



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

July 5, 2012

Mr. William R. Gideon
Vice President
Progress Energy
H. B. Robinson Steam Electric Plant, Unit 2
3581 West Entrance Rd
Hartsville, SC 29550

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT – NRC PROBLEM
IDENTIFICATION AND RESOLUTION INSPECTION REPORT
05000261/2012007

Dear Mr. Gideon,

On May 21, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed a Problem Identification and Resolution biennial inspection at your H.B. Robinson Steam Electric Plant Unit 2. The enclosed report documents the inspection results, which were discussed on May 24, 2012, with you and other members of your staff.

The inspection was an examination of activities conducted under your license as they relate to the problem identification and resolution, compliance with the Commission's rules, regulations, and with the conditions of your license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel.

Based on the inspection sample, the inspection team concluded that the implementation of the corrective action program and overall performance related to identifying, evaluating, and resolving problems at H.B. Robinson was adequate. Licensee identified problems were entered into the corrective action program at a low threshold. Problems were generally prioritized and evaluated commensurate with the safety significance of the problems. Corrective actions were generally implemented in a timely manner commensurate with their importance to safety and addressed the identified causes of problems. Lessons learned from the industry operating experience were generally reviewed and applied when appropriate. Audits and self-assessments were effectively used to identify problems and appropriate actions. However, during the inspection, the team identified several performance deficiencies related to the screening of work requests, the implementation of the site trending program, and the effectiveness of corrective actions of identified problems.

One NRC-identified finding and one self-revealing finding of very low safety significance (Green) were identified during this inspection. One of these findings was determined to involve a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the NRC Enforcement Policy.

If you contest this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the H. B. Robinson facility.

In addition, if you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector at your H.B. Robinson facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). Adams is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

George T. Hopper, Chief
Reactor Projects Branch 7
Division of Reactor Projects

Docket No. 50-261
License No. DPR-23

Enclosure: Inspection Report 05000261/2012007

cc w/encl. (see page 2)

W. Gideon

2

If you contest this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the H. B. Robinson facility

In addition, if you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector at your H.B. Robinson facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). Adams is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

George T. Hopper, Chief
Reactor Projects Branch 7
Division of Reactor Projects

Docket No. 50-261
License No. DPR-23

Enclosure: Inspection Report 05000261/2012007

cc w/encl. (see page 2)

X PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE X NON-SENSITIVE
ADAMS: X Yes ACCESSION NUMBER: ML12187A748 X SUNSI REVIEW COMPLETE X FORM 665 ATTACHED

OFFICE	RII:DRP	RII:DRP	RII:DRS	RII:DRP	RII:DRP	RII:DRP	
SIGNATURE	/RA/	/RA By E-mail/	/RA By E-mail/	/RA By E-mail/	/RA By RTaylor/	/RA/	
NAME	RTaylor	WDeschaine	Dlanyl	JQuinones	JWorosilo	GHopper	
DATE	7/3/12	7/3/12	7/3/12	7/3/12	7/3/12/	7/5/12	
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: S:\DRP\RPB7PI&R\INSPECTION REPORTS\ROBINSON PIR
INSPECTION REPORT 2012007REV1.DOCX

cc w/encl:

Division of Radiological Health
TN Dept. of Environment & Conservation
401 Church Street
Nashville, TN 37243-1532

Donald W. Barker
Manager, Nuclear Oversight
H. B. Robinson Steam Electric Plant, Unit 2
Progress Energy
Electronic Mail Distribution

Robert J. Duncan II
Vice President
Nuclear Operations
Progress Energy
Electronic Mail Distribution

Sandra Threatt, Manager
Nuclear Response and Emergency
Environmental Surveillance
Bureau of Land and Waste Management
Department of Health and Environmental
Control
Electronic Mail Distribution

Brian C. McCabe
Manager, Nuclear Oversight
Shearon Harris Nuclear Power Plant
Progress Energy
Electronic Mail Distribution

Richard Hightower
Supervisor
Licensing/Regulatory Programs
Progress Energy
Electronic Mail Distribution

Scott D. West
Superintendent Security
H. B. Robinson Steam Electric Plant
Progress Energy
Electronic Mail Distribution

Joseph W. Donahue
Vice President
Nuclear Oversight
Progress Energy
Electronic Mail Distribution

David T. Conley
Senior Counsel
Legal Department
Progress Energy
Electronic Mail Distribution

John H. O'Neill, Jr.
Shaw, Pittman, Potts & Trowbridge
2300 N. Street, NW
Washington, DC 20037-1128

Richard Haynes
Director, Division of Waste Management
Bureau of Land and Waste Management
S.C. Department of Health and
Environmental Control
Electronic Mail Distribution

Kelvin Henderson
General Manager
Nuclear Fleet Operations
Progress Energy
Electronic Mail Distribution

Thomas Cosgrove
Plant General Manager
H.B. Robinson Steam Electric Plant, Unit 2
Progress Energy
Electronic Mail Distribution

Donna B. Alexander
Manager, Nuclear Regulatory Affairs
(interim)
Progress Energy
Electronic Mail Distribution

Robert P. Gruber
Executive Director
Public Staff - NCUC
4326 Mail Service Center
Raleigh, NC 27699-4326

W. Lee Cox, III
Section Chief
Radiation Protection Section
N.C. Department of Environmental
Commerce & Natural Resources
Electronic Mail Distribution

(cc w/encl – See page 4)

cc w/encl cont'd:

Greg Kilpatrick
Operations Manager
H.B. Robinson Steam Electric Plant, Unit 2
Progress Energy
Electronic Mail Distribution

Mark Yeager
Division of Radioactive Waste Mgmt.
S.C. Department of Health and
Environmental Control
Electronic Mail Distribution

Public Service Commission
State of South Carolina
P.O. Box 11649
Columbia, SC 29211

Chairman
North Carolina Utilities Commission
Electronic Mail Distribution

Henry Curry
Training Manager
H.B. Robinson Steam Electric Plant, Unit 2
Progress Energy
Electronic Mail Distribution

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
H. B. Robinson Steam Electric Plant
2112 Old Camden Rd
Hartsville, SC 29550

Christos Kamilaris
Manager, Support Services
H.B. Robinson Steam Electric Plant, Unit 2
Progress Energy
Electronic Mail Distribution

John W. Flitter
Director of Electric & Gas Regulation
South Carolina Office of Regulatory Staff
Electronic Mail Distribution

W. Gideon

5

Letter to R. Gideon from G. Hopper dated July 5, 2012

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT – NRC PROBLEM
IDENTIFICATION AND RESOLUTION INSPECTION REPORT
05000261/2012007

Distribution w/encl

C. Evans, RII EICS

L. Douglas, RII EICS

RIDSNRRDIRS

PUBLIC

RidsNrrPMRobinson Resource

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-261

License No.: DPR-23

Report No.: 05000261/2012007

Licensee: Progress Energy (Carolina Power & Light Company)

Facility: H.B. Robinson Steam Electric Plant

Location: Hartsville, SC

Dates: May 7 - 24, 2012

Inspectors: R. Taylor, Senior Project Inspector (Team Leader)
W. Deschaine, Resident Inspector, Sequoyah
D. Lanyi, Operations Engineer, Region II
J. Quinones, Project Engineer, Region II
J. Worosilo, Project Engineer, Region II

Approved by: G. Hopper, Chief
Reactor Projects Branch 7
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000261/20012007; 05/07/2012 – 05/24/2012; H.B. Robinson Steam Electric Plant; Identification and Resolution of Problems.

The inspection was conducted by a senior project inspector, two project engineers, a resident inspector, and an operations engineer. One self-revealing Green non-cited violation (NCV) and one NRC identified Green finding were identified. The significance of most findings is identified by their color (Green, White, Yellow, Red) using IMC 0609, Significance Determination Process (SDP); cross-cutting aspects were determined using IMC 0310; Components Within the Cross-Cutting Areas (CCA); and findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, Reactor Oversight Process (ROP).

Identification and Resolution of Problems

The inspectors concluded that, in general, problems were properly identified, evaluated, prioritized, and corrected. The licensee was generally effective at identifying problems and entering them into the corrective action program (CAP) for resolution. However, the inspectors identified a weakness in the CAP where plant issues may not be adequately processed in the CAP as Nuclear Condition Reports (NCRs). In addition, the team identified weaknesses in the licensee's implementation of the site trending program. Generally, prioritization and evaluation of issues, formal root cause evaluations for significant problems, and corrective actions specified for problems were consistent with licensee CAP procedures. Overall, corrective actions developed and implemented for issues were generally effective and implemented in a timely manner. However, the inspectors identified one example where the licensee's corrective actions were ineffective. (Section 40A2(a)3i)

The inspectors determined that audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and appropriate corrective actions were developed to address the issues identified. Operating experience usage was found to be generally acceptable and integrated into the licensee's processes for performing and managing work, plant operations, and cause evaluations.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors determined that personnel at the site felt free to raise safety concerns to management and use the CAP to resolve those concerns.

Cornerstone: Mitigating Systems

Green: A self-revealing Green NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to take adequate corrective actions to prevent recurrence (CAPR) in response to a significant condition adverse to quality (SCAQ) associated with the purification of the Refueling Water Storage Tank (RWST). Specifically, on March 16, 2012, with the plant in Mode 4, the licensee aligned the non-seismically qualified Spent Fuel Pool Demineralizer to the seismically qualified boundary of the RWST to perform purification of the

Enclosure

RWST. This action rendered the RWST inoperable. This issue was previously identified as a significant condition adverse to quality in May 2011, but the corrective actions taken failed to preclude repetition. The licensee entered this issue in the corrective action program as Nuclear Condition Report (NCR) 524619. As immediate corrective actions, the licensee removed the SFP purification system from service and replaced the caution tags on valves SFPC-805A, Refueling Water Purification Pump Suction from RWST and SFPC-805B, RWST Return, with a Clearance. The licensee plans to revise several operating procedures to correctly apply Technical Specifications implications into procedural steps and they also plan to implement Engineering Change (EC) 80584, to perform a seismic qualification of the spent fuel pool / RWST purification system to allow alignment to the RWST without affecting operability.

The licensee's failure to take adequate corrective actions to prevent recurrence of a SCAQ, aligning the non-seismically qualified spent fuel pool demineralizer system for purification of the safety related and seismically qualified RWST, was a performance deficiency. The finding was more than minor because if left uncorrected, it has the potential to lead to a more significant safety concern. The finding was determined to affect the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems to respond to initiating events to prevent undesirable consequences. Specifically, during a seismic event the purification piping could break and cause a loss of inventory in the RWST which is used in accident mitigation. Inspection Manual Chapter (IMC) 0609, Attachment 4, Table 4a, "Phase 1 – Initial Screening and Characterization of Findings," determined that this finding was within the mitigating systems (MS) cornerstone and was potentially risk significant due to a seismic external event and therefore required a Phase 3 SDP analysis. A phase 3 risk assessment was performed by a regional Senior Risk Analyst (SRA) using the NRC SPAR model. The analysis determined that the risk increase of the performance deficiency was an increase in core damage frequency less than 1E-6/year a GREEN finding of very low safety significance. The cross cutting aspect of the finding was directly related to the CAP component of the Problem Identification and Resolution area, because the licensee failed to take appropriate corrective actions to address safety issues. Specifically, the licensee's corrective actions regarding the alignment of the purification system to the RWST were not adequate to solved the issue and prevent recurrence (P.1(d)). (Section 4OA2(a)3i)

Green: An NRC identified finding was identified for the licensee's failure to implement trending requirements set forth in CAP-NGGC-0206, "Performance Assessment and Trending" and EGR-NGGC-0010, "System Component Trending Program and System Notebooks." Consequently the licensee missed opportunities to identify and enter adverse conditions into the CAP. The licensee entered these issues into the corrective action program as NCRs 535537 and 535926. The licensee has taken immediate corrective actions which include the generation of trend reports that were previously missed.

The finding was more than minor because the licensee's failure to correct trending program implementation deficiencies could have the potential to lead to a more significant safety concern. Specifically, these trending program implementation deficiencies leave the station vulnerable to not identifying less significant issues that may be providing precursor insights that could prevent a more significant condition adverse to quality. The finding was determined to affect the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems to respond to initiating events to prevent undesirable consequences. In

Enclosure

accordance with NRC Inspection Manual Chapter 0609.04, Significant Determination Process – Phase 1 screening, the finding was determined to be of very low safety significance (Green) because the finding did not result in a loss of system safety function or a loss of safety function of a single train for greater than allowed Technical Specification allowed outage time. This finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component. Specifically, the licensee failed to periodically trend and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems P.1(b). (Section 4OA2(a)3ii)

REPORT DETAILS

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution (PI&R)

a. Assessment of the Corrective Action Program

(1) Inspection Scope

The team reviewed the licensee's CAP procedures which described the administrative process for initiating and resolving problems primarily through the use of NCRs. To verify that problems were being properly identified, appropriately characterized, and entered into the CAP, the team reviewed a sample of NCRs that had been issued between June 2010 and May 2012, including a detailed review of selected NCRs associated with the following risk-significant systems and components: Fire Protection (FP), Emergency Diesel Generators (EDGs) and Service Water (SW). Where possible, the team independently verified that the corrective actions were implemented as intended. The team also reviewed selected common causes and generic concerns associated with root cause evaluations (RCE) to determine if they had been appropriately addressed. To help ensure that samples were reviewed across all cornerstones of safety identified in the NRC's Reactor Oversight Process (ROP), the team selected a representative number of NCRs that were identified and assigned to the major plant departments, including operations, maintenance, engineering, health physics, chemistry, emergency preparedness and security. These NCRs were reviewed to assess each department's threshold for identifying and documenting plant problems, thoroughness of evaluations, and adequacy of corrective actions. The team reviewed selected NCRs, verified corrective actions were implemented, and attended meetings where NCRs were screened for significance to determine whether the licensee was identifying, accurately characterizing, and entering problems into the CAP at an appropriate threshold.

The team conducted plant walkdowns of equipment associated with the selected systems and other plant areas to assess the material condition and to look for any deficiencies that had not been previously entered into the CAP. The team reviewed NCRs, maintenance history, completed work orders (WOs) for the systems, and reviewed associated system health reports. These reviews were performed to verify that problems were being properly identified, appropriately characterized, and entered into the CAP. Items reviewed generally covered a two-year period of time; however, a five-year review was performed for selected systems for age-dependent issues.

Control room walkdowns were also performed to assess the main control room (MCR) deficiency list and to ascertain if deficiencies were being tracked to resolution. A sample of operator workarounds and operator burden screenings were reviewed and the team verified compensatory measures for deficient equipment were being implemented in the field.

Enclosure

The team conducted a detailed review of selected NCRs to assess the adequacy of the root-cause and apparent-cause evaluations of the problems identified. The team assessed if the licensee had adequately determined the cause(s) of identified problems, and had adequately addressed operability, reportability, common cause, generic concerns, extent-of-condition, and extent-of-cause. The review also assessed if the licensee had appropriately identified and prioritized corrective actions to prevent recurrence.

The team reviewed corrective actions that were completed after the conclusion of the 95002 NRC supplemental inspection associated with the three white MS findings for inadequate corrective actions regarding EDG breaker, requalification training issues, and multiple procedure failures associated with the March 28, 2010, reactor trip and fire (NRC Supplemental Inspection Report 05000335/2011010) to ensure those corrective actions were sufficient to address the root and contributing causes and prevent recurrence.

The team reviewed selected industry operating experience items, including NRC generic communications and Part 21 reports, to verify that they had been appropriately evaluated for applicability or used in licensee activities and that issues identified through these reviews had been entered into the CAP.

The team reviewed site trend reports to determine if the licensee effectively trended identified issues and initiated appropriate corrective actions when adverse trends were identified.

The team attended various plant meetings to observe management oversight functions of the corrective action process. These included Work Ownership Committee (WOC) meetings and Performance Improvement Oversight Committee (PIOC) meetings.

Documents reviewed are listed in the Attachment.

(2) Assessment

Identification of Issues

The inspectors determined that, in general, the licensee was identifying problems and entering them into the CAP for resolution either via NCRs or WRs/WOs. Generally, plant problems were acknowledged and corrective actions were implemented in a timely manner. The inspectors determined that the requirements for initiating NCRs as described in licensee corporate procedure CAP-NGGC-0200 did not provide an adequate threshold for entering issues into the CAP as NCRs. The CAP is structured such that all undesired conditions may not receive an NCR. More specifically, the CAP is structured such that all undesired conditions involving plant equipment are processed as Work Requests as opposed to NCRs. This is contrary to CAP-NGGC-0200 "Condition Identification and Screening" which defines NCRs as the electronic tracking record used to document the identification, screening, evaluation (if applicable), and resolution of an undesired condition.

The site relies on a screening process to upgrade work requests to NCRs. This screening process is completed by Operations, WOC, and PIOC. However, the criterion

for upgrading a Work Request (WR) to a NCR is not clearly defined. In order to address this issue, the licensee has institutionalized its own criteria for the screening of undesired conditions which includes the need for further evaluation or operability/reportability type issues. The team noted that those issues which do not meet that criteria are not screened as NCRs and subsequently stay as a WR outside of the NCR process, which is the defined process for electronic tracking record used to document the identification, screening, evaluation (if applicable), and resolution of an undesired condition(s). In addition, by bypassing the NCR process the licensee misses an opportunity to apply its trending program to lower level undesired conditions.

The inspectors identified three examples where issues were not properly screened in accordance with CAP-NGGC-0200. These inspector identified issues were screened in accordance with Manual Chapter 0612, Issue Screening, and were determined to be of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy.

- The team identified that WR 534169 was not converted to a NCR contrary to the requirements of CAP-NGGC-0200. The component identification listed in the WR was classified as critical and the potential operability/reportability attribute was marked yes. The licensee initiated NCR 00525881 to address this issue.
- The team identified three work requests which had incomplete screening attributes. The licensee initiated NCR 00535807 to address this issue.
- The team identified that the back grounding of WOs bypasses the Work Request Approval Process of WCP-NGGC-0300. The licensee initiated NCR 00537596 to address this issue.

Furthermore, as described in the "Findings" section of this report, the inspectors identified a Finding associated with the licensee's failure to follow station trending procedures: CAP-NGGC-0206 "Performance Assessment and Trending" and EGR-NGGC-0010 "System Component Trending Program and System Notebooks."

Prioritization and Evaluation of Issues

Based on the review of selected NCRs, the inspectors concluded that problems were generally prioritized and evaluated in accordance with the NCR significance determination guidance in CAP-NGGC-0200. The inspectors determined that adequate consideration was given to system or component operability and associated plant risk.

The inspectors determined that station personnel had conducted root cause and apparent cause analyses in compliance with the licensee's CAP procedures and assigned cause determinations were appropriate considering the significance of the issues being evaluated. A variety of formal causal analysis techniques were used depending on the type and complexity of the issue consistent with CAP-NGGC-0205.

Effectiveness of Corrective Actions

Based on a review of corrective action documents, interviews with licensee staff, and verification of completed corrective actions, the inspectors determined that overall,

Enclosure

corrective actions for plant issues documented in NCRs were timely, commensurate with the safety significance of the issues, and effective. The inspectors noted that, in general, conditions adverse to quality were corrected. For significant conditions adverse to quality, the corrective actions directly addressed the cause and effectively prevented recurrence in that a review of performance indicators, NCRs, and effectiveness reviews demonstrated that the significant conditions adverse to quality had not recurred. Effectiveness reviews for corrective actions to prevent recurrence (CAPRs) were sufficient to ensure corrective actions were properly implemented and were effective.

However, the team identified one example where the licensee failed to take adequate corrective actions to preclude repetition. This issue is described below in the "Findings" section of this report as "Failure to Take Adequate Corrective Action to Preclude Repetition of a Significant Condition Adverse to Quality Associated with the Refueling Water Storage Tank Purification."

(3) Findings

i. Failure to Take Adequate Corrective Action to Preclude Repetition of a Significant Condition Adverse to Quality Associated with the Refueling Water Storage Tank Purification

Introduction: A self-revealing Green NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to take adequate corrective action to prevent recurrence in response to a SCAQ associated with the purification of the RWST.

Description: On May 4, 2011, the licensee documented a significant condition adverse to quality regarding cleanup of the RWST by aligning the non-seismically qualified spent fuel pool (SFP) purification system to the safety related and seismically qualified RWST without recognizing that the action rendered the RWST inoperable. NCR 463557 was initiated and a root cause evaluation was performed. The root cause was determined to be, "Regulatory requirements for the separation of seismically qualified and non-qualified systems, structures, and components were not adequately incorporated into the Design Basis Document (DBD) and Updated Final Safety Analysis Report (UFSAR)". Some of the corrective actions taken by the licensee were as follows:

- Caution Tag 11-003, was placed on valves SFPC-805A, Refueling Water Purification Pump Suction from RWST and SFPC-805B, RWST Return, to alert operators that manipulation of these valves could result in RWST inoperability,
- The DBD and UFSAR were revised to include restrictions on the operating modes that the purification loop can be used to purify the RWST, and
- Procedure OP-913, Refueling Water Purification Pump Operation, was revised to restrict alignment of the purification loop to the RWST to periods when operability of the RWST is not required.

On March 16, 2012, with the plant in Mode 4, the licensee aligned the non-seismically qualified Spent Fuel Pool Demineralizer to the seismically qualified boundary of the RWST to perform purification of the RWST. After approximately two hours of the system being in service, the licensee restored the RWST to operable status. This event was

entered in the CAP as NCR 524619. This event was determined to be a result of ineffective implementation of previous corrective actions. The root cause of the event was determined to be that the revision of OP-913 was not properly executed. The procedure revision to restrict alignment of the refueling water purification loop to the RWST to periods when operability of the RWST was not required was implemented as a note instead of an action step as required by the writers guide in procedure AP-007. Procedure AP-007, states "when writing or initiating procedures, procedure actions that may render Technical Specification equipment inoperable should be identified in the step to make the procedure user aware of the consequences that may occur and the notifications that need to be instituted." In addition, Caution Tag 11-003 was allowed to remain hanging throughout the outage (particularly during periods when it was not applicable) Modes 5 and 6.

As immediate corrective actions, the licensee removed the SFP purification system from service and replaced the caution tags on valves SFPC-805A and SFPC-805B with a Clearance. The licensee plans to revise the following operating procedures, OP-913, OP-301-1, OP-704-2 and CP-003 to correctly apply Technical Specifications implications into procedural steps as required by procedure AP-007, and also they plan to implement EC 80584, to perform a seismic qualification of the spent fuel pool / RWST purification system to allow alignment to the RWST without affecting operability.

Analysis: The licensee's failure to take adequate corrective actions to prevent recurrence of a SCAQ, aligning the non-seismically qualified spent fuel pool demineralizer system for purification of the safety related and seismically qualified RWST was a performance deficiency. The finding was more than minor because if left uncorrected, it has the potential to lead to a more significant safety concern. The finding was determined to affect the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems to respond to initiating events to prevent undesirable consequences. Specifically, during a seismic event the purification piping could break and cause a loss of inventory in the RWST which is required for accident mitigation. IMC 0609, Attachment 4, Table 4a, "Phase 1 – Initial Screening and Characterization of Findings," determined that this finding was within the mitigating systems cornerstone and was potentially risk significant due to a seismic external event and therefore required a Phase 3 SDP analysis. A phase 3 risk assessment was performed by a regional SRA using the NRC SPAR model. The exposure period was 2.3 hours. No recovery credit was assumed in the analysis. The non-seismic RWST purification piping and the dedicated shutdown diesel generator were assumed to fail at the same seismic input as that assumed for a loss of offsite power. The dominant sequence was a seismically induced loss of offsite power leading to a station blackout with failure of the emergency power system and failure to recover offsite power or the emergency diesel generators. Subsequent battery depletion and operator failure to control the turbine driven auxiliary feedwater pump would lead to core damage. The risk was mitigated by the short exposure period and the low probability of a seismic event. The analysis determined that the risk increase of the performance deficiency was an increase in core damage frequency less than 1E-6/year, a GREEN, finding of very low safety significance.

The cross cutting aspect of the finding was directly related to the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee failed to take appropriate corrective actions to address safety issues.

Enclosure

Specifically, the licensee's corrective actions regarding the alignment of the purification system to the RWST were not adequate to solve the issue and prevent recurrence (P.1(d))

Enforcement: 10 CFR 50 Appendix B Criterion XVI, states in part, for significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. Contrary to the above, the licensee did not take appropriate corrective actions to preclude repetition for the alignment of the non-seismically qualified SFP purification system to the seismically qualified RWST, a significant condition adverse to quality that was identified on May 4, 2011. Specifically, on March 16, 2012, with the plant in Mode 4, the licensee aligned the non-seismically qualified SFP Demineralizer to the seismically qualified boundary of the RWST to perform purification of the RWST. Because the plant was in Mode 4, this action rendered the RWST inoperable. As immediate corrective actions, the licensee removed the SFP purification system from service and replaced the caution tags on valves SFPC-805A and SFPC-805B with a Clearance. Because the finding is of very low safety significance and it was entered into the licensee's CAP as NCR 524619, this violation is being treated as a Green NCV, consistent with the NRC Enforcement Policy: NCV 05000261/2012007-01, Failure to Take Adequate Corrective Action to Preclude Repetition of a Significant Condition Adverse to Quality Associated with the Refueling Water Storage Tank Purification.

ii. Failure to Implement Trending Requirements Set Forth in Plant Procedures

Introduction: The NRC identified a finding for the licensee's failure to implement trending requirements set forth in station trending program procedures. Consequently, the licensee missed opportunities to identify adverse conditions and negative trends that provide precursor insights to issues for CAP resolution.

Description: During the May 2012 Problem Identification and Resolution inspection, the inspection team discovered that the licensee was not adhering to the requirements of station trending procedures CAP-NGGC-0206 "Performance Assessment and Trending" and EGR-NGGC-0010 "System Component Trending Program and System Notebooks." Specifically, the licensee failed to adhere to the following requirements:

- Procedure EGR-NGGC-0010 requires a formal performance trend monitoring analysis report when a significant degrading trend is identified or, as a minimum semi annually. The inspection team discovered that the station failed to develop any formal performance monitoring trend reports since the requirement to do so was implemented in August 2011.
- The inspection team identified gaps in the licensee's ability to trend equipment work orders that have not been converted to CRs. Per CAP-NGGC-0206, Fleet Integrated Trending System (FITS) was used to align trend data. However, only work orders that are coded as failed are assigned trend codes. This gap allowed for a significant number of WOs not coded failed to be left out of the trending program.
- Procedure CAP-NGGC-0206 requires, in part, that the licensee perform a monthly/quarterly trend analysis and report to identify potential negative

(adverse/monitoring status) trends. In April 2012, the licensee performed a "Pre PI&R Cap Assessment" and found that station trending of corrective action program information as described in CAP-NGGC-0206, was not conducted in each of the four quarters of 2011.

The licensee has taken immediate corrective actions which include the generation of trend reports that were previously missed.

Analysis: The inspectors determined that the licensee's failure to implement trending requirements/standards set forth in CAP-NGGC-0206, "Performance Assessment and Trending" and EGR-NGGC-0010, "System Component Trending Program and System Notebooks" was a performance deficiency. The performance deficiency is more than minor because the licensee's failure to correct trending program implementation deficiencies could have the potential to lead to a more significant safety concern. Specifically, these trending program implementation deficiencies leave the station vulnerable to not identifying less significant issues related to mitigating systems that may be providing precursor insights that could prevent a more significant condition adverse to quality. The finding was determined to affect the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems to respond to initiating events to prevent undesirable consequences. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, Significant Determination Process – Phase 1 screening, the finding was determined to be of very low safety significance (Green) because the finding did not result in a loss of system safety function or a loss of safety function of a single train for greater than allowed technical specification allowed outage time.

This finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component. Specifically, the licensee failed to periodically trend and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems (P.1(b)).

Enforcement: This finding does not involve enforcement action because there was no violation of regulatory requirements. Because this finding does not involve a violation and has very low safety significance, it is identified as FIN 05000261/2012007-02, Failure to Implement Trending Requirements Set Forth in Plant Procedures.

b. Assessment of the Use of Operating Experience (OE)

(1) Inspection Scope

The inspectors examined the licensee's process for reviewing industry operating experience, reviewed licensee procedure CAP-NGGC-0202, "Operating Experience Program," reviewed the licensee's operating experience database, and interviewed the OE Coordinator, to assess the effectiveness of how external and internal operating experience data was handled at the plant. In addition, the inspectors selected operating experience documents (e.g., NRC generic communications, 10 CFR Part 21 reports, licensee event reports, vendor notifications, and plant internal operating experience items, etc.), which had been issued since June 2008, to verify whether the licensee had appropriately evaluated each notification for applicability to H.B. Robinson Steam

Electric Plant, and whether issues identified through these reviews were entered into the CAP. Documents reviewed are listed in the Attachment.

(2) Assessment

Based on interviews with the OE coordinator and a review of documentation related to review of operating experience issues, the inspectors determined that the licensee was generally effective in screening operating experience for applicability to the plant. Industry OE was evaluated at either the corporate or plant level depending on the source and type of the document. Relevant information was then forwarded to the applicable department for further action or informational purposes. OE issues requiring action were entered into the CAP for tracking and closure. In addition, operating experience was included in all apparent cause and root cause evaluations in accordance with licensee procedure CAP-NGGC-0205.

(3) Findings

No findings were identified.

c. Assessment of Self-Assessments and Audits

(1) Inspection Scope

The inspectors reviewed audit reports and self-assessment reports, including those which focused on problem identification and resolution, to assess the thoroughness and self-criticism of the licensee's audits and self assessments, and to verify that problems identified through those activities were appropriately prioritized and entered into the CAP for resolution in accordance with licensee procedure CAP-NGGC-0201, "Self-Assessment/Benchmark Programs."

(2) Assessment

The inspectors determined that in general, the scopes of assessments and audits were adequate. Self-assessments were generally detailed and critical, as evidenced by findings consistent with the inspectors' independent review. The inspectors verified that NCRs were created to document all areas for improvement and findings resulting from the self-assessments, and verified that actions had been completed consistent with those recommendations. Generally, the licensee performed evaluations that were technically accurate.

(3) Findings

No findings were identified.

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

The team randomly interviewed on-site workers regarding their knowledge of the corrective action program at H.B. Robinson Steam Electric Plant and their willingness to write NCRs or raise safety concerns. During technical discussions with members of the

plant staff, the inspectors conducted interviews to develop a general perspective of the safety-conscious work environment at the site. The interviews were also conducted to determine if any conditions existed that would cause employees to be reluctant to raise safety concerns. The inspectors reviewed the licensee's Employee Concerns Program (ECP) and interviewed the ECP coordinator. Additionally, the inspectors reviewed a sample of completed ECP reports to verify that concerns were being properly reviewed and identified deficiencies were being resolved and entered into the CAP when appropriate. Finally, the inspectors reviewed the last Safety Culture Survey to verify that the results on Safety-Conscious Work Environment were consistent with the inspectors' assessment.

(2) Assessment

Based on the interviews conducted and the NCRs reviewed, the inspectors determined that licensee management emphasized the need for all employees to identify and report problems using the appropriate methods established within the administrative programs, including the CAP and ECP. These methods were readily accessible to all employees. Based on discussions conducted with a sample of plant employees from various departments, the inspectors determined that employees felt free to raise issues, and that management encouraged employees to place issues into the CAP for resolution. The inspectors did not identify any reluctance on the part of the licensee staff to report safety concerns.

(3) Findings

No findings were identified.

4OA6 Exit

Exit Meeting Summary

On May 24, 2012, the inspectors presented the inspection results to Mr. Gideon and other members of the site staff. The inspectors confirmed that all proprietary information examined during the inspection had been returned to the licensee.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel:

R. Gideon, Site Vice President
T. Cosgrove, Plant General Manager
J. Clements, Performance Improvement
H. Curry, Training Manager
W. Farmer, Recovery Support Manager
R. Hightower, Licensing Supervisor
D. Hoffman, Operations Superintendant
L. Martin, Engineering Director
C. Morris, Maintenance Manager
S. Wheeler, Support Services Manager

NRC Personnel:

G. Hopper, Chief, Branch 7, Division of Reactor Projects

LIST OF ITEMS OPENED, CLOSED

Opened and Closed

05000261/2012007-01	NCV	Failure to Take Adequate Corrective Action to Preclude Repetition of a Significant Condition Adverse to Quality Associated with the Refueling Water Storage Tank Purification (Section 4OA2(a)3i)
05000261/2012007-02	FIN	Failure to Implement Trending Requirements Set Forth in Plant Procedures (Section 4OA2(a)3ii)

LIST OF DOCUMENTS REVIEWED

Procedures

ADM-NGGC-0101, Maintenance Rule Program, Rev. 20
 ADM-NGGC-0104, Work Management Process, Rev. 31, 35, and 36
 ADM-NGGC-0107, Equipment Reliability Process Guideline, Rev. 8
 ADM-NGGC-0114, Plant Health Process, Rev. 0
 AOP-034, Security Events, Rev. 14
 AOP-041, Response to a Fire Event, Rev. 2
 CAP-NGGC-0200, Corrective Action Program, Rev. 34
 CAP-NGGC-0201, Self-Assessment/Benchmark Programs, Rev. 13
 CAP-NGGC-0202, Operating Experience Program, Rev. 16
 CAP-NGGC-0205, Significant Adverse Condition Investigations and Adverse Condition Investigations-Increased Rigor, Rev.11
 CAP-NGGC-0206, NGG Performance Assessment and Trending, Rev. 6
 EGR-NGGC-0010, System & Component Trending Program and System Notebooks, Rev. 18
 PM-163, Inspection and Testing of Circuit Breakers for 480 Volt Bus E2, Revision 32
 PM-465, Inspection and Testing of Circuit Breakers for 480 Volt Buses 1, 2A, 2B, 3 and MG Set Output, Revision 22
 SPP-032, Breaker Receipt Inspection for New and Refurbished Breakers, Revision 10

Nuclear Condition Reports (NCRs)

382604	478651	465519	489973
370803	486923	468385	431674
390427	494070	476062	412005
391779	512600	477592	422124
401012	516366	487065	399438
497505	516377	519188	420936
525133	517991	526257	413865
521358	518263	527278	435525
514393	502547	516698	457845
456506	486154	516696	506077
486155	505986	516694	488989
491182	488358	516693	416146
490203	493972	516692	425703
522583	464115	523621	463416
425643	274812	523622	467893
425453	498762	30095	473023
425433	506519	458971	513391
420936	453630	425437	434642
406843	453372	505977	423985
419481	486544	423444	422985
422546	445753	442548	419768
447211	489269	464115	422032
496154	486544	477411	452093
445294	489973	479401	473900
465506	466888	490939	463557
476753	417405	491437	367186

450631-11	511029-14	524561	514502
460257-11	435644-05	468880	514941
461646-11	434642	484808	
491560-14	404427	488029	
491879-14	405267	494344	
507279-14	462685	507923	

Work Orders

02043434	01988112	01905182	1490095
02043435	02028896	01769207	1787531
02043438	02021788	02050904	1961524
02043439	01982092	01955840	2008356
01883283	01914837	00794380	1863837
01898733	02025430	01803557	1872839
01907106	01803557	01803556	1914294
01978809	01803556	01804414	1923437
01978809	01857837	01857837	1924352
01986792	01898733	1787939	1972448
01914761	01907106	1816946	1987094
01932331	01978809	1825903	1769767
01813531	01986792	1886753	1793755
01929437	01735019	1924730	1801925
01935938	02021784	1927678	1957659
01955846	02043434	1956055	2004087
01958801	02043436	1961524	2019392
01979480	02043439	1979275	2047237
01999334	02047801	1994273	2050910
02002344	02043438	2037022	2055525
02047563	01751792	2041971	2062072
02049159	01813531	2044656	
01813853	01905062	2046367	

Self-Assessments

Self-Assessment Report (No: 508612), Pre-PI&R CAP Assessment 2012

Other Documents

Emergency Diesel Generator and Fuel Oil Trending Basis Document, December 2007
 Emergency Diesel Generator and Fuel Oil Trending Basis Document, January 2011
 Trending Basis Document 480V AC Distribution, March 4, 2008
 Trending Basis Document 4KV AC Distribution, June 25, 2003
 Fire Protection System Health Report, dated March 19, 2012
 Fire Protection System Performance Information, April 2012 to May 2012
 Site Fire Protection System Trending Basis Document, dated August 26, 2003
 Site Fire Detection System Trending Basis Document, dated December 31, 1999
 Operations Training Fire Detection and Actuation System, Rev 5 dated January 27, 2011
 UFSAR 9.1.3.2.1
 Service Water System Health Report
 Service Water System Trending Basis Document

Attachment