

South Texas 2

3Q/2007 Plant Inspection Findings

Initiating Events

Significance:  Jul 06, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Improper Turbine Load Rate Manipulation Results in Unexpected Power Reduction

The inspectors reviewed a self-revealing noncited violation of Technical Specification 6.8.1.a for the failure to follow Procedure OPOP03-ZG-0006, "Plant Shutdown from 100% to Hot Standby," Revision 28. As part of the shutdown, operations personnel are directed to reduce turbine load at the desired ramp rate by adjusting the load rate thumbwheel. However, during the evolution the thumbwheel was inadvertently moved in the wrong direction, thereby causing the turbine load rate to change from 0.25 percent/min to 200 percent/min. This resulted in a transient on the plant causing reactor power to lower by about 6 percent rated thermal power and average coolant temperature to rise by about 2.3 °F.

This finding was more than minor because it was associated with the Initiating Events Cornerstone attribute of human performance and it affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The inspectors evaluated the violation using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening, and determined that it was of very low safety significance because, although the likelihood of a reactor trip increased, the likelihood that mitigating systems would not be available did not increase. This issue also had human performance crosscutting aspects, in the area of decision-making, because the licensee had not conducted effectiveness reviews of safety-significant decisions to verify the validity of the underlying assumptions, identify possible unintended consequences, and determine how to improve future decisions (H.1(b)). The licensee had previously evaluated most turbine control manipulations as 'skill of the craft' and did not identify the potential challenge to reactivity management. This was reflected in the manner in which the turbine was operated, always in the 'go' setting, and that the 200 percent/min position had not been previously eliminated as it served no operational function. This directly contributed to the resultant plant transient. Inspection Report# : [2007003](#) (*pdf*)

Significance:  Apr 06, 2007

Identified By: Self-Revealing

Item Type: FIN Finding

Human Performance Error Hanging an Equipment Clearance Order

The inspectors reviewed a self-revealing finding for a failure to follow procedure, which resulted in losing power to Load Center 2G2 and subsequently the running stator cooling water pump, which would have resulted in a main turbine/reactor trip had the standby stator cooling water pump not auto started. The plant operator opened Breaker 2G2/3B, the supply breaker to Load Center 2G2, instead of Breaker 2G2/3C, the power supply to the condenser air removal system Pump 23. Just before opening the breaker, the plant operator took his eyes off the breaker to bend down and read the breaker racking procedure and the equipment clearance order. Upon standing up, the plant operator did not ensure that he was manipulating the correct breaker and inserted the breaker racking tool into the wrong breaker.

This finding was more than minor because it was associated with the initiating events cornerstone attribute of human performance and it affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The inspectors evaluated the finding using the Significance Determination Process Phase 1 screening and determined it to be of very low safety significance (Green) because, although the likelihood of a reactor trip increased, the likelihood that mitigating systems would not be available did not increase. This issue also had human performance crosscutting aspects associated with work practices in that personnel involved failed to follow the procedure due to inadequate human error prevention

techniques, such as self and peer checking.

Inspection Report# : [2007002](#) (*pdf*)

Mitigating Systems

Significance:  Apr 06, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Improper Maintenance Results in Damage to a HHSI Pump Resulting in NOED

The inspectors reviewed a self-revealing noncited violation of Technical Specification 6.8.1.a for failure to follow Procedures STI 32013741, "Conduct of Maintenance," dated May 15, 2006, and 0PMP04-SI-0002, "High Head Safety Injection Pump Maintenance." On November 27, 2006, the Unit 2 high head safety injection Pump 2A was declared inoperable in order to replace the mechanical seal. The craftsmen encountered several clearance (tolerance) problems trying to remove various parts of the pump. Instead of recognizing the unexpected conditions as adverse and stopping work, the craftsmen and their supervisor continued to troubleshoot the pump outside of the prescribed procedural steps. As a result, the pump was damaged and the licensee requested, which the NRC granted, enforcement discretion to prevent a required Technical Specification shutdown. This event demonstrated improper maintenance practices as outlined in the conduct of maintenance procedure, specifically, ". . . If at any time a conflict arises, unexpected conditions develop, the job instructions are unclear, or the work cannot be performed as planned, stop the job."

The inspectors determined that the violation was more than minor because it was associated with the mitigating systems cornerstone attribute of equipment and human performance, and it affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. Furthermore, the performance deficiency would have resulted in a Technical specification shutdown if not for the Notice of Enforcement Discretion. The inspectors evaluated the violation using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening, and determined that it resulted in Phase 2 analysis due to a single train inoperable for longer than its TS allowed outage time. The Phase 2 analysis screened as Green. This finding also had human performance crosscutting aspects associated with work practices in that the licensee did not clearly define and effectively communicate expectations regarding procedural compliance and personnel following procedures.

Inspection Report# : [2007002](#) (*pdf*)

Barrier Integrity

Significance:  Oct 12, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedural Guidance for Verifying Control Room Ventilation Doors are Secured

The inspectors identified three examples and the licensee identified one example of a noncited violation of Technical Specification 6.8.1.a for the failure to provide an adequate procedure to ensure that doors, which provide access through the control room envelope/heating, ventilation, and air conditioning system were properly closed and latched, and controlled and maintained. The licensee rolled up all the recent door failures into two condition reports, one to address the mechanical aspects and another to address the human performance aspects.

The inspectors determined that having an inadequate procedure for the control of doors that encompass the control room envelope system to be a performance deficiency. This finding is greater than minor because it affected the barrier integrity attribute of procedure quality under maintaining radiological barrier functionality 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 Phase 1 worksheets in Inspection Manual Chapter 0609, "Significance Determination Process," the issue was determined to have very low safety significance because the finding only represented a degradation of the radiological barrier function for the control room. In addition, this finding had a crosscutting aspect with respect to problem identification and resolution in that the licensee did not fully evaluate and assess information from the corrective action program in the aggregate to identify programmatic and common cause problems as a result of having an inadequate procedure for the operation and maintenance of the control room envelope doors.

Inspection Report# : [2006004](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jul 06, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Two Examples of a Failure to Conspicuously Post and Barricade a High Radiation Area

The inspector identified two examples of a noncited violation of Technical Specification 6.12.1 because the licensee failed to conspicuously post and barricade two separate high radiation areas. On April 19, 2007, during a tour of the reactor containment building, the inspector observed the entryways to the steam generator and pressurizer cubicles were not conspicuously posted or barricaded. The licensee's corrective action was to post and barricade these two areas.

This finding was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process, and affected the cornerstone objective to ensure the adequate protection of a worker's health and safety from exposure to radiation because it could have resulted in workers being exposed to higher radiation levels. When processed through 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. In addition, this finding had a human performance crosscutting aspect, associated with work practices, because the licensee failed to define and effectively communicate expectations about procedural compliance (H.4(b)). The licensee's common cause report, Condition Report 07-7030, concluded that the station had not taken the appropriate steps to ensure that workers' respect for radiation protection procedural compliance, boundary rigor, and reasons for radiation control were effectively communicated.

Inspection Report# : [2007003](#) (*pdf*)

Significance:  Jul 06, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Obtain Authorization to Enter a High Radiation Area

The inspector reviewed a self-revealing noncited violation of Technical Specification 6.8.1 because of a failure to follow procedural and radiation work permit requirements. On April 4, 2007, a worker entered a high radiation area without authorization, did not obtain a health physics briefing, and was not aware of the radiation protection controls established by the radiation work permit instructions. The licensee's corrective actions were to counsel the worker and brief associated maintenance and craft personnel about adhering to procedures and radiation work permit requirements.

This finding was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process, and affected the cornerstone objective to ensure the adequate protection of a

worker's health and safety from exposure to radiation because it resulted in the worker being exposed to higher radiation levels. When processed through the Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it was not 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. In addition, this finding had a human performance crosscutting aspect, associated with work practices, because the licensee failed to ensure adequate supervisory and management oversight of work activities, including contractors, such that radiological safety was supported (H.4(c)). The licensee's common cause report, Condition Report 07-7030, concluded that the station did not have enough supervisors or radiation protection technicians in the field, in addition to management not consistently applying learning center requirements.
Inspection Report# : [2007003](#) (*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 Oct 05, 2006

Identified By: NRC

Item Type: FIN Finding

Corrective Action Program Assessment

The inspectors reviewed approximately 253 condition reports, 23 work orders, associated root and apparent cause evaluations, and other supporting documentation to assess problem identification and resolution activities. Overall, the team identified that the licensee was effective at identifying problems and putting them into the corrective action program. The licensee's effectiveness at problem identification was evidenced by the relatively few deficiencies identified by external organizations (including the NRC) that had not been previously identified by the licensee, during the review period. The licensee effectively used risk in prioritizing the extent to which individual problems would be evaluated and in establishing schedules for implementing corrective actions. Corrective actions, when specified, were generally implemented in a timely manner. Licensee audits and assessments were found to be effective and highlighted a similar concern in the root cause area.

Operating experience usage was also found to be effective. Self assessment results adequately identified problems and proposed corrective actions to address these problems. On the basis of interviews conducted during this inspection, the team found that in general workers at the site felt free to input safety findings into the corrective action program, raise nuclear safety concerns to their supervision, bring concerns to the employee concerns program, and bring concerns to the NRC. During interviews, licensee personnel generally expressed confidence that nuclear safety issues that were entered into the corrective action program would be appropriately addressed. However, NRC's final assessment of the safety conscious work environment at is still under NRC review, pending final resolution of 10 CFR 2.206 petition.

During interviews, licensee personnel expressed confidence that nuclear safety issues that were entered into the corrective action program would be appropriately addressed. The inspectors found that the licensee's employee concerns program appropriately identified and adequately addressed nuclear safety concerns. The team concluded that overall a positive safety-conscious work environment existed at the South Texas Project Electric Generating Station.

Inspection Report# : [2006009](#) (*pdf*)

