



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

February 12, 2008

EA-07-244

Mr. Gene St. Pierre
Site Vice President
FPL Energy Seabrook, LLC
Seabrook Station
c/o Mr. James M. Peschel
P.O. Box 300
Seabrook, NH 03874

**SUBJECT: SEABROOK STATION, UNIT NO. 1 - NRC INTEGRATED INSPECTION
REPORT 05000443/2007005 AND EXERCISE OF ENFORCEMENT
DISCRETION**

Dear Mr. St. Pierre,

On December 31, 2007, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at Seabrook Station, Unit No. 1. The enclosed report documents the inspection findings discussed on January 3, 2008, with you and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

During an inspection in a previous quarter, apparent violations of requirements were identified. The NRC is exercising enforcement discretion because the issue was identified and corrective actions were implemented in accordance with EGM-07-003, "Disposition of Violations of 10 CFR 50.47(b)(4) for Failure to Maintain a Standard Emergency Action Level Scheme." The enforcement discretion will continue provided the implemented corrective actions are maintained in accordance with EGM-07-003. Your corrective actions will be subject to future inspections.

This report documents one self-revealing finding and one NRC-identified finding of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating these issues as non-cited violations, in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you deny any of the non-cited violations noted in this report, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Seabrook.

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Sincerely,

/RA/

David C. Lew, Director
Division of Reactor Projects
Region I

Docket No. 50-443
License No: NPF-866

Enclosure: Inspection Report No. 05000443/2007005
w/ Attachment: Supplemental Information

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Sincerely,
 /RA/
 David C. Lew, Director
 Division of Reactor Projects
 Region I

Docket No. 50-443
 License No: NPF-866

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* concurred on section 40A5 via email on 2/7/08

** Robert Kahler and Doug Starkey concur on Section 40A5 via email on 2/7/08

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket No.: 50-443

License No.: NPF-86

Report No.: 05000443/2007005

Licensee: FPL Energy Seabrook, LLC, et al (FPL)

Facility: Seabrook Station, Unit No. 1

Location: Seabrook, New Hampshire 03874

Dates: October 1, 2007 through December 31, 2007

Inspectors: William Raymond, Senior Resident Inspector
Heather Jones, (Acting) Resident Inspector
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SUMMARY OF FINDINGS

IR 05000443/2007005; 10/01/07 – 12/31/2007; Seabrook Station, Unit No. 1; Operability Determinations, Maintenance Risk Assessment and Emergent Work Control.

The report covered a three-month period of inspection by resident and region-based inspectors. Two Green non-cited violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). 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," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. A self-revealing, non-cited violation of Technical Specifications 6.7.1.a was identified for a failure to implement written procedures governing safety-related activities. Specifically, technicians did not torque breaker electrical connections to 21 inch-pounds as specified by maintenance procedure LX0557.04 during maintenance on Enclosure Building Air Handling (EAH) Fan 180A in 2006. As a result, the breaker's 'C' lead became loose causing the breaker to trip on over-current when the fan was started on December 13, 2007.

The finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance and adversely affected the objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, inadequate work practices caused the failure of one of two EAH system fans that supply ventilation and cooling to engineered safety feature equipment during an accident. FPL repaired the loose lead and entered the issue into the corrective action program as Condition Report 07-15832.

The finding has a cross-cutting aspect in the area of human performance, work practices, because personnel did not follow procedures leading to the failure of the safety-related support system. (Section 1R13).

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, because FPL did not identify a condition adverse to quality in the B residual heat removal (RHR) system when engineering evaluations used incorrect input assumptions to support the use of low strength bolts in two RHR system bolted flanges. Due to the use of low strength bolts, stresses in the two bolted flanges exceeded ASME code allowable values but not bolt material yield stresses. To address the issue, FPL verified that bolt stresses were acceptable on the A RHR system; initiated actions to review all bolt installations addressed by the subject engineering evaluation; and, initiated plans to change the bolting material on the B RHR flanges. FPL also completed a revised operability evaluation that concluded

the B RHR system was operable but degraded relative to compliance with the system's design bases, and entered the item into its corrective action program as CR 07-14282.

This finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined the issue was of very low safety significance per Inspection Manual Chapter (IMC) 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations (SDP)," because the finding was a design deficiency confirmed not to result in loss of system operability. (1R15)

B. Licensee Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Seabrook Station Unit No. 1 (Seabrook), began the inspection period at full power. On December 11, 2007, operators reduced power to 92 percent at the request of the system operator to support grid operating requirements. Full power was restored on December 11, 2007, and remained there for the rest of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - 1 sample).1 Impending Adverse Weather Preparationsa. Inspection Scope

The inspectors reviewed the preparations to protect the site from adverse weather conditions when Hurricane Noel was projected to impact the Seabrook coastal area during the period of November 2-3, 2007. The inspectors reviewed the actions to implement procedure OS1200.03 "Severe Weather Conditions;" toured various plant and site areas to monitor protective actions for excessive rain and wind; and, monitored plant operational parameters and site conditions to verify that controls were appropriate to protect risk significant systems and essential equipment. The plant systems reviewed included the 345 KV switchyard, the station normal and emergency electrical power supplies, the service water system and the circulation water system. The references used for this review are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04 - 4 samples, 71111.04S - 1 sample).1 Partial Walkdown.a. Inspection Scope

The inspectors performed the four partial system walkdown inspections listed below. The inspectors performed the review to verify that valve positions, switches, and breakers, were correctly aligned in accordance with Seabrook's procedures and to identify discrepancies that could may have had an effect on operability. The inspectors reviewed applicable piping and instrumentation drawings and operational lineup procedures. The references used for this review are listed in the Attachment.

- On October 16, 2007, technical specification required offsite power supplies when a feeder for the 345 kV Line 369 was out of service for maintenance.

- On October 31, 2007, the turbine driven emergency feedwater (TDEFW) pump following the quarterly test and monthly valve alignment.
- On November 13 and 22, 2007, 125vdc system during B Battery charger work.
- On November 26 - 30, 2007, the emergency diesel generators and TDEFW pump when the 345 kV offsite power line 363 was out of service for maintenance.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown - Safety Injection System

a. Inspection Scope

The inspectors performed a full system walkdown inspection of the safety injection system to verify the system was properly aligned and capable of performing its safety function. To ascertain the required system configuration, the inspectors reviewed plant procedures, system drawings, the UFSAR, and the TS. The references used for this review are listed in the Attachment. The inspectors walked down the accessible portions to the system to verify the system's overall material condition; that valves were correctly positioned; that electrical power was available; that major system components were properly labeled; that hangers and supports were correctly installed and functional; and that ancillary equipment or debris did not interfere with system performance.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 6 samples)

.1 Fire Protection - Quarterly Walkdowns

a. Inspection Scope

The inspectors examined several areas of the plant to assess: the control of transient combustibles and ignition sources; the operational status and material condition of the fire detection, fire suppression, and manual fire fighting equipment; the material condition of the passive fire protection features (fire doors, fire dampers, fire penetration seals, etc.); and the compensatory measures for out-of-service or degraded fire protection equipment. The inspectors verified that fire areas were maintained in accordance with applicable portions of Fire Protection Pre-Fire Strategies and Fire Hazard Analysis. The references used for this review are listed in the Attachment. The following areas were inspected:

- Zone ET-F-1A-A, A Electrical Tunnel East;
- Zone MS-F-1A-Z, Main Steam Feedwater Pipe Enclosure East, Elev. 12';
- Zone MS-F-5A-Z, Main Steam Feedwater Pipe Enclosure East, Elev. 3'';
- Zone PAB-F-1J-Z, Mechanical Penetration West;

- Zone PAB-F-2C-Z, PAB 25 ft el; and
- Zone PAB-F-1A-Z, PAB -6 ft el.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A - 1 sample)

.1 Annual Inspection

a. Inspection Scope

The inspectors reviewed Seabrook's program for monitoring the A primary component water heat exchanger CW-E-17A to determine whether the heat exchanger could fulfill its design function. The inspectors reviewed past thermal performance monitoring, trending data for heat exchanger temperatures and fouling factors, and ES1850.017, "SW Heat Exchanger Program," Revision 0. The inspectors reviewed data monitored by the system engineer to evaluate the process used to monitor the heat exchanger and commitments in Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." The inspectors also reviewed condition reports to verify that heat exchanges thermal performance issues were identified and corrected. The references used for this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11Q - 1 sample, 71111.11B - 1 sample)

.1 Quarterly Resident Inspector Review

a. Inspection Scope

The inspectors observed the performance of licensed operators during simulator demonstration examinations on November 6 and 14, 2007. The inspectors reviewed the simulator physical fidelity to verify similarities between the Seabrook control room and simulator. The inspectors assessed operator performance associated with high-risk activities, the Emergency Plan, previous lessons learned items, and the correct use and implementation of procedures. The inspectors observed the training evaluator critique of the operator performance and verified that deficiencies were adequately identified, discussed, and entered into the corrective action program. The references used for this review are listed in the Attachment.

b. Findings

No findings of significance were identified

.2 Requalification Program Review

a. Inspection Scope

The following inspection activities were performed using NUREG-1021, Revision 9, "Operator Licensing Examination Standards for Power Reactors," Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program," and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)," and 10 CFR 55.46 Simulator Rule (sampling basis) as acceptance criteria.

The inspectors reviewed documentation of operating history since the last requalification program inspection. The inspectors also discussed facility operating events with the resident inspector staff. Documents reviewed included NRC inspection reports, NRC performance indicators, and FPL condition reports written to address licensed operator human performance issues.

The inspectors reviewed a sample of questions from two comprehensive biennial written exams (weeks 1 and 5), two scenarios and 12 job performance measures (JPMs) used during week 7 to ensure the quality of these exams met or exceeded the criteria established in the Examination Standards and 10 CFR 55.59.

The inspectors observed the administration of operating examinations to Crew D. The operating examinations consisted of two crew simulator scenarios and one set of five JPMs administered to each individual.

The inspectors observed simulator performance during the conduct of the examinations and simulator discrepancy reports to verify compliance with the requirements of 10 CFR 55.46. The following areas were reviewed:

Reviewed a sample of simulator tests including transients, steady state, and malfunction as well as core performance tests. For a listing of the specific simulator tests reviewed see the Attachment.

Conformance with individual operator license conditions was verified by reviewing the following :

- Ten operator medical records;
- Proficiency watch-standing documentation;
- Remediation training records for 12 operator remediations for 11 quiz failures and one exam failure; and
- Seven license re-activation records.

The inspectors reviewed student, evaluator and management feedback from training and evaluations to assess comments and program effectiveness.

On December 10, 2007, the inspectors conducted an in-office review of Seabrook's final requalification exam results. These results included the annual operating tests. The inspection assessed whether pass rates were consistent with the guidance of NRC

Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)." The inspectors verified that:

- Crew failure rate on the dynamic simulator was less than 20%. (Failure rate was 0%)
- Individual failure rate on the dynamic simulator test was less than or equal to 20%. (Failure rate was 0%)
- Individual failure rate on the walkthrough test (JPMs) was less than or equal to 20%. (Failure rate was 0%)
- Individual failure rate on the comprehensive written exam was less than or equal to 20%. (Failure rate was 0%.)
- More than 75% of the individuals passed all portions of the exam. (100% of the individuals passed all portions of the exam).

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 2 samples)

.1 4KV Breaker Diode Failures

a. Inspection Scope

The inspectors completed one annual maintenance rule inspector sample that reviewed the 4.16 kV and 13.8 kV switchgear system, and specifically the safety-related 4160 Volt breaker diode failures. The inspectors interviewed engineers, reviewed specific maintenance rule criteria, and examined CRs and associated corrective actions. The inspectors also reviewed the Seabrook UFSAR and system health reports for the system. Corrective actions and maintenance rule functional failure evaluations were assessed against 10 CFR 50.65 requirements and against the guidance in Nuclear Management and Resources Council (NUMARC) 93-01, "Industry Guideline for Monitoring the effectiveness of Maintenance at Nuclear Power Plants," Revision 2. The inspectors reviewed the Seabrook action plans for restoring the 4.16 kV and 13.8 kV switchgear system to a (2) status. The references used for this review are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Safety Injection System

a. Inspection Scope

The inspectors completed one annual maintenance rule sample that reviewed the Safety Injection (SI) system, specifically SI pumps, piping, and associated valves. Although, there were no maintenance rule functional failures in the past two years to the SI system and the SI system has been classified as a (2) system, the inspectors examined the

appropriateness of performance criteria for the structure, system, or components/ functions. The inspectors reviewed system health reports, unavailability and unreliability performance indicator data, condition reports (CRs), and system component work order history to verify FPL's handling of performance or condition problems. The inspectors interviewed engineers and maintenance staff as well as reviewed specific maintenance rule criteria to ensure the system had been properly classified and appropriate preventive maintenance was effectively controlling performance. Evaluations were assessed against 10 CFR 50.65 requirements and against the guidance in Nuclear Management and Resources Council (NUMARC) 93-01, "Industry Guideline for Monitoring the effectiveness of Maintenance at Nuclear Power Plants," Revision 2. The references used for this review are listed in the Attachment.

b. Findings

No findings were identified

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 5 samples)

a. Inspection Scope

The inspectors reviewed the scheduling and control of one planned maintenance activity and four emergent work activities to evaluate the effect on plant risk. The inspectors performed interviews with operators, risk analysts, maintenance technicians, and engineers to assess their knowledge of the risk associated with the work, and to ensure that other equipment was properly protected. The compensatory measures were evaluated against Seabrook procedures, Maintenance Manual 4.14, "Troubleshooting," Revision 0 and Work Management Manual 10.1, "On-Line Maintenance," Revision 3. Specific risk assessments were performed using Seabrook's "Safety Monitor." The inspectors reviewed the following work items.

- On October 17, 2007, the inspectors reviewed the replacement of the charging system boric acid blender control switch.
- On October 18-26, 2007, the inspectors reviewed the repair planning and preparations for a steam leak on the inboard manway cover on the B steam generator (CR 07-13323).
- On November 7, 2007, the inspectors reviewed troubleshooting activities in response to the 1B battery voltage drop and subsequent discharging alarm (CR 07-14283).
- On December 3 and 4, 2007, the inspectors reviewed FPL's risk management activities for an emergent winter storm that increased transient initiation risk. The inspectors reviewed risk significant work in progress (WO 0708184) and the scheduled work.
- On December 18 and 19, 2007, the inspectors reviewed FPL's work activities in response to emergent work on a breaker associated with their Enclosure Building Air Handling fan.

b. Findings

Introduction: A Green, self-revealing violation of Technical Specifications (TS) 6.7.1.a, "Procedures," was identified when technicians did not correctly implement maintenance procedure LX0557.04, "Time/Current Testing - 480 Volt Gould Unitized Starters Or Cutler Hammer Motor Protectors" for the Enclosure Building Air Handling System (EAH) fan power supply breaker. This caused the safety-related fan to trip on demand.

Description: The EAH system provides ventilation and cooling to engineered safety features equipment during normal operations and following an accident. Normally EAH draws air from the outside for the filtration process. When Seabrook is expected to experience snowy/icy conditions the operators place the system in the recirculation mode to prevent potential high differential pressure conditions on the filters.

On December 13, 2007, in response to impending severe weather at the site, operators transferred the EAH System to the recirculation mode in accordance with OS1023.66, "Containment Enclosure Ventilation System Operation." When operators started EAH fan 180 A in accordance with the procedure, it tripped. Operators declared the fan inoperable and entered TS 3.6.5.1 and started EAH fan 180 B.

EAH fan 180 A failed to start because the associated breaker, 1-EDE-MCC-512-BP2, tripped on over current. FPL determined that the breaker tripped due to a loose lead. Maintenance last performed work on the breaker in August of 2006 per WO 0625683. This WO used maintenance procedure LX0557.04, "Time/Current Testing - 480 Volt Gould Unitized Starters Or Cutler Hammer Motor Protectors," to control completion of the work activity. Figure 3 in LX0557.04 required that breaker leads were connected using 21 in-lbs of torque. FPL determined that during the August 2006 work, maintenance technicians did not apply the specified torque to the lead that eventually became loose and resulted in the breaker trip on December 13.

FPL classified this breaker failure as a maintenance rule functional failure because it impacted a safety-related 480 VAC motor control center. It was maintenance preventable because the failure was due to workmanship during the August 2006 maintenance activity.

The inspectors determined that the failure to follow maintenance procedure LX0557.04 was a performance deficiency. Specifically, because technicians did not apply the specified torque to an EAH fan 180A lead during maintenance in August 2006, the lead became loose and resulted in the fan's failure to start on December 13, 2007. The cause was within FPL's ability to foresee and correct because the work package specified the steps required to restore the fan's power supply to fully operable status, but maintenance technicians did not adhere to the directions provided in the FPL procedure included in the work package.

Analysis: The finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance and adversely affected the objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, inadequate work

practices caused the failure of one of two EAH system fans that supply ventilation and cooling to engineered safety feature equipment during an accident.

The finding has a cross-cutting aspect in the area of human performance, work practices, because personnel did not follow procedures leading to the failure of the safety-related support system (H.4(b)).

The inspectors reviewed the issue and determined it to be of very low safety significance per Inspection Manual Chapter (IMC) 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations (SDP)," because the finding did not represent a loss of system safety function and because the breaker and associated A fan was restored per WO 0738967 within the allowable technical specification time for a single train. The 180 B EAH fan was placed into service and the mitigating system function remained operable.

Enforcement: Technical Specifications 6.7.1.a requires that written procedures be established and implemented to cover the activities described in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Maintenance procedure LX0557.04 was written pursuant to the above and required that cable connections on breakers in safety-related circuits be fastened with a torque of 21 inch-pounds (in-lb). Contrary to the above, in August 2006, maintenance technicians did not torque the C phase lead on the breaker for EAH fan 180A to 21 in-lb. As a result the lead became loose and caused EAH fan 180A to fail to start on demand on December 13, 2007. Because the finding was of very low safety significance and has been entered into the corrective action program as Condition Report 07-15832, this violation is being treated as an NCV, consistent with section VI.A of the NRC Enforcement Policy. **NCV 05000443/2007005-01, Enclosure Building Air Handling Fan Failed on Demand due to Failure to Implement Maintenance Procedure to Torque Cable Connections.**

1R15 Operability Evaluations (71111.15 - 6 samples)

a. Inspection Scope

The inspectors reviewed operability evaluations and/or condition reports to verify that identified conditions did not adversely affect safety system operability or plant safety. The evaluations were reviewed using criteria specified in NRC Regulatory Issue Summary 2005-20, "Revision to Guidance formerly contained in NRC Generic Letter 91-18, Information to Licensees Regarding two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," and Inspection Manual Part 9900, "Operability Determinations and Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety." In addition, where a component was determined to be inoperable, the inspectors verified that Technical Specifications (TS) limiting conditions for operation were properly addressed and required action taken.

- CR 07-13362 that evaluated the potential impact on the containment boundary for a steam leak on the B steam generator manway cover.
- CR 07-13021 that evaluated the CS-V-150 open light indication (red lamp) failure at the conclusion of procedure OX1456.83, Train B ESFAS slave relay quarterly go test.
- CR 07-13999 that evaluated the seat leakage from valve RH-V140 in the residual heat removal system.
- CR 07-14282 that evaluated the use of low strength bolting in low pressure systems (RH-HCV-607 and RH-FCV-619).
- CR 07-15436 that evaluated the diesel generator A oil sample results indicated glycol concentrations of that indicated 250ppm and 100ppm from two separate sample points.
- CR 07-15292 that evaluated the lack of a double-nut configuration on a positioner linkage that caused a fail open Component Cooling Temperature Valve CC-TV-2271-1 to fail closed.

b. Findings

Introduction: The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, because FPL did not identify a condition adverse to quality in the B residual heat removal (RHR) system when engineering evaluations used incorrect input assumptions to support the use of low strength bolts in two RHR system bolted flanges.

Description: At Seabrook piping specification 9763-006-248-1 (Specification 248-1) was used to install low strength bolts in Class 150 and Class 300 piping applications. The specification was initially based upon the 1968 version of ANSI Standard B16.5. Seabrook later adopted the 1977 Edition of the ASME Code and ANSI Standard B16.5-1977 that required the use of higher strength bolts in flanges that used flexitallic gaskets. Engineering revised specification 248-1 to reflect the new code requirements, but did not change the bolting requirement for pipe flanges with flexitallic gaskets. At some time in the past, FPL recognized this error, but determined that the continued use of low strength bolts in that application was acceptable.

In October 2007, FPL's Quality Assurance (QA) group identified that past corrective actions to revise Specification 248-1 were not fully completed. FPL issued condition report (CR) 07-13981 to address the past ineffective corrective actions and completed an operability evaluation that concluded that systems with low strength bolts remained "acceptable-as-is" based on present qualitative engineering judgments. The operability evaluation relied upon conclusions reached in previous engineering evaluations that determined that for low strength bolts installed prior to 1989 the stresses were acceptable. Specifically, engineering evaluation (EE) 87-16 and supporting quality-related calculations showed that bolt stresses were below ASME code allowable for normal and upset conditions. FPL also issued CR 07-14058 to evaluate the continued use of low strength bolts in safety-related piping applications installed after 1989.

In response to NRC inspector questions on the operability evaluation, FPL reviewed the calculations for the B residual heat removal (RHR) system heat exchanger outlet valve

RH-HCV-607 (joint JTR-158-0201) and identified errors. Specifically, FPL identified that the calculation assumed that high strength bolts were installed instead of low strength bolts. When engineering recalculated the stress using low strength bolts, the calculated bolt stress exceeded the ASME Code allowable stress, but was below the bolt material yield stress. FPL completed an extent of condition review as a result of finding this error and found that the B RHR system heat exchanger bypass valve, RH-FCV-619 (joint 161-JTR-0101), also had bolt stresses higher than the ASME Code allowable but below material yield stress. To address these issues, FPL verified that bolt stresses were acceptable on the A RHR heat exchanges valves; initiated actions to review all bolt installations addressed by EE 87-16; and, initiated plans to change the bolting material on the B RHR valve flanges (WOs 0738716 and 0738718). FPL entered this item into the corrective action program as CR 07-14282. FPL also completed a revised operability evaluation that concluded the RHR system was operable but degraded relative to compliance with the system's design bases.

The inspectors determined that the failure to identify a condition adverse to quality related to RHR system components was a performance deficiency. Specifically, due to engineering's use of incorrect input assumptions for calculations it completed when FPL identified that one of its piping specifications needed revision, FPL did not identify that the calculated bolt stress for two flanged connections in the B RHR system exceeded ASME Code allowable stresses. The cause was within FPL's ability to foresee and correct because FPL had previous opportunities to review, identify and correct deficiencies associated with the use of low strength bolting. Specifically, FPL's quality reviews for EE 87-16 were not adequate to identify the error in input assumptions associated with the stress calculations for the two RHR system flanges.

Analysis: This finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, calculated stresses for two RHR system flanged connections exceeded ASME code allowable stresses and required the completion of an operability evaluation and engineering calculations to conclude the system remained operable but degraded. FPL plans to replace the bolting on both RHR valve flanges to restore the B RHR train to full compliance with the licensing basis. This issue is also similar to Example 3.a of Inspection Manual Chapter (IMC) Appendix E (page E-7) involving calculation errors that are more than minor. The issue is more than minor because the calculation errors were significant such that rework was required to restore design safety margins.

The inspectors determined the issue was of very low safety significance per Inspection Manual Chapter (IMC) 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations (SDP)," because the finding was a design deficiency confirmed not to result in loss of system operability.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Contrary to the above, from about 1987 until November 6, 2007, FPL failed to identify and correct a condition adverse to quality involving the use of low strength bolts in flanges for the RHR system.

As a result the flange bolts for two valves in the B RHR system did not meet the allowable stresses specified by the ASME code. FPL completed additional evaluations to show the RHR system was operable, but degraded, and FPL plans to replace bolts to restore compliance with the ASME code. Because the finding was of very low safety significance and has been entered into the corrective action program as Condition Report 07-14282, this violation is being treated as a NCV, consistent with section VI.A of the NRC Enforcement Policy. **(NCV 05000443/2007005-02, Inadequate Evaluation of the Low Strength Bolts in the RHR System)**

1R17 Permanent Plant Modifications (71111.17 - 1 sample)

.1 Fuel Storage Building Modifications for Cask Handling Crane

a. Inspection Scope

The inspectors reviewed the design change 06MMOD-0520, "Fuel Storage Building (FSB) Modifications to Support Cask Handling Crane Upgrades." Modification 06MMOD-0520 created an opening in the fuel building roof to allow installation of equipment to upgrade the FSB cask handling crane, 1-FH-RE-1. The inspectors reviewed the design of the modifications made to the existing structures. The inspectors also performed interviews with engineers and project staff. The inspectors reviewed FPL's safety evaluation screening evaluation for the modification completed per the requirements of 10 CFR 50.59. Walkdowns of the FSB were performed to verify compliance with the design documents. The inspectors also reviewed the post-modification testing to assure the fuel storage building ventilation system met the license requirements. The references used during this review are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 5 samples)

a. Inspection Scope

The inspectors reviewed post-maintenance testing (PMT) activities to ensure: the PMT was appropriate for the scope of the maintenance work performed and in accordance with MA 3.5, "Post Maintenance Testing;" the acceptance criteria were clear and demonstrated operability of the component; and the PMT was performed in accordance with procedures. The following PMT activities were reviewed:

- On October 19, 2007, FPL performed functional testing of the boric acid control system after replacing the blender control switch. The inspectors reviewed the post-maintenance tests completed per OS1008.01 for WO 0730201.
- On October 31, 2007, FPL performed valve stroke time testing following replacement of limit switches on the safety injection accumulator fill valve SI-V-157. The inspectors reviewed the post-maintenance tests completed per OX1456.81 for WOs 0707555 and 0736752.

- On October 22, 2007, FPL cycled valve RH-V140 per WO 0320251 as part of a modification to the A RHR pump suction line drain line. The inspectors reviewed the post repair actions and investigations to address leakage in the post-accident recirculation flow path (reference CR 07-13999).
- On December 1, 2007, FPL conducted troubleshooting and subsequently repaired a disconnected feedback arm on a primary component cooling water (PCCW) temperature control valve per WO 0738599 (reference CR 07-15260). The inspectors reviewed the work order package, associated PMTs, and walked down accessible portions of the PCCW system.
- On December 7, 2007, FPL removed their portable battery charger and restored their normal battery charger, 1-EDE-BC-1-B, per WO 0736598. The inspectors reviewed the work order package, associated PMTs, and walked down the battery chargers and applicable breaker positions.

b. Findings

No findings of significance were identified. Section 4OA7 describes a licensee-identified finding in this area.

1R22 Surveillance Testing (71111.22 - 4 samples)

a. Inspection Scope

The inspectors observed portions of surveillance testing activities of safety-related systems to verify that the system and components were capable of performing their intended safety function, to verify operational readiness, and to ensure compliance with required Technical Specifications and surveillance procedures.

The inspectors attended selected pre-evolution briefings, performed system and control room walkdowns, observed operators and technicians perform test evolutions, reviewed system parameters, and interviewed the system engineers and field operators. The test data recorded was compared to procedural and technical specification requirements, and to prior tests to identify any adverse trends. The following surveillance procedures were reviewed.

- On October 10, 2007, OX1456.83, "Train B ESFAS Slave Relay K624 Quarterly Go Test," Revision 0;
- On October 11, 2007, OX1401.02, "RCS Steady State Leak Rate Calculation," Revision 6;
- On October 25, 2007, OX1456.01, "Charging Pump A & B Quarterly Flow and Valve Stroke Test and 18 Month Remote Position Indication Verification," Revision 10;
- On October 31, 2007, OX1436.02, "Turbine Driven Emergency Feedwater Pump Quarterly and Monthly Valve Alignment," Revision 9.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - 1 sample)

a. Inspection Scope

The inspectors reviewed proposed temporary modification 07TMOD-011 and associated implementing documents to verify Seabrook's design basis and affected system operability were maintained. Temporary modification 07TMOD-011 involved the use of a temporary clamp and leak sealing process to address a minor steam leak from the upper manway cover on the B steam generator (secondary side). The inspectors reviewed FPL actions to establish a leakage monitoring plan and criteria to establish plant conditions needed to implement the modification. The inspectors reviewed FPL actions to monitor the steam leak, observed project meetings, and interviewed engineers and maintenance personnel.

The inspectors verified that 07TMOD-011 was prepared in accordance with NRC requirements and plant procedures. The procedural requirements included engineering evaluations, calculations and revisions to plant procedures. The inspectors verified that critical parameters in the leak sealing process were identified and translated into work control procedures that would be used to implement the modification. The inspectors verified FPL addressed the impact of the leakage on plant equipment and essential safety barriers. The inspectors verified that 10 CFR 50.59 and risk evaluations were completed correctly. The inspectors also reviewed FPL use of operating experience and past uses of the leak sealing process at Seabrook and in the industry. The inspectors reviewed FPL actions to address deficiencies in the corrective action program. The references used in this review are listed in the Attachment.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access to Radiologically Significant Areas (71121.01 - 9 samples)

a. Inspection Scope

During the period November 26-29, 2007, the inspectors conducted the following activities to verify that FPL was properly implementing physical, administrative, and engineering controls for access to locked high radiation areas, and other radiologically controlled areas (RCA) during normal power operations, and that workers were adhering to these controls when working in these areas. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, Seabrook Technical Specifications, and the FPL procedures.

This activity represents the completion of nine samples relative to this inspection area; completing the annual inspection requirement of twenty-one 21 samples.

Plant Walkdown and RWP Reviews

- (1) The inspectors toured accessible radiologically controlled areas and, with the assistance of a radiation protection technician, performed independent radiation surveys of selected areas and components, to confirm the accuracy of survey data, and the adequacy of postings. Surveys were conducted in the Primary Auxiliary Building, Waste Processing Building, and Fuel Storage Building.
- (2) The inspectors observed pre-job RWP briefings conducted at the Radiation Protection Control Point, to determine if relevant information contained in the RWP, regarding electronic dosimeter dose rate/dose alarm set points, work area radiation survey data, and low dose waiting areas were communicated to the workers. Radiation Protection Technicians and radworkers were questioned regarding their knowledge of plant radiological conditions and associated controls.
- (3) The inspectors reviewed pertinent information regarding 2007 exposure data, current exposure trends, and ongoing activities to assess exposure control effectiveness and dose challenges for 2007.
- (4) There were no significant dose gradients requiring relocation of dosimetry for the radiologically significant jobs reviewed during this inspection.
- (5) During 2007, there were no internal dose assessments for any actual internal exposures greater than 50 mrem Committed Effective Dose Equivalent (CEDE). There were no current radiation work permits for airborne radioactivity areas with the potential for individual worker internal exposures of > 50 mrem. The inspectors also reviewed dose/dose rate electronic dosimetry alarm reports for 2007 and determined that no exposure exceeded regulatory or performance indicator criteria.

Problem Identification and Resolution

- (6) A review of electronic dosimeter dose and dose rate alarm reports, and Nuclear Oversight Daily Quality Summary reports was conducted to determine if identified problems were entered into the corrective action program for resolution.
- (7) Selected condition reports, associated with radiation protection control access, initiated during 2007, were reviewed and discussed with the licensee staff to determine if the followup activities were being conducted in an effective and timely manner, commensurate with their safety significance.

High Radiation Area and Locked High Radiation Area Controls

- (8) Keys to locked high radiation areas (LHRA) were inventoried and accessible LHRAs were verified to be properly secured and posted during plant tours.

Radiation Worker and Radiation Protection Technician Performance

- (9) Radiologically related condition reports were reviewed to evaluate if the incidents resulted from repetitive worker errors to determine if an observable pattern trace to a similar cause was evident.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01 – 11 samples)a. Inspection Scope

During the period November 26-29, 2007, the inspectors conducted the following activities to verify that FPL was properly maintaining the gaseous and liquid processing systems to ensure that radiological releases were properly mitigated, monitored, and evaluated with respect to public exposure. Implementation of these controls was reviewed against the criteria contained in the 10 CFR 20 and 50, Technical Specifications, the site Off-Site Dose Calculation Manual (ODCM), and the licensee's procedures. This inspection activity represents completion of eleven samples relative to this inspection area.

(1) The inspectors reviewed the 2005 and 2006 Annual Radioactive Effluent Release Reports to verify that the effluent programs were implemented as required by the Off-site Dose Calculation Manual (ODCM), Revision 31. As part of this review, changes made to the ODCM were evaluated to determine if the changes affected the licensee's ability to maintain effluent doses as low as is reasonably achievable (ALARA).

(2) The inspectors walked down the major components of the gaseous and liquid effluent monitoring systems, with a senior chemist, to verify that the system configuration complied with the FSAR description, and to evaluate equipment material condition. Radiation monitors inspected included the following:

Liquid Monitors: RM-6521, Turbine Building Sump
 RM-6519, Steam Generator Blowdown Flash Tank
 RM-6473, Condenser Polisher
 RM-6515, Primary Component Cooling Water
 RM-6509, Liquid Radwaste

Gas Monitors: RM-CP-510, Turbine Gland Seal Condenser Exhaust
 RM-6505, Condenser Air Removal
 RM-6503, Waste Gas Compressor Inlet
 RM-6504, Hydrogen Compressor Discharge
 RM-6528, Plant Vent

(3) The inspectors reviewed the associated procedures and observed technicians collecting weekly air particulate, iodine and noble gas grab samples from the plant vent effluent radiation monitor and a water sample from the service water system.

(4) The inspectors reviewed the most current liquid and gaseous effluent monitor calibration results to verify that the instrumentation met the operability

acceptance criteria and that associated flow instruments and isolation valves were operable. Liquid monitor calibration data reviewed included the Waste Test Tank (WTT) Discharge Flow Calibration (F-1458-1), WTT radiation monitor (RM-6509), and the Turbine Building Sump radiation monitor (RM-6521). Gaseous effluent instrumentation reviewed included the Plant Vent radiation monitor (RM-6528).

- (5) The inspectors reviewed the air cleaning system surveillance test results for HEPA (High Efficiency Particulate Absolute) and charcoal filtration systems, to ensure the components met their acceptance criteria, and discussed the test results with the cognizant engineer. The inspectors confirmed that the air flow rates were consistent with the ODCM values. Data reviewed included the Containment Enclosure Fan 4A, Containment Air Purge Filter Unit, Waste Processing Exhaust Roll Filter, Primary Auxiliary Building Exhaust ventilation filter (FN-8A/8B), and Fuel Storage Building Cleanup Filter A & B trains.
- (6) The inspectors reviewed selected liquid and gas discharge permits for recent releases. The inspectors confirmed that, prior to any batch release, effluent samples were taken and analyzed, off-site doses were calculated, and the associated radiation monitor alarm setpoints were appropriate to mitigate an off normal discharge.
- (7) The inspectors reviewed monthly, quarterly, and annual dose projections for liquid and gaseous effluents performed during the past 12 months to verify that the effluent was processed and released in accordance with ODCM requirements. The inspectors confirmed that no RETS/ODCM performance indicator criteria was exceeded for this time period.
- (8) The inspectors reviewed the calibration records and quality control records for the counting room gamma spectroscopy instrumentation (Detectors Nos. 2, 3, & 5) to determine if the required lower limits of detection (LLD) were achievable and that effluent samples were adequately quantified and evaluated. The inspectors reviewed the results of the licensee's inter-laboratory quarterly cross check program for 2006 to the 1st quarter 2007, to verify the quality and accuracy of effluent sample analysis performed by the licensee.
- (9) The inspectors reviewed relevant Condition Reports, Nuclear Assurance Daily Quality Summary Reports (for 2006 and 2007), the Chemistry Department Continuous Improvement Plan for 2006-2007, quarterly radiation monitoring system health reports, and Nuclear Quality Assurance Audits to evaluate FPL's threshold for identifying, evaluating, and resolving problems in implementing the RETS/ODCM. This review was conducted against the criteria contained in 10 CFR Parts 20 and 50, the ODCM, and FPL's procedures.
- (10) The inspectors reviewed the Validation and Verification (V&V) results for the radiological liquid and gaseous effluent dose calculation software used for the generation of discharge permits, to ensure that the software currently in use provides accurate dose projections.
- (11) The inspectors reviewed FPL's actions to evaluate and monitor potential ground water pathways that may contain radioactive materials from past spills and leaks. Included in this review were the recent monitoring well sampling results, a relevant Nuclear Assurance Quality Report, and 10 CFR 50.75(g) decommissioning records. The inspector reviewed the results of FPL's study, entitled "Documentation for Initial Implementation of NEI Groundwater Initiatives.

This study resulted in more accurate evaluations of possible cross contamination of clean (non-radioactive) systems, establishing monitoring wells in strategic locations to identify potential pathways, and re-evaluating sampling/analysis frequencies.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151 - 5 samples)

.1 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors reviewed implementation of FPL's Occupational Exposure Control Effectiveness Performance Indicator (PI) Program. Specifically, the inspectors reviewed condition reports, and associated documents, for occurrences involving locked high radiation areas, very high radiation areas, and unplanned exposures against the criteria specified in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline", to verify that all occurrences that met the NEI criteria were identified and reported as performance indicators. This inspection activity represents the completion of one sample relative to this inspection area; completing the annual inspection requirement.

b. Findings

No findings of significance were identified.

.2 RETS/ODCM Radiological Effluent Occurrences

a. Inspection Scope

The inspectors reviewed relevant effluent release condition reports for the period October 1, 2006 through September 30, 2007, for issues related to the public radiation safety performance indicator that measures radiological effluent release occurrences that exceed 1.5 mrem/qtr whole body or 5.0 mrem/qtr organ dose for liquid effluents; 5mrads/qtr gamma air dose, 10 mrad/qtr beta air dose, and 7.5 mrads/qtr for organ dose for gaseous effluents. This inspection activity represents the completion of one sample relative to this inspection area; completing the annual inspection requirement.

The inspectors reviewed the following documents to ensure FPL met all requirements of the performance indicator from the fourth quarter 2006 through the third quarter 2007:

- Monthly projected dose assessment results due to radioactive liquid and gaseous effluent releases;

- Quarterly projected dose assessment results due to radioactive liquid and gaseous effluent releases; and
- Dose assessment procedures.

b. Findings

No findings of significance were identified.

.3 Physical Protection

a. Inspection Scope

The inspectors performed a review of PI data submitted by FPL for the three Physical Protection cornerstone PIs. The inspectors' reviewed FPL's programs for gathering, processing, evaluating, and submitting data for the fitness-for-duty, personnel screening, and protected area security equipment PIs. The inspectors verified that the PIs were properly reported as specified in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline." The inspectors reviewed FPL's tracking and trending reports and security event reports for the PI data collected since the last security baseline inspection. The inspectors also conducted personnel interviews about these topics. The inspectors noted from FPL's submittal that there were no reported failures to properly implement the requirements of 10 CFR 73 and 10 CFR 26 during the reporting period. This inspection activity represented the completion of three samples for the performance indicator verification inspection.

b. Findings

No findings of significance were identified.

40A2 Identification and Resolution of Problems (71152 - 3 samples)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into Seabrook CAP. In accordance with the baseline inspection modules, the inspectors also selected CAP items across the initiating events, mitigating systems, barrier integrity, emergency preparedness, and public radiation safety cornerstones for additional follow-up and review. This review was accomplished by accessing FPL's computerized database.

b. Findings

No findings of significance were identified.

.2 Semi-annual Review to Identify Trends

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors performed a review of the Seabrook CAP and associated documents to identify trends that may indicate existence of safety significant issues. The inspectors' review was focused on repetitive equipment and corrective maintenance issues, but also considered the results of daily CAP item screening. The inspectors compared and contrasted their results with the results contained in the Seabrook first, second and third quarter 2007 CAP Quarterly Trend Reports.

b. Findings

No findings of significance were identified. The inspectors did not identify any appreciable trends that FPL had not already identified.

.3 Annual Sample: Service Water (SW) Leaks

a. Inspection Scope

The inspectors reviewed FPL's actions to address service water (SW) system leaks to ensure they were appropriate. Specifically, the inspectors reviewed the SW leak history, applicable condition reports (CRs), system health reports, and interviewed the system and design engineers, to verify that FPL was properly identifying and evaluating SW system leaks, and that corrective actions were in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code.

b. Findings

There were five service water system leaks in system welds during the past four years. The service water system piping degradation was caused by seawater penetrating the concrete lined piping. In each case, the licensee performed an operability evaluation to ensure the system remained operable. The inspectors noted that FPL's corrective actions were appropriate and in accordance with the ASME code, specifically ASME code case N-513, "Evaluation Criteria for Temporary Acceptance of Flaws in Class 3 Piping Section XI, Division 1".

The inspectors also noted that FPL has initiated a long term inspection plan to detect leaks and potential leaks before they become an operability concern. This plan includes ultrasonic examination of the service water system piping to detect any thinning of the piping and possible replacement of sections of piping with corrosion resistant materials. Condition report, CR-07-06466, was initiated by FPL to formalize this plan and enter it into the plant engineering action plan register.

.4 Annual Sample: Human Performance Errors

a. Inspection Scope

The inspectors reviewed FPL actions to address human performance errors after a series of events occurred that either impacted plant equipment or were a near-miss regarding personnel injury. FPL initiated several condition reports (CR) to address adverse trends in human performance in several plant areas. The inspectors reviewed applicable condition reports and interviewed plant staff and managers. The inspectors verified human performance errors were identified, evaluated, and corrective actions were initiated in accordance with applicable procedures. The references used for this review are listed in the Attachment to this report.

b. Findings

No findings of significance were identified. The inspectors noted the corrective actions were appropriate in accordance with the FPL corrective action program. Condition report CR-07-10073 was initiated by FPL to formalize the corrective actions to reduce human performance errors in the Nuclear Projects area. The root cause analysis was thorough and broad in scope to identify all contributing factors contributing to human error events. FPL correctly differentiated between the direct, contributing and root causes associated with the events, and clearly linked the caused to corrective actions to prevent recurrence.

4OA5 Other

.1 Review of Third Party Assessment Reports

The inspectors reviewed the results of the Seabrook Plant Evaluation conducted by the Institute of Nuclear Power Operations (INPO) in January 2007. The inspectors noted that the INPO assessment results were consistent with the NRC's assessment of Seabrook activities.

.2 Review of Unresolved Items (URI)

Closed: URI 05000443/2005003-05 Scenario Based Testing Documentation.

This URI was opened because ANSI/ANS 3.5-1998 requires documentation of simulator to plant or baseline comparison for scenario based testing (SBT). However, ANSI/ANS 3.5-1998 does not provide details regarding the extent of this documentation. Clarification of the guidance in this area is still under development, and the NRC has determined that absent such guidance there is no basis to maintain an open unresolved item on this issue. Accordingly, this URI is closed.

Closed: URI 05000443/2007004-01: Emergency Action Level (EAL) Changes

During the previous reporting period, the NRC issued an unresolved item to document a concern with FPL revising the Seabrook emergency action level (EAL) scheme without prior NRC approval. The issue was described in Section 1EP4 of NRC Inspection

Report 2007-004. During this inspection period, the inspector reviewed FPL actions to determine if they met the guidance for enforcement discretion as provided in NRC EGM-07-003, "Enforcement Guidance Memorandum (EGM) - Disposition of Violations of 10 CFR 50.47(b)(4) for Failure to Maintain a Standard Emergency Action Level Scheme."

The EGM stated that the NRC would consider enforcement discretion for licensees who self-identified any decrease in effectiveness resulting from EAL changes that the NRC determined was non-willful and for which immediate corrective actions were taken, i.e., within 90 days of February 12, 2007, the issuance date of the EGM. FPL did not complete the immediate corrective actions to revise the related EALs until June 1, 2007, which was approximately two weeks beyond the time allowance provided by the EGM. The delay in achieving full compliance was due to the administrative process FPL used to correct and revise the affected EALs. While the NRC noted this slight delay in implementing the corrective actions for the revised EALs, it was not considered significant.

The EGM also stated that enforcement discretion would be considered on a case-by-case basis for changes affecting the Site Area Emergency or General Emergency EALs. The inspectors determined that the restoration of Seabrook Site Area Emergency EALs 6e and 6f satisfied the conditions for enforcement discretion because there was reasonable assurance that an accurate emergency classification would have been declared in sufficient time to effect adequate protective measures for the public. Specifically, loss of electrical power to safety buses would result in a loss of core cooling and a reactor coolant system heat-up that would change the plant from Mode 5 or 6 (cold shutdown/refueling) to Mode 4 (hot shutdown). Once in Mode 4, the loss of electrical power EALs would have been applicable and result in an appropriate emergency classification. In addition, Seabrook's EAL scheme included multiple and diverse indications of plant conditions, including precursors to core damage, and this loss of core cooling would also have resulted in other EALs being exceeded in advance of any core damage.

The NRC determined that FPL's actions regarding the EAL changes satisfied the intent of EGM-07-003, and, therefore, enforcement discretion is being exercised in this matter. The NRC will exercise enforcement discretion to not cite the violation of 10 CFR 50.47(b)(4) for the EAL change (EA-07-244), and this URI is considered closed.

40A6 Meetings, Including Exit

The resident inspectors presented the inspection results to Mr. Gene St. Pierre and other members of the FPL staff on January 3, 2008. FPL acknowledged the findings and that none of the material reviewed by the inspectors during this period was proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

R. Belanger, Design Engineer
D. Berko, Assistant Plant Manager
K. Browne, Assistant Operations Manager
J. Burson, Operations Training Instructor
L. Carlsen, Operations Training Instructor
W. Cash, Chemistry Manager
J. Crowley, I&C Superintendent
J. Desmond, Operations Training Instructor
D. Flahardy, Radiation Protection Supervisor
P. Freeman, Engineering Director
M. Hansen, Maintenance Manager
E. Metcalf, Operations Manager
J. Kennish, Operations Training Instructor
M. Kiley, Plant Manager
M. Lipman, Plant Technician
B. McAllister, SW System Engineer
N. McCafferty, Plant Engineering Manager
E. Metcalf, Operations Manager
M. O'Keefe, Regulatory Compliance Supervisor
E. Metcalf, Operations Manager
R. Noble, Engineering Manager
J. Peschel, Regulatory Programs Manager
D. Sherwin, Maintenance Manager
E. Spader, Training Supervisor
G. St. Pierre, Site Vice President
M. Taylor, Unit Supervisor
K. Thibodeau, Operations Training Instructor
R. Thurlow, Radiation Protection Manager
J. Tucker, Security Manager
J. Varga, Reactor Operator
S. Wellhofer, Site Nurse
R. White, Security Supervisor
K. Wright, Training Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NONE

Opened and Closed

05000423/200700501	NCV	EAH Fan Failed due to Failure to Implement Procedure to Torque Cable Connections (Section 1R13)
05000423/200700502	NCV	Inadequate Evaluation of the Low Strength Bolts in the RHR System (Section 1R15)

Closed:

05000443/2005003-05	URI	Scenario Based Testing Documentation (Section 4OA5)
05000443/2007004-01	URI	FPL did not maintain NUREG-0654 EAL scheme. change (EA-07-244) (Section 4OA5)

Discussed

NONE

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

OS1200.03, "Severe Weather Conditions," Revision 13
 OS1216.01, "Degraded Ultimate Heat Sink," Revision 11
 OS1200.03, Attachment D, Severe Weather Actions, Revision 13
 OS1238.01, Circulation Water system Malfunction, Revision 8
 Station Operating Logs
 Work Orders 0713210, 0441179, 0638081
 Action Tracking ADMIN-07-0147

Section 1R04: Equipment Alignment

Station Logs
 Technical Specification 3.8.1
 UFSAR Section 8.2.1
 OX1446.01, AC Power Source Weekly Operability Surveillance, Revision 8

Documents Reviewed for Turbine Driven Emergency Feedwater Pump Quarterly and Monthly

Valve Alignment:

Technical Specification 3.7.1.2 Auxiliary Feedwater System
 UFSAR Chapter 6, Section 6.8; Chapter 7, Section 7.3
 OX1436.02, Turbine Driven Emergency Feedwater Pump Quarterly and Monthly Valve Alignment
 OX1456.81, Operability Testing of IST Valves
 OX1456.86, Operability Testing of IST Pumps
 PID 1-FW-B20688 Emergency Feedwater System Details

IST Pump Data Log for FW-P37A from 2000-2007
IST Power Operated Valve Data Log for FW-V346, FW-V350, MS-V393, MS-V394, and MS-V395 from 2000-2007
Work Order 0714243

Documents reviewed for EDG & TDEFW Pump Alignment:

PID 1-CO-D20426, Condensate System Detail, Revision 32
PID 1-FW-B20688, Emergency Feedwater System Details, Revision 18
PID 1-MS-B20582, Main Steam System Emergency Feedwater Pump Supply Detail, Revision 19

Documents Reviewed for Complete Equipment Alignment:

UFSAR sections 7.2, and 7.3
OS1005.05, Safety Injection System Operation
System Health Report for Safety Injection
Condition Report 07-03816
Piping and Instrumentation Diagram 1-SI-B20446
Piping and Instrumentation Diagram 1-SI-B20447
Piping and Instrumentation Diagram 1-SI-B20450
Piping and Instrumentation Diagram 1-IA-B20645

Section 1R05: Fire Protection

UFSAR section 9.5.1 Fire Protection Systems
Fire Protection Pre-fire Strategies MS-F-1A-Z, MS-F-5A-Z, PAB-F-2C-Z, PAB-F-1J-Z and PAB-F-1A-Z
Calculation MS-MISC-46 Verification of Combustibles, Fire Loading and Temperature in Fire Areas/Zones of PAB
Fire Hazards Analysis

Section 1R07: Heat Sink Performance

PEG-208, Service Water System Performance Monitoring, Revision 3
Condition Report CR06-12389
Apparent Cause Evaluation for CR06-12389
EE-06-038, Evaluation of 1-CC-E-17-A Train A PCCW Heat Exchanger Fouling Event
S-S-1-E-0073, Primary Component Cooling Water Heat Exchanger, Revision 4
CC-E-37A Temperature and Thermal Performance Monitoring Data
CP4.2, Chlorine Management Program, Revision 13
ES 1850.017, Service Water Heat Exchanger Program, Revision 0
CC-E-171A Performance Monitoring Trend Data for pressure difference, condenser fouling, temperature, service water flow, Pcc temperature ratio, and SW strainer differential pressure
PID-1-CC-B20210, Primary Component Cooling Overview, Revision 3
PID-1-CC-B20211, Primary Component Cooling Loop Detail, Revision 21
PID-1-CC-B20212, Primary Component Cooling Loop Detail, Revision 13
PID-1-CC-B20213, Primary Component Cooling Loop Detail, Revision 13
PID-1-CC-B20214, Primary Component Cooling Loop Detail, Revision 7
PID-1-CC-B20215, Primary Component Cooling Loop Detail, Revision 6

Section 1R11: Licensed Operator Requalification

Simulator Demonstration Examinations on November 6 and 14, 2007
E-0, Reactor Trip or Safety Injection, Revision 44
ES-1.1, SI Termination, Revision 33
ES-0.1, Reactor Trip response, Revision 33
FR-S.1, Response to Nuclear Power Generation/ATWS, Revision 27
FR-H.1, Response to Loss of Secondary Heat Sink, Revision 31
OS1201.02, RCS Leak, Revision 12
OS1231.03, Turbine Runback/Setback, Revision 10
OS1201.08, TAVG/DELTA T instrument Failure, Revision 11
OS1235.05, Turbine Impulse Pressure PT 505 of PT 506 Instrument Failure, Revision 9
NT-5701-3, Crew Simulator Evaluation, Revision 24
NT-5701-1, Individual Simulator Evaluation, Revision 22

Simulator-Related Documents

Simulator Test Instructions

NT-3710 Rev 6 Simulator Scenario Testing
NT-3735 Rev 6 Simulator Computer Tests
NT-3736 Rev 7 Simulator Core Performance Testing
NT-3743 Rev 6 Steady State Value Comparison Test
NT-3744 Rev 7 Simulator Annual Transient Tests

Transient Tests:

Transient 2, Simultaneous Trip of Both Main Feedwater Pumps Rev 12. 10/17/07 and 10/11/06.
Annual Transient Test Event #1, Manual Reactor Trip Rev 12. 9/25/06.
Event #3, Simultaneous Closure of MSIVs Rev 12. 9/25/06
Event #4, Simultaneous Trip of All RCPs Rev 12. 9/25/2006

Steady State Tests

NT-3743 Steady State Value Comparison Test 100% Rev 12 8/28/07
NT-3743 Steady State Value Comparison Test 49% Rev 12 10/05/07
NT-3743 Steady State Value Comparison Test 30% Rev 12 10/05/07

Core Performance Tests

C12 BOL Clean 0 MWD/MTU Rev 12 9/16, 9/19. 9/20, 9/23/06.
C12 MOL 10,000MWD/MTU Core Performance Test Rev 12 11/9 to 11/15 2006.

Scenario Based Testing

Scenario Testing Documentation LORT phase 06-01, 12/15 - 12/31 2005
Scenario Testing Documentation LORT phase 07-01, 1/9 - 8/230 2007
- some SBT doc checklists were dated after training completion date - originals lost?

Scenario Testing Documentation LORT phase 07-02, 2/26 -3/6 2007
Scenario Testing Documentation LORT phase 07-03, 4/16 - 4/19 2007

Condition Reports

CR 07-13277 SG NR Level Response not accurate during Annual Transient Test Event 3.
CR 07-04049 SG NR Level Response not accurate during Annual Transient Tests.
CR 05-15187 Simulator Transient Benchmark report does not adequately explain behavior of several parameter plots for various transients.
CR 07-14639 Operations has identified an increased rate of mispositioned components.

Requalification Program Procedures/Documents

NT-5701, Requalification Program Simulator Examinations, Rev 24
NT-7012, License Operator Requalification Exam Development and Administration Safeguards and Controls, Rev 3
NAP-408, License Maintenance and Activation Program, Rev 5
OAI-22, Removal/Returning to Shift and License Activation Program, Rev 40

Self Assessments:

06-0016	07-0029
06-0030	07-0092
06-0171	07-0101
06-0221	07-0118

Requalification Training Program Annual Examination Sample Plan 2006-2007
Instructor Guide L3539C, Control Board Monitoring Drills
Instructor Guide L3536C, Plant Update / Self-Study
Simulator Scenario Review Checklists for scenarios used to evaluate all crews
"Roll-Ups" for requalification phases 3, 4, and 5 for 2007

Section 1R12: Maintenance Rule Implementation

Maintenance Rule (a)(1) Improvement Plan for Safety Related 4160 V Breaker Diode Failures LX0558.01, 4.16 KV Breaker Inspection Testing, and PM
System Health Reports – Switchgear, SI System
Seabrook System and Performance Reports
Apparent Cause Evaluation for CR 03-04364
4 kV Circuit Breaker Diode Failure Evaluation for CR 06-14933
EDG Voltage Control Failure Repeat Event Review for CR 06-10146
ATC Failure Analysis Report
Electric Circuitry Diagram 1-NHY-310895 SH-A59b
NUMARC 93-01 Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants
Plant Engineering Guidelines, Maintenance Rule Program Monitoring Activities
UFSAR

Condition Reports

95-44968, 03-04364, 03-06228, 06-01100, 06-10146, 06-02566, 06-03098, 06-14933, 07-14288, 07-07796, 07-06732, 07-06305, 0705905, 07-04199, 07-02892, 07-00600, 07-08493

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

Work Orders 0738967, 0735620, 0735625, 0730201, 0716149, 0625683, 0336107, 0100402
NAP-412, Operational Decision Making, Revision 2
MS0526.09, On Stream Leak Repairs, Form A – Leak Sealing Documentation, Revision 4
MS0524.17, Steam Generator Secondary Side Manway Cover Removal and Installation,
Revision 2
Adverse Condition Monitoring Plan and Contingency Plan for B Steam Generator Manway
dated 10/17/07
Steam Generator “B” Leak Action Tracking
Steam Generator Manway Repair Dose Estimates
Challenge Review-Steam Generator B Manway Leak Action Plan, 11/06/07
Safety Challenge for Steam Generator B Inboard Manway Repair of Steam Leak, 11/7/07
Clearance Tagging Order W11-41E-05
OS1048.14, Vital Bus 11B Operation
Condition Reports 07-14283, 07-14307
Technical Specification 3.8.2.1
Technical Specification 6.7.a.1
Appendix A of Regulatory Guide 1.33, Revision 2, February 1978
LX0557.04, “Time/Current Testing - 480 Volt Gould Unitized Starters Or Cutler Hammer Motor
Protectors”
OS1023.66 Containment Enclosure Ventilation System Operation
Electrical Diagrams 310041, 310042, 310107
UFSAR Section 8.3.2

Condition Reports

07-16149, 07-15873, 07-15832

Section 1R15: Operability Evaluations

Technical Specification 3.6.3a Containment Isolation Valves
Condition Report 07-13021
Electrical Diagram 1-NHY-310891SH-E94/16a
Electrical Diagram 1-NHY-310891SH-E94/16b
Electrical Diagram 1-NHY-310891SH-E94/16c
Electrical Diagram 1-NHY-310891SH-E94/16d
Engineering Evaluation 07-007, Scaffold and Temporary Equipment Evaluation, Revision 1
OX1456.83, Train B ESFAS Slave Relay K624 Quarterly Go Test
OX1426.18, Aligning DG 1A Controls for Auto Start
Work Orders 0711798, 0731575, 0717712, 0738801
Condition Reports 07-15436

Documents Reviewed for ASME code noncompliance

UFSAR Section 3.2
Evaluation of Low Strength Bolt Material in Safety Related Flange Joints by R.E. White - NHY,
July 31, 1987, Engineering Evaluation Number 87-16
Condition Reports 00-11778, 06-10380, 07-13981, 07-14282
Daily Quality Summary November 1, 2007

Section 1R17: Permanent Plant Modifications

06MMOD520, Fuel Storage Building (FSB) Modifications to Support Cask Handling Crane Upgrade
Calculation FPLS001-CALC-001, FSB Structure and Crane Seismic Analysis
Calculation FPLS001-CALC-002, FSB Roof Opening, Cover & Lifting Device
Drawing FPLS001-DWG-001, Fuel Storage Building Roof Opening Cover, Revision 0
Drawing FPLS001-DWG-002, Fuel Storage Building Roof Opening Temporary Lifting Device, Revision 0
Drawing FPLS001-DWG-003, Fuel Storage Building Crane Girder Modification, Revision 0
50.59 Screen No. 07-001 for 06MMOD520, Revision 0
06MMOD520 Post Modification Test Plan
OS1023.63, Fuel Storage Building Ventilation System Operation, Revision 8
OX1423.14, Fuel storage Building Cleanup System 31 Day Surveillance, Revision 7
Work Orders 0641926 and 0702745

Section 1R19: Post Maintenance Testing

OS1008.01, Chemical and Charging Control System Makeup Operations, Revision 9
OS1048.14, Vital Bus 11B Operation
Work Order 0737598
Technical Specification 3.8.2.1 Electrical Power Systems

Documents Reviewed for SI Accumulator limit switch replacement

Technical Specification 3.6.3 Containment Isolation Valves
IS0603.057, NAMCO Limit Switch Replacement
OX1456.81, Operability Testing of IST Valves
Work Orders 0707555, and 0736752
Condition Report 04-04770
IST Power Operated Valve Data Log for SI-V157

Section 1R22: Surveillance Testing

OX1401.02, Reactor Coolant System Steady State Leak Rate Calculation, Revision 6
Mode 1 Technical Specification and Commitments Log
Seabrook Plan of the Dar for October – December 2007
Condition Reports 07-12965 and 05-13014
Work Order 0614775
Drawing WLD-D20219, Containment Building Sumps, Revision 8
Drawing RMW-D20360, reactor Make-up Water, Revision 10
Drawing WLD-D20221, Equipment Vaults #1 and #2, Revision 9
Plant Engineering Action request dated 11/02/05
Plant Performance Data for Containment Sumps for October to December 2007
Technical Specification 3/4.6.1, RCS Leakage

Documents for Train B ESFAS Slave Relay K624 Quarterly Go Test

Technical Specification 3.6.3a Containment Isolation Valves
Condition Report 07-13021
Electrical Diagram 1-NHY-310891SH-E94/16a
Electrical Diagram 1-NHY-310891SH-E94/16b
Electrical Diagram 1-NHY-310891SH-E94/16c

Electrical Diagram 1-NHY-310891SH-E94/16d
OX1456.83, Train B ESFAS Slave Relay K624 Quarterly Go Test
Work Order 0711798
Work Order 0731575

Documents Reviewed for Charging Pump A & B Quarterly Flow and Valve Stroke Test
Technical Specification 3.5.2 ECCS Subsystems, Technical Requirements 28-3.1 ESF Pump
Operability Requirements, Technical Requirements 29-3.1.2.2 Boration Systems
OX1456.01, Charging Pump A & B Quarterly Flow and Valve Stroke Test and 18 Month Remote
Position Indication Verification
OX1456.81, Operability Testing of IST Valves
OX1456.86, Operability Testing of IST Pumps
PID 1-CS-B20725 Chemical and Volume Control Charging System Detail
IST Pump Data Log for CS-P2A from 2002-2007
IST Power Operated Valve Data Log for CS-V196, CS-V460, CS-V461, and CS-V475 from
2000-2007
Work Order 0713240

Documents Reviewed for Turbine Driven Emergency Feedwater Pump Quarterly and Monthly
Valve Alignment
Technical Specification 3.7.1.2 Auxiliary Feedwater System
UFSAR Chapter 6, Section 6.8; Chapter 7, Section 7.3
OX1436.02, Turbine Driven Emergency Feedwater Pump Quarterly and Monthly Valve
Alignment
OX1456.81, Operability Testing of IST Valves
OX1456.86, Operability Testing of IST Pumps
PID 1-FW-B20688 Emergency Feedwater System Details
IST Pump Data Log for FW-P37A from 2000-2007
IST Power Operated Valve Data Log for FW-V346, FW-V350, MS-V393, MS-V394, and
MS-V395 from 2000-2007
Work Order 0714243

Section 1R23: Temporary Plant Modifications

Condition Report 07-13323
07TMOD011, Steam Generator 1-RC-E-11-B Upper Secondary (Inboard) Manway Leak Repair
Calculation C-S-1-11032, "B" Steam Generator Inboard Secondary Side Manway Leak Repair,
Revision 0
Engineering Evaluation 07-007, Scaffold and Temporary Equipment Evaluation, Revision 1

Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Procedures
CS0908.01, Off-Site Dose Assessment, Revision 13
CS0917.02, Gaseous Effluent Releases, Revision 10
CX0917.01, Liquid Effluent Releases, Revision 15
CS0917.03, Unmonitored Plant Releases, Revision 07
CS0905.10, Chemistry Response to RDMS or Waste Gas Oxygen Monitor Failure or Alarm,
Revision 05

CS0905.08, Response to a Primary to Secondary Leak, Revision 03
IX1688.110, F-1458-1 Waste Test Tank Discharge Flow Calibration, Revision 04
IX1660.816, RM-R-6506 WLTT's Discharge Radiation Monitor Calibration, Revision 06
IX1660.826, Turbine Building Sump Radiation Monitor Calibration, Revision 05
IX1660.730, RM-R-6528 Plant Vent Wide Range Gas Radiation Monitor (WRGM) Calibration,
Revision 05
CS0910.10, Gaseous Effluent Sampling, Revision 10
CS0910.08, Miscellaneous Primary Side Sampling, Revision 11

Test Reports

Computer Software Action Reports for WTT-TEMP-XLT and WRGM-GAS-ACS software
Containment Enclosure Fan 4A Filtration Tests
Containment Air Purge Filtration Test
Waste Processing Building Filtration Test
Primary Auxiliary Building Filtration Test
Fuel Storage Building Cleanup Filtration Test

Calibration Records

Waste Liquid Overboard Flow Transmitter, R-1458-1
Waste Liquid Test Tank Discharge Rad Monitor, RM-6509
Turbine Building Sump Rad Monitor, RM-6521
Plant Vent Rad Gas Rad Monitor, RM-6528

Nuclear Oversight (NO) Reports

Daily Quality Summary Reports, Chemistry Related Activities, 2006-2007
SBK-07-03 and SBK-05-03 Chemistry, RETRP, REMP, and ODCM Functional Area Audits

Condition Reports

07-10766, 07-07825, 07-07661, 07-07309, 07-01602, 07-01538, 07-01689, 07-14919,
06-08211, 06-04568, 07-13365, 07-12916, 07-15252, 07-15221

Miscellaneous Reports

2005 and 2006 Annual Radioactive Effluent Release Reports
Chemistry Department Continuous Improvement Program 2006-2007
10 CFR 50.75 (g), Decommissioning Records
RETS/ODCM Radiological Effluent and Exposure Control Performance Indicator Occurrences
reports for the period October 2006-October 2007
HPSTID 06-011, Documentation for Initial Implementation of NEI Groundwater Initiatives.
Off Site Dose Calculation Manual, Revision 30
InterLaboratory Radiochemistry QC Reports 1st Quarter 2006 through 1st Quarter 2007

Section 4OA2: Identification and Resolution of Problems

Service Water Events

Condition Reports

04-10266	06-00896	07-06465
05-03939	06-00897	07-06466
05-07392	06-01065	07-11520

Calculations

C-S-1-45754, SW-1817-06 Pipe Flaw Evaluation, Revision. 0

Miscellaneous

SW Plant Engineering Action Plan Register, 7/19/2006

Modifications

06MSE110, Repair of Service Water Pipe - PAB, El. 25'-0", Revision. 3

System Health Report

Service Water System Health Report, 2nd Quarter 2007

Work Orders

0440839	0511095	0540128
0440881	0522880	0617099

Human Performance Events

Condition Reports 07-08984, 07-09363, 07-10073, 07-10375, 07-11783, 07-12047, 07-14936
Condition Report Oversight Group Meeting on October 23, 2007
OE3.6, Condition Reports, Revision 11
OE4.3, Root Cause Analysis, Revision 18
OE4.8, Apparent Cause Analysis, Revision 16

LIST OF ACRONYMS

ADAMS	Agency-wide Documents Access and Management System
ALARA	As Low As Is Reasonably Achievable
ASME	American Society of Mechanical Engineers
CEDE	Committed Effective Dose Equivalent
CR	Condition Report
EAH	Enclosure Building Air Handling
EDG	Emergency Diesel Generator
FPL	Florida Power & Light
FSB	Fuel Storage Building
HEPA	High Efficiency Particulate Absolute
IMC	Inspection Manual Chapter
JPM	Job Performance Measures
LHRA	Locked High Radiation Area
LLD	Lower Limits of Detection
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Off-Site Dose Calculation Manual
PAB	Primary Auxiliary Building
PARS	Publicly Available Records
PCCW	Primary Component Cooling Water
PI	Performance Indicator
PMT	Post-Maintenance Testing
psi	pounds per square inch gage

RCA	Radiologically Controlled Area
RCS	Reactor Coolant System
RETS	Radiological Environmental Technical Specifications
RHR	Residual Heat Removal
SBT	Scenario Based Testing
SDP	Significance Determination Process
SG	Steam Generator
SI	Safety Injection
SW	Service Water
TDEFW	Turbine Driven Emergency Feedwater Pump
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WO	Word Order
WTT	Waste Test Tank
WPB	Waste Processing Building