

South Texas 1

1Q/2009 Plant Inspection Findings

Initiating Events

Significance:  Aug 14, 2008

Identified By: NRC

Item Type: FIN Finding

Ineffective Corrective Actions on the Equipment Clearance Order Process

The team identified a finding involving ineffective corrective actions for the equipment clearance order process. Despite the identification of numerous related failures of the equipment clearance order process in various significant conditions adverse to quality condition reports and recent audit reports, the licensee had not performed an effective overall assessment of the equipment clearance order/work process control to determine the extent of the condition and therefore, had not implemented effective corrective actions to address the underlying causes.

The team determined that the ineffective corrective actions associated with the equipment clearance order process, which continues to result in equipment clearance order errors affecting personnel and equipment safety, was a performance deficiency. The team determined that the finding was more than minor because it affected the Initiating Events cornerstone objective to limit those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The team evaluated the finding using the Phase 1 worksheet in Inspection Manual Chapter 0609, "Significance Determination Process," and determined the finding to have very low safety significance because: it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would be unavailable; it did not contribute to the likelihood of a loss-of-coolant accident; and it did not increase the likelihood of a fire or flooding. This issue has a crosscutting aspect in the area of human performance, specifically, the work practices aspect, in that, the licensee failed to adequately define and communicate expectations regarding procedural compliance and personnel following procedures. [H.4(b)]

Inspection Report# : [2008009](#) (*pdf*)

Significance:  Jun 28, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to evaluate and/or Document Multiple Boric Acid Leaks with Changed Conditions

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, for failure to follow Procedure OPGP03-ZE-0133, "Boric Acid Corrosion Control Program," Revision 0 and Revision 1, which resulted in the licensee not re-evaluating changes to the material condition of plant equipment. On February 26, 2008, in preparation for Unit 1 Refueling Outage 1RE14, the inspectors identified boric acid deposits that appeared brown in color on spent fuel pool Valve 1-FC-0010B. Additional examples were identified by both the licensee and the inspectors where a changed condition was not re-evaluated. These examples point to multiple examples of the licensee failing to follow the established procedure for boric acid corrosion. The licensee entered this issue into their corrective action program as Condition Report 08-8059.

The finding is more than minor because if the failure to ensure that the original assumptions remain valid when the leakage type or color changes continued, then unevaluated degradation of safety-related components could continue and lead to a more significant safety concern. The finding is associated with the Initiating Events cornerstone attribute of human performance and it affects the cornerstone objective of limiting those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. This finding was determined to be of very low safety significance based on Inspection Manual Chapter 0609, Appendix A, Phase 1 worksheet of the Significance Determination Process because it did not result in exceeding the Technical Specification limit for reactor coolant system leakage or affect other mitigating systems resulting in a loss of safety function. In addition, this finding had human performance crosscutting aspects associated with resources, in that, station personnel had a high number of backlog items related to the boric acid corrosion control program resulting in personnel not following the timelines

established by the procedure [H.2(a)].

Inspection Report# : [2008003](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Perform Routine Operator Rounds Results in the Creation of Fire Hazards

The inspectors identified two examples of a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V (Procedures), for the failure to adequately perform routine operator rounds in accordance with station procedures. Plant operators had failed to observe degraded material conditions (oil soaked insulation) and abnormal oil leakage onto the floor below Essential Chiller 22C, and stray material (oil absorbent pads) in between the cylinder heads of the standby Diesel Generators 11 and 13. The inspectors determined that both examples resulted in fire hazards. The licensee implemented corrective actions to remove the fire hazards and entered the concerns into their corrective action program as Condition Reports 08-18903, 08-19296, 09-184, and 09-195.

The finding was more than minor because it was similar to example 4.f of Manual Chapter 0612, Appendix E, "Examples of Minor Issues," because both conditions created a fire hazard. The inspectors used NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," to determine that the finding was of very low safety significance because the deficiency resulted in a low degradation rating that minimally impacted the plant combustible material controls program element of the fire prevention and administrative controls category. In addition, the finding had a Problem Identification and Resolution crosscutting aspect (corrective action program component), because operators failed to implement a corrective action program with a low threshold for identifying issues [P.1(a)].

Inspection Report# : [2008005](#) (*pdf*)

Significance:  Sep 27, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedures Resulted in Isolation of Majority of Fire Water

The inspectors reviewed a self-revealing noncited violation of Technical Specification 6.8.1.d for the failure to follow Procedure OPGP03-ZF-0018, "Fire Protection System Operability Requirements," Revision 14. As a result the licensee unintentionally isolated fire water to all of Unit 2 and a majority of Unit 1. The licensee entered this issue into the corrective action program for resolution.

The inspectors determined the finding was more than minor because it affected the mitigating systems cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding using the fire protection significance determination process. The finding screened to a Phase 2 based on a high degradation rating and the number of areas impacted. The Phase 2 screening resulted in a high degradation rating based on the number of areas impacted. Consequently, the licensee performed a detailed probabilistic risk assessment analysis using their fire probabilistic risk assessment model, and determined that the overall increase in core damage probability and in large early release probability was of very low safety significance. The regional senior reactor analyst compared the licensee's results with the NRC's review of the individual plant examination of external events and concluded that the results were essentially identical. Based on these results, the inspectors determined that the risk significance of the event was of very low safety significance. Additionally, the inspectors determined that the issue had crosscutting aspects associated with the work control component of human performance, in that, the licensee did not incorporate the impact of work on different job activities, the need for work groups to stay apprised of work status, operational impact of work activities, and other plant conditions that may affect the work activity [H.3(b)].

Inspection Report# : [2008004](#) (pdf)

Significance:  Jun 28, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedure Results in Motor Operated Valve Motor Damage

The inspectors reviewed a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, for the failure to follow Work Order 452133, "Terminate Replacement Cables for MCC E1C3 in Accordance with Design Change Package 05-1437-4 during 1RE14," Revision 0 and Procedure OPGP03-ZM-0021, "Control of Configuration Changes," Revision 15. On March 31, 2008, electrical maintenance personnel failed to follow the procedures by not documenting the cable terminations, as a result, 2 of 3 cables were swapped and the Essential Cooling Water Pump 1C discharge isolation valve motor operator was damaged. Additionally, electrical maintenance personnel did not complete the work order when they did not perform the required postmaintenance test on the motor control center electrical terminations. Per the Control of Configuration Changes procedure, maintenance personnel should have documented the lifting/terminating of cable connections and per the work order complete the postmaintenance test which would have identified the swapped electrical connections. The licensee entered this issue into their corrective action program as Condition Report 08-5486.

The finding is more than minor because if left uncorrected, failure to properly document cable lifting/terminating and perform the postmaintenance test could lead to a more significant event as was evidenced by the damage caused to the Essential Cooling Water Pump 1C discharge isolation motor operated valve motor. This finding is associated with the Mitigating Systems cornerstone attribute of human performance and it affects the cornerstone attribute to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. This finding was determined to be of very low safety significance based on Inspection Manual Chapter 0609, Appendix G, Phase 1 worksheet of the Shutdown Significance Determination Process because it did not screen as needing a quantitative assessment due to the licensee maintaining an adequate mitigation capability. In addition, this finding had human performance crosscutting aspects associated with work practices, in that, station personnel failed to follow the expectation regarding procedure compliance by failing to follow the work order and the procedure to ensure that the cables were correctly landed before performing subsequent surveillance tests [H.4(b)].

Inspection Report# : [2008003](#) (pdf)

Barrier Integrity

Significance:  Apr 08, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

CRE HVAC Makeup Fan 11B Failure to Start

The inspectors reviewed a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criteria III, for an inadequate design control package that resulted in incorrect instantaneous over current breaker trip point settings. On September 11, 2006, control room envelope heating, ventilation, and air conditioning make up Fan 11B failed to start due to an incorrect instantaneous over current breaker setting, set as part of Design Change Package 98-687-4. When the package was prepared the Class 1E design criteria that was in effect led the licensee to set the instantaneous over current breaker settings based on locked rotor nameplate data "G" motors. Because the locked rotor nameplate data of the motor control fed motors were not documented the licensee failed to identify that some of the motors were locked rotor nameplate data "J" motors. As a result, the breaker trip point setting was set too low leaving some motors susceptible to spurious tripping since the implementation of the change in 2000. Further investigation revealed several missed opportunities in previous years to identify the incorrect settings, resulted from human performance and program and process issues. There are no crosscutting aspects since the issue is greater than 2 years old and the licensee's processes have changed considerably between 1998 and 2006.

This finding was more than minor because it affected the Barrier Integrity attribute of structure, system, and component and barrier performance under maintaining the radiological barrier function of the control room and it affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events by maintaining the operational capability of the control room envelope heating, ventilation, and air conditioning boundary. Using the Significance Determination Process Phase 1 worksheets the finding was determined to have very low safety significance because the finding only represented a degradation of the radiological barrier function of the control room.

Inspection Report# : [2008002](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 28, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Conduct Adequate Radiation Surveys in the Pressurizer Cubicle

The inspectors reviewed a self-revealing noncited violation of 10 CFR 20.1501 because radiation protection staff failed to perform an adequate survey to evaluate and determine the radiological hazards in the pressurizer cubicle on March 31, 2008. Consequently, a worker's electronic dosimeter unexpectedly alarmed at 277 millirem per hour after entering the pressurizer cubicle. A chemically induced crud burst occurred in the reactor primary coolant system, which affected the pressurizer radiological conditions. The licensee entered this issue into the corrective action program as Condition Report 08 5399.

The finding was greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute (exposure control) of Program and Process and affected the cornerstone objective, in that failure to conduct a radiation survey had the potential to increase personnel dose. This occurrence involved a worker's unplanned and unintended exposure to radiation. Therefore, using the Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it was not an as low as is reasonably achievable finding, there was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised. The finding was self-revealing because the licensee was alerted to the elevated pressurizer cubicle dose rates by the alarming electronic dosimeter. Additionally, this finding has human performance crosscutting aspects associated with work practices, because the licensee failed to ensure interdepartmental communication and coordination during the crud burst between radiation protection, chemistry, and operations to assure timely radiation safety information was provided to workers [H.3(b)].

Inspection Report# : [2008003](#) (*pdf*)

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not

provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Significance: N/A Aug 14, 2008

Identified By: NRC

Item Type: FIN Finding

Identification and Resolution of Problems

The team reviewed approximately 360 condition reports, work orders, associated root and apparent cause evaluations, and other supporting documentation to assess the problem identification and resolution process. The team also performed a five year review of the essential cooling water system to determine whether problems were being effectively addressed. As a result of these reviews, the team concluded that the licensee was generally effective in identifying, evaluating, and ultimately correcting problems. The team also determined that the procedures and program controls associated with the corrective action program were well established. However, these implementing processes were not consistently followed and corrective actions were not always completed in a timely manner.

The team reviewed a sample of condition reports that involved operability issues to assess the adequacy and timeliness of the operability assessment process. The team noted that problems with operability review have existed throughout the period. Specifically, the station has repeatedly documented operability review issues in condition reports, in audits, and during Executive Oversight Review Board reports. However, changes to address these issues were not implemented until April 2008, and insufficient time has elapsed to adequately evaluate the effectiveness of these changes.

Overall, the team determined that the licensee had appropriately evaluated industry operating experience for relevance to the facility, and had entered applicable items in the corrective action program. However, once this information was disseminated, the reviews and other actions associated with or generated as part of the condition report actions were not being completed in a timely manner. The team noted improvement in the use of internal and external operating experience during the planning of work evolutions. The team also determined that the licensee was evaluating industry operating experience when performing root cause and apparent cause evaluations.

Although quality assurance audits have been effective in identifying substantive issues and areas for improvement, some of the associated actions have not been acted upon in a timely manner. Other self-assessment activities were narrowly focused and often did not identify any insightful issues concerning performance which limited the value of the assessment.

Overall, the team concluded that there was a safety conscious work environment in place at South Texas Project. In particular, the team also determined that a number of improvements have been implemented to address communication challenges and cultural issues related to the security organization. Despite these improvements, the team did encounter instances where personnel did not feel that their concerns were being adequately addressed. Subsequent to the completion of extensive safety conscious work environment interviews involving 60 personnel, the team determined that many of the individuals questioned lacked confidence in the effectiveness of the Employee Concerns Program.

Inspection Report# : [2008009](#) (*pdf*)

Last modified : June 05, 2009