

Seabrook 1

2Q/2007 Plant Inspection Findings

Initiating Events

Significance:  Dec 07, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

10 CFR 50, Appendix B, “Corrective Actions,” Failure to Promptly Identify Incorrect Analysis Assumptions Used for an Inadvertent ECCS Initiation at-power Event 10 CFR 50, Appendix B, “Corrective

The inspectors identified a NCV of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” in that FPL failed to promptly identify a condition adverse to quality associated with incorrect design assumptions used for the licensing basis in the station’s stretch power uprate. Specifically, the station failed to promptly identify a discrepancy between emergency operating procedures (EOPs) implementation and the assumed emergency core cooling system (ECCS) termination criteria that had been used for a power uprate “interim design analysis” for an inadvertent SI actuation event. Consequently, FPL operated outside the “interim analysis” basis accepted per an NRC Safety Evaluation Report (SER) and challenged conclusions documented in that credited interim design basis. FPL entered this issue into their corrective action program and additional evaluation by the station determined that the issue remained bounded by original plant design basis conclusions and did not meet NRC reportability thresholds during this “interim analysis” time period.

This finding was more than minor because it was associated with the design control attribute of the initiating events cornerstone and impacted the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions. The finding is also similar to the more than minor examples in MC 0612, Appendix E, examples 3.j and 3.k. Inspectors evaluated this finding using Phase 1 of IMC 0609, Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations,” and determined the finding to be of very low safety significance because it; did not affect loss of coolant accident initiators; did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available; and did not increase the likelihood of an external event.

Inspection Report# : [2006006](#) (*pdf*)

Mitigating Systems

Significance:  Apr 27, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate RWST level uncertainty analysis

The team identified a finding of very low safety significance involving a non-cited violation of 10CFR50, Appendix B, Criteria III, Design Control. Specifically, the instrument uncertainty calculation for the refueling water storage tank (RWST) level instruments took credit for instrument temperature compensation; however, the instruments were not temperature compensated. Additional inaccuracies associated with the bulk temperature mismatch and air pressure differences resulted in a non-conservative RWST level error. In response, FPL implemented a compensatory action to maintain adequate margin to the Technical Specification (TS) limit until engineering modified the level measurement to include temperature compensation.

The finding is more than minor because it is associated with the design control attribute of the Mitigating Systems cornerstone objective of ensuring availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was determined to be of very low significance, based on Phase 1 of the SDP, because it did not result in the loss of RWST operability.

Inspection Report# : [2007006](#) (*pdf*)

G**Significance:** Apr 27, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Non-conservative TDEFWP steam admission valve stroke time test acceptance criteria

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, Test Control. The team determined that FPL did not ensure that the turbine driven emergency feedwater pump (TDEFWP) steam admission valve, MS-V-395, inservice test (IST) procedures had acceptance criteria that incorporated the limits from applicable design documents. Specifically, the design basis stroke time of MS-V-395 was not correctly stated in the IST program so that the valve stroked faster than the design basis requirement, but was still considered operable per IST requirements. Following identification of the issue, FPL declared the TDEFWP inoperable, entered the applicable TS, restored the valve stroke time to within its design basis range, and entered the issue into the corrective action program (CAP) for resolution.

The finding is more than minor, because it is associated with the procedural quality attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was determined to be of very low significance, based on Phase 1 of the SDP, because it did not result in the loss of a safety function.

Inspection Report# : [2007006](#) (*pdf*)**G****Significance:** Mar 31, 2007

Identified By: NRC

Item Type: FIN Finding

Inadequate Evaluation of a Deficiency with the Alternate Cooling Water System to the Charging Pumps

The inspectors identified a finding for Seabrook failing to adequately evaluate and take corrective actions to ensure the ability of alternate water sources to provide cooling to the charging pump lube oil coolers. Seabrook did not perform confirmatory tests or develop an engineering basis for acceptability of the system following initiation of condition reports in 2004 and 2005, which documented concerns with the testing and ability of the alternate cooling water system to perform its Updated Final Safety Analysis Report function. In October 2006, the alternate cooling system failed to function due to rust buildup on the discharge check valves which prevented the valves from opening. This did not violate NRC regulations because the alternate cooling system is not safety-related.

This finding was more than minor because it affected the Mitigating Systems cornerstone attribute of equipment performance and the objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. The risk significance was determined through a detailed assessment. The finding was determined to be of very low safety significance (Green) since the inability to implement alternate cooling water would not increase the chance of core damage. The finding has a cross-cutting aspect in the area of problem identification and resolution because Seabrook did not properly evaluate a known deficiency associated with the alternate cooling water system.

Inspection Report# : [2007002](#) (*pdf*)**G****Significance:** Jan 11, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective actions Result in a Repeat Failure of the "B" EDG

The inspectors identified a Green non-cited violation (NCV) for the licensee's failure to comply with 10 CFR 50, Appendix B, Criteria XVI, Corrective Action. The analyses of previous "B" emergency diesel generator (EDG) voltage regulator failures were inadequate in that they failed to identify corrective actions to prevent recurrence. Specifically, as a result of the inadequate evaluation of the cause for the December 7, 2005 event, the "B" EDG voltage regulator failed and resulted in a generator overvoltage condition during a surveillance test on August 31, 2006. The licensee entered the issue in their corrective action program, performed a root cause evaluation and implemented voltage regulator hardware changes to prevent recurrence of the overvoltage condition.

The finding is more than minor because the voltage regulator failure affected the Mitigating Systems Cornerstone attribute of Equipment Performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. The function of the EDG is to provide alternating current

power to safety systems following a loss of offsite power event. The finding was determined to be of very low safety significance since the EDG was inoperable for a short period of time and the failures were intermittent in nature. The finding has a cross-cutting aspect in the area of problem identification and resolution (sub-category evaluation) in that Seabrook failed to perform adequate analyses of previous events and as a result did not identify appropriate actions to prevent recurrence.

Inspection Report# : [2006016](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Controls of a Heavy Load Lift over the Reactor Vessel

The inspectors identified a non-cited violation of Technical Specification 6.7.1.a, "Procedures and Programs." On October 11, 2006, Seabrook failed to adequately establish and implement procedural controls for a heavy load lift, which resulted in a reactor coolant floor plug passing over an open, partially fueled reactor vessel.

The finding was more than minor because it could be reasonably viewed as a precursor to a significant event because a portion of the heavy load traveled over the reactor vessel that contained irradiated fuel and the reactor vessel head was removed for refueling activities. This finding was not suitable for a significance determination process evaluation, but has been reviewed by NRC management and was determined to be a finding of very low safety significance (Green). This finding has a cross-cutting aspect in the area of human performance (sub-category resources) because Seabrook did not have complete and accurate procedural controls to assure safety of the heavy load lift.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inoperable Main Steam Isolation Valve for Greater than Technical Specification Allowed Outage Time

A Green self-revealing non-cited violation of Technical Specification (TS) 3.7.1.5, "Main Steam Line Isolation Valves" was identified by the inspectors. On June 30, 2006, operators received a control room alarm associated with a main steam isolation valve (MSIV). Subsequent troubleshooting identified a failed valve control module which affected operability of the MSIV. Seabrook determined that one MSIV was inoperable for approximately 20 hours which was greater than the 4 hour TS allowed outage time. The extended inoperability time was caused, in-part, by improperly assessing the initial operability of the MSIV.

The finding was more than minor because it affected the Mitigating Systems cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance (Green) since it did not result in the loss of a safety function and it did not impact external initiating events. This finding has a cross-cutting aspect in the area of human performance because Seabrook did not properly assess the available information and follow procedural requirements though a conservative decision-making process for operability of the MSIV.

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

Barrier Integrity

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedural Compliance Results in Inadvertent Dilution during Shutdown

A self-revealing non-cited violation of Technical Specification 6.7.1.a, "Procedures and Programs" was identified by the inspectors. On October 25, 2006, during a cold shutdown, operators inadvertently performed a 500-gallon dilution

instead of a planned blended makeup to the reactor coolant system. Seabrook determined the root cause of this event was a loss of configuration control of the boric acid storage system due to a lack of procedure use in accordance with established standards. This resulted in isolating the normal flow path from the boric acid storage system for boric acid additions and blended makeups.

The finding is more than minor because if left uncorrected it would become a more significant safety concern. Specifically, if the dilution occurred while the plan was online, this would have resulted in a more significant reactivity change and potential overpower condition. The finding was determined to be of very low safety significance (Green) since the reactivity change did not result in exceeding the Technical Specification shutdown margin requirements. This finding has a cross-cutting aspect in the area of human performance (sub-category work practices) because personnel did not follow procedural compliance standards.

Inspection Report# : [2006005](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

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 Dec 07, 2006

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution

The team concluded that the implementation of the corrective action program (CAP) at Seabrook was generally effective. The team determined that Seabrook station had a low threshold for identifying problems and entering them in the corrective action program. Once entered into the system, items were screened and prioritized in a timely manner using established criteria. The station properly evaluated items entered into the corrective action program commensurate with their safety significance. Corrective actions addressed the identified causes and were typically implemented in a timely manner based upon significance. The team observed that the station was generally effective in reviewing and applying operating experience information from industry. Overall, FPL audits and assessments that were reviewed were critical, and appropriate actions were taken to address identified issues. On the basis of interviews conducted during the inspection, the team found station employees at the site expressed the willingness and freedom to enter safety concerns into the CAP.

Inspectors identified one Green NCV during this inspection. The NCV was associated with a failure to promptly identify a condition adverse to quality associated with analysis assumptions credited by the station an inadvertent safety injection (SI) event.

Inspection Report# : [2006006](#) (*pdf*)

Last modified : August 24, 2007