nut in question is a standard hex.

In this scenario a heavy hex versus a standard hex will only change the tensile strength of the configuration. The nuts do not resist shear in any way because the horizontal force bears only on the bolt. The seismic acceleration is conservatively approximated at 0.1g. This value is less than the weight of the configuration, resulting in no vertical movement of the component, which means tension in the bolts, due to the component, will not occur.?

DG operability is not challenged by this condition.

**Approval Comments:****Attachments:**

Operability Description  
CHECKLIST

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson,Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/28/2012 10:42

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 2527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/27/2012 14:26**Initiated Date:** 09/27/2012 19:33**Condition Description:**

General Housekeeping mess

**Condition:**

During 50.54(f) Section 2.3 Seismic Walkdowns, the Walkdown engineers found several tools on top of a toolbox. The toolbox was located on a catwalk, at elevation 903', in the southeast area of the reactor building. The tools had no restraints to prevent them from falling off the toolbox and onto other equipment. A hose was found draped over the catwalk, presenting a potential tripping hazard, and cable coils in the overhead north of the catwalk had slid halfway out of their designated area and could potentially fall out completely. In addition, near the catwalk, an extension cord was found draped over a copper pipe, which could present a potential shock hazard and a rope was found tied to an instrument airline.

**Requirement not met:**

General housekeeping practices were not being followed.

**Method of Discovery:**

Discovered during an area walk-by of PC-PRV-PCV631.

**Immediate Action Description:**

Contacted STE and initiated a CR.

**Suggested Action Description:**

Store the tools within a toolbox. Reroute the extension cord so that it does not come in contact with any pipes. Store the hose in its proper location. Remove the rope from the instrument airline and secure the cable coils so that they will not come loose.

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P412
DEPT CAUSING	MNT
REPORT WEIGHT	1
PRECURSOR ERROR	P6

**Attachments:**

Condition Description  
 tools  
 extension chord  
 cables\_1  
 cables\_2  
 rope  
 hose

**Initiated Date:** 9/27/2012 19:33    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/24/2012 14:08

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**Summary Description:**

General Housekeeping mess

**Condition:**

During 50.54(f) Section 2.3 Seismic Walkdowns, the Walkdown engineers found several tools on top of a toolbox. The toolbox was located on a catwalk, at elevation 903', in the southeast area of the reactor building. The tools had no restraints to prevent them from falling off the toolbox and onto other equipment. A hose was found draped over the catwalk, presenting a potential tripping hazard, and cable coils in the overhead north of the catwalk had slid halfway out of their designated area and could potentially fall out completely. In addition, near the catwalk, an extension cord was found draped over a copper pipe, which could present a potential shock hazard and a rope was found tied to an instrument airline.

**Requirement not met:**

General housekeeping practices were not being followed.

**Method of Discovery:**

Discovered during an area walk-by of PC-PRV-PCV631.

**Remarks Description:**

**Closure Description:**

This condition report has been closed because of actions taken as documented were considered adequate for this condition. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** ADMIN - NA**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/27/2012 20:04

**Approved By:** Long,Jerry J

09/28/2012 05:15

**Operability Description:**

This issue is administrative in nature and documented for tracking purposes. The condition described does not affect the operability of any equipment required by the TS/TRM, does not affect risk significant SSCs modeled in Maintenance Rule, and does not affect required support functions per the UFSAR or other LBDs. The condition described in the CR does not meet the criteria specified by G.O.P. 2.0.5 and NUREG 1022 for an event or condition immediately reportable to the NRC.

**Approval Comments:**

All items on this CR have been corrected.

**Version:** 1

**Significance Code:** D

**Classification Code:** CBOAT

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**



**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** HOUSEKEEPING

**Performed By :** Madsen,David N

09/28/2012 10:52

**Reportability Description:**

No equipment operability, radiological, security nor industrial safety issues that meet criteria for reporting.

**Originator:** Marotz,Mitchell M**Originator Phone:** 2527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/27/2012 20:44**Initiated Date:** 09/27/2012 20:54**Condition Description:**

DG-1 General Housekeeping issues

Condition:

During 50.54(f) Section 2.3 Seismic Walkdowns, the Walkdown engineers found a man hole cover (approximately 1-1/2" thick steel plate) leaning against other objects (see photo) in the Diesel generator 1 storage tank A manhole. The visual inspection by the walkdown engineers indicated that the cover was the original cover for the diesel storage tank. It was unclear from the as found condition if the manhole cover was supposed to be stored in the man hole or if it was supposed to be stored at a separate location.

In addition, the walkdown engineers also noticed some tape wrapped around a hose in the manhole. The hose is located near the ladder in the manhole.

Requirement not met:

General housekeeping practices were not being followed.

Method of Discovery:

Discovered during an area walk-by of Diesel oil transfer pump A.

**Immediate Action Description:**

Contacted STE and initiated a CR.

**Suggested Action Description:**

Identify the proper location for the man hole cover and relocate the plate to that location or to storage. Remove the tape from the hose.

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P412
CONSEQUENCES	C09
REPORT WEIGHT	1

**Attachments:**

Condition Description

cover\_1

Cover\_2

tape &amp; hose

CA Number: 1

	Site	Group	Name
Assigned By:	CNS	CA&A Mgmt CNS	Dewhirst,Linda
Assigned To:	CNS	Mnt Mgmt CNS	O'Connor,James Patric
Subassigned To :	CNS	Mnt Mech Staff CNS	Bantz,Dennis R

Originated By: Hathaway,Tricia D 10/3/2012 16:45:48

Performed By: O'Connor,James Patrick 10/22/2012 05:11:34

Subperformed By: Helms,David P 10/20/2012 22:31:12

Approved By:

Closed By: O'Connor,James Patrick 10/22/2012 05:11:34

Current Due Date: 11/01/2012

Initial Due Date: 11/01/2012

CA Type: ENHANCE

CA Priority:

Plant Constraint: NON-OUTAGE

**CA Description:**

Resolve Identified Condition.

**CA REFERENCE ITEMS:**

<u>Type Code</u>	<u>Description</u>
CROSS REF	LO-WTCNS-2012-00018-48
PRIORITY	4

**Response:**

cocnur jpo

**Subresponse :**

Action: Resolve Identified Condition.

Response: As a result of walkdown of the DG bunker for CR-CNS-2012-06612 tape was found and a manhole cover were identified. Per discussion with Mechanical MNT this needs to be addressed post RE27. Therefore, a WT (2012-00018-48) was created.

**Closure Comments:**

**Initiated Date:** 9/27/2012 20:54    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** E

**Closed by:**

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**Summary Description:**

DG-1 General Housekeeping issues

Condition:

During 50.54(f) Section 2.3 Seismic Walkdowns, the Walkdown engineers found a man hole cover (approximately 1-1/2" thick steel plate) leaning against other objects (see photo) in the Diesel generator 1 storage tank A manhole. The visual inspection by the walkdown engineers indicated that the cover was the original cover for the diesel storage tank. It was unclear from the as found condition if the manhole cover was supposed to be stored in the man hole or if it was supposed to be stored at a separate location.

In addition, the walkdown engineers also noticed some tape wrapped around a hose in the manhole. The hose is located near the ladder in the manhole.

Requirement not met:

General housekeeping practices were not being followed.

Method of Discovery:

Discovered during an area walk-by of Diesel oil transfer pump A.

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/27/2012 21:49

**Approved By:** Long,Jerry J

09/28/2012 00:26

**Operability Description:**

LCOs 3.8.1, 3.8.2, and 3.8.3 potentially apply.

The onsite standby power source for 4.16 kV critical buses 1F and 1G consists of two DGs. DG-1 and DG-2 are dedicated to critical buses 1F and 1G, respectively. A DG starts automatically on a loss of coolant accident (LOCA) signal (i.e., low reactor water level signal or high drywell pressure signal) or on a critical bus degraded voltage or undervoltage signal. After the DG has started, it automatically ties to its respective bus after offsite power is tripped as a consequence of critical bus undervoltage or degraded voltage, independent of or coincident with a LOCA signal. The DGs also start and operate in the standby mode without tying to the critical bus on a LOCA signal alone. Following the trip of offsite power, all loads are shed from the critical bus. When the DG is tied to the critical bus, loads are then sequentially connected to its respective critical bus. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG.

The presence of this cover does not present a challenge to DG-1 operability. Assuming a seismic acceleration 0.1g, there will be no vertical movement of the plate as the weight of the plate will be greater than the vertical force imposed on it. The plate cannot impact anything in the manhole with enough force to cause any damage as the only thing it could hit would be the large flanged penetration which is part of the tank itself. The weight of the tank and attached flange is much greater than the cover. The presence of this cover does not challenge DG-1 operability. The tape is a housekeeping issue only.

**Approval Comments:****Attachments:**Operability Description  
CHECKLIST

**Version:** 1

**Significance Code:** E

**Classification Code:** DD

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/28/2012 10:52

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz, Mitchell M**Originator Phone:** 3620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken, Brian**Reportability Required:** Y**Discovered Date:** 09/27/2012 20:54**Initiated Date:** 09/27/2012 21:06**Condition Description:**

PT634A NOT PROPERLY MOUNTED

Condition: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting area walk-bys in the DO storage tank A manhole. During the area walk-by, it was observed that PT 634A is not fully attached to b-line supports. The top of PT634A has tabs attached to a b-line strut mounted to the wall. Photos can be found in a folder with the CR number under:

T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)

The PT634A is assumed to be an 18in wide x 10in long x 15in deep electrical box conservatively assumed to weigh 50 lbs including the attached cables. The top connections of the box are connected to a 1-5/8in unistrut by a 1/4in diameter, 20 threads per inch, bolts. The smallest available connection bolts for b-line are listed to have an allowable pullout of 600 lbs per nut and a resistance to slip of 300 lbs. The worst seismic loading at the elevation of the reactor building is 1.5 g's. With an estimated weight of 50 lbs and conservatively accounting for multimodal effects by increasing the loading by 1.5, this gives a seismic loading of 113 lbs. The bolted connection to the unistrut can resist 300 lbs per bolt for shear slipping and 600 lbs per bolt for tensile pullout of the unistrut. The 113 lbs seismic loading is far below the conservative allowables. We have three bolts connecting the box, the actual acceleration value is realistically under 1g and the actual weight is less than 50 lbs.

Requirement not met: Having only the three tabs attached is not in accordance with standard seismic mounting for this box.

Method of Discovery: During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an area walk-by in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Immediate Action Description:**

Contacted STE, consulted Design Civil

**Suggested Action Description:**

Replace missing bolt

**EQUIPMENT:**Tag Name

PT-634A

Tag Suffix Name Component Code Process System Code

DGDO

**TRENDING (For Reference Purposes Only):**Trend Type

PROGRAM FUNCTION

Trend Code

P501



**Initiated Date:** 9/27/2012 21:06    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** W

**Closed by:** Anderson,Donny L

10/1/2012 12:09

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**Summary Description:**

PT634A NOT PROPERLY MOUNTED

**Condition:** During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting area walk-bys in the DO storage tank A manhole. During the area walk-by, it was observed that PT 634A is not fully attached to b-line supports. The top of PT634A has tabs attached to a b-line strut mounted to the wall. Photos can be found in a folder with the CR number under:

T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)\

The PT634A is assumed to be an 18in wide x 10in long x 15in deep electrical box conservatively assumed to weigh 50 lbs including the attached cables. The top connections of the box are connected to a 1-5/8in unistrut by a 1/4in diameter, 20 threads per inch, bolts. The smallest available connection bolts for b-line are listed to have an allowable pullout of 600 lbs per nut and a resistance to slip of 300 lbs. The worst seismic loading at the elevation of the reactor building is 1.5 g's. With an estimated weight of 50 lbs and conservatively accounting for multimodal effects by increasing the loading by 1.5, this gives a seismic loading of 113 lbs. The bolted connection to the unistrut can resist 300 lbs per bolt for shear slipping and 600 lbs per bolt for tensile pullout of the unistrut. The 113 lbs seismic loading is far below the conservative allowables. We have three bolts connecting the box, the actual acceleration value is realistically under 1g and the actual weight is less than 50 lbs.

**Requirement not met:** Having only the three tabs attached is not in accordance with standard seismic mounting for this box.

**Method of Discovery:** During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an area walk-by in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Remarks Description:**

**Closure Description:**

This condition report has been classified as a CAT W and will not be addressed by the 0.5 CAP Procedures. Correction of this condition will be scheduled and completed in accordance with the work management process. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the Work Control Manager.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Schizas,Fred A

09/28/2012 03:54

**Approved By:** Long,Jerry J

09/28/2012 05:01

**Operability Description:**

LCO 3.8.1, 3.8.2, and 3.8.3

The onsite standby power source for 4.16 kV critical buses 1F and 1G consists of two DGs. DG-1 and DG-2 are dedicated to critical buses 1F and 1G, respectively. A DG starts automatically on a loss of coolant accident (LOCA) signal (i.e., low reactor water level signal or high drywell pressure signal) or on a critical bus degraded voltage or undervoltage signal.

After the DG has started, it automatically ties to its respective bus after offsite power is tripped as a consequence of critical bus undervoltage or degraded voltage, independent of or coincident with a LOCA signal. The DGs also start and operate in the standby mode without tying to the critical bus on a LOCA signal alone. Following the trip of offsite power, all loads are shed from the critical bus. When the DG is tied to the critical bus, loads are then sequentially connected to its respective critical bus. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG.

The PT634A is assumed to be an 18in wide x 10in long x 15in deep electrical box conservatively assumed to weigh 50 lbs including the attached cables. The top connections of the box are connected to a 1-5/8in unistrut by a 1/4in diameter, 20 threads per inch, bolts. The smallest available connection bolts for b-line are listed to have an allowable pullout of 600 lbs per nut and a resistance to slip of 300 lbs. The worst seismic loading at the elevation of the reactor building is 1.5 g's. With an estimated weight of 50 lbs and conservatively accounting for multimodal effects by increasing the loading by 1.5, this gives a seismic loading of 113 lbs. The bolted connection to the unistrut can resist 300 lbs per bolt for shear slipping and 600 lbs per bolt for tensile pullout of the unistrut. The 113 lbs seismic loading is far below the conservative allowables. We have three bolts connecting the box, the actual acceleration value is realistically under 1g and the actual weight is less than 50 lbs. No operability concerns exist for this condition.

**Approval Comments:****Attachments:**Operability Description  
CHECKLIST

**Version:** 1

**Significance Code:** W

**Classification Code:** WORK ITEM

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Anderson, Donny L

10/01/2012 10:28

**Assignment Description:**

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

09/28/2012 10:53

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 3620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/27/2012 21:17**Initiated Date:** 09/27/2012 21:23**Condition Description:**

BOLTS NOT FULLY TORQUED

Condition: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting area walk-bys. During the area walk-by, it was observed that bolts securing a manhole upon which the Diesel Oil Transfer Pump A is mounted has two loose nuts. Photos can be found in a folder with the CR number under:

T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)

Only two nuts are verified to be loose. The others are hand tight.  
Requirement not met: Nuts should be tight

Method of Discovery: During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an area walk-by in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Immediate Action Description:**

Contacted STE, discussed the issue with Design Civil

**Suggested Action Description:**

Tighten bolts in accordance with CNS bolt torquing procedure

**EQUIPMENT:**

<u>Tag Name</u>	<u>Tag Suffix Name</u>	<u>Component Code</u>	<u>Process System Code</u>
P-DOTA	1	1	DGDO

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P501

**Initiated Date:** 9/27/2012 21:23    **Owner Site and Group:** CNS    Mnt Mgmt CNS

**Current Contact:**

**Current Significance:** W

**Closed by:** Anderson,Donny L

10/2/2012 14:41

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**Summary Description:**

**BOLTS NOT FULLY TORQUED**

**Condition:** During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting area walk-bys. During the area walk-by, it was observed that bolts securing a manhole upon which the Diesel Oil Transfer Pump A is mounted has two loose nuts. Photos can be found in a folder with the CR number under:

T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs)\

Only two nuts are verified to be loose. The others are hand tight.  
Requirement not met: Nuts should be tight

**Method of Discovery:** During 50.54 (f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an area walk-by in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Remarks Description:**

**Closure Description:**

This condition report has been classified as a CAT W and will not be addressed by the 0.5 CAP Procedures. Correction of this condition will be scheduled and completed in accordance with the work management process. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the Work Control Manager.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Giles,Roy W

09/28/2012 20:46

**Approved By:** Long,Jerry J

09/28/2012 21:54

**Operability Description:**

LCO 3.8.1, 3.8.2, and 3.8.3

The onsite standby power source for 4.16 kV critical buses 1F and 1G consists of two DGs. DG-1 and DG-2 are dedicated to critical buses 1F and 1G, respectively. A DG starts automatically on a loss of coolant accident (LOCA) signal (i.e., low reactor water level signal or high drywell pressure signal) or on a critical bus degraded voltage or undervoltage signal. After the DG has started, it automatically ties to its respective bus after offsite power is tripped as a consequence of critical bus undervoltage or degraded voltage, independent of or coincident with a LOCA signal. The DGs also start and operate in the standby mode without tying to the critical bus on a LOCA signal alone. Following the trip of offsite power, all loads are shed from the critical bus. When the DG is tied to the critical bus, loads are then sequentially connected to its respective critical bus. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG.

The as found condition of the pump mounting plate was identified as two (2) of the mounting nuts were less than hand tight. All others were at least hand tight. Reviewing the supplied photograph indicates there are 18 total mounting bolts on the flange, meaning that 16 of the 18 installed bolts were in place and at least hand tight. This is sufficient to ensure the pump, motor and flange remain one unit for seismic response analysis in both the vertical and horizontal directions. Factors important to the seismic response are number of bolts, bolt strength/diameter and sufficient restraint to ensure the various peices reman a single unit during the event. Since the condition identified does not affect the strength or diameter of the installed bolts and the flange will remain connected to the tank top this condition does not affect function of the fuel oil transfer pump or OPERABILITY of the DG.

Also reviewed the validation task on SAP notification10908483 which was generated by this CR. FIN Team mechanics noted that "several" of the nuts were less than wrench tight, and that they tightened ALL nuts per the vendor manual instructions and CNS Bolting and Torquing procedure (7.2.7.1). The current condition matches the design condition and does not affect current OPERABILITY.

**Approval Comments:****Attachments:**

Operability Description  
Operability checklist

**Version:** 1

**Significance Code:** W

**Classification Code:** WORK ITEM

**Owner Site and Group:** CNS      Mnt Mgmt CNS

**Performed By:** Anderson,Donny L

10/01/2012 10:28

**Assignment Description:**



**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

10/02/2012 07:37

**Reportability Description:**

Component or System remains operable, and no past operability issue identified. (dnm 10-1-12 , 10-2-12)

**Originator:** Marotz,Mitchell M

**Originator Phone:** 3620

**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS

**Operability Required:** Y

**Supervisor Name:** Wolken,Brian

**Reportability Required:** Y

**Discovered Date:** 09/28/2012 10:05

**Initiated Date:** 09/28/2012 13:29

**Condition Description:**

IMPROPERLY MOUNTED MACHINE GUARD

**Condition:**

During the 50.54(f) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were walking down the area surrounding the Service Water Booster Pump C. This Area Walk-by resulted in the observation that a clip was missing from one of the legs on a machine guard (located between a motor and SW Booster Pump). These clips are intended to hold the guard in place. The other three pins are still in their proper configuration to ensure the guard remains in place.

**Requirement not met:**

Proper anchorage of the machine guard is not maintained.

**Method of Discovery:**

Discovered during 50.54(f) Section 2.3 Seismic Walkdowns.

**Immediate Action Description:**

Contacted Control Room STE and contacted DED Civil.

**Suggested Action Description:**

Recommend installing a new pin and inspecting the other SW Booster Pumps for similar issues.

**EQUIPMENT:**

<u>Tag Name</u>	<u>Tag Suffix Name</u>	<u>Component Code</u>	<u>Process</u>	<u>System Code</u>
P-BPC	1	1		SW

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P501
REPORT WEIGHT	1

**Initiated Date:** 9/28/2012 13:29    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/4/2012 7:20

**Summary Description:**

IMPROPERLY MOUNTED MACHINE GUARD

**Condition:**

During the 50.54(f) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were walking down the area surrounding the Service Water Booster Pump C. This Area Walk-by resulted in the observation that a clip was missing from one of the legs on a machine guard (located between a motor and SW Booster Pump). These clips are intended to hold the guard in place. The other three pins are still in their proper configuration to ensure the guard remains in place.

**Requirement not met:**

Proper anchorage of the machine guard is not maintained.

**Method of Discovery:**

Discovered during 50.54(f) Section 2.3 Seismic Walkdowns.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Giles,Roy W

09/28/2012 22:00

**Approved By:** Long,Jerry J

09/28/2012 22:08

**Operability Description:**

TS 3.7.1 applies

The RHRSW System is designed to provide cooling water for the Residual Heat Removal (RHR) System heat exchangers, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The RHRSW System is operated whenever the RHR heat exchangers are required to operate in the shutdown cooling or suppression pool cooling mode. The pressure from the pumps is greater than RHR pressure so that any tube leakage in the heat exchanger is into RHR rather than being discharged to the environment. The RHRSW System removes heat from the suppression pool via the RHR System to limit the suppression pool temperature and primary containment pressure following a LOCA. This ensures that the primary containment can perform its function of limiting the release of radioactive materials to the environment following a LOCA. The RHRSW System consists of two independent and redundant subsystems, each with two 4000 gpm pumps, a suction source, valves, piping, heat exchanger, and associated instrumentation. Either of the two subsystems is capable of providing the required cooling capacity with one pump operating to maintain safe shutdown conditions.

With one of four retention clips missing on the legs on a machine guard (located between a motor and SW Booster Pump) the other three pins are still in their proper configuration to ensure the guard remains in place.

RHRSW System remains OPERABLE.

**Approval Comments:****Attachments:**

Operability Description  
Operability Checklist

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

10/01/2012 07:51

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 3620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/28/2012 13:34**Initiated Date:** 09/28/2012 13:45**Condition Description:**

SW PIPE SUPPORT BASE PLATE CORROSION

**Condition:**

During the 50.54(f) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were walking down the area surrounding the Service Water Booster Pump C. This Area Walk-by resulted in the observation that surface corrosion is present on several floor mounted pipe support base plates in the area. The SWEs determined that the supports are structurally adequate with the anchor bolts still fully engaged. The current configuration, with surface corrosion, is adequate to maintain its configuration during a seismic event per consultation with the SWEs.

Photos can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

Corrosion/Erosion Protection requirements not met.

**Method of Discovery:**

Discovered during 50.54(f) Section 2.3 Seismic Walkdowns.

**Immediate Action Description:**

Contacted Control Room STE and contacted DED Civil.

**Suggested Action Description:**

Inspect all floor mounted pipe supports in the area. For any supports in question, remove paint and rust, recoat to prevent further corrosion. If, after the paint is removed, the base plates appear to have significant material loss due to the corrosion contact DED Civil for further action.

**EQUIPMENT:**

<u>Tag Name</u>	<u>Tag Suffix Name</u>	<u>Component Code</u>	<u>Process System Code</u>
			SW

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P501
REPORT WEIGHT	1

**Initiated Date:** 9/28/2012 13:45    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/4/2012 7:21

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**Summary Description:**

SW PIPE SUPPORT BASE PLATE CORROSION

**Condition:**

During the 50.54(f) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were walking down the area surrounding the Service Water Booster Pump C. This Area Walk-by resulted in the observation that surface corrosion is present on several floor mounted pipe support base plates in the area. The SWEs determined that the supports are structurally adequate with the anchor bolts still fully engaged. The current configuration, with surface corrosion, is adequate to maintain its configuration during a seismic event per consultation with the SWEs.

Photos can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

Corrosion/Erosion Protection requirements not met.

**Method of Discovery:**

Discovered during 50.54(f) Section 2.3 Seismic Walkdowns.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.



**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Giles,Roy W

09/28/2012 22:16

**Approved By:** Long,Jerry J

09/29/2012 00:31

**Operability Description:**

TS 3.7.1 applies

The RHRSW System is designed to provide cooling water for the Residual Heat Removal (RHR) System heat exchangers, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The RHRSW System is operated whenever the RHR heat exchangers are required to operate in the shutdown cooling or suppression pool cooling mode. The pressure from the pumps is greater than RHR pressure so that any tube leakage in the heat exchanger is into RHR rather than being discharged to the environment. The RHRSW System removes heat from the suppression pool via the RHR System to limit the suppression pool temperature and primary containment pressure following a LOCA. This ensures that the primary containment can perform its function of limiting the release of radioactive materials to the environment following a LOCA. The RHRSW System consists of two independent and redundant subsystems, each with two 4000 gpm pumps, a suction source, valves, piping, heat exchanger, and associated instrumentation. Either of the two subsystems is capable of providing the required cooling capacity with one pump operating to maintain safe shutdown conditions.

Based on inspection the supports are structurally adequate with the anchor bolts still fully engaged. The current configuration, with surface corrosion, is adequate to maintain the design configuration during a seismic event.

RHRSW system remains OPERABLE.

**Approval Comments:****Attachments:**

Operability Description  
Operability checklist

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

10/01/2012 15:02

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 3620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/28/2012 13:48**Initiated Date:** 09/28/2012 14:07**Condition Description:**

SW PIPE SUPPORT GROUT DEGRADATION

**Condition:**

During the 50.54(f) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were walking down the area surrounding the Service Water Booster Pump C. This Area Walk-by resulted in the observation that the non-structural grout surrounding several floor mounted pipe supports is missing or degraded. The grout in question is surrounding the base plate and does not appear to serve a structural purpose. The grout directly beneath the base plates appears to be intact. The SWEs consulted and determined that there is no structural concern with the pipe supports.

Photos can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

Adequate grout configuration surrounding the supports is not maintained.

**Method of Discovery:**

Discovered during 50.54(f) Section 2.3 Seismic Walkdowns.

**Immediate Action Description:**

Contacted Control Room STE and contacted DED Civil.

**Suggested Action Description:**

Inspect the floor mounted pipe supports with grout below the base plate in the area and replace the degraded grout surrounding the floor mounted pipe supports.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P501
REPORT WEIGHT	1

**Initiated Date:** 9/28/2012 14:07    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/4/2012 7:21

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**Summary Description:**

SW PIPE SUPPORT GROUT DEGRADATION

**Condition:**

During the 50.54(f) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were walking down the area surrounding the Service Water Booster Pump C. This Area Walk-by resulted in the observation that the non-structural grout surrounding several floor mounted pipe supports is missing or degraded. The grout in question is surrounding the base plate and does not appear to serve a structural purpose. The grout directly beneath the base plates appears to be intact. The SWEs consulted and determined that there is no structural concern with the pipe supports.

Photos can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

Adequate grout configuration surrounding the supports is not maintained.

**Method of Discovery:**

Discovered during 50.54(f) Section 2.3 Seismic Walkdowns.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Giles,Roy W

09/28/2012 22:29

**Approved By:** Long,Jerry J

09/29/2012 00:35

**Operability Description:**

TS 3.7.1 applies

The RHRSW System is designed to provide cooling water for the Residual Heat Removal (RHR) System heat exchangers, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The RHRSW System is operated whenever the RHR heat exchangers are required to operate in the shutdown cooling or suppression pool cooling mode. The pressure from the pumps is greater than RHR pressure so that any tube leakage in the heat exchanger is into RHR rather than being discharged to the environment. The RHRSW System removes heat from the suppression pool via the RHR System to limit the suppression pool temperature and primary containment pressure following a LOCA. This ensures that the primary containment can perform its function of limiting the release of radioactive materials to the environment following a LOCA. The RHRSW System consists of two independent and redundant subsystems, each with two 4000 gpm pumps, a suction source, valves, piping, heat exchanger, and associated instrumentation. Either of the two subsystems is capable of providing the required cooling capacity with one pump operating to maintain safe shutdown conditions.

The grout is installed to fill the gap between concrete and pipe support. Grout is normally packed under the base to take up the uneven gap between the concrete and pipe support. The grout does not serve a structural purpose. As long as the grout remains present under the mounting pad it remains acceptable.

RHRSW remains OPERABLE.

**Approval Comments:****Attachments:**

Operability Description  
Operability checklist

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

10/01/2012 15:03

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.



**Originator:** Marotz,Mitchell M**Originator Phone:** 3620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/28/2012 14:09**Initiated Date:** 09/28/2012 14:25**Condition Description:**

CRACKS PRESENT ON CONTROL BUILDING 882

**Condition:**

During the 50.54(f) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were walking down the area surrounding the Service Water Booster Pump C. This Area Walk-by resulted in the observation that cracks in the concrete slab are present in two locations. One crack exists starting at the North wall and traveling to the corner of a Booster Pump Pedestal. By inspection, the SWEs determined that the crack does not appear to be in line with the skid anchor bolt. The pedestal shows no cracking. There does not appear to be any separation in the crack. The other crack extends from the corner of a seismic pipe support to the corner of a Booster Pump Pedestal. This crack appears to be in line with the anchor bolt associated with the floor mounted seismic pipe support. The crack does not appear to be in line with the Booster Pump skid anchor bolt. No visible cracking is present on the skid pedestal. There appears to be no separation in this crack.

The anchor bolts associated with the floor mounted seismic pipe support in question are not expected to act in tension, but rather shear. By inspection of the support it is designed to restrict movement in only two directions (both being parallel to the floor). Both of these directions will have a shear force. The crack will only affect the pullout strength (tension) of the anchors and will not directly affect the shear strength of the anchors.

The cracks do not appear to be in line with the anchor bolts located on either Booster Pump Skid. Hypothetically speaking, if the cracks were to meet the anchor bolts of the skids it would affect the pull out strength of each affected anchor bolt. However, the anchor bolts are only resisting shear due to the low acceleration value for this elevation and the large mass of the equipment on the skid. Vertical movement is unlikely to occur.

Photos can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

Concrete cracking should not pass near or through anchorage.

**Method of Discovery:**

Discovered during 50.54(f) Section 2.3 Seismic Walkdowns.

**Immediate Action Description:**

Contacted Control Room STE and contacted DED Civil.

**Suggested Action Description:**

No further action is necessary. This condition report is intended for trending purposes.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	1

**TRENDING (For Reference Purposes Only):**

Trend Type

PROGRAM FUNCTION

Trend Code

P501

**Initiated Date:** 9/28/2012 14:25    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/4/2012 7:26

**Summary Description:**

CRACKS PRESENT ON CONTROL BUILDING 882

**Condition:**

During the 50.54(f) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were walking down the area surrounding the Service Water Booster Pump C. This Area Walk-by resulted in the observation that cracks in the concrete slab are present in two locations. One crack exists starting at the North wall and traveling to the corner of a Booster Pump Pedestal. By inspection, the SWEs determined that the crack does not appear to be in line with the skid anchor bolt. The pedestal shows no cracking. There does not appear to be any separation in the crack. The other crack extends from the corner of a seismic pipe support to the corner of a Booster Pump Pedestal. This crack appears to be in line with the anchor bolt associated with the floor mounted seismic pipe support. The crack does not appear to be in line with the Booster Pump skid anchor bolt. No visible cracking is present on the skid pedestal. There appears to be no separation in this crack.

The anchor bolts associated with the floor mounted seismic pipe support in question are not expected to act in tension, but rather shear. By inspection of the support it is designed to restrict movement in only two directions (both being parallel to the floor). Both of these directions will have a shear force. The crack will only affect the pullout strength (tension) of the anchors and will not directly affect the shear strength of the anchors.

The cracks do not appear to be in line with the anchor bolts located on either Booster Pump Skid. Hypothetically speaking, if the cracks were to meet the anchor bolts of the skids it would affect the pull out strength of each affected anchor bolt. However, the anchor bolts are only resisting shear due to the low acceleration value for this elevation and the large mass of the equipment on the skid. Vertical movement is unlikely to occur.

Photos can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

Concrete cracking should not pass near or through anchorage.

**Method of Discovery:**

Discovered during 50.54(f) Section 2.3 Seismic Walkdowns.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Giles,Roy W

09/28/2012 22:45

**Approved By:** Long,Jerry J

09/29/2012 00:36

**Operability Description:**

TS 3.7.1 applies

The RHRSW System is designed to provide cooling water for the Residual Heat Removal (RHR) System heat exchangers, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The RHRSW System is operated whenever the RHR heat exchangers are required to operate in the shutdown cooling or suppression pool cooling mode. The pressure from the pumps is greater than RHR pressure so that any tube leakage in the heat exchanger is into RHR rather than being discharged to the environment. The RHRSW System removes heat from the suppression pool via the RHR System to limit the suppression pool temperature and primary containment pressure following a LOCA. This ensures that the primary containment can perform its function of limiting the release of radioactive materials to the environment following a LOCA. The RHRSW System consists of two independent and redundant subsystems, each with two 4000 gpm pumps, a suction source, valves, piping, heat exchanger, and associated instrumentation. Either of the two subsystems is capable of providing the required cooling capacity with one pump operating to maintain safe shutdown conditions.

One crack exists starting at the North wall and traveling to the corner of a Booster Pump Pedestal. By inspection, the SWEs determined that the crack does not appear to be in line with the skid anchor bolt. The pedestal shows no cracking. There is no separation in the crack. The anchor bolts associated with the floor mounted seismic pipe support in question are not expected to act in tension, but rather shear. By inspection of the support it is designed to restrict movement in only two directions (both being parallel to the floor). Both of these directions will have a shear force. The crack will only affect the pullout strength (tension) of the anchors and will not directly affect the shear strength of the anchors.

The other crack extends from the corner of a seismic pipe support to the corner of a Booster Pump Pedestal. This crack appears to be in line with the anchor bolt associated with the floor mounted seismic pipe support. The crack does not appear to be in line with the Booster Pump skid anchor bolt. No visible cracking is present on the skid pedestal. There is no separation in this crack.

Neither crack appears to be in line with the anchor bolts located on either Booster Pump Skid. Hypothetically if the cracks met an anchor bolt it would affect the pullout strength of the anchor. However, this is not the case since neither crack meets an anchor bolt. Therefore since neither the shear strength or the pull out strength is affected, the cracks donot affect the seismic qualification of the SWBP floor mounting.

RHRSW system remains OPERABLE.

**Approval Comments:****Attachments:**

Operability Description  
Operability checklist

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

10/01/2012 07:52

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 3620**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 09/28/2012 14:26**Initiated Date:** 09/28/2012 14:47**Condition Description:**

SW INSTRUMENT RACK ANCHOR CORROSION

**Condition:**

During the 50.54(f) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were walking down the area surrounding the Service Water Booster Pump C. This Area Walk-By resulted in the observation that corrosion is present on the instrument rack legs for three of the four pumping systems. The instrument racks are located on the South side of each booster pump skid, aligned in the North-South direction. The North leg of each instrument rack (nearest to the pump), with the exception of the far West Instrument Rack, has corrosion present near the base of the leg. The extent of the corrosion could not be verified since the racks are heavily painted. Some of the anchor bolt heads appear to be corroded or missing beneath the paint.

The far West Instrument Rack was inspected and per the SWEs judgment no issue was present without a visual inspection after removal of the paint.

Systems Engineering was consulted to determine that the following components are located on the racks:

- CNS-SW-PS-385A/B/C/D ? Pump Suction low pressure alarm only
- CNS-SW-PS-386A/B/C/D ? Pump Discharge low pressure alarm only
- CNS-SW-PI-117A/B/C/D ? Pump Discharge local pressure indication
- CNS-SW-PI-385A/B/C/D ? Pump Suction local pressuring indication

All of these instruments are essential for pressure boundary only. If these fail and fall over, it will not interact with any of the pumps.

Photos can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

Requirement not met:

Corrosion/Erosion Protection requirements not met.

Method of Discovery:

Discovered during 50.54(f) Section 2.3 Seismic Walkdowns.

**Immediate Action Description:**

Contacted Control Room STE, contacted System Engineer, and contacted DED Civil.

**Suggested Action Description:**

Remove paint at the base of the instrument racks and consult DED to inspect the extent of the corrosion condition.

**EQUIPMENT:**Tag NameTag Suffix Name Component Code Process System Code

SW

**REFERENCE ITEMS:**Type Code

CR NUMBER TIED

Item Desc

CR-CNS-2012-06130

**Engineering Evaluation 12-E18**  
**Revision 0**  
**Attachment E**  
**Page 231 of 291**

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
MARGIN MANAGEMENT	WHITE-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
PROGRAM FUNCTION	P501
REPORT WEIGHT	1



**Initiated Date:** 9/28/2012 14:47    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/4/2012 7:27

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**Summary Description:**

SW INSTRUMENT RACK ANCHOR CORROSION

**Condition:**

During the 50.54(f) Section 2.3 Seismic Walkdowns, the Seismic Walkdown Engineers (SWEs) were walking down the area surrounding the Service Water Booster Pump C. This Area Walk-By resulted in the observation that corrosion is present on the instrument rack legs for three of the four pumping systems. The instrument racks are located on the South side of each booster pump skid, aligned in the North-South direction. The North leg of each instrument rack (nearest to the pump), with the exception of the far West Instrument Rack, has corrosion present near the base of the leg. The extent of the corrosion could not be verified since the racks are heavily painted. Some of the anchor bolt heads appear to be corroded or missing beneath the paint.

The far West Instrument Rack was inspected and per the SWEs judgment no issue was present without a visual inspection after removal of the paint.

Systems Engineering was consulted to determine that the following components are located on the racks:

CNS-SW-PS-385A/B/C/D ? Pump Suction low pressure alarm only  
CNS-SW-PS-386A/B/C/D ? Pump Discharge low pressure alarm only  
CNS-SW-PI-117A/B/C/D ? Pump Discharge local pressure indication  
CNS-SW-PI-385A/B/C/D ? Pump Suction local pressuring indication

All of these instruments are essential for pressure boundary only. If these fail and fall over, it will not interact with any of the pumps.

Photos can be found in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement not met:**

Corrosion/Erosion Protection requirements not met.

**Method of Discovery:**

Discovered during 50.54(f) Section 2.3 Seismic Walkdowns.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Giles,Roy W

09/28/2012 21:33

**Approved By:** Long,Jerry J

09/28/2012 21:55

**Operability Description:**

TS 3.7.1 applies

The RHRSW System is designed to provide cooling water for the Residual Heat Removal (RHR) System heat exchangers, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The RHRSW System is operated whenever the RHR heat exchangers are required to operate in the shutdown cooling or suppression pool cooling mode. The pressure from the pumps is greater than RHR pressure so that any tube leakage in the heat exchanger is into RHR rather than being discharged to the environment. The RHRSW System removes heat from the suppression pool via the RHR System to limit the suppression pool temperature and primary containment pressure following a LOCA. This ensures that the primary containment can perform its function of limiting the release of radioactive materials to the environment following a LOCA. The RHRSW System consists of two independent and redundant subsystems, each with two 4000 gpm pumps, a suction source, valves, piping, heat exchanger, and associated instrumentation. Either of the two subsystems is capable of providing the required cooling capacity with one pump operating to maintain safe shutdown conditions.

The corrosion identified by this CR is much less severe than that identified in the Service Water Pump Room associated with similar instrument racks. In each case, at least two intact bolts remain to attach one of the stanchions to the floor. The other stanchion has all four bolts fully intact and not corroded.

Construction of these instrument racks is similar to those in the Service Water Pump Rooms. However, the design seismic loading is much lower in the Control Building Basement at 0.2g (compared to 3g in the SWPR). Since the materials are similar, the corrosion is less severe and the seismic loading is significantly lower, the calculations performed for the Operability Evaluation in CR-CNS-2012-06208 show that there is significant margin available to support OPERABILITY of the pressure boundary function of these instruments in the Control Building basement.

More details are available in the attached response to EN-DC-112 and in the OE attached to CA#1 of CR-CNS-2012-06208.

The RHRSW System remains OPERABLE.

**Approval Comments:****Attachments:**

Operability Description  
EN-DC-112 response  
Operability Checklist

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

10/01/2012 15:03

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Jackson,Justin L**Originator Phone:** 4028255724**Originator Site Group:** CNS PLT Eng Design Programs Staff CNS**Operability Required:** Y**Supervisor Name:** Ocken,Trevor**Reportability Required:** Y**Discovered Date:** 09/28/2012 14:54**Initiated Date:** 09/28/2012 14:57**Condition Description:**

SW-MOV-MO89B FLEX HOSE SHORT

During the walkdown of SW-MOV-MO89B for the Seismic Walkdowns under the 50.54(f) letter distributed by the NRC, it appeared that the flex hose attached to the Limitorque operator of the valve did not provide adequate slack to prevent damage during a seismic event. NEDC 89-1324 Revision 4 was evaluated to determine the maximum amount of displacement during a SSE seismic event. After reviewing the calculation it was found that the maximum distance the operator would move is 0.014 inches in the "z" "y" direction. Attached to this condition report are the cover sheet of the calculation and the two applicable sections of the document which note the movement of the valve. Due to the minimal displacement caused during a seismic event, the flexible hose will tighten but not be pulled from either end that it is connected to. Photographs of this area have been placed in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

Requirement Not Met: Flexible hose appears to not have adequate amount of slack prior to reviewing the calculation.

Method of Discovery: During the Seismic Walkdowns performed under NRC guidance documented within the 50.54(f) letter.

**Immediate Action Description:**

Reviewed NEDC 89-1324 Revision 4 which contains the ADL Pipe Stress analysis for the run in question.

**Suggested Action Description:**

None. By evaluation after reviewing the calculation, it has been found that the displacement of the valve is minor and will not cause the flexible hose to be pulled out.

**EQUIPMENT:**

<u>Tag Name</u>	<u>Tag Suffix Name</u>	<u>Component Code</u>	<u>Process System Code</u>
MOV-MO89B	1	2	SW

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-06130
MARGIN MANAGEMENT	GREEN-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1
PROGRAM FUNCTION	P501

**Initiated Date:** 9/28/2012 14:57    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:**

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**Summary Description:**

SW-MOV-MO89B FLEX HOSE SHORT

During the walkdown of SW-MOV-MO89B for the Seismic Walkdowns under the 50.54(f) letter distributed by the NRC, it appeared that the flex hose attached to the Limitorque operator of the valve did not provide adequate slack to prevent damage during a seismic event. NEDC 89-1324 Revision 4 was evaluated to determine the maximum amount of displacement during a SSE seismic event. After reviewing the calculation it was found that the maximum distance the operator would move is 0.014 inches in the "z" "y" direction. Attached to this condition report are the cover sheet of the calculation and the two applicable sections of the document which note the movement of the valve. Due to the minimal displacement caused during a seismic event, the flexible hose will tighten but not be pulled from either end that it is connected to. Photographs of this area have been placed in T:\Plant Emergent Issues\50.54(F) Seismic Walkdown Photos (CRs).

**Requirement Not Met:** Flexible hose appears to not have adequate amount of slack prior to reviewing the calculation.

**Method of Discovery:** During the Seismic Walkdowns performed under NRC guidance documented within the 50.54(f) letter.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-06130. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Giles,Roy W

09/28/2012 23:22

**Approved By:** Long,Jerry J

09/29/2012 00:42

**Operability Description:**

TS 3.7.1 applies

The RHRSW System is designed to provide cooling water for the Residual Heat Removal (RHR) System heat exchangers, required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The RHRSW System is operated whenever the RHR heat exchangers are required to operate in the shutdown cooling or suppression pool cooling mode. The pressure from the pumps is greater than RHR pressure so that any tube leakage in the heat exchanger is into RHR rather than being discharged to the environment. The RHRSW System removes heat from the suppression pool via the RHR System to limit the suppression pool temperature and primary containment pressure following a LOCA. This ensures that the primary containment can perform its function of limiting the release of radioactive materials to the environment following a LOCA. The RHRSW System consists of two independent and redundant subsystems, each with two 4000 gpm pumps, a suction source, valves, piping, heat exchanger, and associated instrumentation. Either of the two subsystems is capable of providing the required cooling capacity with one pump operating to maintain safe shutdown conditions.

Based on information provided by the originator and included in the "Description of Condition" this condition does not affect the OPERABILITY of the RHRSW system. There is sufficient slack in the cable to accommodate the motion induced by the design basis seismic event.

**Approval Comments:****Attachments:**

Operability Description  
Operability checklist

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/02/2012 13:27

**Assignment Description:**

Tie to CR 2012-06130



**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

10/01/2012 07:54

**Reportability Description:**

Component or System remains operable, and no past operability issue identified.

**Originator:** Marotz,Mitchell M**Originator Phone:** 3643**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 10/17/2012 15:02**Initiated Date:** 10/17/2012 15:05**Condition Description:**

LOOSE CONDUIT SUPPORT CLAMP MS-AOV-AO80B

Condition: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting component inspection on MS-AOV-AO80B. During the inspection it was observed that the conduit Split Strap clamp on the support for the AOV was free to move parallel along the horizontal strut. This is due to worn out split strap ears, therefore the clamp does not provide restraint in the "slip-along" direction. The SWEs find this condition to be acceptable since the conduit cannot dislodge from the support since the clamp can restrain the conduit in the "Pull-Out" and Slip-Thru" directions.

Requirement not met: Failure to properly mount conduit clamp to support

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an inspection of Safe Shutdown Equipment List (SSEL) components.

**Immediate Action Description:**

Initiated Condition Report and STE.

See attached Photo.

**Suggested Action Description:**

It is recommended that the Clamp be replaced with a new split strap type clamp.

**EQUIPMENT:**

<u>Tag Name</u>	<u>Tag Suffix Name</u>	<u>Component Code</u>	<u>Process System Code</u>
AOV-AO80B	1	0	MS

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-07398
CR NUMBER TIED	CR-CNS-2012-07561
MARGIN MANAGEMENT	WHITE-O

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1

**Attachments:**

Immediate Action Description  
Photo

CA Number: 1

	<u>Site</u>	<u>Group</u>	<u>Name</u>
Assigned By:	CNS	CA&A Mgmt CNS	Dewhirst,Linda
Assigned To:	CNS	PLT Eng Design Mgmt CNS	Estrada,Roman M
Subassigned To :	CNS	PLT Eng Design Proj Staff CNS	Marotz,Mitchell M

Originated By: Hathaway,Tricia D

10/20/2012 15:43:30

Performed By:

Subperformed By:

Approved By:

Closed By:

Current Due Date: 11/16/2012

Initial Due Date: 11/18/2012

CA Type: DISP - CA

CA Priority:

Plant Constraint: NON-OUTAGE

**CA Description:**

Validate and establish action plan necessary to fix identified condition. Ensure concerns from CR-CNS-2012-07398 and CR-CNS-2012-07561 are adequately addressed along with this CR.

**CA REFERENCE ITEMS:**

<u>Type Code</u>
PRIORITY

<u>Description</u>
4

Response:

Subresponse :

Closure Comments:

**Initiated Date:** 10/17/2012 15:05 **Owner Site and Group:** CNS PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** C

**Closed by:**

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**Summary Description:**

LOOSE CONDUIT SUPPORT CLAMP MS-AOV-AO80B

Condition: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting component inspection on MS-AOV-AO80B. During the inspection it was observed that the conduit Split Strap clamp on the support for the AOV was free to move parallel along the horizontal strut. This is due to worn out split strap ears, therefore the clamp does not provide restraint in the "slip-along" direction. The SWEs find this condition to be acceptable since the conduit cannot dislodge from the support since the clamp can restrain the conduit in the "Pull-Out" and Slip-Thru" directions.

Requirement not met: Failure to properly mount conduit clamp to support

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an inspection of Safe Shutdown Equipment List (SSEL) components.

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Saylor,Kyle

10/18/2012 20:49

**Approved By:** Stough,James L

10/18/2012 22:24

**Operability Description:**

TS 3.6.1.3 potentially applies.

The function of the PCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs) to within limits. Primary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a DBA. MSIVs are required to close on a Group 1 signal (high steam tunnel temperature, high steam line flow, low-level 1 Reactor water level, low condenser vacuum, low steam line pressure). These conditions are indicative of a potential steam line break outside PC, LOCA inside PC, or loss of heat sink. The MSIVs are air operated to open, and springs with air assist to close.

MS-AOV-AO80B, MS ISO VALVE B INBOARD. Per discussions with DED the conduit is effectively captured by the geometry of the conduit, clamp and hangar. The Clamp/Hangar/Unistrut assembly is assembled properly but loose at the unistrut to hangar point. The hangar is a single bolt clamp that is attached to unistrut which allows for positioning during installation and disassembly. The clamp has a tee which rides in the groove of the unistrut and when tightened locks the assembly in place. While the clamp tee is loose the conduit cannot move due to the hangar construction. Additionally, the hangars above and below are rigidly mounted.

Based on the above MS-AOV-AO80B is Operable for this condition.

Per 2.0.5 and NUREG 1022 this condition is not reportable.

**Approval Comments:**

Concur

**Attachments:**Operability Description  
checklist

**Version:** 1

**Significance Code:** C

**Classification Code:** RCR (FIX)

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson,Donny L

10/20/2012 15:17

**Assignment Description:**

XIII.B.1 Tie RE-27 Seismic Walkdown issues to this CR.

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** LOSF NA

**Performed By :** McCutchen,Edward L

10/18/2012 09:19

**Reportability Description:**

No loss of nuclear safety function. Condition affects safety related equipment, but does not affect ability to perform the safety function. Licensing will open an action to itself (based on CRG classification of Cat 'A' or 'B') to review the cause evaluation, if performed, and determine if new evidence reveals a reportable condition. (elm, dnm)

**Originator:** Marotz,Mitchell M**Originator Phone:** 3643**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 10/17/2012 16:39**Initiated Date:** 10/17/2012 16:46**Condition Description:**

Tube Tray Detachment at Support

Condition: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting "Area Walk-Bys" in the Drywell. During the walk-by it was observed that a tubing tray was disconnected from its support. The tube track serves several small diameter copper tubes. The location of the detached tube tray is directly above ventilation louver DW1B-S4.

See attached photos.

Requirement not met: Failure to properly maintain support of the copper tubing.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "Area Walk-By" in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Immediate Action Description:**

Initiated Condition Report and contacted Control Room STE.

**Suggested Action Description:**

It is recommended that Tube Tray be reattached to the support.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-07392
MARGIN MANAGEMENT	WHITE-O

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1

**Attachments:**

Condition Description  
Photos



**Initiated Date:** 10/17/2012 16:46 **Owner Site and Group:** CNS PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:**

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**Summary Description:**

Tube Tray Detachment at Support

**Condition:** During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting "Area Walk-Bys" in the Drywell. During the walk-by it was observed that a tubing tray was disconnected from its support. The tube track serves several small diameter copper tubes. The location of the detached tube tray is directly above ventilation louver DW1B-S4.

See attached photos.

**Requirement not met:** Failure to properly maintain support of the copper tubing.

**Method of Discovery:** During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "Area Walk-By" in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1**Operability Code:** NOT REQUIRED**Immediate Report Code:** NONE**Performed By:** Sayler,Kyle

10/18/2012 20:09

**Approved By:** Stough,James L

10/18/2012 20:59

**Operability Description:**

Per discussions with Engineering the tubing was abandoned in place by Minor Design Change 84-150A. This change isolated the tubing from the pneumatics system.

The tubing is not safety related and performs no active or passive safety function that would either prevent or mitigate any analyzed accident or transient. Also, the tubing performs no support function that would cause safety related or important to safety equipment to become inoperable or incapable of performing the intended safety or support function. Per 0.5OPS, this condition screens as Operability Determination NOT REQUIRED. Per 2.0.5 and NUREG 1022 this condition is not reportable.

**Approval Comments:**

Concur

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/20/2012 15:17

**Assignment Description:**

Tie to CR 2012-07392

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** NON-SAFETY EQUII

**Performed By :** McCutchen,Edward L

10/19/2012 07:23

**Reportability Description:**

Not an SSC that affects safety function, and does not meet criteria for reportability.

Originator: Jackson,Justin L

Originator Phone: 4028255724

Originator Site Group: CNS PLT Eng Design Programs Staff CNS

Operability Required: Y

Supervisor Name: Ocken,Trevor

Reportability Required: Y

Discovered Date: 10/19/2012 12:44

Initiated Date: 10/19/2012 12:48

**Condition Description:**

RW-AOV-A83 SEISMIC INTERACTION

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Seismic Walkdowns of RW-AOV-A83. During the walk-by it was observed that the aluminum inlet line at the elbow of a compression fitting of the AOV was approximately 1/8" from a nearby B-Line support. During a seismic event, the elbow could potentially, depending on the severity of an earthquake, strike the B-Line unistrut and damage the fitting. This could potentially cause the valve to not receive the necessary air to perform its intended function.

Refer to the attached picture.

Requirements Not Met: The inlet line of the AOV does not have a safe seismic interaction distance.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to perform an inspection of RW-AOV-A83.

**Immediate Action Description:**

Documented this issue on the SWC associated with this particular component. The seismic walk-down team reviewed the pictures to determine if an issue existed.

**Suggested Action Description:**

B-Line unistrut should be cut to allow the support to still function as intended and to allow enough clearance for the AOV to move in a safe manner during a seismic event.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-07392

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1

**Attachments:**

Condition Description  
RW-AOV-A83

**Initiated Date:** 10/19/2012 12:48 **Owner Site and Group:** CNS PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:**

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**Summary Description:**

RW-AOV-A83 SEISMIC INTERACTION

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Seismic Walkdowns of RW-AOV-A83. During the walk-by it was observed that the aluminum inlet line at the elbow of a compression fitting of the AOV was approximately 1/8" from a nearby B-Line support. During a seismic event, the elbow could potentially, depending on the severity of an earthquake, strike the B-Line unistrut and damage the fitting. This could potentially cause the valve to not receive the necessary air to perform its intended function.

Refer to the attached picture.

Requirements Not Met: The inlet line of the AOV does not have a safe seismic interaction distance.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to perform an inspection of RW-AOV-A83.

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1

**Operability Code:** INOPERABLE

**Immediate Report Code:** NONE

**Performed By:** Giles,Roy W

10/23/2012 09:46

**Approved By:** Stough,James L

10/24/2012 01:32

**Operability Description:**

CNS-0-RW-AO-AO83, DW FL DR SUMP DISCH.

This is being declared INOPERABLE pending resolution by Engineering or MNT. EN-DC-112 submitted and response is being developed. This will be tracked on TS-12-01-RE27 PCIV, INST.

**Approval Comments:**

Concur





**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** TS

**Performed By :** Madsen,David N

10/23/2012 11:30

**Reportability Description:**

This is not a condition prohibited by TS and is not reportable. Licensing will open an action to itself (based on CRG classification of Cat 'A' or 'B') to review the evaluation, upon its completion, and determine if new evidence reveals a reportable condition. (dnm 10-23-12 pending Ops review)

**Originator:** Jackson,Justin L**Originator Phone:** 4028255724**Originator Site Group:** CNS PLT Eng Design Programs Staff CNS**Operability Required:** Y**Supervisor Name:** Ocken,Trevor**Reportability Required:** Y**Discovered Date:** 10/19/2012 13:07**Initiated Date:** 10/19/2012 13:24**Condition Description:**

PC-MOV-1301MV SUPPORT

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Seismic Walk-downs of PC-MOV-1301MV. During the walk-by it was observed that a 3-way support (SBNI-H66A) is located at the valve bolted bonnet. This is probably not an IAW valve SQR. It was also found that the 3-way support is located 3.5 inches above the center line 1 inch pipe. The stress analysis shows approximately 14 inches above the centerline of the one inch pipe.

Refer to the attached picture.

Requirements Not Met: Typically during shake table tests, the valve is support in a specific way. The valve in question does not appear to be a typical support that one would use in a shake table test. In addition, the valve supports do not match current seismic evaluation.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to perform an inspection of PC-MOV-1301MV.

**Immediate Action Description:**

Documented this issue on the SWC associated with this particular component. The seismic walk-down team reviewed the pictures to determine if an issue existed.

**Suggested Action Description:**

All associated documents should be reviewed to determine whether the valve has been analyzed for its current configuration. The drawings and all associated calculations should be reviewed to determine whether the current configuration is acceptable. If the current configuration is acceptable, then DWG 0640-012TAPSBL03 Revision 0 should be updated.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	Tie to CR 2012-07392

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1

**Attachments:**

Condition Description  
PC-MOV-1301MV

**Initiated Date:** 10/19/2012 13:24 **Owner Site and Group:** CNS PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:**

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**Summary Description:**

PC-MOV-1301MV SUPPORT

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Seismic Walk-downs of PC-MOV-1301MV. During the walk-by it was observed that a 3-way support (SBNI-H66A) is located at the valve bolted bonnet. This is probably not an IAW valve SQR. It was also found that the 3-way support is located 3.5 inches above the center line 1 inch pipe. The stress analysis shows approximately 14 inches above the centerline of the one inch pipe.

Refer to the attached picture.

Requirements Not Met: Typically during shake table tests, the valve is support in a specific way. The valve in question does not appear to be a typical support that one would use in a shake table test. In addition, the valve supports do not match current seismic evaluation.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to perform an inspection of PC-MOV-1301MV.

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1**Operability Code:** INOPERABLE**Immediate Report Code:** NONE**Performed By:** Giles,Roy W

10/23/2012 09:14

**Approved By:** Stough,James L

10/24/2012 01:36

**Operability Description:**

This is being declared INOPERABLE pending resolution by Engineering. EN-DC-112 submitted 10/19/12.

This will be tracked on TS-12-01-RE27 PCIV, INST.

**Approval Comments:**

Concur

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** 00/00/0000 00:00

**Assignment Description:**  
Tie to CR 2012-07392

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** TS

**Performed By :** Madsen,David N

10/23/2012 16:40

**Reportability Description:**

This is not a condition prohibited by TS and is not reportable. Licensing will open an action to itself (based on CRG classification of Cat 'A' or 'B') to review the evaluation, upon its completion, and determine if new evidence reveals a reportable condition. (dnm 10-23-12 pending Ops review)

**Originator:** Jackson,Justin L**Originator Phone:** 4028255724**Originator Site Group:** CNS PLT Eng Design Programs Staff CNS**Operability Required:** Y**Supervisor Name:** Ocken,Trevor**Reportability Required:** Y**Discovered Date:** 10/19/2012 13:46**Initiated Date:** 10/19/2012 13:49**Condition Description:**

RMV-AOV-11AV SUPPORT

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Seismic Walk-Downs of RMV-AOV-11AV. During the walk-by it was observed that the valve was supported on the operator. The support for the valve was bolted to the bosses.

Refer to the attached picture.

Requirements Not Met: Typically during shake table tests, the valve is supported in a specific way. The valve in question does not appear to be a typical support that one would use in a shake table test or seismic analysis.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to perform an inspection of RMV-AOV-11AV.

**Immediate Action Description:**

Documented this issue on the SWC associated with this particular component. The seismic walk-down team reviewed the pictures to determine if an issue existed.

**Suggested Action Description:**

Engineering needs to review the current configuration of the valve to confirm that it is an IAW/SQR valve. The pipe stress analysis should also be reviewed to determine whether or not this configuration has been analyzed in the pipe stress analysis.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS- 2012-07392

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1

**Attachments:**

Condition Description  
RMV-AOV-11AV

**Initiated Date:** 10/19/2012 13:49 **Owner Site and Group:** CNS PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway, Tricia D

10/23/2012 17:05

**Summary Description:**

RMV-AOV-11AV SUPPORT

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Seismic Walk-Downs of RMV-AOV-11AV. During the walk-by it was observed that the valve was supported on the operator. The support for the valve was bolted to the bosses.

Refer to the attached picture.

Requirements Not Met: Typically during shake table tests, the valve is supported in a specific way. The valve in question does not appear to be a typical support that one would use in a shake table test or seismic analysis.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to perform an inspection of RMV-AOV-11AV.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-07392. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.



**OperabilityVersion:** 1**Operability Code:** ADMIN - NA**Immediate Report Code:** NONE**Performed By:** Saylor,Kyle

10/21/2012 00:19

**Approved By:** Stough,James L

10/21/2012 00:28

**Operability Description:**

This CR was written to document a question with regards to an atypical piping support. Upon further investigation, see attached engineering evaluation, the piping support, RMV-H10, is in accordance with the as-built configuration, shown on isometric drawing X2631-201, which is used in NEDC 93-074. No degraded or non-conforming condition exists. Per 0.5OPS this condition screens as Admin NA.

Per 2.0.5 and NUREG 1022 this condition is not reportable.

**Approval Comments:**

Concur

**Attachments:**

Operability Description

Engineering Evaluation

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson,Donny L

10/23/2012 14:35

**Assignment Description:**

Tie to CR 2012-07392

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** ADMIN

**Performed By :** McCutchen,Edward L

10/21/2012 17:12

**Reportability Description:**

This is of an administrative nature and does not involve an equipment, radiological, nor security issue.

**Originator:** Jackson,Justin L**Originator Phone:** 4028255724**Originator Site Group:** CNS PLT Eng Design Programs Staff CNS**Operability Required:** Y**Supervisor Name:** Ocken,Trevor**Reportability Required:** Y**Discovered Date:** 10/19/2012 14:01**Initiated Date:** 10/19/2012 14:05**Condition Description:**

RHR-MOV-MO21B SUPPORT

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Seismic Walk-Downs of RHR-MOV-MO12B. During the walk-by it was observed that a seismic support kicker was located approximately 1 inch from the bonnet of RHR-MOV-MO21B.

Refer to the attached picture.

Requirements Not Met: The seismic support kicker is in close proximity to RHR-MOV-MO12B. During a seismic event, there is a potential for the valve to strike the kicker and could damage it.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to perform an inspection of RHR-MOV-MO12B.

**Immediate Action Description:**

Documented this issue on the SWC associated with this particular component. The seismic walk-down team reviewed the pictures to determine if an issue existed.

**Suggested Action Description:**

Engineering needs to review the pipe stress analysis for this particular spot and determine the maximum displacement that could occur during the worst design scenario in order to verify that interaction between the pipe and kicker will not occur.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-07392

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1

**Attachments:**

Condition Description  
RHR-MOV-MO12B

**Initiated Date:** 10/19/2012 14:05    **Owner Site and Group:** CNS    PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:**

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**Summary Description:**

RHR-MOV-MO21B SUPPORT

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Seismic Walk-Downs of RHR-MOV-MO12B. During the walk-by it was observed that a seismic support kicker was located approximately 1 inch from the bonnet of RHR-MOV-MO21B.

Refer to the attached picture.

Requirements Not Met: The seismic support kicker is in close proximity to RHR-MOV-MO12B. During a seismic event, there is a potential for the valve to strike the kicker and could damage it.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to perform an inspection of RHR-MOV-MO12B.

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1**Operability Code:** OPERABLE**Immediate Report Code:** NONE**Performed By:** Giles,Roy W

10/23/2012 15:57

**Approved By:** Stough,James L

10/24/2012 01:38

**Operability Description:**

LCOs 3.5.1, 3.5.2, 3.6.2.3, 3.9.7, 3.9.8 and TLCO T3.6.1 potentially apply

The safety design bases of the RHR system are to:

1. Restore and maintain the coolant inventory in the reactor vessel after a loss of coolant accident as required for core cooling in conjunction with other Emergency Core Cooling systems (Low Pressure Coolant Injection Mode, LPCI).
2. Provide cooling for the suppression pool and thereby remove heat from the containment following a loss of coolant accident to reduce containment pressure (either Suppression Pool Cooling Mode or spray mode can be used to accomplish this function).
3. Maintain suppression pool temperature during normal operation to within the limits assumed in the "Station Safety Analysis," (USAR Chapter XIV).
4. The suppression pool is the source of water for the LPCI mode of operation of the RHR system in order to provide a complete recycle path for water lost from the reactor vessel following reflooding.
5. To provide a high degree of assurance that the RHR system operates satisfactorily during a loss of coolant accident, each active component shall be capable of being tested during operation of the nuclear system.
6. Provide cooling for the drywell and thereby remove heat from the primary containment following a loss of coolant accident to reduce containment temperature.

RHR-MO-21B is the RHR HX B DRAIN TO SUPPRESSION CHAMBER, and is permanently deenergized closed. This valve is abandoned in place and not used. However the piping remains attached to the system. Per the attached response to EN-DC-112 12-031, one inch is more than sufficient clearance for this location.

RHR System B remains OPERABLE.

**Approval Comments:**

Concur

**Attachments:**

Operability Description  
Operability checklist  
EN-DC-112 approval  
EN-DC-112 response

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** 00/00/0000 00:00

**Assignment Description:**  
Tie to CR 2012-07392

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** OPERABLE

**Performed By :** Madsen,David N

10/23/2012 16:41

**Reportability Description:**

Component or System remains operable, and no past operability issue identified. (dnm 10-23-12 pending Ops review)



**Originator:** Jackson,Justin L**Originator Phone:** 4028255724**Originator Site Group:** CNS PLT Eng Design Programs Staff CNS**Operability Required:** Y**Supervisor Name:** Ocken,Trevor**Reportability Required:** Y**Discovered Date:** 10/19/2012 14:18**Initiated Date:** 10/19/2012 14:41**Condition Description:****3 INCH CRD RETURN LINE CANTILEVER**

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Area Walk-Bys. During the walk-by it was observed that a 3 inch CRD Return Line had an extensive cantilever. MDC No. 77-100 capped the 3 inch CRD Return Line inside and outside the Drywell. The attached piping outside the Drywell (see RCI DWG CP-002, Sht. 3) in the Reactor Building was abandoned in place at both ends. Minimal guidance to perform this is provided in the MDC. The free-end riser near Col. 6K at elevation 903? in the RB has a length of over 10 feet and could present seismic interaction issues with nearby CRD SSEL components below in the SE Quad. The RCI calculation for a 3 inch CRD return line outside the Drywell could not be located in records.

Refer to the attached picture.

Requirements Not Met: Extensive cantilever from 3 inch CRD Return Line.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an ?Area Walk-By? in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Immediate Action Description:**

Documented this issue on the Area Walk-by associated with this particular component. The seismic walk-down team reviewed the pictures to determine if an issue existed.

**Suggested Action Description:**

Add additional guide support near (approximately 1 foot) free end or cut the pipe off (approximately one foot) to the existing guide support on the south wall.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-07392

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1

**Attachments:**

Condition Description  
3 Inch CRD Return Line

**Initiated Date:** 10/19/2012 14:41 **Owner Site and Group:** CNS PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:**

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**Summary Description:**

3 INCH CRD RETURN LINE CANTILEVER

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Area Walk-Bys. During the walk-by it was observed that a 3 inch CRD Return Line had an extensive cantilever. MDC No. 77-100 capped the 3 inch CRD Return Line inside and outside the Drywell. The attached piping outside the Drywell (see RCI DWG CP-002, Sht. 3) in the Reactor Building was abandoned in place at both ends. Minimal guidance to perform this is provided in the MDC. The free-end riser near Col. 6K at elevation 903? in the RB has a length of over 10 feet and could present seismic interaction issues with nearby CRD SSEL components below in the SE Quad. The RCI calculation for a 3 inch CRD return line outside the Drywell could not be located in records.

Refer to the attached picture.

Requirements Not Met: Extensive cantilever from 3 inch CRD Return Line.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an ?Area Walk-By? in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1

**Operability Code:** INOPERABLE

**Immediate Report Code:** NONE

**Performed By:** Giles,Roy W

10/23/2012 09:29

**Approved By:** Stough,James L

10/24/2012 01:43

**Operability Description:**

This is being declared INOPERABLE pending resloution by Engineering. EN-DC-112 submitted 10/21/12. This will be tracked on TS12-RE27 Startup Restraint-01.

**Approval Comments:**

Concur

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** 00/00/0000 00:00

**Assignment Description:**  
Tie to CR 2012-07392

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** TS

**Performed By :** Madsen,David N

10/23/2012 16:41

**Reportability Description:**

This is not a condition prohibited by TS and is not reportable. Licensing will open an action to itself (based on CRG classification of Cat 'A' or 'B') to review the evaluation, upon its completion, and determine if new evidence reveals a reportable condition. (dnm 10-23-12 pending Ops and peer review)

**Originator:** Jackson,Justin L**Originator Phone:** 4028255724**Originator Site Group:** CNS PLT Eng Design Programs Staff CNS**Operability Required:** Y**Supervisor Name:** Ocken,Trevor**Reportability Required:** Y**Discovered Date:** 10/19/2012 15:38**Initiated Date:** 10/19/2012 16:09**Condition Description:**

PC-PRV-PCV631 SEISMIC RESTRAINT ISSUE

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Area Walk-Bys. During the walk-by of PC-PRV-PCV631 it was observed that the component piping on RH?s appeared to lack seismic restraints.

Refer to the attached picture.

Requirements Not Met: Piping requires more seismic restraints.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an ?Area Walk-By? in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Immediate Action Description:**

Documented this issue on the Area Walk-by associated with this particular component. The seismic walk-down team reviewed the pictures to determine if an issue existed.

**Suggested Action Description:**

Analyze the need for seismic supports and add as necessary to provide adequate protection to the forces produced by an earthquake as discussed in applicable CNS design documents.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
CR NUMBER TIED	CR-CNS-2012-07392
MARGIN MANAGEMENT	WHITE-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
REPORT WEIGHT	1
KEYWORDS	SEISMIC
PROGRAM FUNCTION	P301

**Attachments:**

Condition Description  
PC-PRV-PCV631

**Initiated Date:** 10/19/2012 16:09 **Owner Site and Group:** CNS PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:** Hathaway,Tricia D

10/25/2012 16:43

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**Summary Description:**

PC-PRV-PCV631 SEISMIC RESTRAINT ISSUE

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Area Walk-Bys. During the walk-by of PC-PRV-PCV631 it was observed that the component piping on RH?s appeared to lack seismic restraints.

Refer to the attached picture.

Requirements Not Met: Piping requires more seismic restraints.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an ?Area Walk-By? in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Remarks Description:**

**Closure Description:**

This condition report has been closed to Condition Report CR-CNS-2012-07392. Correction of this condition will be accomplished under the actions of that condition report. This and all CRs will be reviewed by the responsible department and by CA&A to identify trends requiring additional actions. If you have questions about the disposition of this CR, contact your supervisor or manager. If additional information is still needed, contact the CA&A manager and/or staff.

**OperabilityVersion:** 1

**Operability Code:** INOPERABLE

**Immediate Report Code:** NONE

**Performed By:** Giles,Roy W

10/23/2012 09:00

**Approved By:** Stough,James L

10/24/2012 01:45

**Operability Description:**

This is being declared INOPERABLE pending resolution by Engineering. EN-DC-112 submitted for additional information to support OPERABILITY on 10/22/12.

This will be tracked on TS12-01-RE27 SRV INCL ADS/LLS.

PC-PRV-PCV631 is the NITROGEN SUPPLY TO DRYWELL INSTRUMENT AIR HEADER, which serves MSIV's and SRV's.

**Approval Comments:**

Concur



**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:** Anderson, Donny L

10/25/2012 15:06

**Assignment Description:**

Tie to CR 2012-07392

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** TS

**Performed By :** Madsen,David N

10/23/2012 16:42

**Reportability Description:**

This is not a condition prohibited by TS and is not reportable. Licensing will open an action to itself (based on CRG classification of Cat 'A' or 'B') to review the evaluation, upon its completion, and determine if new evidence reveals a reportable condition. (dnm 10-23-12 pending Ops review)

**Originator:** Jackson,Justin L**Originator Phone:** 4028255724**Originator Site Group:** CNS PLT Eng Design Programs Staff CNS**Operability Required:** Y**Supervisor Name:** Ocken,Trevor**Reportability Required:** Y**Discovered Date:** 10/19/2012 16:09**Initiated Date:** 10/19/2012 16:20**Condition Description:****RW PIPING ELBOW TOO CLOSE TO SUPPORT**

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Area Walk-Bys. During the walk-by of PC-PRV-PCV631 it was observed that the Type 1 hanger below PC-170 is too close to the RW piping. The elbow in question is located between IA-567 and IA-F-DWA. By observation, the hanger has no clearance between itself and the elbow. During a seismic event, the hangers will collide into each other and could cause damage to the systems that they are associated with.

Refer to the attached picture.

Requirements Not Met: No clearance was found between the elbow and Type 1 support.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an ?Area Walk-By? in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Immediate Action Description:**

Documented this issue on the Area Walk-by associated with this particular component. The seismic walk-down team reviewed the pictures to determine if an issue existed.

**Suggested Action Description:**

The Type 1 support should be moved away from the elbow and all design documents should be updated to reflect the new configuration. If the Type 1 support is unable to be moved due to interferences then another support should be placed on the system to replace the current support.

**REFERENCE ITEMS:**

<u>Type Code</u>	<u>Item Desc</u>
MARGIN MANAGEMENT	WHITE-D

**TRENDING (For Reference Purposes Only):**

<u>Trend Type</u>	<u>Trend Code</u>
KEYWORDS	SEISMIC
PROGRAM FUNCTION	P301
REPORT WEIGHT	1

**Attachments:**

Condition Description  
PC-PRV-PCV631 AWB

**Initiated Date:** 10/19/2012 16:20 **Owner Site and Group:** CNS PLT Eng Design Mgmt CNS

**Current Contact:**

**Current Significance:** D

**Closed by:**

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**Summary Description:**

RW PIPING ELBOW TOO CLOSE TO SUPPORT

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting Area Walk-Bys. During the walk-by of PC-PRV-PCV631 it was observed that the Type 1 hanger below PC-170 is too close to the RW piping. The elbow in question is located between IA-567 and IA-F-DWA. By observation, the hanger has no clearance between itself and the elbow. During a seismic event, the hangers will collide into each other and could cause damage to the systems that they are associated with.

Refer to the attached picture.

Requirements Not Met: No clearance was found between the elbow and Type 1 support.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an ?Area Walk-By? in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Remarks Description:**

**Closure Description:**

**OperabilityVersion:** 1

**Operability Code:** INOPERABLE

**Immediate Report Code:** NONE

**Performed By:** Giles,Roy W

10/23/2012 09:04

**Approved By:** Stough,James L

10/24/2012 01:46

**Operability Description:**

This is being declared INOPERABLE pending resolution by Engineering. EN-DC-112 submitted for additional information to support OPERABILITY on 10/22/12.

This will be tracked on TS12-01-RE27 SRV INCL ADS/LLS.

**Approval Comments:**

Concur

**Version:** 1

**Significance Code:** D

**Classification Code:** TREND

**Owner Site and Group:** CNS      PLT Eng Design Mgmt CNS

**Performed By:**      00/00/0000 00:00

**Assignment Description:**  
Tie to CR 2012-07392

**Reportability Version:** 1

**Report Number:**

**Report Code:** NOT REPORTABLE

**Boilerplate Code:** TS

**Performed By :** Madsen,David N

10/23/2012 17:12

**Reportability Description:**

This is not a condition prohibited by TS and is not reportable. Licensing will open an action to itself (based on CRG classification of Cat 'A' or 'B') to review the evaluation, upon its completion, and determine if new evidence reveals a reportable condition. (dnm 10-23-12 pending engineering information to be provided to Ops tab)

**Originator:** Jackson,Justin L**Originator Phone:** 4028255724**Originator Site Group:** CNS . PLT Eng Design Programs Staff CNS**Operability Required:** Y**Supervisor Name:** Ocken,Trevor**Reportability Required:** Y**Discovered Date:** 11/15/2012 18:21**Initiated Date:** 11/15/2012 18:30

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**Condition Description:****PIPING INTERACTION DISCREPANCIES**

During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down teams were conducting area walk-bys. During the area walk-by of SW-AOV-TCV451A, it was observed that a Nitrogen Purge Line and piping for the Radwaste Tip Room drains were spaced less than 0.5 inches apart. The piping in question is located on the 881' elevation on top of the Torus NE quadrant. Photos have been attached to this condition report in order to show the spacing and the piping in question.

During a seismic event, the piping may interact with each other and damage the stainless steel nitrogen purge line. Based off of observation, there will be no damage to the Radwaste drain line due to the mass of the piping in respect to the Nitrogen purge line. Neither component is associated with the safe shut down of the plant.

Requirements Not Met: Having a spacing difference of less than 0.5 inches could damage the primary containment boundary during a seismic event.

Method of Discovery: During 50.54(f) Section 2.3 Seismic Walk-downs, the walk-down team was required to do an "area walk-by" in the vicinity of Safe Shutdown Equipment List (SSEL) components.

**Immediate Action Description:**

Wrote this condition report and contacted the Shift Technical Engineer in the Control Room.

**Suggested Action Description:**

The Nitrogen Purge Line should be rerouted in a manner that maintains a minimum of 1-2 inches from any other piping component. This will prevent damage to the piping in the event of a seismic situation.

**Attachments:**

Condition Description  
AWC WB-006



Remarks Description:

Closure Description:

**Originator:** Marotz,Mitchell M**Originator Phone:** 2527**Originator Site Group:** CNS PLT Eng Design Proj Staff CNS**Operability Required:** Y**Supervisor Name:** Wolken,Brian**Reportability Required:** Y**Discovered Date:** 11/15/2012 18:29**Initiated Date:** 11/15/2012 18:39**Condition Description:****ANCHOR BOLTS NOT FULLY ENGAGED**

During 50.54(f) Section 2.3 Seismic Walkdowns, Seismic Walkdown Engineers (SWE) were completing a Area Walk-By of the Battery Room on 903 of the Control Building. During the walk-by it was observed that the 125V DC Distribution Panel B Transfer Switch anchor bolts were not fully engaged. The SWE's, upon further investigation, found that the bolts were not loose, the transfer switch has several conduits on the upper half of it, and the transfer switch is flush against the wall.

The anchor bolts appear to be bottoming out in the anchor since they are not loose. The conduit leaving the top of the transfer switch is immediately supported by a Type A conduit support which provides support in the event of an earthquake to resist overturning. Also, it is likely that there is bolting on the backside of the transfer switch to the wall. This could not be confirmed without opening the transfer switch cabinet.

Per Engineering Judgment, the SWE's concluded that the transfer switch with the bolts not fully engaged will be adequately anchored as to restrict overturning during a seismic event due to the conduit support directly above the transfer switch, the size of the conduits tying into the transfer switch. The anchor bolts will still resist shear in their current configuration.

See Attached Photos.

Requirement not met:

Bolts anchored into the slab on the 125V DC Distribution Panel B Transfer Switch are not fully engaged.

Method of Discover:

Discovered during 50.54(f) Section 2.3 Seismic Walkdowns.

**Immediate Action Description:**

Initiated Condition Report and contacted Control Room STE.

**Suggested Action Description:**

Replace the anchor bolts with shorter bolts as to allow full engagement or install washers on the bolts as to get a flush fit.

**Attachments:**

Condition Description

Photos

Remarks Description:

Closure Description:



## Attachment F

### Peer Review Team Qualifications

Mr. Greg Hostetter, CAPM  
*Senior Engineering Consultant*

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## **EXPERIENCE SUMMARY**

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Mr. Hostetter has over ten years of nuclear industry, research and related experience. His areas of expertise include regulatory compliance support, environmental qualification (EQ) and aging management, Appendix R fire protection, thermal hydraulic analysis, room heat-up calculations, computational modeling, project management and controls, configuration control, corrective action, and materials science. This work has been done at both BWR and PWR nuclear facilities in the United States and for an international NSSS vendor.

His material science background includes metals, glass / ceramics, liquid crystals / electronic materials, and polymers. This work involved activities varying from process improvements to achieve desired materials properties to computational modeling of energy states and molecular configurations.

Mr. Hostetter is the office lead for information technology (IT) including software testing / verification, and day-to-day IT technical support. He is the chair of IEEE Nuclear Power Engineering Committee Working Group 6.1 on Accident Monitoring Instrumentation (IEEE Std 497) and led the working group through a successful revision of the standard. He is also performing research in support of new plant licensing [design certification (DCD), combined license (COL) application].

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## **EDUCATION**

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MSE, Materials Science and Engineering, University of Michigan  
BS, Materials Engineering, University of Cincinnati

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## **REGISTRATIONS / CERTIFICATIONS / TRAINING**

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Engineer-in-Training (EIT) – Ohio, 2000  
10 CFR 50.59 Evaluation Certified by LeBlond and Associates, LLC – 2007  
GOTHIC Training Course by Numerical Applications, Inc – 2007  
HVAC Basics – TRANE– 2009  
Project Management 101 –Tetra Tech – 2010  
Loss Prevention and Control – Tetra Tech – 2011  
Certified Associate in Project Management (CAPM No. 1463112) – PMI – 2011

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## **CORPORATION PROJECT EXPERIENCE**

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**Senior Engineering Consultant, 2011 to Present**

**Project Manager, 2010 to Present**

**Tetra Tech, Ann Arbor, MI (formerly Advent Engineering Services)**

Primary responsibilities include technical lead on thermal hydraulic analyses, project management and client interface / program management.

As technical lead for thermal hydraulic analyses, leads a team of engineers responsible for HELB and room heat-up environmental analyses using the GOTHIC computer software for both Design Engineering and Engineering Programs at nuclear operating plants. These analyses include determination of environmental parameters, fluid flow modeling, and evaluation of equipment qualification / operability / functionality within the given environment.

Project management responsibilities include proposal creation, project scoping, work scheduling, project accounting, and management of project personnel. Responsible for managing numerous projects for utility clients that are both short term and multiple year projects, ranging from staff augmentation to task driven projects, overseeing 10-20 engineers.

He is the program manager for all nuclear work with Xcel Energy as well as the Nebraska Public Power District (NPPD) and is responsible for all aspects of the company's interface with the utility from project inception through project closeout.

Additional non-technical activities include providing training to engineering and office staff, company marketing and sales, and support of the company QA Program.

Mr. Greg Hostetter, CAPM  
*Senior Engineering Consultant*

**Engineering Consultant, 2009 to 2010**

**Lead Project Engineer, 2009 to 2010**

**Advent Engineering Services**

Responsibilities include technical lead on thermal hydraulic analyses and project management. As technical lead for thermal hydraulic analyses, leads a team of engineers responsible for HELB and room heat-up environmental analyses using the GOTHIC computer software. Project management responsibilities include project scoping, work scheduling, project accounting, management of project personnel, and primary interface contact for the client. He is responsible for all Advent work with Xcel Energy including Monticello and Prairie Island. Additional non-technical activities include IT coordination and providing training to engineering and office staff.

**Senior Engineer, 2006 – 2009**

**Project Lead, 2008 - 2009**

**Advent Engineering Services**

Engineering related responsibilities include performing evaluations, developing calculations, and originating licensing basis document changes in support of EQ Programs at nuclear power plants. Also responsible for developing thermal-hydraulic analyses using the GOTHIC computer software. Additional technical areas of responsibility include probabilistic risk assessment work, Combined License (COL) Application work and new reactor design certification support.

Management activities include being the companies Project Lead at the Prairie Island Nuclear Generating Plant. Responsibilities as Project Lead include project scoping, work scheduling, project accounting, management of project personnel, and primary interface contact for the client. Additional non-technical activities include IT coordination and providing training to engineering and office staff.

**Engineer Level II, 2002 – 2006**

**Advent Engineering Services**

Responsibilities included performing engineering evaluations, developing calculations, and originating licensing basis document changes in support of fire protection systems and environmental qualification programs at nuclear power plants. Assisted in resolution of EQ condition reports identified at Davis-Besse during the boric acid release event extended outage.

Additional responsibilities included developing traffic engineering analysis and simulations to determine emergency evacuation time estimates for nuclear power facilities. Non-technical / engineering activities include project scheduling and IT coordination.

**PREVIOUS EXPERIENCE**

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**Graduate Student Research Assistant, 2000 – 2002**

**Martin Research Group, University of Michigan**

Performed molecular dynamics simulation and modeling. Used molecule modeling, electron diffraction, and X-ray diffraction to analyze and characterize poly-phenylenebenzobisoxazole (PBO). Also studied rubber toughening of nitro-cellulose and acrylic resins, as well as the structural characterization of novel crystal structure using modeling, transmission electron microscopy, and electron diffraction.

**Contractor, 1999 – 2000**

**Air Force Research Labs W.P.A.F.B.**

Performed polymer morphology - microstructure characterization using real-time microscopy and polymerization reaction characterization techniques. Also performed polymer synthesis reactions.

**Undergraduate Researcher, 1999 – 2000**

**Beaucage Research Group, University of Cincinnati**

Evaluated light scattering and reaction characterization of liquid crystalline materials.

Mr. Greg Hostetter, CAPM  
Senior Engineering Consultant

**Co-Op and Part-time, 1997 – 1999**

**Fusite Division of Emerson Electric Company**

Performed project management duties such as organization of personnel and technical report writing, as well as materials testing. Other specific skills gained include formulation and processing of glass, development of brazing techniques for metallurgical experimentation, and microstructure analysis using electron and optical microscopy.

**PROFESSIONAL AFFILIATIONS**

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Institute of Electrical and Electronic Engineers (IEEE), Member (2008-Present)  
IEEE Nuclear Power Engineering Committee (NPEC), Alternate Member (2006-Present)  
IEEE NPEC Subcommittee 6 on Safety related Systems, Member (2007-Present)  
IEEE NPEC Working Group 6.1 on Accident Monitoring Instrumentation (IEEE Std 497), Working Group Chairman (2009-Present), Working Group Member (2006-Present)  
American Nuclear Society (ANS), Member (2006-2008),  
ANS Michigan Section, Executive Committee Member (2005-2009), Finance Committee Chair (2005-2008), Section Member (2006-present)  
2nd International Joint Topical Meeting on Emergency Preparedness & Response and Robotic & Remote Systems, Technical Program Committee Member (2008)  
American Physical Society (APS), Member (past)

**PUBLICATIONS AND PRESENTATIONS**

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**Industry Standards**

IEEE Std 497-2010, *Standard for Accident Monitoring Instrumentation for Nuclear Power Generating Stations*, co-authored with IEEE/PES/NPEC WG-6.1

**Peer Reviewed Publications**

Hostetter, G.M., Horvath, D.A., "Transition Temperature Considerations When Extrapolating Safety-Related Equipment Post-Accident Operating Times", *IEEE Transactions on Nuclear Science*, **51**(5), 2347, (2004).  
Hostetter, G.M., "Molecular Modeling of the Structural Evolution in Poly(paraphenylene benzobisoxazole) (PBO) Fibers" [Master's Thesis], Ann Arbor (MI): University of Michigan; 2002.

**Conference Presentations**

Hostetter, G.M., Horvath, D.A., "Accident Monitoring During Severe Accidents", *Proceedings of the 9th International Conference on Nuclear Options in Countries with Small and Medium Electricity Grids*, June 3-6, 2012, Zadar, Croatia  
Horvath, D.A., Hostetter, G.M., "Use of Micro-Void Content Growth Rates to Validate and Dd Value to Electrical Insulation Tan-Delta Aging Testing", *Proceedings of the 9th International Conference on Nuclear Options in Countries with Small and Medium Electricity Grids*, June 3-6, 2012, Zadar, Croatia  
Worblewski, N., Horvath, D.A., Hostetter, G.M., Seamans, S., "Unexpected Anomaly Discovered During Qualification Testing of Teflon (PTFE) in Nuclear Sealing Application", *Proceedings of the 9th International Conference on Nuclear Options in Countries with Small and Medium Electricity Grids*, June 3-6, 2012, Zadar, Croatia

Mr. Greg Hostetter, CAPM  
Senior Engineering Consultant

- Steinman, R.L., Hostetter, G.M., "Evacuation Time Estimate Analysis for the Fermi 2 Emergency Planning Zone", *ANS 2004 Annual Meeting Transactions*, June 13-17, 2004, Pittsburgh, PA.
- Hostetter, G.M., Martin, D.C., "Molecular Modeling of Structural Evolution in PBO Fibers" *Bull. Am. Phys. Soc.*, **47**(1), 197, (2002).
- Hostetter, G.M., Martin, D.C., "Molecular Modeling of Poly-p-phenylenebenzobisoxazole (PBO) / Water / Phosphoric Acid Ternary Phase Diagram", *The University of Michigan Macromolecular Science and Engineering Symposium*, 2001.
- Hostetter, G.M., Drummy, L., Vodak, D., Yaghi, O., Martin, D.C., "High Resolution Electron Microscopy of Triazine-Tribenzonitrile Organic Frameworks", *ISMANAM 2001* (International Symposium on Metastable, Mechanically Alloyed and Nanocrystalline Materials), 2001.
- Hostetter, G.M., Beaucage, G., Farmer, B.L., Bunning, T.J., "Reaction - Induced Phase Separation of Polymer / LC Blends", ANTEC Preprints: *Proceedings of the Society of Plastics Engineering*, **58**(3), 3808, (2000).
- Hostetter, G.M., Beaucage, G., Farmer, B.L., Bunning, T.J., "Morphological Investigation of Two-Phase LC/Polymer Films Formed via Reaction-induced Phase Separation", *Bull. Am. Phys. Soc.*, **45**(1), 569, (2000).
- Hostetter, G.M., Beaucage, G., Farmer, B.L., Bunning, T.J., "Phase Separation Kinetics and Structure of Reaction-Induced Polymer Dispersed Liquid Crystal Films", *ACS Central Regional Meeting*, ACS (Amer. Chemical Soc.), 2000.



Norbert Wroblewski  
*Engineer Level II*

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## **EXPERIENCE SUMMARY**

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Norbert Wroblewski has four years of experience in the nuclear industry in the areas of mechanical hardware design, engineering calculations, Quality Assurance and outage support. His mechanical design engineering experience includes reactor model construction, repair concept development and modeling, drafting design drawings for manufacturing, design reviews, applying design changes to drawings and documents, and drafting of installation and inspection specifications. Engineering support experience includes preparing calculations, specifications, procedures, and testing plans. Outage support experience includes review of in-vessel video inspection footage for interferences, and performing time sensitive design changes to expedite outage closure. Work on QA has included the standardization of interference analysis in an Engineering Procedure and the development and implementation of a QA project instruction manual.

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## **EDUCATION**

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2007 MS, Mechanical Engineering, University of Michigan  
2006 BS, Mechanical Engineering, Northwestern University

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## **REGISTRATIONS/CERTIFICATIONS**

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Completed Mechanical Design Fundamentals (GEH, 2009)  
Completed BWR Refueling Floor Training (GEH, 2009)

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## **CORPORATION PROJECT EXPERIENCE**

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### **Engineer Level II, 2010 to present** **Tetra Tech Advent, Ann Arbor, MI**

Currently providing support for the cataloging and closure of the NRC's Request for Additional Information during the licensing of the US-APWR. Past responsibilities have included detailed review of drawings and specifications for inputs to room heat up and HELB calculations, detailed review of published component testing results for inputs into aging tests for equipment qualification, drafting of test procedures, preparing of calculations and reports, providing Quality Assurance support to the US-APWR Engineering Procurement drafting project, and providing support for the drafting and editing of EOPs and ERGs for the US-APWR.

### **Hardware Design Engineer, 2008 to 2010** **GE-Hitachi (GEH), Wilmington, NC**

Designed conceptual repair hardware for BWR nuclear reactors using Autodesk Inventor, created detailed part and assembly models and drawings for reference and for manufacturing, drafted installation and inspection specifications, worked closely with tooling and analysis groups to ensure feasibility of repair installation and compliance with NRC regulations, and provided engineering support during hardware installation during refueling outages. Duties also included participation in design challenges and reviews, peer review of engineering designs and documents, drafting of engineering procedures, and streamlining engineering processes. Accomplishments include completion of Mechanical Design Fundamentals coursework, three accepted Intellectual Property submissions, a successfully employed time/cost savings method, and the successful installation of both first-of-a-kind hardware designs and several routine repair hardware designs.

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## **PROFESSIONAL AFFILIATIONS**

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Member, American Nuclear Society (ANS), Michigan Chapter

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## **PUBLICATIONS AND PATENT APPLICATIONS**

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Tsuruga Dryer Repair/Mitigation Method Concepts, GEHI-0000-0109-7593 (GEH Proprietary Document)  
Duane Arnold Feedwater Sparger Cold Spring Restoration Repair, Technical Safety Evaluation Report,

Norbert Wroblewski  
*Engineer Level II*

GEHI-0000-0086-0575 (GEH Proprietary Document)

KKM Summary Description of the Shroud Head and Separator Modifications, GEHI-0000-0104-7027  
(GEH Proprietary Document)

US Patent Application No. 20100246744 - Apparatus & System for Dampening the Vibration  
Experienced by an Object

US Patent Application No. 20110135049 - Apparatus & System for Restricting the Movement of a  
Component

USPTO no. 12/850218 - Method and Apparatus for a BWR Jet Pump Support System

Brian J. Zapata, Ph.D., P.E., S.E.  
Project Manager

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### Education

**The University of North Carolina at Charlotte**, Charlotte, NC

Ph.D., Infrastructure and Environmental Systems, May 2012

*Dissertation:* "Full-Scale Testing and Numerical Modeling of a Multistory Masonry Structure Subjected to Internal Blast Loading"

M.S. Civil Engineering, 2007

B.S., Civil Engineering, 2003

*Area of Concentration:* Structural Engineering

### Licensures

Professional Engineer - North Carolina, South Carolina, New York

Structural Engineer - Hawaii

### Professional Experience

Dr. Zapata has nine years of professional experience in structural, blast, and forensic engineering. He currently serves as a Project Manager responsible for overseeing various structural and forensic projects for government and private sector clients. He has experience in the analysis, design, and renovation of commercial and industrial structures, including office buildings, warehouse and distribution centers, manufacturing facilities, fossil power facilities, and nuclear power facilities. His experience encompasses the major structural foundation and framing systems including reinforced concrete, structural steel, masonry, and timber. In addition, Dr. Zapata possesses expertise in the design of blast resistant structures and structural dynamics, performing design work for private and public sector projects. Dr. Zapata also has experience in explosives and blast testing, finite element analysis, materials investigations, building condition surveys, nondestructive testing, and structural instrumentation.

### Project Experience

**Lead Structural Engineer. Containment Restoration Proposal Assessment, Crystal River Unit 3, Crystal River, Florida.** Dr. Zapata coordinated a diverse team of specialists including structural engineers, finite element modelers, and construction industry experts. Provided direction on project tasks, conducted site visits to CR3, coordinated the technical component of the assessment effort and wrote and assembled an interim and final report. Delivered project on a very aggressive schedule. Provided critical analysis on a first of a kind project. (2012)

**Project Manager. Stacking Tower Lift, Belews Creek Steam Station, Belews Creek, NC.**

Dr. Zapata performed the engineering design necessary to lift the Belews Creek Steam Station radial stacking tower off of its foundations. This permitted the center pivot and powered trucks to be replaced. Work included a condition assessment, repair recommendations, and modifications to the structure to permit the 125 ton lift. (2012)

**Project Manager. Crane Uprating Analysis, Belews Creek Steam Station, Belews Creek, NC.** Dr. Zapata performed a structural analysis to confirm the capacity of the overhead crane in the Crusher House. Engineering included a structural model of the runway beams and supporting structure and recommendations on retrofits to increase the structure's capacity. (2012)

**Project Manager. FGD Primary Classifier Overflow Tank Personnel Platforms, Belews Creek Steam Station, Belews Creek, NC.** Dr. Zapata designed new steel framing to support personnel platforms over the FGD Primary Classifier Overflow Tanks for Belews Creek Units #1 and #2. (2012)

**Project Manager. UNC System Campuses Pre-Disaster Mitigation Planning, UNCC, Charlotte, NC.** Dr. Zapata provided consulting services on subcontract to UNCC as part of a pre-disaster mitigation planning program for the UNC University System under contract from FEMA. Dr. Zapata directed development of screening tools and methodologies to rank the vulnerability of University assets to damage from natural disasters. Using the prioritized facilities lists, Dr. Zapata performed on-site surveys at every UNC System campus to identify specific vulnerabilities and make recommendations for mitigating actions. (2008-2011)

**Project Engineer. Physical Security Analysis, New Bank of America Office Tower, Charlotte, NC.** Dr. Zapata performed a nonlinear progressive collapse analysis according to established Unified Facility Criteria guidance. Dr. Zapata also designed blast resistant walls and appurtenances for the facility's mailroom. The project was able to provide the client with a realistic assessment of the progressive collapse resistance of the proposed structure.

**Test Director. RFID as Explosive Triggering Mechanism, Charlotte, NC.** Dr. Zapata designed and coordinated a full scale demonstration of the fact that active RFID equipment can be used to trigger explosive devices. Dr. Zapata oversaw construction of the prototype triggering device, supervised the setup of the field test, and provided photography, video, and documentation of the test for the client.

**Project Engineer. Trichloroethylene Forensic Investigation, Tinker AFB, OK.** Dr. Zapata assisted in developing and calibrating a groundwater model to analyze subsurface transport of chlorinated solvents at an active Air Force base. As part of the work, Dr. Zapata wrote software to externally couple PEST and FEFLOW to permit the estimation of in situ conductivities. Dr. Zapata also wrote software to analyze well pump test data to estimate soil conductivity experimentally. (2009)

**Project Engineer. Analysis of Concrete Tunnel, Buck Steam Station, Rowan County, NC.** Dr. Zapata performed calculations to determine if an existing reinforced concrete reclaim tunnel could accommodate an opening for a new feeder system. (2009)

**Project Engineer. Design of Reclaim Tunnel System, Tyrell, NC.** Dr. Zapata assisted in the design of a new reclaim tunnel system for Duke Energy's Marshall Steam Station. The project required design of new concrete structures and the structural retrofit of an existing concrete structure to accommodate conveyor system openings. The project also included numerous steel platforms supporting vibrating machinery. (2009)

**Project Manager. Errazuriz Landfill Gas Flare, United Nations, Santiago, Chile.** Dr. Zapata managed a project based out of ZAPATA's Santiago office in which a small landfill gas flare was installed at a Santiago landfill. (2008)

**Project Engineer. Parking Garage Evaluations, CB Richard Ellis, Dallas, TX.** Dr. Zapata assisted in performing visual condition assessments of two existing, multistory parking structures, and provided recommendations for repairs. (2008)

**Project Engineer. Roof Loading Analysis, Charlotte NC.** Dr. Zapata evaluated the structural capacity of an existing floor system at an industrial facility. The on-site survey and analysis identified numerous flaws in the construction and design of the flooring system. (2008)

**Project Engineer. Feasibility of Bulldozer Impact Protection System, Marshall Steam Station, Terrell NC.** Dr. Zapata evaluated the feasibility of adding a concrete encasement to the existing stacking towers at Marshall Steam Station. The stacking towers were subject to impact by bulldozer and required protection. The analysis was performed to verify the structural capacity of the existing stacking tower system to support the added loads of a concrete encasement. The project required extensive finite element modeling using 2D and 3D elements to determine structural capacity. (2008)

**Project Engineer. Analysis of Highly Deformed Corrugated Metal Pipe Tunnel, Marshall Steam Station, Terrell NC.** Dr. Zapata evaluated the capacity of a highly deformed corrugated metal pipe tunnel. The calculations were used to determine permissible loads on the ground surface and determine the factor of safety. In addition, Dr. Zapata conducted regular measurements of the deformation to identify any temporal trends in an effort to identify the potential for collapse. (2008)

**Project Engineer. CPCC Façade Upgrade, Charlotte NC.** Dr. Zapata evaluated the structural capacity of the existing student and faculty parking decks to determine if they could sustain the load of new cladding. Dr. Zapata also designed a footing for the new stairwell tower and performed finite element soil structure interaction modeling to determine tower deflection under wind and seismic events. (2008)

**Project Engineer. Spreader Beam Matrix Evaluation, Charlotte NC.** Dr. Zapata evaluated the structural capacity of the existing spreader beam matrix in Bank of America Corporate Center's chiller plant. Dr. Zapata developed drawings showing the existing beam layout, identified the capacity of the system as it exists, and designed an expansion for the spreader beam matrix to permit lifting heavy chiller motors. (2008)

**Project Engineer. Parking Deck Collapse, Charlotte NC.** Dr. Zapata assisted in the design of temporary structural shoring for recovery operations at the collapse site. Dr. Zapata provided on-site supervision of the rigging and crane crew to prevent further structural damage and to provide documentation of forensic evidence. Dr. Zapata performed analyses and was able to identify the cause of the collapse. These findings were documented in a written report submitted to the County as a requirement for reconstruction of the structure. (2008)

**Project Engineer. Charleston Square Apartments, Auburn AL.** Dr. Zapata performed design calculations for multiple four story timber framed apartment buildings and designed the lateral force resisting system. The project required close coordination with the architect as the architectural design of the structure was being updated concurrently with the structural design process. (2008)

**Project Engineer. Analysis of Overtime HVAC Costs, Charlotte NC.** Dr. Zapata performed an analysis of the water cooled chiller system at One Independence Center to develop an hourly cost for billing tenants requesting overtime HVAC. Dr. Zapata also assisted in identifying and troubleshooting errors in the facility's BTU metering system. The project resulted in considerable savings for the property owner and accurate billing for the tenant. (2008)

**Project Engineer. Parking Garage Evaluation and Repairs, Bank of America Plaza, Charlotte, NC.** Dr. Zapata performed a structural evaluation of an existing multi-story parking

garage, and provided recommendations for repairs. Dr. Zapata also provided field supervision of the structural repairs while coordinating and maintaining garage operations. (2007)

**Project Engineer. Physical Security Analysis, New Bank of America Office Tower, Charlotte, NC.** Dr. Zapata performed a nonlinear progressive collapse analysis according to established Unified Facility Criteria guidance. Dr. Zapata also designed blast resistant walls and appurtenances for the facility's mailroom. The project was able to provide the client with a realistic assessment of the progressive collapse resistance of the proposed structure. (2007)

**Project Engineer. Analysis of Concrete Plate Floor Capacity, Charlotte, NC.** Dr. Zapata performed an analysis of the concrete flat plate floor system at a Bellsouth communication center in preparation for increased loading from high capacity batteries. (2007)

**Project Engineer. Analysis of Soil Vapor Migration, Charlotte, NC.** Dr. Zapata programmed a one dimensional finite element program to analyze transient soil vapor migration. The model included the novel feature of barometric pumping to model the enhanced surface fluxes created by changes in barometric pressure. (2006)

**Project Engineer. ITC Garage Wind Panels, Charlotte, NC. Trammell Crow.** Dr. Zapata performed finite element modeling of connections to support a large decorative wind panel system to cover the east facade of the International Trade Center parking garage. (2005)

**Project Engineer. Building Settlement Investigation and Repairs, Matthews, NC. Presbyterian Hospital Matthews.** Dr. Zapata designed and installed a data acquisition system to monitor basement walls for excessive movement under the force of pressure grouting on the soil side of the basement wall. (2001)

### **Research Experience**

**Blast Testing for Code Calibration. UNC Charlotte.** Dr. Zapata performed data acquisition, data analysis, and hydrocode modeling for a project designed to study the performance of several high explosive compounds. The project required over six days of blast testing in the field during which overpressure measurements were made for several types of high explosive. These pressure measurements were then used to calibrate airblast models for use in experiment design.

**Evaluation of NCDOT Bridge Analysis Procedure.** The project was designed to evaluate current NC Department of Transportation (NCDOT) bridge load rating procedures. This project included the in-situ load testing of seven bridges in Charlotte, NC, including the first composite bridge deck in the Carolinas. Dr. Zapata designed the sensor configuration, assisted in installing sensors, and programmed the data acquisition system.

**Dynamic Behavior of Curtain Walls.** The project was designed to study the low amplitude dynamic behavior of glass curtain walls. Information gathered during the project was later used to validate a finite element model. Dr. Zapata installed dynamic sensors, programmed the data acquisition system, and performed data analysis.

**Strengthening of Masonry Shear Walls.** The project was designed to investigate the possibility of using fiber reinforced polymer (FRP) systems to increase the capacity of masonry shear walls in low rise buildings. The experiments yielded several commercially feasible methods which significantly enhanced shear capacity. The results of this test helped secure funding from the National Science Foundation to perform full scale tests of the retrofit methods. The full scale tests were performed on one-story structures built in the lab and retrofitted with

FRP. The full scale testing validated the results obtained on component level tests. Dr. Zapata set up and programmed the servo-hydraulic piston system, specified instrumentation, and programmed the data acquisition system.

**Quasi-static Load Testing of Curtain Walls.** This project tested full-scale curtain wall systems to failure. The information has been used to generate resistance functions which will be employed in future non-linear analyses. Dr. Zapata set up and programmed the servo-hydraulic piston system, installed sensors, and programmed the data acquisition system. Dr. Zapata also compared the static elastic deflection of the curtain walls to a finite element model developed for his master's project.

**Structural Properties of Prefabricated Structural Panels.** This project was designed to quantify the shear, flexural, and axial capacity of prefabricated structural panels. Dr. Zapata set up and programmed the servo-hydraulic piston system, installed instrumentation, and programmed the data acquisition system.

**Strengthening of Spandrel Beams in Torsion.** The project was designed to study the optimal method for wrapping reinforced concrete spandrel beams with fiber reinforced polymers (FRP) to enhance torsional capacity. Dr. Zapata assisted in construction of specimens, installation of FRP, and installation of strain gages.

**Shear Strengthening of Existing Beams in a Hospital.** This project validated a retrofit technique for enhancing the shear capacity of concrete beams in an existing hospital. Dr. Zapata installed instrumentation and programmed the data acquisition system.

**Evaluation of Steel Tension Connection for Power Plant.** This project validated a tension connection designed beyond the limits of traditional AISC guidance for use in a power plant. Dr. Zapata installed instrumentation and programmed the data acquisition system.

#### Dissertation Research

**University of North Carolina at Charlotte, Charlotte, NC**  
**Graduate Student, 2003-2005**

This National Science Foundation funded project studied both the blast loading and the dynamic response of a coal fired power plant subjected to blast loads. The experimental program included the detonation of three explosive devices inside the boiler house prior to its demolition. The structure was instrumented with pressure transducers, accelerometers, and strain gages. A variety of analytical methods were tested to compare analytical predictions of deflection and blast pressures to those measured during the experiments.

#### Masters Degree Research

**University of North Carolina at Charlotte, Charlotte, NC**  
**Graduate Student, 2003-2005**

Participated in project designed to study the dynamic behavior of curtain wall systems subjected to low-level transient loads. Built linear elastic finite element model using ANSYS and calibrated the model using experimental data. The software accurately modeled the curtain wall system and is currently being used to study curtain wall systems subjected to low-level blast loads.

#### Internships

**Sandia National Laboratories, Albuquerque, NM**  
**Internship, 2006**

Worked as an intern at Sandia National Laboratories for the Thermal and Reactive Processes Group. Performed CTH simulations of airblasts producing comparisons of CTH to empirical airblast data for a variety of charge sizes and standoffs. Performed calculations to determine if CTH JWL equation of state parameters were self consistent with regard to energy and CJ state parameters.

### **PUBLICATIONS**

Weggel, David C., Brian J. Zapata, and Michael J. Kiefer. "Properties and Dynamic Behavior of Glass Curtain Walls with Split Screw Spline Mullions." *Journal of Structural Engineering* Vol. 133, No 10, 2007.

Weggel, David C. and Brian J. Zapata. "Laminated Glass Curtain Walls and Laminated Glass Lites Subjected to Low-Level Blast Loading." *Journal of Structural Engineering* Vol. 134, No. 3, 2008.

Zapata, Brian J. and David C. Weggel. "Blast Resistant Curtain Wall Subjected to Low-Level Blast Loading." *Proceedings of the 25th International Modal Analysis Conference*. February 19-22, 2007 Orlando, Florida.

Zapata, Brian J. and David C. Weggel. "Collapse Study of an Unreinforced Masonry Bearing Wall Building Subjected to Internal Blast Loading." *Journal of the Performance of Constructed Facilities* Vol. 22, No. 2, 2008.

Zapata, B.J. and D.C. Weggel. "Computational Airblast Modeling of Commercial Explosives." *Tenth International Conference on Structures Under Shock and Impact*. May 14-16, 2008, Algarve, Portugal.

### **SKILLS**

*Computer:* CTH, ANSYS, LSDYNA, PLAXIS, Matlab, Maple, MathCAD, AutoCAD, Microsoft Word, Excel, PowerPoint, Adobe Photoshop, Visio, UNIX/Linux/Windows, HP VEE, BenchLink Data Logger, SAP 2000, RISA

*General:* Structural Design, Finite Element Analysis, Experiment Design, High Speed Data Acquisition, Structural Dynamics, Data Analysis, Explosives



**Clinton D. Robertson, P.E., LEED AP**  
**Project Manager**

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**Education**

**The University of Tennessee at Chattanooga**, Chattanooga, TN  
BSE, Structural Engineering, University of Tennessee at Chattanooga, May 1994

**Special Training**

Building Codes in North Carolina, Lorman Education Services, 2006  
LEED for New Construction and Major Renovations V2.2, Technical Review Workshop  
Charlotte – Mecklenburg Certified Site Inspector Training Course  
Forensic Engineering, Professional Development Program, UNC Charlotte  
OSHA 10-Hour Construction Industry Safety & Health

**Licensure**

Professional Engineer, 2006, North Carolina, No. 032084  
Professional Engineer, 2006, South Carolina, No. 25410  
Professional Engineer, 2007, Tennessee, No. 109013  
Professional Engineer, 2008, Virginia, No. 044180  
Professional Engineer, 2011, Georgia, No. 036436  
Professional Engineer, 2011, Florida, No. 73531  
Professional Engineer, 2012, Kentucky, No. 28840

**Professional Affiliations and Honors**

American Society of Civil Engineers, 2004 – Present  
Structural Engineers Association of North Carolina, 2009 Treasurer, 2010 & 2011 President

**Professional Experience**

Mr. Robertson has more than nine years of professional experience in civil, structural and forensic engineering. He also has over eight years of team and project management experience. He currently serves as a Structural Engineer responsible for overseeing various structural and forensic projects for government and private sector clients. He has extensive experience in the design and renovation of commercial, residential, and industrial structures, including hotels, multi-story residential buildings, office buildings, hospitals, gymnasiums, warehouse and distribution centers and manufacturing facilities. His experience encompasses the major structural foundation and framing systems including reinforced concrete, structural steel, masonry, and timber. In addition to his structural design experience, Mr. Robertson has experience in civil site design, including grading and erosion control plans, sewer and storm water design, plumbing, and mechanical and electrical design for small commercial construction.

**Project Experience**

**Structural Engineer. Marshall Steam Station Reclaim Tunnel, Terrell, NC. Duke Energy Carolinas, LLC. (Project #1232).** Mr. Robertson performed the structural design for the analysis and design of a new reclaim tunnel to replace tunnel #1 with cast-in-place concrete coal vaults and precast concrete tunnels on concrete auger piles and grade beams. The structural design of the coal vaults and conveyor tunnels required the analysis of coal piles and D11 bulldozer surcharge loads. Mr. Robertson also reviewed and oversaw the production of

construction drawings and specifications, reviewed construction submittals, responded to requests for information and provided other construction administration support. Mr. Robertson managed two team members for the project.

**Structural Engineer. FORSCOM HQ Review, Fort Bragg, NC. Fort Bragg, DPW. (Project #1273).** Mr. Robertson performed the review of the structural engineering design of the new Combined FORSCOM/USARC Headquarters at Fort Bragg consisting of a 483,000 sf Headquarters building, a 53,000 sf Server Farm, 9,500 sf of IT services and control areas, and a 27,500 sf Disaster Recovery Center. The review included checks of plans, specifications, and structural calculations. Regular responses to design submittals were submitted in a timely manner. ZAPATA was the quality assurance team for the end client.

**Structural Engineer. FORSCOM/USARC Annex at the Old Bowley School, Fort Bragg, NC. Fort Bragg, DPW. (Project #1291).** Mr. Robertson provided structural design and analysis to support the renovation of the nine-building 54,000 sf Old Bowley School facility that converted classroom spaces into cubicle workspaces. Mr. Robertson provided structural support for the renovation of common space into conference rooms (one SIPR), training rooms, storage space and a large auditorium. The project is LEED-Silver. Mr. Robertson managed one team member for the project.

**Structural Engineer. JSOMTC Medical Training Building. Fort Bragg, NC, DPW. (Project #1342).** Mr. Robertson provided structural design for the design and construction of a new training facility at Fort Bragg, by providing the design team with the design of the foundation for the pre-engineered metal building, as well as supervised and reviewed the construction drawings. Specifications were produced that provided guidelines for the bidding and construction of the building's structural systems. Direct coordination with users, as well as review meetings, were conducted to maintain the interface with the client. Review meetings were held at kick-off, 65% and 95% with stakeholders from the Post, including DWQ, Environmental and DPW. To ensure quality all deliverables were peer reviewed and then reviewed by management and senior management in accordance with engineering division protocols. The project site is located in a high security area. This resulted in several constraints on location and placement of the structure. The structure was ultimately located so that it was further constrained by existing utilities, facility drainage ditch and the fence line. By working with the end user we were able to satisfactorily accommodate these challenges. Mr. Robertson managed one team member for this project. (12/2009 – 6/2010)

**Structural Engineer. EPRI Test Stand Evaluations. EPRI. (Project #1296).** Mr. Robertson led a team of structural engineers and technicians to assess the steel structural support stands that support heavy steel test samples. Each support stand had to be measured, dimensioned and drawn in CAD software. The type of steel the stands were constructed of had to be determined. An assessment of the support capacity of the stand was then determined. The final deliverable was CAD drawings of the stand and a load capacity certification for each stand. Initial meeting and final reports on each test stand were provided. Mr. Robertson managed two team members for this project. (2009)

**Structural Engineer/Project Manager. Georgia Pacific – Rock Hill, Sterling and Athens. Georgia Pacific. (Project #1238).** Mr. Robertson performed site visits and visual assessment of the wood treatment drip pads of the plants located in Rock Hill, SC, Sterling, GA and Athens, AL. The assessment was to determine if the wood treatment facilities drip pads met the EPA regulations 40 CFR 265. Mr. Robertson assessed the entire slab taking photographs and notes for each of the three facilities. He produced a report outlining the repairs to be made and methods of performance as well as suggested maintenance requirements for each of the facilities

to remain in compliance with EPA requirements. Meetings were held with Plant Managers at each site visit and a final report with recommendations for repair and maintenance was provided. Ensured quality by providing sufficient time to assess facility and sending all reports to management for review and edit before sending to client. Mr. Robertson managed one team member for this project. (2008 – 2012)

**Project Manager/Structural Engineer. Hefner VAMC Bldg. 42 LTC and Hospice, Salisbury, NC (1341). RPA Design.** Mr. Robertson performed the project management and structural design for a 12 bed hospice addition to the Long Term Care building. The addition is a separate single story cold-formed steel framed building with separate entrance. In addition to the Hospice building, Mr. Robertson also provided consulting services to the renovation of areas in the main Long Term Care building including the conversion of patient rooms into a Hotel and the removal of steel members in the atrium area to open it up and make it more aesthetically pleasing. Mr. Robertson managed an associate engineer and drafting technician to complete the structural design and contract documents ahead of schedule. He attended planning meetings with the architect and client, as well as weekly conference calls, periodic coordination meetings and email and phone calls as necessary. The project was designed to meet local building codes although it is a Government/VA project. To ensure quality internal review of engineering design and construction documents was performed by the Engineering Manager. (August 2009 – March 2010)

**Project Manager, Structural Engineer. Department of Veterans Affairs, Consolidated Patient Account Center; 2500 S Lakemont Ave, Orlando, FL; Structural Services (Project #1328).** Mr. Robertson performed the structural engineering design and oversaw the production of construction documents for the addition of a three story elevator tower addition to the existing precast concrete moment frame building. Mr. Robertson also provided structural guidance and consultation to the renovation of the third floor of the existing precast concrete framed facility. Determination of the building structural systems was critical in providing advice to the design team on what could and could not be demolished. The structural system was a composite construction of precast pre-stressed concrete beams and joists and poured-in-place concrete columns, slabs, and beams. This was determined by reviewing the existing structural drawings and by visually inspecting the structure. Mr. Robertson managed two team members for the project. Coordination with the client included conference calls with the design team held every other week; and meetings with the design architects were conducted as needed. To ensure quality, the structural design was reviewed at every stage by the engineer of record. (2009)

**Structural Engineer. Birkdale Village Parking Deck Assessments; Huntersville, NC. Developers Diversified Realty (Project #1288).** Mr. Robertson performed the structural condition assessment of four two-story precast concrete parking decks at Birkdale Village in Huntersville, NC. The assessment included extensive site observations and photographic documentation. A final report was provided for each parking structure categorizing the structural distresses as needing immediate, near future, or planned maintenance repairs. Mr. Robertson was responsible for managing CAB of the Carolinas, concrete repair subcontractors. Client interface included keeping the property manager informed on progress of project on a regular basis. All site visits were required to be performed during non-peak hours. (09/2008 – 06/2009)

**Structural Engineer. MOB Support Facility – Fort Gordon, GA. CDA Architects (Project #1273).** Mr. Robertson performed structural design and analysis for a truck load-out mobilization unit at Fort Gordon, GA, producing foundation design and permit drawings. The project included a three-bay enclosed pallet and load-out building with offices, a new roadway, parking, and storage. The project re-used existing scales with upgraded monitoring and controls.

The project was designed for and achieved LEED Silver accreditation. Mr. Robertson was responsible for one direct employee. (2008)

**Structural Engineer. UNC System Campuses FEMA Inspection, UNC Charlotte (Project #1243).** Mr. Robertson provided consulting services on subcontract to UNCC as part of a pre-disaster mitigation planning program for the UNC System under contract from FEMA. Using a prioritized facilities list, Mr. Robertson performed on-site surveys at every UNC System campus to identify specific vulnerabilities and make recommendations for mitigating actions. Client interface included coordination of on-site inspection and attending review meetings to coordinate results. Mr. Robertson was responsible for one direct employee. (2008)

**Structural Engineer. Forensic Analysis and Remedial Design Following Partial Collapse of Parking Deck, Charlotte, NC (Project #1265). CB Richard Ellis.** Mr. Robertson assisted in the forensic investigation and remedial design including the emergency response to the failure, emergency shoring design, assessment of the failure mechanism, and photographic documentation. The analysis included laboratory support for the metallurgical analysis and a weld inspection by certified welding inspectors. Mr. Robertson worked with precast/pre-stressed concrete contractors to provide a remedial design that corrected the failure mechanism and resolved other potential failure locations, proactive repairs, and general maintenance. Mr. Robertson was responsible for one direct employee. Regular site visits were required during construction to meet with the owner to discuss plans to repair the failure and provide responses to owner and contractor questions. Regular period reports of site visits were provided to the general contractor and owner's representative. A final report documenting the failure and the repairs was provided to the owner. (03/2008 – 09/2008)

**Structural Engineer/Project Manager. Structural Design of Charleston Place Apartments, Auburn, AL.** The Charleston Place student apartment project in Auburn, AL, included structural engineering for 11 buildings of two to four story structures with over 250,000 square feet of living space and an estimated construction cost of \$14,000,000. The wood framed structures used a combination of wood panel shear walls and steel framing. Mr. Robertson led a team of engineers, designers and drafters to produce the complex structural design ahead of schedule. (2008)

**Structural Engineer, Structural Analysis of Roof Structure. Triad Center, Greensboro, NC.** New condensing units were scheduled to be installed on the roof of the Triad Center in Greensboro, NC. Mr. Robertson was commissioned to analyze the roof structure of the existing building and determine if it can carry the additional load of the condensing units. A report was prepared with Mr. Robertson's professional opinion regarding the addition of new condensing units. (2008)

**Structural Engineer, Structural Assessment of Five Story Precast Parking Deck, Charlotte, NC.** Mr. Robertson performed a structural assessment of a five story precast parking deck located in Charlotte, NC. A report was written that documented all visual distresses in the concrete slab, precast concrete members and bolted and welded connections. The report provided the owner with a tool to classify the distress as needing immediate repair, near future repair or general maintenance repair. (2008)

**Structural Engineer, Preliminary Structural Design of Proposed Five Story Parking Deck, Central Piedmont Community College, Charlotte, NC.** Mr. Robertson performed a preliminary structural design of a proposed five story precast concrete parking deck for Central Piedmont Community College. The preliminary design assessed the loads on the structure and

the bearing loads of the proposed columns in order to assess the soil stress and bearing capacity. (2008)

**Structural Engineer, 4th Story Apartment Balcony Structural Assessment, Charlotte, NC.**

Mr. Robertson's expansive wood construction experience made him the perfect candidate to evaluate the structural failure of the 4th story balcony at an apartment complex in Charlotte, NC. It was determined that water intrusion had caused structural failure of the engineer lumber supporting the balcony. Mr. Robertson provided the owner with a solution to repair the structural failure along with a complete assessment report. (2008)

**Structural Engineer, Structural Design of Precast Stair Addition to Existing Parking Deck, Central Piedmont Community College, Charlotte, NC.**

Mr. Robertson performed structural design of an addition of two precast stairs to a five level parking garage. The design accounted for wind and seismic loads. The foundation was designed to prevent overturning do to wind and/or seismic loads. The construction drawings were provided to the client for permit. (2008)

**Structural Engineer, Intake Bridge Evaluation, Chester Metropolitan District, Fort Lawn, SC.**

Mr. Robertson lead a team of engineers to perform an assessment of the Intake Bridge at the clean water filter plant for the Chester Metropolitan District at Fort Lawn, SC. The project involved a visual assessment of the prestressed double tee concrete bridge and steel bents. A report describing the observations, the assessment, and the allowable load rating for the bridge was provided. (2008)

**Structural Engineer, Structural Analysis and Design of Sluice Gate Installation, Chester Metropolitan District, Fort Lawn, SC.**

Mr. Robertson performed structural analysis and design of a new sluice gate to be installed in the clean water filter plant for the Chester Metropolitan District at Fort Lawn, SC. The project involved strength analysis of the concrete flume, location of reinforcing steel using a pacometer in the top of the flume to be cut, the design of the sluice gate and field observations of the concrete cutting process. (2008)

**Structural Engineer, Structural Analysis of Plaster Cornice at Historic 16 S. Broad St., Charleston, SC.**

Mr. Robertson performed a site structural analysis and intrusive investigation the of the historic plaster cornice for the historic Wachovia Bank building in Charleston, SC. Mr. Robertson prepared a report describing the condition of the plaster cornice and required remedial action to preserve the historic plaster cornice. Mr. Robertson designed a repair and provided details to secure the cornice and prevent future damage by high winds or earthquake. (2008)

**Structural Engineer, Structural Analysis for 5th Street Jack and Bore Project, Bank of America Building, Charlotte, NC.**

Mr. Robertson performed structural analysis for the jack and bore project to connect the new Bank of America building with the International Trade Center in downtown Charlotte, NC. The project consisted of analyzing the effect of boring into the basement wall of the ITC building and designing a securing solution to bore through the shoring of the building being constructed. Mr. Robertson provide design details for boring through the shoring and the foundation wall of the ITC for use in the project drawings for the jack and bore. (2008)

**Structural Engineer, Structural Analysis of Spreader Beam Matrix, Bank of America Corporate Center, Charlotte, NC.**

Mr. Robertson was part of the team that performed structural analysis of a spreader beam matrix designed to carry the load of the chiller units for the Bank of America Corporate Center mechanical systems. The beams were analyzed to determine if they could carry the additional load of the new up-sized chiller units. The beams were

required to carry the load of the motors while maintenance was performed. A report with recommendations for revisions to the spreader beam matrix was provided to the client. (2008)

**Structural Engineer/Project Manager, Renovate Four Company Operations Buildings, Fort Bragg, NC.** Mr. Robertson lead a team of design professional consisting of architects, and civil, mechanical and electrical engineers to renovate four buildings originally constructed in 1999 for use as a storage facility. The expected use of the facility after renovation was a company operations facility for the Airborne 525th Battlefield Surveillance Brigade. The second floor of the four buildings was transformed from open storage to assembly and office space. The design team provided plans for renovation on an accelerated deliverable schedule that reduced the design time by 40%. (2008)

**Structural Engineer, Structural Evaluation of Building Façade, Wachovia Building, Columbia, NC.** Mr. Robertson performed a structural condition survey of a cracked precast concrete façade panel. The evaluation included an external and intrusive visual structural examination. Mr. Robertson oversaw and assisted in the removal and replacement of the interior finished in order to determine the cause of the façade distress. Mr. Robertson provided a report that included possible cause and recommendations for structural remediation. Mr. Robertson oversaw the repair construction of the distressed façade panel. (2008)

**Structural Engineer/Project Manager, Renovate 1935 Building for TV/Audio/Photography Studio, Fort Bragg, NC.** Mr. Robertson lead a team of design professionals consisting of architects, and civil, mechanical and electrical engineers to renovate a historic 1935 military facility. The original use of the facility was a “Mule Barn.” The expected use of the facility after renovation was a high-tech TV/Audio/Photography studio for use by the Directorate of Information Management. The design had to consider budget, technology, use, and historical significance. The team provided plans for renovation on schedule that were sensitive to need, budget, and historic relevance. (2008)

**Structural Engineer/Project Manager, Bank of America Corporate Center and Founders Hall Fall Protection for Window Washers and Exterior Building Maintenance Evaluation, Charlotte, NC.** Mr. Robertson headed up a team that evaluated the existing conditions of fall protection devices and equipment, compared it with current codes, regulations and standards, and provided CAD drawings documenting current conditions. A thorough report including recommendation for compliance with current codes, regulations, and standards was provided to the client. (2007)

**Structural Engineer, Structural Evaluation of 206 S. Church Street Parking Garage, Charlotte, NC.** Mr. Robertson performed a structural condition survey of a steel framed parking garage. The evaluation included a visual structural examination and revealed several deficiencies requiring remedial action. Mr. Robertson oversaw mapping of the distresses in CAD format for a report that including recommendations for structural remediation provided to the client. (2007)

**Structural Engineer/Project Manager, Residential Structural Design of Cedar Gables II – Duplex, Charlotte, NC.** Mr. Robertson performed the structural design of the 2,800 sf duplex and oversaw production of the construction documents. (2007)

**Structural Engineer, Structural Evaluation for Installation of New 2MW Generator, Gateway Village, Charlotte, NC.** Mr. Robertson performed a Structural Evaluation of the roof framing below the proposed location for the new 2 MW generator planned for installation on the

roof of the GWV 800 building. Mr. Robertson also oversaw non-destructive testing, x-raying and pacometer testing of concrete floor and roof piers. (2007)

**Structural Engineer, Independence Parking Deck Structural Condition Assessment, Central Piedmont Community College, Charlotte, NC.** Mr. Robertson performed a thorough structural condition survey of a precast concrete parking garage. The evaluation included a visual structural examination and revealed several deficiencies and construction defects requiring remedial action. A comprehensive report including recommendations for remediation was provided to the client. (2007)

**Structural Engineer, Structural Assessment of Bank of America Plaza Parking Garage, Charlotte, NC.** Mr. Robertson performed field observations of structural defects and/or defects and provided an opinion regarding required repairs. Mr. Robertson also assisted in the oversight of the repair construction. (2007)

**Structural Engineer, Structural Evaluation of Floor Capacity, BellSouth, Caldwell St., Charlotte, NC.** Mr. Robertson examined existing drawings and performed a structural evaluation using ADAPT-RC v5.00, of the 3rd floor of the BellSouth building on Caldwell St. in Charlotte, NC. The original structure was built in 1928 and added on to in 1953. An analysis of building codes for the construction years was required. (2007)

**Project Manager/Structural Engineer, Mayfair Townhomes Poured in Place Concrete Retaining Wall, Charlotte, NC.** Mr. Robertson engineered and managed the design of a 13' maximum height, 650' long poured-in-place concrete retaining wall. Unique soil conditions required the use of micro piles in specific locations. The wall retained a pond and roads. (2007)

**Structural Engineer, South Point Baptist Church Family Ministry Center, Belmont, NC.** Mr. Robertson engineered the structural systems and supervised the preparation of the structural drawings for a new multi-use facility. The 17,740 sf masonry building had eave heights of 25'3". (2007)

#### **SKILLS**

*Computer:* AutoCAD, Microsoft Word, Excel, PowerPoint, Adobe Photoshop, RISA



**ZACHRY NUCLEAR, INC.**  
ENGINEERING EVALUATION 12-E18  
COOPER NUCLEAR STATION SEISMIC WALKDOWN REPORT FOR  
RESOLUTION OF FUKUSHIMA NEAR-TERM TASK FORCE  
RECOMMENDATION 2.3: SEISMIC

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*ZNI Document Type: QAPD*

Attachment G  
SWEL Peer Review Checklist



**Instructions for Completing Checklist**

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

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1. Were the Five Safety Functions adequately represented in the SWEL 1 Selection? Y  N

Each safety function (reactor reactivity control, reactor coolant pressure control, reactor coolant inventory control, decay heat removal, containment function) is represented by at least 45 items on the list. The list includes 42 items that fall into all 5 safety function categories.

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

- a. Various Types of Systems? Y  N

Of the 27 different systems, 13 are represented by just 1 or 2 items in the list. Initially this was a concern, however, even 1 or 2 samples are enough to represent at least 10% of the available equipment for these systems. Therefore, it is believed that each system is adequately represented in the list.

- b. Major new and replacement equipment? Y  N

Seven (7) of the approximately 100 items on the walk-down list are new or replacement equipment. It is believed that older equipment is more likely to be found with degraded or insufficient anchorage, and therefore it is appropriate for the majority of the SWEL list to be comprised of older equipment.

- c. Various Types of Equipment? Y  N

Of the 22 different classes of equipment, all are represented by at least 1 item. Of those 22 classes, 11 are represented by 1 or 2 items but this sample size represents at least 10% of the available equipment for these classes. Therefore, each equipment type is adequately represented in the list.

- d. Various Environments? Y  N

During the development of the SSEL, components in 23 elevation / compartments were identified across 8 facilities (Control Building, Diesel Generator Building 1, Diesel Generator Building 2, Drywell, Intake Structure, Multi-purpose Facility, Reactor Building, and Yard) for potential walk-down. Of those 23 compartments, all but one (Drywell, 972 elevation) has a component selected for walk-down. Although drywell elevation 972' does not have a selected item for walk-down, 10 other drywell components are subject to walk-downs. The various environments at CNS are adequately represented in the list.

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

Twenty (20) of the approximately 100 components on the list have been previously included in the IPEEE program at CNS. Considering these items have been recently upgraded and are therefore more likely to be in acceptable condition, IPEEE enhanced equipment is adequately represented on the list.

- f. Were risk insights considered in the development of the SWEL 1? Y  N

Fifty four (54) of the approximately 100 components on the list are identified as Risk Significant. Risk significance was determined using a combination of CNS PRA insights and IPEEE results. Given that over half of the components subject to walk-down fall in the risk significant category, appropriate risk insights were adequately considered during the development of the list.

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3. For SWEL 2

- a. Were spent fuel pool related items considered, and if applicable included in SWEL 2? Y  N

Spent fuel pool related items were considered while generating the list. CNS and the walk-down team determined that some components could be potentially crucial for operation despite not being classified seismic class 1; these items were included on the list.

- b. Was an appropriate justification documented for spent fuel pool related items not included in SWEL 2? Y  N

**Not Applicable** - Spent fuel pool related items were considered while generating the SWEL 2 list, as stated in 3.a.

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

Additional reviews of SWEL 1 were performed concurrently with the walk-downs of components and area walks-bys. Very few components on the SWEL 1 list have been changed due to accessibility or schedule issues, but those that have been changed were reviewed and found acceptable.

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

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Peer Reviewer #1: Norbert Wroblewski *N. Wroblewski* DATE: 10/26/12

Peer Reviewer #2: Greg Hostetter *Greg Hostetter* DATE: 10/26/12



**ZACHRY NUCLEAR, INC.**  
ENGINEERING EVALUATION 12-E18  
COOPER NUCLEAR STATION SEISMIC WALKDOWN REPORT FOR  
RESOLUTION OF FUKUSHIMA NEAR-TERM TASK FORCE  
RECOMMENDATION 2.3: SEISMIC

---

*ZNI Document Type: QAPD*

**Attachment H**  
**Request for Information (RFI 2892-001)**

Zachry Nuclear, Inc.  
Request for Information  
ZNI Document Type: QAPD



14 Lords Hill Road  
Stonington, CT 06378  
PH: 860-446-9725

REQUEST FOR INFORMATION (RFI) No: 2892-001

Project Title: CNS BDB NTTF 2.3 Seismic Walkdowns Page 1 of 1

Client PO # Rev./ Rel.: 12A-C2 Work Authorization 4700001532  
(Amendment No. 3)

Date RFI Originated: 11/13/2012 Date Required: 11/15/2012 Date Complete: 11/20/12

RFI Originated By: J. McKinney Phone No.: 860-405-3508 E-mail Address: mckinneyjm@zhi.com

RFI Answered By: M. Marotz Phone No.: 402-825-5270 E-mail Address: mmmarot@nppd.com

Part A - Information Requested: E-mail response is acceptable:

CNS has requested ZNE assistance in writing the final BDB NTTF 2.3 Seismic Walkdown Report for their submittal to the NRC. Based on Section 8 of the NRC endorsed seismic walkdown guidance (EPRI Report 1025286), there is a required section for the report titled "Peer Review". CNS contracted this part of the project out to another company, Tetra-Tech. Since they will not be signing the ZNE safety-related final deliverable, Engineering Evaluation 12-E18, their input into this document must be obtained via the use of this RFI response as a Design Input. Please provide the Tetra-Tech section of the report with your response to this RFI.

Part B - Comments / Assumptions Used to Proceed and Schedule Impact (if applicable):

Please expedite this RFI to support the completion of the final BDB report for NRC submittal by 11/27/12.

Part C - Client/Vendor Response:

Peer Review Section provided 11/19/12 for inclusion into the final report.

Mitchell M. Marotz  
  
11/20/12

**WHEN FORM IS COMPLETED FORWARD ORIGINAL TO THE QA DEPARTMENT AND A COPY TO THE ZNE PROJECT MANAGER**

**Morris, Clinton M.**

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**From:** Marotz, Mitchell M. <mmmarot@nppd.com>  
**Sent:** Monday, November 19, 2012 4:49 PM  
**To:** McKinney, James M.  
**Subject:** FW: Seismic Peer review  
**Attachments:** Submittal Attachment - Checklist for Peer Review of SSC Selection.pdf; Submittal Attachment - Peer Review Team.pdf; Peer Review Submittal.docx

Jim,  
That last email from Greg was taken out of context. Attached is the final Peer Review Section. Please include in the report. This should be the last section needed right?

*Mitchell M. Marotz*

DED - Projects Engineer  
Cooper Nuclear Station  
Nebraska Public Power District  
P.O. Box 98, Brownville, NE 68321  
Office 1: (402) 825-5270  
Office 2: (402) 825-2527  
Pager: (402) 977-1096  
[mmmarot@nppd.com](mailto:mmmarot@nppd.com)

---

**From:** Hostetter, Greg [mailto:Greg.Hostetter@tetrattech.com]  
**Sent:** Monday, November 19, 2012 8:40 AM  
**To:** Marotz, Mitchell M.  
**Cc:** Wroblewski, Norbert  
**Subject:** Seismic Peer review

Mitch,  
Although there is still one open item out there on the Seismic Walk-down Submittal Report (inclusion of Base List 1 & 2), I don't foresee this impacting any of our conclusions. Based on the last draft of the submittal report, we are now ready to supply our peer review section (including attachments) for the submittal report.

Once we have a chance to review the final changes to the submittal report we will be able to provide you with our full Peer Review Report which will provide a thorough discussion of the conclusions that we have provided for inclusion in the submittal report.  
GREG

**Greg M Hostetter, CAPM** | Senior Engineering Consultant | Senior Project Manager  
Toll Free: 888.930.7500 | Main: 734.930.7500 | Fax: 734.327.7501 | Cell: 248.629.0629  
[greg.hostetter@tetrattech.com](mailto:greg.hostetter@tetrattech.com)

**Tetra Tech, Inc.**  
24 Frank Lloyd Wright Dr, Suite 1200, Lobby B | Ann Arbor, MI 48105  
[www.TetraTechAdvent.com](http://www.TetraTechAdvent.com) | [www.tetrattech.com](http://www.tetrattech.com)

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## **9.0 PEER REVIEW**

The approach for the peer review portion of the Near Term Task Force (NTTF) Recommendation 2.3 Seismic Walk-downs was based on the guidance provided in EPRI TR-1025286 "Seismic Walk-down Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic". The Peer Review Team was made up of 4 engineers with various backgrounds and expertise including; seismic, licensing / regulatory, systems, and operations. The Peer Review Team leadership is made up of one overall Peer Review Lead, as well as two subject matter leads (one for equipment and one for seismic). The Peer Review Team included the following individuals (resumes attached):

- Peer Review Lead – Greg Hostetter
  - Responsible for all peer review activities, including creation of the final peer review report.
- Equipment Lead – Norbert Wroblewski
  - Responsible for all the equipment review activities, including the review of the SWELs.
- Seismic Lead – Brian Zapata
  - Responsible for all seismic review activities of the team, including items related to the walk-downs and walk-bys.
- Seismic Engineer - Clinton Robertson
  - Participant in seismic activities and other peer review activities as needed.

The selection of Structures, Systems and Components (SSCs) was peer reviewed by engineers knowledgeable in plant design, operations, documentation, and SSCs. The Peer Review Team worked with Cooper Nuclear Station (CNS) staff to modify the initial Seismic Walk-down Equipment List (SWEL) list to ensure SWEL items selected for inspection represented a diverse sample of plant equipment required to perform the five safety functions (reactor reactivity control, reactor coolant pressure control, reactor coolant inventory control, decay heat removal, containment function).

The seismic walk-downs and area walk-bys were peer reviewed in accordance with the guidance by engineers familiar with the seismic design of equipment anchorage. The peer review included the following activities:

- The Peer Review Team conducted a short interview with each Seismic Walkdown Engineer (SWE) in order to establish their credentials.
- The Peer Review Team reviewed over 10% of the walk-down packages, including the Screening Evaluation Worksheets (SEWS) worksheet, plant drawings, equipment data sheets, walk-down checklists, and walk-by checklists.

The approach to the licensing basis reviews included a review of the licensing basis evaluations developed, including basis for entering potentially adverse seismic conditions into the Corrective Action Program (CAP).

A review of the draft submittal report examined the content of the report based on the guidance. In addition to the completeness (alignment with the guidance), the accuracy with the SWELs (as reviewed) and the reviewed walk-down and area walk-by packages was also confirmed.

#### 9.1 PEER REVIEW OF SEISMIC WALKDOWN EQUIPMENT LIST DEVELOPMENT

Based on the criteria set forth in Section 3, "Selection of SSCs", and Section 6, "Peer Review", of the guidance, the Peer Review Team concludes that the SSCs selected by CNS for walk-down satisfy the requirements of NTTF Recommendation 2.3. SWEL 1 demonstrated an adequate diversity in system types, both major new and replacement equipment, and diversity in types of equipment and environments. Risk insights were adequately considered, and components identified in the IPEEE Program were also represented. SWEL 2 adequately addressed spent fuel pool equipment per the guidance.

#### 9.2 PEER REVIEW OF SEISMIC WALK-DOWNS AND WALK-BYS

Based on the criteria set forth in Section 2 "Personnel Qualifications", Section 4 "Seismic Walk-downs and Walk-bys", and Section 6 "Peer Review" of the guidance, the Peer Review Team concludes that the SWEs were qualified to perform the walk-downs / walk-bys and that the walk-downs / walk-bys were performed in accordance with the guidance. The packages taken into the field were developed to a significant level of detail, based on the information available, to support inspections in the field. Although not all packages were fully complete to a level that captured what the peer reviewers would expect based on the items being inspected, there was still sufficient detail provided to conclude that an adequate review of all available equipment appears to have been completed.

#### 9.3 PEER REVIEW OF LICENSING BASIS EVALUATIONS

Based on the criteria set forth in Section 5, "Seismic Licensing Basis Evaluations", and Section 6, "Peer Review" of the guidance, the Peer Review Team concludes that CNS has met all requirements regarding Seismic Licensing Basis Evaluations. The Corrective Actions generated by the walk-downs and walk-bys recognize insufficient anchorages, potential damage due to proximity during seismic events, degraded conditions and general seismic housekeeping issues, and their proposed resolutions deal with each type of found condition accordingly.

#### 9.4 PEER REVIEW OF SUBMITTAL REPORT

Based on the criteria set forth in Section 8, "Submittal Report", Appendix H, "Documentation Requirements in 50.54(f) Letter", and Section 6, "Peer Review" of the guidance, the Peer Review Team concludes that CNS has met the requirements regarding the Submittal Report. The submittal report covers in detail the seismic licensing basis, the personnel qualifications, the selection of SSCs, the seismic walk-downs and walk-bys, the licensing basis evaluations, the IPEEE Vulnerabilities Resolution Report, and this peer review.

#### ATTACHMENTS

- Peer Review Team Resumes
- Checklist for Peer Review of SSC Selection



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## **EXPERIENCE SUMMARY**

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Mr. Hostetter has over ten years of nuclear industry, research and related experience. His areas of expertise include regulatory compliance support, environmental qualification (EQ) and aging management, Appendix R fire protection, thermal hydraulic analysis, room heat-up calculations, computational modeling, project management and controls, configuration control, corrective action, and materials science. This work has been done at both BWR and PWR nuclear facilities in the United States and for an international NSSS vendor.

His material science background includes metals, glass / ceramics, liquid crystals / electronic materials, and polymers. This work involved activities varying from process improvements to achieve desired materials properties to computational modeling of energy states and molecular configurations.

Mr. Hostetter is the office lead for information technology (IT) including software testing / verification, and day-to-day IT technical support. He is the chair of IEEE Nuclear Power Engineering Committee Working Group 6.1 on Accident Monitoring Instrumentation (IEEE Std 497) and led the working group through a successful revision of the standard. He is also performing research in support of new plant licensing [design certification (DCD), combined license (COL) application].

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## **EDUCATION**

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MSE, Materials Science and Engineering, University of Michigan  
BS, Materials Engineering, University of Cincinnati

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## **REGISTRATIONS / CERTIFICATIONS / TRAINING**

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Engineer-in-Training (EIT) – Ohio, 2000  
10 CFR 50.59 Evaluation Certified by LeBlond and Associates, LLC – 2007  
GOTHIC Training Course by Numerical Applications, Inc – 2007  
HVAC Basics – TRANE– 2009  
Project Management 101 –Tetra Tech – 2010  
Loss Prevention and Control – Tetra Tech – 2011  
Certified Associate in Project Management (CAPM No. 1463112) – PMI – 2011

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## **CORPORATION PROJECT EXPERIENCE**

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### **Senior Engineering Consultant, 2011 to Present**

#### **Project Manager, 2010 to Present**

#### **Tetra Tech, Ann Arbor, MI (formerly Advent Engineering Services)**

Primary responsibilities include technical lead on thermal hydraulic analyses, project management and client interface / program management.

As technical lead for thermal hydraulic analyses, leads a team of engineers responsible for HELB and room heat-up environmental analyses using the GOTHIC computer software for both Design Engineering and Engineering Programs at nuclear operating plants. These analyses include determination of environmental parameters, fluid flow modeling, and evaluation of equipment qualification / operability / functionality within the given environment.

Project management responsibilities include proposal creation, project scoping, work scheduling, project accounting, and management of project personnel. Responsible for managing numerous projects for utility clients that are both short term and multiple year projects, ranging from staff augmentation to task driven projects, overseeing 10-20 engineers.

He is the program manager for all nuclear work with Xcel Energy as well as the Nebraska Public Power District (NPPD) and is responsible for all aspects of the company's interface with the utility from project inception through project closeout.

Additional non-technical activities include providing training to engineering and office staff, company marketing and sales, and support of the company QA Program.

**Engineering Consultant, 2009 to 2010**

**Lead Project Engineer, 2009 to 2010**

**Advent Engineering Services**

Responsibilities include technical lead on thermal hydraulic analyses and project management. As technical lead for thermal hydraulic analyses, leads a team of engineers responsible for HELB and room heat-up environmental analyses using the GOTHIC computer software. Project management responsibilities include project scoping, work scheduling, project accounting, management of project personnel, and primary interface contact for the client. He is responsible for all Advent work with Xcel Energy including Monticello and Prairie Island. Additional non-technical activities include IT coordination and providing training to engineering and office staff.

**Senior Engineer, 2006 – 2009**

**Project Lead, 2008 - 2009**

**Advent Engineering Services**

Engineering related responsibilities include performing evaluations, developing calculations, and originating licensing basis document changes in support of EQ Programs at nuclear power plants. Also responsible for developing thermal-hydraulic analyses using the GOTHIC computer software. Additional technical areas of responsibility include probabilistic risk assessment work, Combined License (COL) Application work and new reactor design certification support.

Management activities include being the companies Project Lead at the Prairie Island Nuclear Generating Plant. Responsibilities as Project Lead include project scoping, work scheduling, project accounting, management of project personnel, and primary interface contact for the client. Additional non-technical activities include IT coordination and providing training to engineering and office staff.

**Engineer Level II, 2002 – 2006**

**Advent Engineering Services**

Responsibilities included performing engineering evaluations, developing calculations, and originating licensing basis document changes in support of fire protection systems and environmental qualification programs at nuclear power plants. Assisted in resolution of EQ condition reports identified at Davis-Besse during the boric acid release event extended outage.

Additional responsibilities included developing traffic engineering analysis and simulations to determine emergency evacuation time estimates for nuclear power facilities. Non-technical / engineering activities include project scheduling and IT coordination.

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**PREVIOUS EXPERIENCE**

**Graduate Student Research Assistant, 2000 – 2002**

**Martin Research Group, University of Michigan**

Performed molecular dynamics simulation and modeling. Used molecule modeling, electron diffraction, and X-ray diffraction to analyze and characterize poly-phenylenebenzobisoxazole (PBO). Also studied rubber toughening of nitro-cellulose and acrylic resins, as well as the structural characterization of novel crystal structure using modeling, transmission electron microscopy, and electron diffraction.

**Contractor, 1999 – 2000**

**Air Force Research Labs W.P.A.F.B.**

Performed polymer morphology - microstructure characterization using real-time microscopy and polymerization reaction characterization techniques. Also performed polymer synthesis reactions.

**Undergraduate Researcher, 1999 – 2000**

**Beaucage Research Group, University of Cincinnati**

Evaluated light scattering and reaction characterization of liquid crystalline materials.

**Co-Op and Part-time, 1997 – 1999**

**Fusite Division of Emerson Electric Company**

Performed project management duties such as organization of personnel and technical report writing, as well as materials testing. Other specific skills gained include formulation and processing of glass, development of brazing techniques for metallurgical experimentation, and microstructure analysis using electron and optical microscopy.

**PROFESSIONAL AFFILIATIONS**

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Institute of Electrical and Electronic Engineers (IEEE), Member (2008-Present)  
IEEE Nuclear Power Engineering Committee (NPEC), Alternate Member (2006-Present)  
IEEE NPEC Subcommittee 6 on Safety related Systems, Member (2007-Present)  
IEEE NPEC Working Group 6.1 on Accident Monitoring Instrumentation (IEEE Std 497), Working Group Chairman (2009-Present), Working Group Member (2006-Present)  
American Nuclear Society (ANS), Member (2006-2008),  
ANS Michigan Section, Executive Committee Member (2005-2009), Finance Committee Chair (2005-2008), Section Member (2006-present)  
2nd International Joint Topical Meeting on Emergency Preparedness & Response and Robotic & Remote Systems, Technical Program Committee Member (2008)  
American Physical Society (APS), Member (past)

**PUBLICATIONS AND PRESENTATIONS**

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**Industry Standards**

IEEE Std 497-2010, *Standard for Accident Monitoring Instrumentation for Nuclear Power Generating Stations*, co-authored with IEEE/PES/NPEC WG-6.1

**Peer Reviewed Publications**

Hostetter, G.M., Horvath, D.A., "Transition Temperature Considerations When Extrapolating Safety-Related Equipment Post-Accident Operating Times", *IEEE Transactions on Nuclear Science*, **51**(5), 2347, (2004).  
Hostetter, G.M., "Molecular Modeling of the Structural Evolution in Poly(paraphenylene benzobisoxazole) (PBO) Fibers" [Master's Thesis], Ann Arbor (MI): University of Michigan; 2002.

**Conference Presentations**

Hostetter, G.M., Horvath, D.A., "Accident Monitoring During Severe Accidents", *Proceedings of the 9th International Conference on Nuclear Options in Countries with Small and Medium Electricity Grids*, June 3-6, 2012, Zadar, Croatia  
Horvath, D.A., Hostetter, G.M., "Use of Micro-Void Content Growth Rates to Validate and Dd Value to Electrical Insulation Tan-Delta Aging Testing", *Proceedings of the 9th International Conference on Nuclear Options in Countries with Small and Medium Electricity Grids*, June 3-6, 2012, Zadar, Croatia  
Worblewski, N., Horvath, D.A., Hostetter, G.M., Seamans, S., "Unexpected Anomaly Discovered During Qualification Testing of Teflon (PTFE) in Nuclear Sealing Application", *Proceedings of the 9th International Conference on Nuclear Options in Countries with Small and Medium Electricity Grids*, June 3-6, 2012, Zadar, Croatia

- Steinman, R.L., Hostetter, G.M., "Evacuation Time Estimate Analysis for the Fermi 2 Emergency Planning Zone", *ANS 2004 Annual Meeting Transactions*, June 13-17, 2004, Pittsburgh, PA.
- Hostetter, G.M., Martin, D.C., "Molecular Modeling of Structural Evolution in PBO Fibers" *Bull. Am. Phys. Soc.*, **47**(1), 197, (2002).
- Hostetter, G.M., Martin, D.C., "Molecular Modeling of Poly-p-phenylenebenzobisoxazole (PBO) / Water / Phosphoric Acid Ternary Phase Diagram", *The University of Michigan Macromolecular Science and Engineering Symposium*, 2001.
- Hostetter, G.M., Drummy, L., Vodak, D., Yaghi, O., Martin, D.C., "High Resolution Electron Microscopy of Triazine-Tribenzonitrile Organic Frameworks", *ISMANAM 2001* (International Symposium on Metastable, Mechanically Alloyed and Nanocrystalline Materials), 2001.
- Hostetter, G.M., Beaucage, G., Farmer, B.L., Bunning, T.J., "Reaction - Induced Phase Separation of Polymer / LC Blends", ANTEC Preprints: *Proceedings of the Society of Plastics Engineering*, **58**(3), 3808, (2000).
- Hostetter, G.M., Beaucage, G., Farmer, B.L., Bunning, T.J., "Morphological Investigation of Two-Phase LC/Polymer Films Formed via Reaction-induced Phase Separation", *Bull. Am. Phys. Soc.*, **45**(1), 569, (2000).
- Hostetter, G.M., Beaucage, G., Farmer, B.L., Bunning, T.J., "Phase Separation Kinetics and Structure of Reaction-Induced Polymer Dispersed Liquid Crystal Films", *ACS Central Regional Meeting*, ACS (Amer. Chemical Soc.), 2000.

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## **EXPERIENCE SUMMARY**

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Norbert Wroblewski has four years of experience in the nuclear industry in the areas of mechanical hardware design, engineering calculations, Quality Assurance and outage support. His mechanical design engineering experience includes reactor model construction, repair concept development and modeling, drafting design drawings for manufacturing, design reviews, applying design changes to drawings and documents, and drafting of installation and inspection specifications. Engineering support experience includes preparing calculations, specifications, procedures, and testing plans. Outage support experience includes review of in-vessel video inspection footage for interferences, and performing time sensitive design changes to expedite outage closure. Work on QA has included the standardization of interference analysis in an Engineering Procedure and the development and implementation of a QA project instruction manual.

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## **EDUCATION**

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2007 MS, Mechanical Engineering, University of Michigan  
2006 BS, Mechanical Engineering, Northwestern University

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## **REGISTRATIONS/CERTIFICATIONS**

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Completed Mechanical Design Fundamentals (GEH, 2009)  
Completed BWR Refueling Floor Training (GEH, 2009)

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## **CORPORATION PROJECT EXPERIENCE**

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### **Engineer Level II, 2010 to present Tetra Tech Advent, Ann Arbor, MI**

Currently providing support for the cataloging and closure of the NRC's Request for Additional Information during the licensing of the US-APWR. Past responsibilities have included detailed review of drawings and specifications for inputs to room heat up and HELB calculations, detailed review of published component testing results for inputs into aging tests for equipment qualification, drafting of test procedures, preparing of calculations and reports, providing Quality Assurance support to the US-APWR Engineering Procurement drafting project, and providing support for the drafting and editing of EOPs and ERGs for the US-APWR.

### **Hardware Design Engineer, 2008 to 2010 GE-Hitachi (GEH), Wilmington, NC**

Designed conceptual repair hardware for BWR nuclear reactors using Autodesk Inventor, created detailed part and assembly models and drawings for reference and for manufacturing, drafted installation and inspection specifications, worked closely with tooling and analysis groups to ensure feasibility of repair installation and compliance with NRC regulations, and provided engineering support during hardware installation during refueling outages. Duties also included participation in design challenges and reviews, peer review of engineering designs and documents, drafting of engineering procedures, and streamlining engineering processes. Accomplishments include completion of Mechanical Design Fundamentals coursework, three accepted Intellectual Property submissions, a successfully employed time/cost savings method, and the successful installation of both first-of-a-kind hardware designs and several routine repair hardware designs.

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## **PROFESSIONAL AFFILIATIONS**

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Member, American Nuclear Society (ANS), Michigan Chapter

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## **PUBLICATIONS AND PATENT APPLICATIONS**

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Tsuruga Dryer Repair/Mitigation Method Concepts, GEHI-0000-0109-7593 (GEH Proprietary Document)  
Duane Arnold Feedwater Sparger Cold Spring Restoration Repair, Technical Safety Evaluation Report,

GEHI-0000-0086-0575 (GEH Proprietary Document)

KKM Summary Description of the Shroud Head and Separator Modifications, GEHI-0000-0104-7027  
(GEH Proprietary Document)

US Patent Application No. 20100246744 - Apparatus & System for Dampening the Vibration  
Experienced by an Object

US Patent Application No. 20110135049 - Apparatus & System for Restricting the Movement of a  
Component

USPTO no. 12/850218 - Method and Apparatus for a BWR Jet Pump Support System

**Brian J. Zapata, Ph.D., P.E., S.E.**  
Project Manager

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### **Education**

**The University of North Carolina at Charlotte**, Charlotte, NC

Ph.D., Infrastructure and Environmental Systems, May 2012

*Dissertation:* "Full-Scale Testing and Numerical Modeling of a Multistory Masonry Structure Subjected to Internal Blast Loading"

M.S. Civil Engineering, 2007

B.S., Civil Engineering, 2003

*Area of Concentration:* Structural Engineering

### **Licensures**

Professional Engineer - North Carolina, South Carolina, New York

Structural Engineer - Hawaii

### **Professional Experience**

Dr. Zapata has nine years of professional experience in structural, blast, and forensic engineering. He currently serves as a Project Manager responsible for overseeing various structural and forensic projects for government and private sector clients. He has experience in the analysis, design, and renovation of commercial and industrial structures, including office buildings, warehouse and distribution centers, manufacturing facilities, fossil power facilities, and nuclear power facilities. His experience encompasses the major structural foundation and framing systems including reinforced concrete, structural steel, masonry, and timber. In addition, Dr. Zapata possesses expertise in the design of blast resistant structures and structural dynamics, performing design work for private and public sector projects. Dr. Zapata also has experience in explosives and blast testing, finite element analysis, materials investigations, building condition surveys, nondestructive testing, and structural instrumentation.

### **Project Experience**

**Lead Structural Engineer. Containment Restoration Proposal Assessment, Crystal River Unit 3, Crystal River, Florida.** Dr. Zapata coordinated a diverse team of specialists including structural engineers, finite element modelers, and construction industry experts. Provided direction on project tasks, conducted site visits to CR3, coordinated the technical component of the assessment effort and wrote and assembled an interim and final report. Delivered project on a very aggressive schedule. Provided critical analysis on a first of a kind project. (2012)

**Project Manager. Stacking Tower Lift, Belews Creek Steam Station, Belews Creek, NC.**

Dr. Zapata performed the engineering design necessary to lift the Belews Creek Steam Station radial stacking tower off of its foundations. This permitted the center pivot and powered trucks to be replaced. Work included a condition assessment, repair recommendations, and modifications to the structure to permit the 125 ton lift. (2012)

**Project Manager. Crane Uprating Analysis, Belews Creek Steam Station, Belews Creek, NC.** Dr. Zapata performed a structural analysis to confirm the capacity of the overhead crane in the Crusher House. Engineering included a structural model of the runway beams and supporting structure and recommendations on retrofits to increase the structure's capacity. (2012)

**Project Manager. FGD Primary Classifier Overflow Tank Personnel Platforms, Belews Creek Steam Station, Belews Creek, NC.** Dr. Zapata designed new steel framing to support personnel platforms over the FGD Primary Classifier Overflow Tanks for Belews Creek Units #1 and #2. (2012)

**Project Manager. UNC System Campuses Pre-Disaster Mitigation Planning, UNCC, Charlotte, NC.** Dr. Zapata provided consulting services on subcontract to UNCC as part of a pre-disaster mitigation planning program for the UNC University System under contract from FEMA. Dr. Zapata directed development of screening tools and methodologies to rank the vulnerability of University assets to damage from natural disasters. Using the prioritized facilities lists, Dr. Zapata performed on-site surveys at every UNC System campus to identify specific vulnerabilities and make recommendations for mitigating actions. (2008-2011)

**Project Engineer. Physical Security Analysis, New Bank of America Office Tower, Charlotte, NC.** Dr. Zapata performed a nonlinear progressive collapse analysis according to established Unified Facility Criteria guidance. Dr. Zapata also designed blast resistant walls and appurtenances for the facility's mailroom. The project was able to provide the client with a realistic assessment of the progressive collapse resistance of the proposed structure.

**Test Director. RFID as Explosive Triggering Mechanism, Charlotte, NC.** Dr. Zapata designed and coordinated a full scale demonstration of the fact that active RFID equipment can be used to trigger explosive devices. Dr. Zapata oversaw construction of the prototype triggering device, supervised the setup of the field test, and provided photography, video, and documentation of the test for the client.

**Project Engineer. Trichloroethylene Forensic Investigation, Tinker AFB, OK.** Dr. Zapata assisted in developing and calibrating a groundwater model to analyze subsurface transport of chlorinated solvents at an active Air Force base. As part of the work, Dr. Zapata wrote software to externally couple PEST and FEFLOW to permit the estimation of in situ conductivities. Dr. Zapata also wrote software to analyze well pump test data to estimate soil conductivity experimentally. (2009)

**Project Engineer. Analysis of Concrete Tunnel, Buck Steam Station, Rowan County, NC.** Dr. Zapata performed calculations to determine if an existing reinforced concrete reclaim tunnel could accommodate an opening for a new feeder system. (2009)

**Project Engineer. Design of Reclaim Tunnel System, Tyrell, NC.** Dr. Zapata assisted in the design of a new reclaim tunnel system for Duke Energy's Marshall Steam Station. The project required design of new concrete structures and the structural retrofit of an existing concrete structure to accommodate conveyor system openings. The project also included numerous steel platforms supporting vibrating machinery. (2009)

**Project Manager. Errazuriz Landfill Gas Flare, United Nations, Santiago, Chile.** Dr. Zapata managed a project based out of ZAPATA's Santiago office in which a small landfill gas flare was installed at a Santiago landfill. (2008)

**Project Engineer. Parking Garage Evaluations, CB Richard Ellis, Dallas, TX.** Dr. Zapata assisted in performing visual condition assessments of two existing, multistory parking structures, and provided recommendations for repairs. (2008)



**Project Engineer. Roof Loading Analysis, Charlotte NC.** Dr. Zapata evaluated the structural capacity of an existing floor system at an industrial facility. The on-site survey and analysis identified numerous flaws in the construction and design of the flooring system. (2008)

**Project Engineer. Feasibility of Bulldozer Impact Protection System, Marshall Steam Station, Terrell NC.** Dr. Zapata evaluated the feasibility of adding a concrete encasement to the existing stacking towers at Marshall Steam Station. The stacking towers were subject to impact by bulldozer and required protection. The analysis was performed to verify the structural capacity of the existing stacking tower system to support the added loads of a concrete encasement. The project required extensive finite element modeling using 2D and 3D elements to determine structural capacity. (2008)

**Project Engineer. Analysis of Highly Deformed Corrugated Metal Pipe Tunnel, Marshall Steam Station, Terrell NC.** Dr. Zapata evaluated the capacity of a highly deformed corrugated metal pipe tunnel. The calculations were used to determine permissible loads on the ground surface and determine the factor of safety. In addition, Dr. Zapata conducted regular measurements of the deformation to identify any temporal trends in an effort to identify the potential for collapse. (2008)

**Project Engineer. CPCC Façade Upgrade, Charlotte NC.** Dr. Zapata evaluated the structural capacity of the existing student and faculty parking decks to determine if they could sustain the load of new cladding. Dr. Zapata also designed a footing for the new stairwell tower and performed finite element soil structure interaction modeling to determine tower deflection under wind and seismic events. (2008)

**Project Engineer. Spreader Beam Matrix Evaluation, Charlotte NC.** Dr. Zapata evaluated the structural capacity of the existing spreader beam matrix in Bank of America Corporate Center's chiller plant. Dr. Zapata developed drawings showing the existing beam layout, identified the capacity of the system as it exists, and designed an expansion for the spreader beam matrix to permit lifting heavy chiller motors. (2008)

**Project Engineer. Parking Deck Collapse, Charlotte NC.** Dr. Zapata assisted in the design of temporary structural shoring for recovery operations at the collapse site. Dr. Zapata provided on-site supervision of the rigging and crane crew to prevent further structural damage and to provide documentation of forensic evidence. Dr. Zapata performed analyses and was able to identify the cause of the collapse. These findings were documented in a written report submitted to the County as a requirement for reconstruction of the structure. (2008)

**Project Engineer. Charleston Square Apartments, Auburn AL.** Dr. Zapata performed design calculations for multiple four story timber framed apartment buildings and designed the lateral force resisting system. The project required close coordination with the architect as the architectural design of the structure was being updated concurrently with the structural design process. (2008)

**Project Engineer. Analysis of Overtime HVAC Costs, Charlotte NC.** Dr. Zapata performed an analysis of the water cooled chiller system at One Independence Center to develop an hourly cost for billing tenants requesting overtime HVAC. Dr. Zapata also assisted in identifying and troubleshooting errors in the facility's BTU metering system. The project resulted in considerable savings for the property owner and accurate billing for the tenant. (2008)

**Project Engineer. Parking Garage Evaluation and Repairs, Bank of America Plaza, Charlotte, NC.** Dr. Zapata performed a structural evaluation of an existing multi-story parking

garage, and provided recommendations for repairs. Dr. Zapata also provided field supervision of the structural repairs while coordinating and maintaining garage operations. (2007)

**Project Engineer. Physical Security Analysis, New Bank of America Office Tower, Charlotte, NC.** Dr. Zapata performed a nonlinear progressive collapse analysis according to established Unified Facility Criteria guidance. Dr. Zapata also designed blast resistant walls and appurtenances for the facility's mailroom. The project was able to provide the client with a realistic assessment of the progressive collapse resistance of the proposed structure. (2007)

**Project Engineer. Analysis of Concrete Plate Floor Capacity, Charlotte, NC.** Dr. Zapata performed an analysis of the concrete flat plate floor system at a Bellsouth communication center in preparation for increased loading from high capacity batteries. (2007)

**Project Engineer. Analysis of Soil Vapor Migration, Charlotte, NC.** Dr. Zapata programmed a one dimensional finite element program to analyze transient soil vapor migration. The model included the novel feature of barometric pumping to model the enhanced surface fluxes created by changes in barometric pressure. (2006)

**Project Engineer. ITC Garage Wind Panels, Charlotte, NC. Trammell Crow.** Dr. Zapata performed finite element modeling of connections to support a large decorative wind panel system to cover the east facade of the International Trade Center parking garage. (2005)

**Project Engineer. Building Settlement Investigation and Repairs, Matthews, NC. Presbyterian Hospital Matthews.** Dr. Zapata designed and installed a data acquisition system to monitor basement walls for excessive movement under the force of pressure grouting on the soil side of the basement wall. (2001)

### **Research Experience**

**Blast Testing for Code Calibration. UNC Charlotte.** Dr. Zapata performed data acquisition, data analysis, and hydrocode modeling for a project designed to study the performance of several high explosive compounds. The project required over six days of blast testing in the field during which overpressure measurements were made for several types of high explosive. These pressure measurements were then used to calibrate airblast models for use in experiment design.

**Evaluation of NCDOT Bridge Analysis Procedure.** The project was designed to evaluate current NC Department of Transportation (NCDOT) bridge load rating procedures. This project included the in-situ load testing of seven bridges in Charlotte, NC, including the first composite bridge deck in the Carolinas. Dr. Zapata designed the sensor configuration, assisted in installing sensors, and programmed the data acquisition system.

**Dynamic Behavior of Curtain Walls.** The project was designed to study the low amplitude dynamic behavior of glass curtain walls. Information gathered during the project was later used to validate a finite element model. Dr. Zapata installed dynamic sensors, programmed the data acquisition system, and performed data analysis.

**Strengthening of Masonry Shear Walls.** The project was designed to investigate the possibility of using fiber reinforced polymer (FRP) systems to increase the capacity of masonry shear walls in low rise buildings. The experiments yielded several commercially feasible methods which significantly enhanced shear capacity. The results of this test helped secure funding from the National Science Foundation to perform full scale tests of the retrofit methods. The full scale tests were performed on one-story structures built in the lab and retrofitted with

FRP. The full scale testing validated the results obtained on component level tests. Dr. Zapata set up and programmed the servo-hydraulic piston system, specified instrumentation, and programmed the data acquisition system.

**Quasi-static Load Testing of Curtain Walls.** This project tested full-scale curtain wall systems to failure. The information has been used to generate resistance functions which will be employed in future non-linear analyses. Dr. Zapata set up and programmed the servo-hydraulic piston system, installed sensors, and programmed the data acquisition system. Dr. Zapata also compared the static elastic deflection of the curtain walls to a finite element model developed for his master's project.

**Structural Properties of Prefabricated Structural Panels.** This project was designed to quantify the shear, flexural, and axial capacity of prefabricated structural panels. Dr. Zapata set up and programmed the servo-hydraulic piston system, installed instrumentation, and programmed the data acquisition system.

**Strengthening of Spandrel Beams in Torsion.** The project was designed to study the optimal method for wrapping reinforced concrete spandrel beams with fiber reinforced polymers (FRP) to enhance torsional capacity. Dr. Zapata assisted in construction of specimens, installation of FRP, and installation of strain gages.

**Shear Strengthening of Existing Beams in a Hospital.** This project validated a retrofit technique for enhancing the shear capacity of concrete beams in an existing hospital. Dr. Zapata installed instrumentation and programmed the data acquisition system.

**Evaluation of Steel Tension Connection for Power Plant.** This project validated a tension connection designed beyond the limits of traditional AISC guidance for use in a power plant. Dr. Zapata installed instrumentation and programmed the data acquisition system.

#### Dissertation Research

**University of North Carolina at Charlotte, Charlotte, NC**

***Graduate Student, 2003-2005***

This National Science Foundation funded project studied both the blast loading and the dynamic response of a coal fired power plant subjected to blast loads. The experimental program included the detonation of three explosive devices inside the boiler house prior to its demolition. The structure was instrumented with pressure transducers, accelerometers, and strain gages. A variety of analytical methods were tested to compare analytical predictions of deflection and blast pressures to those measured during the experiments.

#### Masters Degree Research

**University of North Carolina at Charlotte, Charlotte, NC**

***Graduate Student, 2003-2005***

Participated in project designed to study the dynamic behavior of curtain wall systems subjected to low-level transient loads. Built linear elastic finite element model using ANSYS and calibrated the model using experimental data. The software accurately modeled the curtain wall system and is currently being used to study curtain wall systems subjected to low-level blast loads.

#### Internships

**Sandia National Laboratories, Albuquerque, NM**

***Internship, 2006***

Worked as an intern at Sandia National Laboratories for the Thermal and Reactive Processes Group. Performed CTH simulations of airblasts producing comparisons of CTH to empirical airblast data for a variety of charge sizes and standoffs. Performed calculations to determine if CTH JWL equation of state parameters were self consistent with regard to energy and CJ state parameters.

**PUBLICATIONS**

Weggel, David C., Brian J. Zapata, and Michael J. Kiefer. "Properties and Dynamic Behavior of Glass Curtain Walls with Split Screw Spline Mullions." *Journal of Structural Engineering* Vol. 133, No 10, 2007.

Weggel, David C. and Brian J. Zapata. "Laminated Glass Curtain Walls and Laminated Glass Lites Subjected to Low-Level Blast Loading." *Journal of Structural Engineering* Vol. 134, No. 3, 2008.

Zapata, Brian J. and David C. Weggel. "Blast Resistant Curtain Wall Subjected to Low-Level Blast Loading." *Proceedings of the 25th International Modal Analysis Conference*. February 19-22, 2007 Orlando, Florida.

Zapata, Brian J. and David C. Weggel. "Collapse Study of an Unreinforced Masonry Bearing Wall Building Subjected to Internal Blast Loading." *Journal of the Performance of Constructed Facilities* Vol. 22, No. 2, 2008.

Zapata, B.J. and D.C. Weggel. "Computational Airblast Modeling of Commercial Explosives." *Tenth International Conference on Structures Under Shock and Impact*. May 14-16, 2008, Algarve, Portugal.

**SKILLS**

*Computer:* CTH, ANSYS, LSDYNA, PLAXIS, Matlab, Maple, MathCAD, AutoCAD, Microsoft Word, Excel, PowerPoint, Adobe Photoshop, Visio, UNIX/Linux/Windows, HP VEE, BenchLink Data Logger, SAP 2000, RISA

*General:* Structural Design, Finite Element Analysis, Experiment Design, High Speed Data Acquisition, Structural Dynamics, Data Analysis, Explosives

**Clinton D. Robertson, P.E., LEED AP**  
Project Manager

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**Education**

**The University of Tennessee at Chattanooga**, Chattanooga, TN  
BSE, Structural Engineering, University of Tennessee at Chattanooga, May 1994

**Special Training**

Building Codes in North Carolina, Lorman Education Services, 2006  
LEED for New Construction and Major Renovations V2.2, Technical Review Workshop  
Charlotte – Mecklenburg Certified Site Inspector Training Course  
Forensic Engineering, Professional Development Program, UNC Charlotte  
OSHA 10-Hour Construction Industry Safety & Health

**Licensure**

Professional Engineer, 2006, North Carolina, No. 032084  
Professional Engineer, 2006, South Carolina, No. 25410  
Professional Engineer, 2007, Tennessee, No. 109013  
Professional Engineer, 2008, Virginia, No. 044180  
Professional Engineer, 2011, Georgia, No. 036436  
Professional Engineer, 2011, Florida, No. 73531  
Professional Engineer, 2012, Kentucky, No. 28840

**Professional Affiliations and Honors**

American Society of Civil Engineers, 2004 – Present  
Structural Engineers Association of North Carolina, 2009 Treasurer, 2010 & 2011 President

**Professional Experience**

Mr. Robertson has more than nine years of professional experience in civil, structural and forensic engineering. He also has over eight years of team and project management experience. He currently serves as a Structural Engineer responsible for overseeing various structural and forensic projects for government and private sector clients. He has extensive experience in the design and renovation of commercial, residential, and industrial structures, including hotels, multi-story residential buildings, office buildings, hospitals, gymnasiums, warehouse and distribution centers and manufacturing facilities. His experience encompasses the major structural foundation and framing systems including reinforced concrete, structural steel, masonry, and timber. In addition to his structural design experience, Mr. Robertson has experience in civil site design, including grading and erosion control plans, sewer and storm water design, plumbing, and mechanical and electrical design for small commercial construction.

**Project Experience**

**Structural Engineer. Marshall Steam Station Reclaim Tunnel, Terrell, NC. Duke Energy Carolinas, LLC. (Project #1232).** Mr. Robertson performed the structural design for the analysis and design of a new reclaim tunnel to replace tunnel #1 with cast-in-place concrete coal vaults and precast concrete tunnels on concrete auger piles and grade beams. The structural design of the coal vaults and conveyor tunnels required the analysis of coal piles and D11 bulldozer surcharge loads. Mr. Robertson also reviewed and oversaw the production of

construction drawings and specifications, reviewed construction submittals, responded to requests for information and provided other construction administration support. Mr. Robertson managed two team members for the project.

**Structural Engineer. FORSCOM HQ Review, Fort Bragg, NC. Fort Bragg, DPW.**

**(Project #1273).** Mr. Robertson performed the review of the structural engineering design of the new Combined FORSCOM/USARC Headquarters at Fort Bragg consisting of a 483,000 sf Headquarters building, a 53,000 sf Server Farm, 9,500 sf of IT services and control areas, and a 27,500 sf Disaster Recovery Center. The review included checks of plans, specifications, and structural calculations. Regular responses to design submittals were submitted in a timely manner. ZAPATA was the quality assurance team for the end client.

**Structural Engineer. FORSCOM/USARC Annex at the Old Bowley School, Fort Bragg, NC. Fort Bragg, DPW. (Project #1291).**

Mr. Robertson provided structural design and analysis to support the renovation of the nine-building 54,000 sf Old Bowley School facility that converted classroom spaces into cubicle workspaces. Mr. Robertson provided structural support for the renovation of common space into conference rooms (one SIPR), training rooms, storage space and a large auditorium. The project is LEED-Silver. Mr. Robertson managed one team member for the project.

**Structural Engineer. JSOMTC Medical Training Building. Fort Bragg, NC, DPW.**

**(Project #1342).** Mr. Robertson provided structural design for the design and construction of a new training facility at Fort Bragg, by providing the design team with the design of the foundation for the pre-engineered metal building, as well as supervised and reviewed the construction drawings. Specifications were produced that provided guidelines for the bidding and construction of the building's structural systems. Direct coordination with users, as well as review meetings, were conducted to maintain the interface with the client. Review meetings were held at kick-off, 65% and 95% with stakeholders from the Post, including DWQ, Environmental and DPW. To ensure quality all deliverables were peer reviewed and then reviewed by management and senior management in accordance with engineering division protocols. The project site is located in a high security area. This resulted in several constraints on location and placement of the structure. The structure was ultimately located so that it was further constrained by existing utilities, facility drainage ditch and the fence line. By working with the end user we were able to satisfactorily accommodate these challenges. Mr. Robertson managed one team member for this project. (12/2009 – 6/2010)

**Structural Engineer. EPRI Test Stand Evaluations. EPRI. (Project #1296).** Mr. Robertson led a team of structural engineers and technicians to assess the steel structural support stands that support heavy steel test samples. Each support stand had to be measured, dimensioned and drawn in CAD software. The type of steel the stands were constructed of had to be determined. An assessment of the support capacity of the stand was then determined. The final deliverable was CAD drawings of the stand and a load capacity certification for each stand. Initial meeting and final reports on each test stand were provided. Mr. Robertson managed two team members for this project. (2009)

**Structural Engineer/Project Manager. Georgia Pacific – Rock Hill, Sterling and Athens.**

**(Project #1238).** Mr. Robertson performed site visits and visual assessment of the wood treatment drip pads of the plants located in Rock Hill, SC, Sterling, GA and Athens, AL. The assessment was to determine if the wood treatment facilities drip pads met the EPA regulations 40 CFR 265. Mr. Robertson assessed the entire slab taking photographs and notes for each of the three facilities. He produced a report outlining the repairs to be made and methods of performance as well as suggested maintenance requirements for each of the facilities

to remain in compliance with EPA requirements. Meetings were held with Plant Managers at each site visit and a final report with recommendations for repair and maintenance was provided. Ensured quality by providing sufficient time to assess facility and sending all reports to management for review and edit before sending to client. Mr. Robertson managed one team member for this project. (2008 – 2012)

**Project Manager/Structural Engineer. Hefner VAMC Bldg. 42 LTC and Hospice, Salisbury, NC (1341). RPA Design.** Mr. Robertson performed the project management and structural design for a 12 bed hospice addition to the Long Term Care building. The addition is a separate single story cold-formed steel framed building with separate entrance. In addition to the Hospice building, Mr. Robertson also provided consulting services to the renovation of areas in the main Long Term Care building including the conversion of patient rooms into a Hotel and the removal of steel members in the atrium area to open it up and make it more aesthetically pleasing. Mr. Robertson managed an associate engineer and drafting technician to complete the structural design and contract documents ahead of schedule. He attended planning meetings with the architect and client, as well as weekly conference calls, periodic coordination meetings and email and phone calls as necessary. The project was designed to meet local building codes although it is a Government/VA project. To ensure quality internal review of engineering design and construction documents was performed by the Engineering Manager. (August 2009 – March 2010)

**Project Manager, Structural Engineer. Department of Veterans Affairs, Consolidated Patient Account Center; 2500 S Lakemont Ave, Orlando, FL; Structural Services (Project #1328).** Mr. Robertson performed the structural engineering design and oversaw the production of construction documents for the addition of a three story elevator tower addition to the existing precast concrete moment frame building. Mr. Robertson also provided structural guidance and consultation to the renovation of the third floor of the existing precast concrete framed facility. Determination of the building structural systems was critical in providing advice to the design team on what could and could not be demolished. The structural system was a composite construction of precast pre-stressed concrete beams and joists and poured-in-place concrete columns, slabs, and beams. This was determined by reviewing the existing structural drawings and by visually inspecting the structure. Mr. Robertson managed two team members for the project. Coordination with the client included conference calls with the design team held every other week; and meetings with the design architects were conducted as needed. To ensure quality, the structural design was reviewed at every stage by the engineer of record. (2009)

**Structural Engineer. Birkdale Village Parking Deck Assessments; Huntersville, NC. Developers Diversified Realty (Project #1288).** Mr. Robertson performed the structural condition assessment of four two-story precast concrete parking decks at Birkdale Village in Huntersville, NC. The assessment included extensive site observations and photographic documentation. A final report was provided for each parking structure categorizing the structural distresses as needing immediate, near future, or planned maintenance repairs. Mr. Robertson was responsible for managing CAB of the Carolinas, concrete repair subcontractors. Client interface included keeping the property manager informed on progress of project on a regular basis. All site visits were required to be performed during non-peak hours. (09/2008 – 06/2009)

**Structural Engineer. MOB Support Facility – Fort Gordon, GA. CDA Architects (Project #1273).** Mr. Robertson performed structural design and analysis for a truck load-out mobilization unit at Fort Gordon, GA, producing foundation design and permit drawings. The project included a three-bay enclosed pallet and load-out building with offices, a new roadway, parking, and storage. The project re-used existing scales with upgraded monitoring and controls.

The project was designed for and achieved LEED Silver accreditation. Mr. Robertson was responsible for one direct employee. (2008)

**Structural Engineer. UNC System Campuses FEMA Inspection, UNC Charlotte (Project #1243).** Mr. Robertson provided consulting services on subcontract to UNCC as part of a pre-disaster mitigation planning program for the UNC System under contract from FEMA. Using a prioritized facilities list, Mr. Robertson performed on-site surveys at every UNC System campus to identify specific vulnerabilities and make recommendations for mitigating actions. Client interface included coordination of on-site inspection and attending review meetings to coordinate results. Mr. Robertson was responsible for one direct employee. (2008)

**Structural Engineer. Forensic Analysis and Remedial Design Following Partial Collapse of Parking Deck, Charlotte, NC (Project #1265). CB Richard Ellis.** Mr. Robertson assisted in the forensic investigation and remedial design including the emergency response to the failure, emergency shoring design, assessment of the failure mechanism, and photographic documentation. The analysis included laboratory support for the metallurgical analysis and a weld inspection by certified welding inspectors. Mr. Robertson worked with precast/pre-stressed concrete contractors to provide a remedial design that corrected the failure mechanism and resolved other potential failure locations, proactive repairs, and general maintenance. Mr. Robertson was responsible for one direct employee. Regular site visits were required during construction to meet with the owner to discuss plans to repair the failure and provide responses to owner and contractor questions. Regular period reports of site visits were provided to the general contractor and owner's representative. A final report documenting the failure and the repairs was provided to the owner. (03/2008 – 09/2008)

**Structural Engineer/Project Manager. Structural Design of Charleston Place Apartments, Auburn, AL.** The Charleston Place student apartment project in Auburn, AL, included structural engineering for 11 buildings of two to four story structures with over 250,000 square feet of living space and an estimated construction cost of \$14,000,000. The wood framed structures used a combination of wood panel shear walls and steel framing. Mr. Robertson led a team of engineers, designers and drafters to produce the complex structural design ahead of schedule. (2008)

**Structural Engineer, Structural Analysis of Roof Structure. Triad Center, Greensboro, NC.** New condensing units were scheduled to be installed on the roof of the Triad Center in Greensboro, NC. Mr. Robertson was commissioned to analyze the roof structure of the existing building and determine if it can carry the additional load of the condensing units. A report was prepared with Mr. Robertson's professional opinion regarding the addition of new condensing units. (2008)

**Structural Engineer, Structural Assessment of Five Story Precast Parking Deck, Charlotte, NC.** Mr. Robertson performed a structural assessment of a five story precast parking deck located in Charlotte, NC. A report was written that documented all visual distresses in the concrete slab, precast concrete members and bolted and welded connections. The report provided the owner with a tool to classify the distress as needing immediate repair, near future repair or general maintenance repair. (2008)

**Structural Engineer, Preliminary Structural Design of Proposed Five Story Parking Deck, Central Piedmont Community College, Charlotte, NC.** Mr. Robertson performed a preliminary structural design of a proposed five story precast concrete parking deck for Central Piedmont Community College. The preliminary design assessed the loads on the structure and



the bearing loads of the proposed columns in order to assess the soil stress and bearing capacity. (2008)

**Structural Engineer, 4th Story Apartment Balcony Structural Assessment, Charlotte, NC.**

Mr. Robertson's expansive wood construction experience made him the perfect candidate to evaluate the structural failure of the 4th story balcony at an apartment complex in Charlotte, NC. It was determined that water intrusion had caused structural failure of the engineer lumber supporting the balcony. Mr. Robertson provided the owner with a solution to repair the structural failure along with a complete assessment report. (2008)

**Structural Engineer, Structural Design of Precast Stair Addition to Existing Parking Deck, Central Piedmont Community College, Charlotte, NC.**

Mr. Robertson performed structural design of an addition of two precast stairs to a five level parking garage. The design accounted for wind and seismic loads. The foundation was designed to prevent overturning do to wind and/or seismic loads. The construction drawings were provided to the client for permit. (2008)

**Structural Engineer, Intake Bridge Evaluation, Chester Metropolitan District, Fort Lawn, SC.**

Mr. Robertson lead a team of engineers to perform an assessment of the Intake Bridge at the clean water filter plant for the Chester Metropolitan District at Fort Lawn, SC. The project involved a visual assessment of the prestressed double tee concrete bridge and steel bents. A report describing the observations, the assessment, and the allowable load rating for the bridge was provided. (2008)

**Structural Engineer, Structural Analysis and Design of Sluice Gate Installation, Chester Metropolitan District, Fort Lawn, SC.**

Mr. Robertson performed structural analysis and design of a new sluice gate to be installed in the clean water filter plant for the Chester Metropolitan District at Fort Lawn, SC. The project involved strength analysis of the concrete flume, location of reinforcing steel using a pacometer in the top of the flume to be cut, the design of the sluice gate and field observations of the concrete cutting process. (2008)

**Structural Engineer, Structural Analysis of Plaster Cornice at Historic 16 S. Broad St., Charleston, SC.**

Mr. Robertson performed a site structural analysis and intrusive investigation the of the historic plaster cornice for the historic Wachovia Bank building in Charleston, SC. Mr. Robertson prepared a report describing the condition of the plaster cornice and required remedial action to preserve the historic plaster cornice. Mr. Robertson designed a repair and provided details to secure the cornice and prevent future damage by high winds or earthquake. (2008)

**Structural Engineer, Structural Analysis for 5th Street Jack and Bore Project, Bank of America Building, Charlotte, NC.**

Mr. Robertson performed structural analysis for the jack and bore project to connect the new Bank of America building with the International Trade Center in downtown Charlotte, NC. The project consisted of analyzing the effect of boring into the basement wall of the ITC building and designing a securing solution to bore through the shoring of the building being constructed. Mr. Robertson provide design details for boring through the shoring and the foundation wall of the ITC for use in the project drawings for the jack and bore. (2008)

**Structural Engineer, Structural Analysis of Spreader Beam Matrix, Bank of America Corporate Center, Charlotte, NC.**

Mr. Robertson was part of the team that performed structural analysis of a spreader beam matrix designed to carry the load of the chiller units for the Bank of America Corporate Center mechanical systems. The beams were analyzed to determine if they could carry the additional load of the new up-sized chiller units. The beams were

required to carry the load of the motors while maintenance was performed. A report with recommendations for revisions to the spreader beam matrix was provided to the client. (2008)

**Structural Engineer/Project Manager, Renovate Four Company Operations Buildings, Fort Bragg, NC.** Mr. Robertson lead a team of design professional consisting of architects, and civil, mechanical and electrical engineers to renovate four buildings originally constructed in 1999 for use as a storage facility. The expected use of the facility after renovation was a company operations facility for the Airborne 525th Battlefield Surveillance Brigade. The second floor of the four buildings was transformed from open storage to assembly and office space. The design team provided plans for renovation on an accelerated deliverable schedule that reduced the design time by 40%. (2008)

**Structural Engineer, Structural Evaluation of Building Façade, Wachovia Building, Columbia, NC.** Mr. Robertson performed a structural condition survey of a cracked precast concrete façade panel. The evaluation included an external and intrusive visual structural examination. Mr. Robertson oversaw and assisted in the removal and replacement of the interior finished in order to determine the cause of the façade distress. Mr. Robertson provided a report that included possible cause and recommendations for structural remediation. Mr. Robertson oversaw the repair construction of the distressed façade panel. (2008)

**Structural Engineer/Project Manager, Renovate 1935 Building for TV/Audio/Photography Studio, Fort Bragg, NC.** Mr. Robertson lead a team of design professionals consisting of architects, and civil, mechanical and electrical engineers to renovate a historic 1935 military facility. The original use of the facility was a “Mule Barn.” The expected use of the facility after renovation was a high-tech TV/Audio/Photography studio for use by the Directorate of Information Management. The design had to consider budget, technology, use, and historical significance. The team provided plans for renovation on schedule that were sensitive to need, budget, and historic relevance. (2008)

**Structural Engineer/Project Manager, Bank of America Corporate Center and Founders Hall Fall Protection for Window Washers and Exterior Building Maintenance Evaluation, Charlotte, NC.** Mr. Robertson headed up a team that evaluated the existing conditions of fall protection devices and equipment, compared it with current codes, regulations and standards, and provided CAD drawings documenting current conditions. A thorough report including recommendation for compliance with current codes, regulations, and standards was provided to the client. (2007)

**Structural Engineer, Structural Evaluation of 206 S. Church Street Parking Garage, Charlotte, NC.** Mr. Robertson performed a structural condition survey of a steel framed parking garage. The evaluation included a visual structural examination and revealed several deficiencies requiring remedial action. Mr. Robertson oversaw mapping of the distresses in CAD format for a report that including recommendations for structural remediation provided to the client. (2007)

**Structural Engineer/Project Manager, Residential Structural Design of Cedar Gables II – Duplex, Charlotte, NC.** Mr. Robertson performed the structural design of the 2,800 sf duplex and oversaw production of the construction documents. (2007)

**Structural Engineer, Structural Evaluation for Installation of New 2MW Generator, Gateway Village, Charlotte, NC.** Mr. Robertson performed a Structural Evaluation of the roof framing below the proposed location for the new 2 MW generator planned for installation on the

roof of the GWV 800 building. Mr. Robertson also oversaw non-destructive testing, x-raying and pacometer testing of concrete floor and roof piers. (2007)

**Structural Engineer, Independence Parking Deck Structural Condition Assessment, Central Piedmont Community College, Charlotte, NC.** Mr. Robertson performed a thorough structural condition survey of a precast concrete parking garage. The evaluation included a visual structural examination and revealed several deficiencies and construction defects requiring remedial action. A comprehensive report including recommendations for remediation was provided to the client. (2007)

**Structural Engineer, Structural Assessment of Bank of America Plaza Parking Garage, Charlotte, NC.** Mr. Robertson performed field observations of structural defects and/or defects and provided an opinion regarding required repairs. Mr. Robertson also assisted in the oversight of the repair construction. (2007)

**Structural Engineer, Structural Evaluation of Floor Capacity, BellSouth, Caldwell St., Charlotte, NC.** Mr. Robertson examined existing drawings and performed a structural evaluation using ADAPT-RC v5.00, of the 3rd floor of the BellSouth building on Caldwell St. in Charlotte, NC. The original structure was built in 1928 and added on to in 1953. An analysis of building codes for the construction years was required. (2007)

**Project Manager/Structural Engineer, Mayfair Townhomes Poured in Place Concrete Retaining Wall, Charlotte, NC.** Mr. Robertson engineered and managed the design of a 13' maximum height, 650' long poured-in-place concrete retaining wall. Unique soil conditions required the use of micro piles in specific locations. The wall retained a pond and roads. (2007)

**Structural Engineer, South Point Baptist Church Family Ministry Center, Belmont, NC.** Mr. Robertson engineered the structural systems and supervised the preparation of the structural drawings for a new multi-use facility. The 17,740 sf masonry building had eave heights of 25'3". (2007)

**SKILLS**

*Computer:* AutoCAD, Microsoft Word, Excel, PowerPoint, Adobe Photoshop, RISA

### Instructions for Completing Checklist

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

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1. Were the Five Safety Functions adequately represented in the SWEL 1 Selection? Y  N

Each safety function (reactor reactivity control, reactor coolant pressure control, reactor coolant inventory control, decay heat removal, containment function) is represented by at least 45 items on the list. The list includes 42 items that fall into all 5 safety function categories.

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

- a. Various Types of Systems? Y  N

Of the 27 different systems, 13 are represented by just 1 or 2 items in the list. Initially this was a concern, however, even 1 or 2 samples are enough to represent at least 10% of the available equipment for these systems. Therefore, it is believed that each system is adequately represented in the list.

- b. Major new and replacement equipment? Y  N

Seven (7) of the approximately 100 items on the walk-down list are new or replacement equipment. It is believed that older equipment is more likely to be found with degraded or insufficient anchorage, and therefore it is appropriate for the majority of the SWEL list to be comprised of older equipment.

- c. Various Types of Equipment? Y  N

Of the 22 different classes of equipment, all are represented by at least 1 item. Of those 22 classes, 11 are represented by 1 or 2 items but this sample size represents at least 10% of the available equipment for these classes. Therefore, each equipment type is adequately represented in the list.

- d. Various Environments? Y  N

During the development of the SSEL, components in 23 elevation / compartments were identified across 8 facilities (Control Building, Diesel Generator Building 1, Diesel Generator Building 2, Drywell, Intake Structure, Multi-purpose Facility, Reactor Building, and Yard) for potential walk-down. Of those 23 compartments, all but one (Drywell, 972 elevation) has a component selected for walk-down. Although drywell elevation 972' does not have a selected item for walk-down, 10 other drywell components are subject to walk-downs. The various environments at CNS are adequately represented in the list.

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

Twenty (20) of the approximately 100 components on the list have been previously included in the IPEEE program at CNS. Considering these items have been recently upgraded and are therefore more likely to be in acceptable condition, IPEEE enhanced equipment is adequately represented on the list.

- f. Were risk insights considered in the development of the SWEL 1? Y  N

Fifty four (54) of the approximately 100 components on the list are identified as Risk Significant. Risk significance was determined using a combination of CNS PRA insights and IPEEE results. Given that over half of the components subject to walk-down fall in the risk significant category, appropriate risk insights were adequately considered during the development of the list.

---

3. For SWEL 2

- a. Were spent fuel pool related items considered, and if applicable included in SWEL 2? Y  N

Spent fuel pool related items were considered while generating the list. CNS and the walk-down team determined that some components could be potentially crucial for operation despite not being classified seismic class 1; these items were included on the list.

- b. Was an appropriate justification documented for spent fuel pool related items not included in SWEL 2? Y  N

**Not Applicable** - Spent fuel pool related items were considered while generating the SWEL 2 list, as stated in 3.a.


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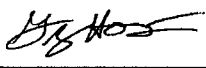
4. Provide any other comments related to the peer review of the SWELs

Additional reviews of SWEL 1 were performed concurrently with the walk-downs of components and area walks-bys. Very few components on the SWEL 1 list have been changed due to accessibility or schedule issues, but those that have been changed were reviewed and found acceptable.

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

Peer Reviewer #1: Norbert Wroblewski  DATE: 10/26/12

Peer Reviewer #2: Greg Hostetter  DATE: 10/26/12



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Attachment I  
Evaluation Client Comment Form



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**ENGINEERING EVALUATION CLIENT COMMENT FORM**

**EE No.:** 12-E18    **Rev:** 0    **EECN No.:** N/A    **Date:** 11/15/2012  
*(if applicable)*

This form is to provide an easy method to return owner review comments. Please return this form to the originator listed below. If you have no comments, please indicate as such.

**FROM:** Clinton Morris                      (860) 405-3079                      11/19/2012  
 Originator Name                              Phone Number                              Expected Return Date

**Reviewer:** Greg Hostetter (Tetra Tech)                      **No. of Pages:** 4  
 Printed Name

                      **Date:** 11/21/12  
 Signature

*(Signature signifies all comments have been resolved to your satisfaction)*

Item	Reviewer's Comment	Resolution
1.	Section 4.0 should not point to the "Peer Review" section of a summary of the personnel qualifications. It should include a summary or point to an Attachment.	Attachment A "Personnel Qualifications" was added to the report and Section 4.0 was changed to refer to Attachment A.
2.	Section 4.0: No one is marked as having responsibilities for the IPEEE Reviewer. Mitch's last name is spelled wrong. Peer Review also has requirements; should there be a column for this?	This statement was added to Section 4.0 after Table 4-1: "The IPEEE Reviewer column is left blank because no vulnerabilities were identified during the IPEEE program and therefore no reviews were required. For further discussion, see Section 8.0 "IPEEE Vulnerabilities Resolution Report."  Mitch's last name was corrected.  The Peer Review team members are listed in Section 9.0 "Peer Review". The following statement, included in Section 4.0, points the reader to the Peer Review section for a description of the Peer Review team. "For a list of the members on the Peer Review team, see Section 9.0: "Peer Review"."



ZNI Document Type: QAPD

### ENGINEERING EVALUATION CLIENT COMMENT FORM

Item	Reviewer's Comment	Resolution
3.	Section 5.0: Discuss the reason that SWEL items are being deferred (i.e. Inaccessible).	The following statement was added to section 5.7: "CNS was unable to perform walkdown inspections on 4160 Switchgear G, 480 Switchgear G, and Critical Distribution Panel 1B (CDP1B) due to plant conditions requiring these components to remain energized. These components cannot be de-energized with the plant in operation, and must be done during a unit outage. CNS performs buss outages for inspections on a rotational basis, and during RE27 (the current outage) no critical busses were scheduled for removal from service for inspection. Critical Buss G is scheduled for inspection during RE28 in the fall of 2014. This will allow inspection of all of the above items."
4.	Section 5.0: A detailed description of the criteria implemented during the SWEL 1 screening process is included per the guidance, however, the Base List 1 (equipment coming out of Screen #3) has not been provided.	<p>CNS is an A-46 plant in which their SSEL was derived using the same 5 criteria required in EPRI Report 1025286. The SSEL has a diverse and complete representation of the 5 criterion. The intent of the first 3 screens was to narrow the scope of eligible SSCs for plants that did not have an A-46 or IPEEE program.</p> <p>Page 8-2 EPRI Report 1025286 states: "The following two lists of equipment <u>should</u> be included in the submittal report from the equipment selection process shown in Figure 1-1 for "Sample of Required Items for the Five Safety Functions":</p> <ul style="list-style-type: none"> <li>• Base List 1. The equipment coming out of Screen #3 and entering Screen #4 in Figure 1-1 is defined as "Base List 1" This list of equipment <u>should</u> be included in the submittal report."</li> </ul> <p>As described above, the Base List 1 is the SSEL. This lengthy document could be resubmitted in this engineering evaluation, but Zachry elected to reference the SSEL instead. This should be acceptable since the EPRI document stated "should" and therefore not a requirement. If CNS desires to include the SSEL (Base List 1), this could be accomplished.</p>





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Item	Reviewer's Comment	Resolution
5.	Section 5.0: The same applies to SWEL 2, the screening process is described in detail, but Base List 2 is missing.	<p>Page 8-3 EPRI Report 1025286 states: The following three lists of equipment should be included in the submittal report from the equipment selection process shown in Figure 1-2 for "Spent Fuel Pool:</p> <ul style="list-style-type: none"> <li>• Related Items": Base List 2. The equipment coming out of Screen #2 and entering Screen #3 in Figure 1-2 is defined as "Base List 2." This list of equipment should be included in the submittal report.</li> <li>• Rapid Drain-Down. The equipment coming out of Screen #4 and entering the SWEL 2 bucket in Figure 1-2 is the equipment that could potentially cause the SFP to drain rapidly. This list of equipment should be included in the submittal report. The basis for determining which SSCs could or could not cause rapid drain-down should also be described in the submittal report.</li> <li>• SWEL 2. The equipment coming out of Screens #3 and #4 and entering the SWEL 2 bucket in Figure 1-2 is the second Seismic Walkdown Equipment List. This list of equipment along with a description of the distribution of the various sample selection attributes among the items on SWEL 2 should be included in the submittal report.</li> </ul> <p>Per Section 5.5.1 of the Zachry EE: "Only the Spent Fuel Pool concrete structure, metal liner, and spent fuel storage racks are designed as Seismic Class I. The remaining components and piping are Seismic Class IIS, therefore per EPRI Report 1025286, the CNS SFP screens out."</p> <p>Since the eligible SFP SSCs are not seismic, EPRI Screens 2 and 3 are also not applicable to the SWEL 2 as stated in the Zachry EE Sections 5.5.2 and 5.5.3 respectively.</p> <p>Therefore, no Base List 2 should have been created since the Screen 1 filtered out all SFP SSCs. The Rapid Drain down list from Screen 4 is the SWEL 2, which is included.</p>



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Item	Reviewer's Comment	Resolution
6.	Section 6.0: Provide a summary of the findings from the Seismic Walkdowns and Area Walk-Bys. Additionally include a table of identified potentially adverse seismic conditions.	Subsection 6.1 "Summary of Results" was added, describing the findings from the walkdowns and walk-bys. The table listing the CR's was moved from Section 7.0 into Section 6.1 and an additional column for the current status of the CR was added. Also move to section 6.1 was the description of the CR categories. An additional table was created that shows the number of CRs generated in each category.
7.	Section 7.0: Were any licensing basis evaluation completed or are they all being performed via the CAP items?	For the CNS Walkdowns and Walk-Bys, all potentially adverse seismic conditions were entered into the CAP program without performing a licensing basis evaluation. This was done to comply with current CNS procedures for CRs and identified potential problems at CNS. To make this clearer, Section 7.0 "Licensing Basis Evaluations" was expanded to discuss this reasoning.
8.	Section 7.0: The CRs themselves have not been attached to the Submittal Report, therefore there is no way of knowing the specifics regarding what equipment was noncompliant in licensing space, what will be done to remedy the noncompliance, or the stage or schedule of corrective action implementation.	Copies of the CRs were added in Attachment E of the report. Additionally, a column was added to Table 6-1 that describes the current status of the CRs.
9.	Section 8.0: A list of adverse seismic vulnerabilities identified during the IPEEE program has not been included in the Submittal Report.	As stated in Section 8.0 of the Submittal Report: "Based on the CNS submittal to the NRC of their IPEEE program [Ref. 10.12], there were no cases where vulnerabilities identified required immediate attention. All of the vulnerabilities identified, except one, were addressed and resolved by the resolution of outliers in the USI A-46 (GL 87-02) [Ref. 10.5] program. The one remaining potential vulnerability was resolved when subsequent system analysis by CNS identified that the air handling systems in question could be removed from the SSEL (Safe Shutdown Equipment List) since they were no longer needed for safe shutdown.  Therefore, there are no IPEEE vulnerabilities to report at CNS."



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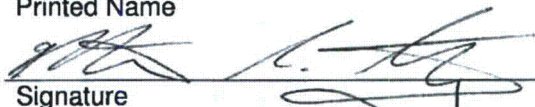
**ENGINEERING EVALUATION CLIENT COMMENT FORM**

EE No.: 12-E18 Rev: 0 EECN No.: N/A Date: 11/15/2012  
*(if applicable)*

This form is to provide an easy method to return owner review comments. Please return this form to the originator listed below. If you have no comments, please indicate as such.

FROM: Clinton Morris (860) 405-3079 11/19/2012  
Originator Name Phone Number Expected Return Date

Reviewer: Mitch Marotz (CNS) No. of Pages: 6  
Printed Name

 Date: 11/21/12  
Signature

*(Signature signifies all comments have been resolved to your satisfaction)*

Item	Reviewer's Comment	Resolution
1.	Page 6 of 35, what is document/calc that discusses design response spectra?	The calculation for the design response spectra is NEDC87-162. In section 3.0, a reference to the calculation was added [Ref. 10.17]. In Section 10, reference 10.17 was added for calculation NEDC87-162.
2.	Page 7 of 35, Is there a calc that derives the figures on page 8-11?	The figures were developed from the measured Taft earthquake accelogram and do not originate from any calculation. The specific section of the USAR stating this is properly referenced in the report. Additionally a reference was added, the United States Coast and Geodetic Survey, which is consistent with section 5.2.3.1 of the USAR.
3.	No other basis for 2.5" or less provided (page 12 of 35)?	The basis for the 2.5" diameter or less piping is Appendix C, Section 3.3.3.2 of the CNS USAR. The statement was changed to read: "For Seismic Class IS piping systems less than 2½" in diameter, as outlined by Appendix C, Section 3.3.3.2 of the CNS USAR, piping and supports were field routed using span and load chart tables." The statement now provides the justification for Seismic Class IS piping systems less than 2.5" in diameter.
4.	What date/year for top two codes used?	For ACI 318-63, the "-63" indicates that the year for this code is 1963. However, to be clearer, the year was added. The year was also added for AISC 6 <sup>th</sup> Edition.



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Item	Reviewer's Comment	Resolution
5.	Need to specify which are CNS vs. Zachry guys on Table 4-1 (page 13 of 35)	The company designation were added to each individual in Table 4-1.
6.	Is there a reference document for SSEL list (page 14 of 35)?	The SSEL was provided by CNS to Zachry for this Engineering Evaluation and first appears on Page 13. The SSEL on Page 13 is referenced as: "The base equipment list used as a starting point for development of the SWEL 1 list was the Safe Shutdown Equipment List (SSEL) developed to address the NRC Unresolved Safety Issue (USI) A-46, "Seismic Qualification of Equipment in Operating Plants," as required by NRC Generic Letter 87-02 [Ref. 10.5] and expanded upon in the CNS IPEEE Program submittal [Ref. 10.12]." The SSEL was taken from the IPEEE Program which is referenced in the statement above. Therefore, no change is required
7.	What does licensed operator review have to do with this (page 14 of 35)?	EPRI Report 1025286 states on Page 3-5: "In the process of selecting equipment for the sample, it is recommended that the Equipment Selection Personnel consult with and obtain advice from plant operators and others (e.g., systems engineers, maintenance personnel, etc.). For example, operators may be able to identify equipment with operational issues or that have been exposed to repeated maintenance activities. Such activity may have left the equipment in a state that no longer conforms to its seismic licensing basis." Zachry's understanding is that an operator did review the SSEL and SWEL 1 & 2. We did receive comments from Operations. Since specifically discussed in the EPRI guidance, Zachry feels it is relevant to discuss the licensed operator review. Therefore, no change is required.
8.	What specifically did you use/get out of FAQ's to provide our SWEL list?	Section 5.0 of the Zachry EE describes the requirements of EPRI Report 1025286 (Section 3) in regards to selection of the SSCs for the SWEL. The FAQs were used to better define the EPRI requirements and is described how we utilized the FAQs in the section titled "CNS Responses to SWEL 1 Screening Criterion". Generally, the FAQs eased the burden on many plants. FAQ Section numbers were added to each reference in order to bring attention to the specific guidance used (see Sections 5.4.1, 5.4.4 (b) and 5.4.4 (c) of the final submittal report).



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Item	Reviewer's Comment	Resolution
9.	Was screen process iterative (taken together) or one at a time? Did you have to meet all screens to get the 101 items or just meet one of screens?	The following statement was added to Section 5.4: "The SSEL was used as a base list for developing SWEL 1. The SSEL was developed utilizing the same selection criteria described in the EPRI Report 1025286 for the SWEL. Therefore, all the SSCs on the SSEL are eligible for the SWEL 1." Additionally, the following statement was added to Section 5.4.4: "The process used to select the 101 items was iterative and continued until the targeted SSCs for each of the considerations listed below was established. During the actual walkdowns, some SSCs were substituted to reflect plant conditions (inaccessibility, protected train, etc.) and slightly (but still acceptably) skewed the selected SSCs distribution."
10.	What list did you use for new or replacement basis?	On page 21 of the Zachry EE, the Section titled: Major New and Replacement Equipment (CNS Response) describes the selection process for new or replacement SSCs. In short, we reviewed/used the DCDs, Redbank, Zachry experience, CNS and personnel experience. A FAQ clarified the new/replace list does not need to be comprehensive and only a sample of the new/replaced items needed to be on the SWEL. The FAQ continued: "Another approach that may be used for identifying major new and replacement equipment is to first select equipment based on the other four sample selection attributes (i.e., variety of systems, equipment types, environments, and IPEEE enhancements). Then, go through that list of equipment and identify whether any of those items had been added or replaced during the past approximately 15 years." The new/replaced list was developed as recommended in the latter FAQ suggestion of developing the SWEL 1 first then populating that sample with new/replaced items. No suggested sample size was provided by EPRI. The specific section from the FAQs was added in Section 5.4.4 (b) where this is stated. Additionally, a reference to EPRI document page 3-7 was added in discussion of the SWEL list review by engineers and plant operators.



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Item	Reviewer's Comment	Resolution
11.	General SWEL discussion seems useless info on page 18 and 19. Delete it.	The EE numbering was inadvertently deleted before the 11/20/12 issuance, which made this section difficult to read. The intent of this section was to describe the due diligence of the team in the development of the SWEL (interviews, OE, etc.). This section is not required by EPRI however Zachry believes it further elaborates on the due diligence in the development of the SWEL. No change is required.
12.	This reads hard, what did CNS really do on these Screens?	The EE numbering was inadvertently deleted before the 11/20/12 issuance and will be fixed. CNS developed and provided the A-46 and IPEEE, which are the basis of the SWEL. The responses are consistent with the responses from other sites that have prepared their SWELs (Kewaunee, Monticello, Millstone). They are short response designed to only answer the guidance in Section 8 of the EPRI report. No changes required.
13.	Page 21 of 35 – need to specify what exactly we screened to. NRC gave us grief on this selection.	The development of the New/Replace list is described in comment 10 above. No further changes required.
14.	Define "each class" on SSEL (page 22 of 35)	The descriptions of the Classes are in Attachment B and are referenced several times in the EE. A reference to Attachment B was added in Section 5.4.4 (c).
15.	List specific drawing that the SFP information came from. (page 24 of 35)	Added to this section was a call-out to References 10.9 and 10.10. Reference 10.10 is the drawing that the SFP information came from.
16.	Deferred Items: What is tracking these at CNS (page 25 of 35)? List the CR number Marotz provided you.	A statement about CR 2012-9521 being issued to track the completion of these items was added to the "Deferred Items on SWEL" section.
17.	Define adverse better (page 26 of 35) or tie it better to the items reviewed or inspected.	The following statement was added to this section: "An adverse condition is a condition of a SSC that cannot be shown to meet its seismic licensing basis."
18.	Where can we put the 101 items selected as it relates to 164 walkdowns (page 21 of 35) – cross reference to the WC# somehow?	The walkdowns checklists are provided in Attachment C of the report. The walkdown number provided is the SWEL item number. The component ID is also listed on the walkdown checklists. Additionally, each walkdown has a reference to an area walk-by, for which the checklists are provided in Attachment D. Therefore, the SWEL items and walkdowns already provide sufficient cross-references and no changes are required.



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Item	Reviewer's Comment	Resolution
19.	This infers we did not put all issues into CR's (page 31 of 35)	The sentence was changed to state: "If it was determined to be an adverse seismic condition or a determination could not be easily made from the information available, the condition was input into the CAP process." This clarifies that all adverse seismic conditions or uncertain items were entered into the CAP process.
20.	Can't we specify what our vulnerabilities are? What was the one not addressed specifically (page 31 of 35)/ with what analysis?	The "IPEEE Vulnerabilities Resolution Report" Section was revised to include a list of the identified vulnerabilities from the IPEEE program. Additionally, a discussion of the resolution and proper reference of the documentation of that resolution was added.
21.	Should we specify it was another contractor (page 32 of 35)?	The words "from an independent contractor (Tetra Tech)" were added to clarify that another contractor completed the Peer Review.
22.	What is the basis for 10% sample? Why not more? (page 33 of 35)	The basis for 10% of the walkdowns being reviewed was the EPRI guidance document. A statement has been added saying this.
23.	Draft Report? (page 33 of 35)	The word "draft" was removed.
24.	The final statement in Section 9.2 should be revised.	Per Tetra Tech, the statement was revised to say, "There was sufficient detail provided to conclude that an adequate review of all available equipment appears to have been completed."
25.	Readdress the page numbering, specifically the numbering in the footer (always says page 1 of 1).	The page number that is referred to, is the form page number. Above that, the page number of the document it listed. However, to avoid confusion, the form information was removed entirely from the footer.
26.	Fix sentence breaks from page to page, specifically on page 7 of 35 where a partial sentence is on the same page as a figure.	Formatting has been fixed.
27.	Section 4 – add justification for no checks in the IPEEE column, remove column, or add the SWEL developer and the person looking at the IPEEE vulnerabilities as the IPEEE reviewers.	A note was added discussing the reasoning behind leaving the IPEEE Reviewer column blank.
28.	Page 14 of 35 – "Safety Related I (Essential) Seismic Category I" should be "Safety Related (Essential Seismic Category I)".	Revised as requested.
29.	Page 14 of 35 – "choose" should be "chose"	Revised as requested.
30.	Page 25 of 35 – called out 480F and then 480G. They both should be 480G due to accessibility or explain that the initial list had 480F and it was change to 480G.	The section was revised to state that 480F would be changed to 480G so that it could be inspected during the RE28 outage. Also changed the callouts to be consistent.



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Item	Reviewer's Comment	Resolution
31.	Mitch Marotz needs "Qualification of Seismic Walkdown Project Personnel" sheet in Attachment A.	The "Qualification of Seismic Walkdown Project Personnel" sheet for Mitch Marotz was added to Attachment A.
32.	Per EPRI Guidance Section 6 (page 6-3), Peer Review Team leader needs to sign off on the report. Recommend putting an additional signature on the cover page for the leader with a designation that he is with Tetra Tech.	A space was provided on the coversheet for Peer Review Team leader's signature.
33.	Attachment B: Item 101 is marked as New/Replaced. How is this correct as it is original construction equipment?	The intent was to examine the strainer after it was installed during this outage. Construction delays prevent this from happening. The SWEL has been updated to reflect the SSC was not New/Replaced.
34.	Page 22: Nee to explain that in Attachment B (Outliers) column is how we denoted IPEEE Enhanced Equipment, if that is the case.	This is not the case. The outlier column comes from the SSEL and is associated with the A-46 list as a previous identified vulnerability. Cooper fixed them. The IPEEE column indicates the associated components which were evaluated in accordance the CNS IPEEE program. The SSCs and the correlating A-46/Outlier/IPEEE designations all come from the SSEL. The SWEL did not change or alter this information. No changes required.





**Attachment J**

**Evaluation Review and Verification Information**



**ZACHRY NUCLEAR, INC.**

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**ENGINEERING EVALUATION VERIFICATION FORM**

**1. VERIFICATION METHOD:**

- |   |                                     |                                     |
|---|-------------------------------------|-------------------------------------|
|   | <b>Yes</b>                          | <b>No</b>                           |
| A. Approach Checked   | <input checked="" type="checkbox"/> |                                     |
| B. Logic Checked  | <input checked="" type="checkbox"/> |                                     |
| C. Arithmetic Checked   | <input type="checkbox"/> *          | <input checked="" type="checkbox"/> |
| D. Alternate Method<br>(Attach documentation or<br>forward to QA) | <input type="checkbox"/> *          | <input checked="" type="checkbox"/> |
| E. Other  | <input type="checkbox"/> *          | <input checked="" type="checkbox"/> |

\*Describe below.

**2. EXTENT OF VERIFICATION:**

Complete Evaluation (including attachments) has been reviewed to determine impact of revision on un-revised areas.

- |   |                                     |
|---|-------------------------------------|
| A. IDV of Complete Evaluation (including attachments) | <input type="checkbox"/>            |
| B. IDV of revised areas of Evaluation only.           | <input type="checkbox"/>            |
| C. Other (describe below):                            | <input checked="" type="checkbox"/> |

IDV of all Sections and Attachments of the evaluation, except Section 9.0 "Peer Review"

**3. DOCUMENTATION OF VERIFICATION:**

The approach, logic, and methodology of the evaluation are acceptable. The requirements of Paragraph 7.7 of N0302 (as applicable) have been met. The overall evaluation is found to be valid and conclusions to be correct and reasonable.

IDV Signature: James McKinney Printed Name: James McKinney Date: 11/26/12  
(Signature also signifies all comments have been resolved to your satisfaction)

\*Verification Method:

N/A  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Item	Comment	Resolution
1.	Minor Editorial Comments	Incorporated
2.		