

## South Texas 2

### 3Q/2006 Plant Inspection Findings

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## Initiating Events

**Significance:**  Jul 07, 2006

Identified By: Self-Revealing

Item Type: FIN Finding

### **Inadequate Main Generator Reactive Power Test Procedure**

A self-revealing finding was identified for the failure to provide an adequate procedure, which resulted in an unexpected initiation of a “Generator U/F (Under-Frequency) Loss of Field Voltage” alarm. This alarm would have caused a generator/turbine/reactor trip in 30 seconds. Prompt action by the operators to terminate the test prevented the trip. The licensee performed a thorough root cause of the event to determine the short and long term corrective actions.

This finding was greater than minor because it was associated with the procedure quality attribute affecting the Initiating Event Cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. This finding was determined to be a finding 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 and no transient actually occurred

Inspection Report# : [2006003\(pdf\)](#)

**Significance:**  Oct 28, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Inadvertent Boration**

A self-revealing noncited violation of Technical Specification 6.8.1.a was identified for failure to adhere to Plant Operating Procedure OPOP02-BR-0001, “Boron Recycle System Operations,” Revision 16. The failure to follow procedure resulted in a subsequent evolution that inadvertently transferred borated water to the Unit 2 volume control tank, decreased power by 2.8 percent, and decreased reactor coolant system temperature by 6°F. The licensee entered the performance deficiency into their corrective action program for resolution.

The failure to follow procedure resulting in a subsequent evolution inadvertently transferring borated water to the Unit 2 volume control tank is a performance deficiency. This finding is greater than minor because it had the actual impact of affecting reactor reactivity and is associated with the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The finding is only of very low safety significance because the reactivity change was negative and the power reduction transient was minor. The cause of the finding is related to crosscutting aspects in the area of human performance related to failure to follow procedure and attention to detail.

Inspection Report# : [2006002\(pdf\)](#)

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## Mitigating Systems

**Significance:**  Apr 07, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Motor-Operated Valve Operation Method**

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix R, Section III.L.3, in that the method used to position motor-operated valves (“hot-sticking”) following a fire in the control room was not independent of the fire area.

Specifically, a portion of each valve control circuit was located in the control room. A fire affecting those circuits could result in mal-operation or over-thrusting of the valves.

The failure to ensure that all circuits relied on for safe shutdown in response to a control room fire were free of the fire area was a performance deficiency. The issue was more than minor because it affected the reliability objective of the Equipment Performance attribute under the Mitigating Systems Cornerstone. Specifically, motor-operated valves that are relied upon to achieve post fire safe shutdown were less because parts of their control circuits could be damaged by the fire. A Senior Reactor Analyst evaluated the safety significance of this finding using Manual Chapter 0609, "Significance Determination Process," Appendix F, and determined that the finding constituted a low level of degradation for post fire safe shutdown equipment. Therefore, the finding was of very low safety significance.

Inspection Report# : [2006002\(pdf\)](#)

**Significance:**  Apr 07, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Alternate Shutdown Analysis**

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix R, Section III.L.1 because the thermohydraulic analysis was inconsistent with actions allowed in the South Texas Project licensing basis for a control room evacuation. Specifically, the analysis inappropriately credited certain manual actions from the control room that are required to be performed in the field.

The failure to have an adequate written evaluation available for a control room fire scenario was a performance deficiency. This issue was more than minor because it affected the Mitigating Systems cornerstone attributes of protection from external factors (fire). The inadequate analysis over-estimated the amount of time available when accomplishing shutdown actions and, during walkdowns, the inspectors could not verify compliance with the requirements. A Senior Reactor Analyst evaluated the safety significance of this finding using Manual Chapter 0609, "Significance Determination Process," Appendix F, and determined that the finding constituted a low level of degradation for post fire safe shutdown analysis. Therefore, the finding was of very low safety significance.

Inspection Report# : [2006002\(pdf\)](#)

**Significance:**  Dec 01, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Inoperability of Essential Cooling Water Trains 2A and 2B**

A green self-revealing noncited violation of Technical Specification 3.7.4 was identified which requires in part, that with only two of three required essential cooling water loops operable, three loops be restored to operable within 7 days or be in at least hot standby within 6 hours. Contrary to the above, Unit 2 continued to operate at 100% power while essential cooling water Train 2B was inoperable for an indeterminate time greater than 7 days. At the time of discovery, it was determined that Train 2B had already been inoperable due to cavitation induced pipe cracking for greater than the 7 day allowed outage time. The licensee entered the performance deficiency into their corrective action program for resolution. This finding is greater than minor because it affected the availability, reliability and capability objectives of the mitigating systems reactor safety cornerstone. Engineering analysis determined that if a seismic event had occurred, essential cooling water Train 2B train could have been rendered non-functional. The finding is only of very low safety significance because it did not involve the total loss of any safety function that contributed to the external event initiated core damage accident sequences as the minimum required two trains of essential cooling water were available for accident mitigation. As there were several missed opportunities to prevent the performance deficiency, this finding involved crosscutting aspects in the area of problem identification and resolution.

Inspection Report# : [2005005\(pdf\)](#)

**Significance:**  Oct 12, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Improper Fuel Handling**

A green self-revealing noncited violation of Technical Specification 6.8.1.a and Regulatory Guide 1.33, Appendix A, was identified for a failure to adhere to Plant Operating Procedure OPOP08-FH-0003, "Fuel Transfer System," Revision 26. The failure to follow procedure resulted in fuel movers challenging the interlocks in the fuel transfer system. Specifically, a fuel mover attempted to lower a fuel assembly in the upender while the upender was still rising. The interlock prevented the upender from making contact with the fuel assembly. The licensee entered the performance deficiency into their corrective action program for resolution. This finding is greater than minor, because it involved the potential damage to fuel assemblies. This issue involves fuel assembly handling so it is not suitable for evaluation under the NRC Significance Determination Process. Therefore, this finding was reviewed by NRC management and determined to be of low safety significance because the event did not result in damage to a fuel assembly. As the performance deficiency involved a failure to follow procedure, this finding involved crosscutting aspects in the area of human performance.

Inspection Report# : [2005005\(pdf\)](#)

**Significance:**  Oct 02, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Inadvertent Letdown Relief Valve Opening**

A green self-revealing noncited violation of Technical Specification 6.8.1.a and Regulatory Guide 1.33, Appendix A, was identified for a failure to adhere to Plant Operating Procedure OPOP02-CV-004, "Chemical and Volume Control System Subsystem," Revision 41. The failure to follow procedure resulted in reactor coolant system inventory being diverted to the pressurizer relief tank when a letdown pressure relief valve opened during a letdown orifice swap. The licensee entered the performance deficiency into their corrective action program for resolution. This finding is greater than minor because it had the actual impact of lifting a relief valve and is associated with the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The finding is only of very low safety significance because, assuming worst case degradation, the lifted relief valve would not have resulted in exceeding the Technical Specification limit for identified reactor coolant system leakage. As the performance deficiency involved a failure to follow procedure, this finding involved crosscutting aspects in the area of human performance.

Inspection Report# : [2005005\(pdf\)](#)

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

**Significance:**  Oct 05, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure to Correctly Install Temporary Shielding**

The inspector reviewed a self-revealing noncited violation of Technical Specification 6.8.1a because the licensee failed to correctly install temporary shielding. Specifically, on October 5, 2005, a crew of four workers installed 270 pounds of shielding per Shielding Request 2005-2-001 on the wrong reactor coolant system valve, RC-142, instead of the correct valve, RC-0017A. The error became evident later that morning when the same crew went to install six pounds of shielding on Valve RC-142 and discovered it already had 270 pounds of shielding on it. The corrective action was to place the proper amount of shielding on each valve. The failure to correctly install temporary shielding resulted in the work crew receiving an additional radiation dose of 87 millirem with one individual receiving as high as 27 millirem of additional radiation

dose.

The finding was greater 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 additional exposure to radiation due to actions contrary to procedures. 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 ALARA finding, there was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised. In addition, the finding had crosscutting aspects associated with human performance because the failure to follow shielding procedures and Shielding Request 2005-2-001 directly contributed to the finding.

Inspection Report# : [2006002\(pdf\)](#)

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## Public Radiation Safety

**Significance:**  Jan 26, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Confine Radioactive Material to A Radiologically Controlled Area**

The team reviewed two examples of a self-revealing non-cited violation of Technical Specification 6.8.1, resulting from the licensee's failure to prevent radioactive material from being unconditionally released from a radiologically controlled area. The first example involved a radiation detection instrument with fixed radioactive contamination. The second example involved a contaminated lifting sling that was used to remove equipment and containers from the containment building. In both examples, the radioactive material was identified after it was removed from a radiologically controlled area but before it left the protected area. Corrective actions for the first example involved counseling the responsible individual. Corrective actions for the second example are still being evaluated. Both examples were entered into the licensee's corrective action program as Condition Reports 04-4266 and 05-14345. This finding is greater than minor because it was associated with a Public Radiation Safety cornerstone attribute (material release) and it affected the associated cornerstone objective in that the failure to control radioactive material decreases the licensee's assurance that the public will not receive unnecessary dose. Using the Public Radiation Safety Significance Determination Process, the team determined that the finding had very low safety significance because: (1) the finding was a radioactive material control finding, (2) it was not a transportation finding, (3) it did not result in public dose greater than 0.005 rem, and (4) radioactive material was not released from the protected area more than five times. Additionally, this finding had cross-cutting aspects associated with human performance. In the first example, a radiation protection technician failed to maintain direct supervision of the contaminated instrument. In the second example, the procedural guidance allowed the licensee to use only portable GM instruments on large items despite the loss of detection sensitivity.

Inspection Report# : [2006008\(pdf\)](#)

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## Physical Protection

[Physical Protection](#) information not publicly available.

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## Miscellaneous

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