

May 9, 2007

Mr. William Levis
President and Chief Nuclear Officer
PSEG LLC - N09
P. O. Box 236
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION - NRC INTEGRATED INSPECTION
REPORT 05000354/2007002

Dear Mr. Levis:

On March 31, 2007, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Hope Creek Generating Station. The enclosed integrated inspection report documents the inspection results, which were discussed on April 5, 2007, with Mr. George Barnes and other members of your staff.

The 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.

Based on the results of this inspection, no findings of significance were identified. However, licensee-identified violations which were determined to be of very low safety significance are listed in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy because of the very low safety significance of the violations and because they are entered into your corrective action program. If you contest these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, 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 the Hope Creek Generating Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the

Mr. W. Levis

2

NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Arthur L. Burritt, Chief
Projects Branch 3
Division of Reactor Projects

Docket No: 50-354
License No: NPF-57

Enclosure: Inspection Report 05000354/2007002
w/Attachment: Supplemental Information

cc w/encl:

G. Barnes, Site Vice President
D. Winchester, Vice President - Nuclear Assessments
B. Clark, Director - Finance
J. Perry, Hope Creek Plant Manager
J. J. Keenan, General Solicitor, PSEG
M. Wetterhahn, Esquire, Winston and Strawn, LLP
Consumer Advocate, Office of Consumer Advocate, Commonwealth of Pennsylvania
L. A. Peterson, Chief of Police and Emergency Management Coordinator
P. Baldauf, Assistant Director of Radiation Protection Programs, State of New Jersey
K. Tosch, Chief, Bureau of Nuclear Engineering, NJ Dept. of Environmental Protection
H. Otto, Ph.D., Administrator, Interagency Programs, DNREC Division of Water Resources,
State of Delaware
N. Cohen, Coordinator - Unplug Salem Campaign
E. Zobian, Coordinator - Jersey Shore Anti Nuclear Alliance

Mr. W. Levis

2

NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,
/RA/
Arthur L. Burritt, Chief
Projects Branch 3
Division of Reactor Projects

Docket No: 50-354
License No: NPF-57

Enclosure: Inspection Report 05000354/2007002
w/Attachment: Supplemental Information

cc w/encl:
G. Barnes, Site Vice President
D. Winchester, Vice President - Nuclear Assessments
B. Clark, Director - Finance
J. Perry, Hope Creek Plant Manager
J. J. Keenan, General Solicitor, PSEG
M. Wetterhahn, Esquire, Winston and Strawn, LLP
Consumer Advocate, Office of Consumer Advocate, Commonwealth of Pennsylvania
L. A. Peterson, Chief of Police and Emergency Management Coordinator
P. Baldauf, Assistant Director, NJ Radiation Protection Programs
K. Tosch, Chief, Bureau of Nuclear Engineering, NJ Dept. of Environmental Protection
H. Otto, Ph.D., Administrator, Interagency Programs, DNREC Division of Water Resources,
State of Delaware
N. Cohen, Coordinator - Unplug Salem Campaign
E. Zobian, Coordinator - Jersey Shore Anti Nuclear Alliance

Distribution w/encl:

S. Collins, RA
M. Dapas, DRA
D. Lew, DRP
J. Clifford, DRP
A. Burritt, DRP
C. Khan, DRP
G. Malone, DRP, Senior Resident Inspector
T. Wingfield, DRP, Resident Inspector
K. Venuto, DRP, Resident OA
J. Lamb, RI OEDO
J. Lubinski, NRR
H. Chernoff, NRR
R. Ennis, PM, NRR
J. Shea, NRR
ROPreports@nrc.gov
Region I Docket Room (with concurrences)

ML071290407

DOCUMENT NAME: C:\FileNet\ML071290407.wpd

SUNSI Review Complete: ALB (Reviewer's Initials)

After declaring this document "An Official Agency Record" it **will/will not** be released to the Public.
To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RI/DRP		RI/DRP	
NAME	Gmalone/ALB for		ABurritt/	
DATE	05 /09 /07		05 /09 /07	

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 05-354

License No. NPF-57

Report No. 05000354/2007002

Licensee: Public Service Enterprise Group Nuclear LLC

Facility: Hope Creek Generating Station

Location: P.O. Box 236
Hancocks Bridge, NJ 08038

Dates: January 1, 2007 through March 31, 2007

Inspectors: G. Malone, Senior Resident Inspector
T. Wingfield, Resident Inspector
J. Schoppy, Jr., Senior Reactor Inspector
J. Furia, Senior Health Physicist
C. Cahill, Senior Reactor Analyst
R. Prince, Health Physicist
J. Nicholson, Health Physicist
D. Tift, Reactor Inspector
N. Perry, Emergency Preparedness Inspector
R. Cureton, Emergency Preparedness Inspector

Approved By: Arthur L. Burritt, Chief
Projects Branch 3
Division of Reactor Projects

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS	iii
REACTOR SAFETY	1
1R01 Adverse Weather Protection	1
1R04 Equipment Alignment	1
1R05 Fire Protection	2
1R06 Flood Protection Measures	3
1R11 Licensed Operator Requalification Program	3
1R12 Maintenance Effectiveness	4
1R13 Maintenance Risk Assessments and Emergent Work Control	4
1R15 Operability Evaluations	5
1R17 Permanent Plant Modifications	5
1R19 Post-Maintenance Testing	6
1R20 Refueling and Other Outage Activities	7
1R22 Surveillance Testing	8
1R23 Temporary Plant Modifications	8
1EP2 Alert and Notification System Testing	9
1EP3 Emergency Response Organization Augmentation	9
1EP4 Emergency Action Level and Emergency Plan Changes	9
1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies	9
1EP6 Drill Evaluation	10
RADIATION SAFETY	10
2OS1 Access Control to Radiologically Significant Areas	10
2OS2 ALARA Planning and Controls	11
2OS3 Radiation Monitoring Instrumentation and Protective Equipment	11
OTHER ACTIVITIES	12
4OA1 Performance Indicator Verification	12
4OA2 Identification and Resolution of Problems	12
4OA3 Event Followup	14
4OA5 Other Activities	14
4OA6 Meetings, Including Exit	17
4OA7 Licensee-Identified Violations	17
SUPPLEMENTAL INFORMATION	A-1
KEY POINTS OF CONTACT	A-1
LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED	A-1
LIST OF DOCUMENTS REVIEWED	A-2
LIST OF ACRONYMS	A-15

SUMMARY OF FINDINGS

IR 05000354/2007002; 01/01/2007 - 03/31/2007; Hope Creek Generating Station; Resident Inspector Integrated Report.

The report covered a 13-week period of inspection by resident inspectors, regional health physicist inspectors, and regional reactor inspectors. No findings of significance were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee Identified Violations

Violations of very low safety significance, that were identified by Public Service Enterprise Group (PSEG) have been reviewed by the inspectors. Corrective actions taken or planned by PSEG have been entered into PSEG's corrective action program. These violations and corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The Hope Creek Generating Station began the first quarter operating at 100% power. The plant was shutdown on January 26, 2007, to cold shutdown conditions to execute a scheduled maintenance outage.

During power ascension on January 29, 2007, Hope Creek automatically scrambled on low reactor water level caused by a failed reactor feed pump minimum flow valve. The plant was returned to 100% power on February 2, 2007, and remained at or near full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope (1 sample)

The inspectors reviewed seasonal adverse weather preparation activities related to river grass intrusion conditions that impact the station service water system. Inspectors assessed implementation of PSEG's grassing readiness plan through plant walkdowns, corrective action program review, and discussions with cognizant managers and engineers. Documents reviewed by inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown (5 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems to verify the operability of redundant or diverse trains and components when safety equipment was inoperable. The inspectors completed walkdowns to identify any discrepancies that could impact the function of the system, and therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, walked down control systems components, and verified that selected breakers, valves, and support equipment were in the correct position to support system operation. The inspectors also verified that PSEG had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program. Documents reviewed are listed in the attachment.

Enclosure

- 'A' and 'C' 1E switchgear during planned maintenance on the 'B' 1E switchgear
- Redundant station service water (SSW) trains and support equipment during maintenance on the 'D' SSW pump and traveling water screen
- The 'A' & 'C' SSW trains, emergency diesel generators (EDGs), and 4KV switchgear rooms during the emergent unavailability of the 'B' & 'D' SSW trains
- Redundant EDG, emergency core cooling systems (ECCS), SSW, filtration, recirculation, and ventilation system (FRVS), station auxiliary cooling system (SACS), and control room (CR) chilled water equipment during extended planned maintenance on the 'C' EDG and unplanned unavailability of the 'B' FRVS vent fan and 'A' CR chiller
- 'B' control room chilled water system after return to service following extended planned maintenance

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Fire Protection - Quarterly Tours

a. Inspection Scope (10 samples)

The inspectors conducted tours of ten areas to assess the material condition and operational status of fire protection features. The inspectors verified that combustible material and ignition sources were controlled in accordance with PSEG's administrative procedures; fire detection and suppression equipment was available for use; that passive fire barriers were maintained in good material condition; and that compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with PSEG's fire plan. The areas toured are listed below with their associated pre-fire plan designator. Other documents reviewed are listed in the attachment.

- FRH-II-571, diesel area heating, ventilation and air conditioning (HVAC) equipment room
- FRH-II-563, control area HVAC equipment rooms
- FRH-II-552, control room area
- FRH-III-133, accessible turbine building rooms containing offsite power source bus ducts to safety-related 4KV busses
- FRH-II-412, 'D' residual heat removal (RHR) pump and reactor core isolation cooling (RCIC) pump rooms
- FRH-II-531, Common EDG Corridor, 102' Elevation
- FRH-II-471, Refuel Floor, 201' Elevation
- FRH-II-424, Motor Control Center (MCC) Area, Room 4218, 77' Elevation
- FRH-II-431, MCC Area, Room 4303, 102' Elevation
- FRH-II-151, 'A' Recirc MG Set Room, 137' Elevation

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

.1 Internal Flooding

a. Inspection Scope (1 sample)

The inspectors reviewed selected risk-important plant design features and PSEG procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors focused on mitigation strategies and equipment in the 'B' RHR pump room. The inspectors reviewed flood analysis and design documents, including the updated final safety analysis report, engineering calculations, and abnormal operating procedures. The inspectors observed the condition of wall penetrations, watertight doors, flood alarm switches, and drains to assess their readiness to contain flow from an internal flood in accordance with the design basis. In addition, the inspectors walked down the 'B' RHR room and adjacent rooms in the reactor building to assess potential flooding vulnerabilities.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Requalification Activities Review By Resident Staff

a. Inspection Scope (1 sample)

The resident inspectors observed one annual licensed operator requalification simulator examination scenario on January 20, 2007, to assess operator performance and training effectiveness. The scenario involved a main turbine vibration problem, a failed reactor mode switch, and a steam leak in the turbine building. The inspectors assessed simulator fidelity and observed the simulator instructor's critique of operator performance. The inspectors also observed control room activities with emphasis on simulator identified areas for improvement. Finally, the inspectors reviewed applicable documents associated with licensed operator requalification as listed in the attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope (3 samples)

The inspectors reviewed the three samples listed below for items such as: (1) appropriate work practices; (2) identifying and addressing common cause failures; (3) scoping in accordance with 10 CFR 50.65(b) of the maintenance rule (MR); (4) characterizing reliability issues for performance; (5) trending key parameters for condition monitoring; (6) charging unavailability for performance; (7) classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); and (8) appropriateness of performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified as (a)(1). Documents reviewed are listed in the attachment. Items reviewed included the following:

- 'A' RHR pump minimum flow valve failed to close;
- GS-HV-5029 reactor building to suppression chamber vacuum breaker isolation valve slow closure; and
- 'C' reactor auxiliaries cooling system (RACS) pump motor failure.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope (5 samples)

The inspectors reviewed on-line risk management evaluations through direct observation and document reviews for the following configurations:

- Planned maintenance on the 'A' EDG on January 3, 2007;
- 'B' 1E switchgear relay outage testing reclassified as online and performed on February 8, 2007;
- Concurrent planned maintenance on the 'D' SSW pump, 'A' circulating water pump, 'B' primary containment instrument gas compressor, and the 10K107 service air compressor on February 20-22, 2007;
- Unplanned unavailability of the 'B' FRVS vent fan and 'A' control room chiller during planned extended maintenance on the 'C' EDG on March 7, 2007; and
- Emergent unavailability of the 'B' electro-hydraulic control (EHC) pump on March 27 and 28, 2007.

The inspectors reviewed the applicable risk evaluations, work schedules and control room logs for these configurations to verify that concurrent planned and emergent maintenance and test activities did not adversely affect the plant risk already incurred with these configurations. PSEG's risk management actions were reviewed during shift turnover meetings, control room tours, and plant walkdowns. The inspectors also used PSEG's on-line risk monitor (Equipment Out-Of-Service workstation) to gain insights into the risk associated with these plant configurations. Finally, the inspectors reviewed notifications documenting problems associated with risk assessments and emergent work evaluations. Documents reviewed are listed in the attachment.

Enclosure

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (5 samples)

The inspectors reviewed five operability determinations for degraded or non-conforming conditions associated with:

- SACS pipe support failure on December 20, 2006;
- Operation of the 6B feedwater heater with water level low-out-of-specification on December 31, 2006;
- 'A' control room chiller temperature control valve inoperability on February 10, 2007;
- 'B' SSW lube water supply system through-wall leakage on February 22 - 28, 2007; and
- 'B' FRVS vent fan unplanned inoperability on March 5, 2007.

The inspectors reviewed the technical adequacy of the operability determinations to ensure the conclusions were justified. The inspectors also walked down accessible equipment to corroborate the adequacy of PSEG's operability determinations. Additionally, the inspectors reviewed other PSEG identified safety-related equipment deficiencies during this report period and assessed the adequacy of their operability screenings. Notifications and documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope (1 sample)

The inspectors reviewed a design change associated with a valve (DA-HV-2097) in the service water structure deicing line. The modification changed the controls of the motor operator on the valve such that the valve will be not open beyond 12% of full-open. The modification was installed to limit the amount of circulating water diverted from the cooling tower basin to the service water intake structure to minimize the chance of silt disturbance near the service water pump suction.

The design bases, licensing bases, modification instructions and post modification testing of the affected components were reviewed to verify the performance capability of this equipment was not adversely affected. The inspectors reviewed the applicable technical specifications for this equipment to ensure that operability requirements and allowable outage time limits were met. The inspectors also reviewed notifications documenting

deficiencies identified related to permanent plant modifications. The documents reviewed as part of these inspections are listed in the attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (6 samples)

The inspectors reviewed the post-maintenance tests listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed test procedures to verify the procedure adequately tested the safety functions that may have been affected by the maintenance activity and the acceptance criteria in the procedure were consistent with the Updated Final Safety Analysis Report (UFSAR) and other design or license basis documentation. The inspectors also witnessed the test or reviewed the test data to verify test results adequately demonstrated restoration of the affected safety functions. Documents reviewed are listed in the attachment.

- WO 60056618, 'A' emergency service water makeup valve design change
- WO 60065779, 'B' H₂/O₂ analyzer isolation valves bailey card replacement
- WO 30139614, replacement of the 'A' reactor recirculation pump seal package
- WO 60066866, repair of steam leak on the 3A feedwater heater extraction steam piping
- WO 60067170 and 60066955, repair of 'A' and 'C' drywell to suppression chamber vacuum breaker indications
- WO 60055819, 'C' EDG keepwarm pump replacement

Ultrasonic measurement data associated with the 3A feedwater heater extraction steam piping was reviewed by a NRC regional specialist. The repair methods and post-maintenance testing methodology was also reviewed by the regional specialist and determined to be adequate.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

.1 Scheduled Maintenance Outage on January 26, 2007

a. Inspection Scope (1 sample)

The plant was shutdown on January 26, 2007, to implement a planned maintenance outage. The primary purpose of the outage was to repair a steam leak on an extraction

steam line providing steam to the 3A feedwater heater and to replace the shaft seal package on the 'A' reactor recirculation pump. The inspectors reviewed these maintenance activities and they are documented in section 1R19, Post-Maintenance Testing.

The inspectors reviewed PSEG's outage schedule and activities to verify that risk was considered appropriately and that license and technical specification requirements were adhered to. The inspectors observed portions of the reactor shutdown and subsequent start up from the control room to verify PSEG adhered to station procedures and to evaluate operator performance. The inspectors toured areas of the plant that were normally inaccessible during power operations to verify that safety related and risk significant SSCs were maintained in an operable condition. The inspectors performed a walkdown of the drywell following completion of all maintenance activities to verify there was no evidence of system leakage and that debris had not been left behind that could affect performance of plant equipment. Documents reviewed are listed in the attachment.

Hope Creek completed the scheduled maintenance outage on January 29, 2007, at 10:51 pm when the main generator was synchronized to the 500 kV grid. At 11:10 pm the reactor protection system automatically inserted all control rods into the reactor core due to a reactor pressure vessel (RPV) water level control problem. The transient is described in more detail in section 4OA3, Event Followup.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (5 samples)

The inspectors witnessed five surveillance tests and reviewed test data of selected surveillance tests listed below to verify that the test met the requirements of the Technical Specifications, UFSAR, and station procedures. The inspectors also determined whether the testing effectively demonstrated that the structures, systems, and components were operationally ready and capable of performing their intended safety functions. Documents reviewed are listed in the attachment.

- WO 50099699, high pressure coolant injection (HPCI) system in-service test on January 10, 2007
- WO 50087561, 'B' emergency diesel generator 24 hour endurance test on January 17, 2007
- WO 50099736, quarterly 'B' & 'D' core spray pump in-service test on January 18, 2007
- WO 50098995, control rod scram time surveillance on January 26, 2007
- WO 50101674, Class 1E, Channel D, 125 Volt Quarterly Battery Surveillance on March 21, 2007

Enclosure

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope (1 sample)

The inspectors reviewed a temporary plant modification (T-Mod 07-007) associated with the 'A' control room chiller. The modification bypassed a thrust bearing high oil temperature switch that had failed and resulted in an unplanned trip of the chiller. The inspectors verified the modification was consistent with the design and licensing bases of the chilled water system and that the performance capability of the system was not degraded by the modification. The inspectors reviewed documents to verify PSEG followed their processes for implementing temporary modifications on plant SSCs. In addition, the inspectors verified the modified equipment alignment through control room instrumentation and plant walkdowns of accessible portions of the affected equipment. The inspectors also reviewed notifications documenting problems associated with equipment affected by temporary modifications. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness (EP)

1EP2 Alert and Notification System (ANS) (71114.02)

a. Inspection Scope (1 sample)

An onsite review was conducted to assess the maintenance and testing of PSEG's ANS. During this inspection, the inspectors interviewed site EP staff responsible for implementation of the ANS testing and maintenance. Notifications pertaining to the ANS were reviewed for causes, trends, and corrective actions. The inspectors further discussed with PSEG the new ANS system design and its benefits over the previous system. The inspectors reviewed PSEG's original ANS design report to ensure compliance with those commitments for system maintenance and testing. The inspectors toured the Emergency Operations Facility (EOF). On March 28, 2007, the inspectors observed a silent test of the ANS. Applicable emergency planning standards of 10 CFR 50.47 and the related requirements of 10 CFR 50, Appendix E were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Staffing and Augmentation System (71114.03)

a. Inspection Scope (1 sample)

A review of Salem/Hope Creek's ERO augmentation staffing requirements and the process for notifying the ERO was conducted. This was performed to ensure the readiness of key staff for responding to an event and to ensure timely facility activation. The inspectors reviewed procedures, notifications, and call-in drills associated with the ERO notification system and drills. The inspectors interviewed personnel responsible for testing the ERO augmentation process. The inspectors compared qualification requirements to the training records for a sample of ERO members. The inspectors also verified that the EP department staff were receiving required training as specified in the emergency plan. Applicable emergency planning standards of 10 CFR 50.47 and the related requirements of 10 CFR 50, Appendix E were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes (71114.04)

a. Inspection Scope (1 sample)

Prior to this inspection, the NRC had received and acknowledged changes made to the Salem/Hope Creek Emergency Plan and implementing procedures. PSEG developed these changes in accordance with 10 CFR 50.54(q), and determined that the changes did not result in a decrease in effectiveness to the Plan. PSEG also determined that the plan continued to meet the requirements of 10 CFR 50.47(b) and 10 CFR 50 Appendix E. During this inspection, the inspectors conducted a sampling review of Salem/Hope Creek's 10 CFR 50.54(q) screenings for the changes made to the Plan that could potentially result in a decrease in effectiveness. This review did not constitute NRC approval of the changes and, as such, the changes remain subject to future NRC inspection. Also, the NRC reviewed PSEG's EAL scheme for logic and consistency. The requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses (71114.05)

a. Inspection Scope (1 sample)

The inspectors reviewed EP self-assessments and audit reports to assess PSEG's ability to evaluate their performance and programs. The inspectors reviewed notifications initiated from December, 2005 to March, 2007 at Salem/Hope Creek from drills, self-

assessments, and audits. Applicable emergency planning standards of 10 CFR 50.47 and the related requirements of 10 CFR 50, Appendix E were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope (1 sample)

Resident inspectors evaluated the conduct of a simulator examination scenario on January 20, 2007, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulated control room to verify that event classification and notifications were done in accordance with the Hope Creek Event Classification Guide. The inspectors also observed PSEG's critique of the examination to compare any inspector-observed weakness with those identified by PSEG personnel to verify whether PSEG was properly identifying weaknesses.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope (7 samples)

The inspectors reviewed all PSEG performance indicators for the Occupational Radiation Safety Cornerstone for followup.

The inspectors identified exposure significant work areas within radiation areas, high radiation areas (<1 R/hr), or airborne radioactivity areas in the plant and reviewed associated PSEG controls and surveys of these areas to determine if controls (e.g. surveys, postings, barricades) were acceptable.

The inspectors walked down these areas or their perimeters to determine: whether prescribed radiation work permits, procedure, and engineering controls were in place, whether PSEG surveys and postings were complete and accurate, and whether air samplers were properly located.

The inspectors examined PSEG's physical and programmatic controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools.

The inspectors discussed with the Radiation Protection Manager high dose rate - high radiation areas, and very high radiation areas (VHRA) controls and procedures. The inspectors verified that any changes to PSEG procedures do not substantially reduce the effectiveness and level of worker protection.

The inspectors discussed with first-line health physics supervisors the controls in place for special areas that have the potential to become VHRA during certain plant operations.

The inspectors reviewed and assessed the adequacy of PSEG's internal dose assessment for any actual internal exposure greater than 50 mrem committed effective dose equivalent (CEDE).

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope (2 samples)

The inspectors reviewed the assumptions and basis for the current annual collective exposure estimate. The inspectors reviewed applicable procedures to determine the methodology for estimating work activity-specific exposures and the intended dose outcome.

The inspectors reviewed the exposure results and monitoring controls of declared pregnant workers. A total of six personnel were declared pregnant workers during 2006, with the maximum dose to an individual during the declaration period being 3 millirem.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

a. Inspection Scope (1 sample)

The inspectors identified the types of portable radiation detection instrumentation used for job coverage of high radiation area work, other temporary area radiation monitors currently used in the plant, and continuous air monitors associated with jobs with the potential for workers to receive 50 mrem CEDE.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope (6 samples)

Cornerstone: Initiating Events

The inspectors reviewed PSEG's program to gather, evaluate and report information on the following performance indicators (PIs). The inspectors used the guidance contained in (Nuclear Energy Institute) NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 4, to assess the accuracy of PSEG's collection and reporting of PI data. The documents reviewed by the inspectors are listed in the attachment.

- Unplanned SCRAMS per 7,000 Critical Hours
- Unplanned SCRAMS with Loss of Normal Heat Removal
- Unplanned Power Changes per 7,000 Critical Hours

The inspectors verified the accuracy and completeness of reported manual and automatic unplanned scrams during the period of January 1, 2006 through December 31, 2006, for the "Unplanned Scrams per 7,000 Critical Hours" PI.

The inspectors reviewed and verified PSEG's basis for including or excluding any unplanned reactor scrams for the "Unplanned Scrams with Loss of Normal Heat Removal" PI during the period of January 1, 2006 through December 31, 2006.

The inspectors verified the accuracy and completeness of reported transients that resulted in unplanned changes in reactor power of greater than 20 percent power for the "Unplanned Power Changes per 7,000 Critical Hours" PI during the period of January 1, 2006 through December 31, 2006.

Cornerstone: Emergency Preparedness (3 samples)

- Drill and Exercise Performance
- ERO Drill Participation
- Alert and Notification System Reliability

The inspectors reviewed supporting documentation from EP drills and ANS tests during the period of January 1, 2006 through December 31, 2006 to verify the accuracy of the reported data.

b. Findings

No findings of significance were identified.

Enclosure

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered into the Corrective Action Program

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of all items entered into PSEG's corrective action program. This was accomplished by reviewing the description of each new notification and attending daily management review committee meetings. Documents reviewed are listed in the attachment.

.2 Annual Sample: Bailey Logic Module Failures

a. Inspection Scope (1 sample)

The inspectors reviewed PSEG's actions to address an adverse trend in Bailey Logic Module failures. A number of issues have been identified in the PSEG corrective action program (CAP) describing a rising number of Bailey logic card failures. The issues were selected for review based on their potential to increase the likelihood of an initiating event or cause the inoperability of a safety system. The inspectors reviewed PSEG procedures, vendor documents, design change packages, notifications, orders, corrective actions, and apparent cause evaluations to understand the equipment functions and operational history, as well as the identification, evaluation, and corrective actions associated with the degraded conditions. System engineers, reactor operators and other PSEG staff were interviewed to gain additional insights on the failures.

The following examples illustrate a sampling of issues associated with Bailey Logic Module failures:

On August 25, 2006, a Bailey Logic Module failure resulted in automatic closure of a turbine auxiliaries cooling system (TACS) return isolation valve and an unplanned power reduction to 78% power. Operators manually isolated the 'B' SACS loop then restored TACS cooling to stabilize the plant. Post-event review identified that the Field Programmable Logic Array chip in the Bailey Logic Module failed causing the automatic isolation of the valve. Corrective actions included replacement of the failed logic card, failure analysis of the faulty card, and continuation of the Bailey card replacement project.

On November 27, 2006, indication was lost for the 'D' emergency diesel generator output breaker. Operators ordered the emergent replacement of the card even though they suspected the problem only impacted the indication portion of the Bailey Logic Module. The post-replacement testing revealed that the failure would have prevented automatic and main control room operation of the diesel output breaker. Corrective actions included replacement of the failed logic card, a more detailed failure analysis of the faulty card, and re-evaluation of the Bailey card replacement project.

b. Findings & Observations

Enclosure

No findings of significance were identified.

The inspectors found that PSEG appropriately identified degraded conditions associated with Bailey Logic Module failures and entered them into the corrective action program. Evaluations of degraded conditions were thorough, and included considerations for extent of condition. The inspectors reviewed the above examples and determined that performance deficiencies did not exist. Corrective actions developed by PSEG were appropriate to adequately address identified deficiencies.

4OA3 Event Followup (71153)

.1 Hope Creek Automatic Scram on January 29, 2007

a. Inspection Scope (1 sample)

Hope Creek completed a scheduled maintenance outage on January 29, 2007, at 10:51 pm when the main generator was synchronized to the 500 kV grid. At 11:02 pm, control room operators observed reactor water level lower than expected and took action to restore level. Efforts to restore reactor water level were unsuccessful. At 11:10 pm, RPV water level was below 12.5 inches and the reactor protection system automatically inserted all control rods into the reactor core (a reactor scram).

The inspectors responded to the control room following the reactor scram to observe post-scram operations. The inspectors collected data from the plant computer to evaluate plant conditions prior to, during, and following the transient. The inspectors observed and participated in interviews with control room operators to gain an understanding of how operators responded to the transient. The inspectors observed engineering technical analysis and evaluation meetings and interviewed engineers to gain an understanding of the transient and to assess PSEG's evaluation process. The inspectors observed the Plant Oversight Review Committee meeting prior to plant startup to evaluate whether PSEG appropriately resolved the issues that led to the transient.

A root cause evaluation identified a failed reactor feed pump minimum flow valve as the cause of the level control problem and subsequent reactor scram. Corrective actions included repair of a reactor feed pump flow instrument tubing line and clarification to the low power operating portion of the feedwater system operating procedure. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2 (Closed) LER 05000354/2006-005-00, Drywell Hoist Breaker Not Open Prior to Mode 2 Entry

On December 18, 2006, PSEG identified that breaker 52-263042 for the drywell safety relief valve (SRV) hoist was in the closed position. Technical Specification 3.8.4.1

Enclosure

requires that breaker 52-263042 be administratively maintained open in Operational Condition 1, 2, and 3. The breaker was not open and administratively controlled prior to entry into Operating Condition 2 on May 2, 2006. The inspectors reviewed the licensee event report (LER) and evaluations associated with the performance deficiency. The enforcement aspects of this finding are discussed in Section 4OA7. This LER is closed.

4OA5 Other Activities

.1 Independent Spent Fuel Storage Installation (ISFSI) (60855)

a. Inspection Scope (1 sample)

The inspection was a follow-up to Inspection Report 05000354/2006010, completed on November 9, 2006. This inspection consisted of evaluating post dry cask storage activities associated with the recent completion of Hope Creek's initial ISFSI fuel loading campaign. Inspection activities consisted of interviews with cognizant personnel and reviews of PSEG documentation. Areas inspected included review of final dose totals for the initial ISFSI campaign, completed work packages, effectiveness of corrective actions implemented after loading of the first canister, PSEG identified lessons-learned during the initial campaign, ISFSI-related notifications, and verification of personnel training and qualifications.

The inspectors reviewed the completed work package for the loading of the first canister. The work package included the procedures for loading and sealing the multi purpose canister (MPC), weld data sheets, liquid penetrant examination reports, and daily polar crane check lists. The inspectors verified that procedure steps were completed and necessary signatures and approvals obtained as required.

The inspectors interviewed cognizant personnel regarding the meaning and purpose of various signature completion steps in procedure NC.MD-PM.DCS-0003, "Sealing, Drying, and Backfilling of a Loaded MPC." PSEG personnel confirmed that signatures for various steps signified that work was successfully completed and that associated data sheets had been reviewed by qualified individuals.

The inspectors discussed the training and qualification requirements for the Cask Loading Supervisor position with cognizant personnel. The inspectors determined that designated individuals were qualified as Cask Loading Supervisors in accordance with PSEG's program to meet the requirements of ANSI/ANS-3.1-1981, section 4.3.2. In addition these individuals were required to attend various training classes that included such topics as contract management, supplemental personnel oversight, and QA orientation. The inspectors observed that PSEG formally documented that individuals were properly qualified per ANSI/ANS-3.1, verified that the training database contained the documentation in the records for three individuals designated as Cask Loading Supervisors, and verified the required training for these individuals was maintained current.

The inspectors reviewed PSEG actions in response to exceeding the first fuel campaign dose estimate by approximately 1.5 rem. PSEG conducted a post-job critique after the first loading.

The inspectors reviewed PSEG's ISFSI-related corrective action notifications, lessons-learned documentation and action plans. Areas identified for evaluation included polar crane reliability improvements, dose reduction efforts, and transporter maintenance.

b. Findings

No findings of significance were identified.

.2 (Closed) URI 05000354/2006015-03, Inspection of PRA Quality Issues, and NRC Review of Human Error Probability (HEP) Assigned Value for Battery Charger Cross-tie Operator Action

The Senior Reactor Analyst (SRA) reviewed the unresolved item (URI) crediting operator action, NR-XTIE-CHARGE, in PSEG's probabilistic risk assessment (PRA) to determine if the model was reasonably representative of the as-built, as-operated nuclear power unit which it represents. This action is credited during postulated loss-of-offsite power (LOOP) events with an assumed concurrent failure of the 'B' and 'D' EDGs. Specifically, the Hope Creek PRA model credits manual operator actions to cross-tie power to the 'B' or 'D' battery chargers to provide power to the SRVs for reactor pressure control. For the NR-XTIE-CHARGE action to be successful, it must be completed prior to the depletion of the batteries. During the Component Design Bases Inspection, completed on December 7, 2006, the inspection team questioned the appropriateness of assigning a HEP of 0.6 when the performance shaping factors, such as training, availability of equipment and diagnosis were not favorable. An inappropriate assignment of an HEP could have an adverse impact on the ability of PSEG to assess and manage risk during normal plant operations.

The SRA conducted a sensitivity analysis for maintenance rule risk assessments which would be impacted by the NR-XTIE-CHARGE operator action. The most limiting maintenance configuration would be a HPCI system unavailability with 'B' SACS in standby, 'D' SSW pump in standby, 'B' control rod drive pump in standby, and air compressor 10K107 in standby. A bounding unavailability of 14 days was assigned, which is the technical specification allowed outage time for HPCI. This was considered conservative because the 2002 - 2004 unavailability data from the Mitigating System Performance Index (MSPI) bases documents shows that the largest HPCI unavailability for this period occurred in July 2004 in which 154.23 hrs. (6.43 days). There were no significant outages of other monitored components during this period. Other MSPI components included in the sensitivity analysis were also reviewed and found to have a negligible impact. The HEP evaluated for the analysis ranged from PSEG's assigned value of 0.6 (60% chance of failure) to 1.0 (100% chance of failure). Utilizing the guidance provided in Inspection Manual Chapter (IMC) 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," the SRA concluded that under the most bounding assumptions, the changes in the maintenance

rule risk assessment would not be significant and would be within the acceptable range of PRA uncertainty.

The generic issues associated with PRA quality are being addressed by the staff as outlined and updated in SECY-07-0042, "Status of the Plan for the Implementation of the Commission's Phased Approach to Probabilistic Risk Assessment Quality," issued on March 7, 2007. The SRA concluded that the sensitivity of NR-XTIE-CHARGE did not impact the ability of PSEG to assess and manage risk during normal plant operations. As such, for this issue it was determined that the model was reasonably representative of the as-built, as-operated nuclear power unit which it represents and this URI is closed.

4OA6 Meetings, Including Exit

On April 5, 2007, the inspectors presented their findings to members of PSEG management led by Messrs. Barnes and Perry. None of the information reviewed by the inspectors was considered proprietary.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by PSEG and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as Non-Cited Violations.

- Technical Specification 6.12.1 requires that access to, and activities in, each high radiation area be controlled by means of a radiation work permit. Entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. On December 12, 2006, a mechanical maintenance technician ascended into the Unit 1 turbine building crane cab, a posted high radiation area, without having been briefed or signed in on the appropriate high radiation area radiation work permit. The event is documented in PSEG's CAP as notification 20306791. The finding is only of very low safety significance because it did not involve a very high radiation area or personnel over-exposure.
- Technical Specification 3.8.4.1, "Primary Containment Penetration Conductor Overcurrent Protective Devices," requires that breaker 52-263042 for the drywell SRV hoist be administratively maintained open in Operational Conditions 1, 2, and 3. Contrary to this requirement, on December 18, 2006, PSEG identified that this breaker was closed. PSEG entered this issue into their corrective action program as notification 20307894. It was subsequently determined that the breaker had been closed since Hope Creek entered Operating Condition 2 on May 2, 2006. The issue was determined to be of very low safety significance, based on IMC 0609, Appendix A, Determining the Significance of Reactor Inspection Findings for At-Power Situations, because the finding does not represent an actual open pathway in the physical integrity of reactor containment.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

G. Barnes, Station Vice President
M. Massaro, Plant Manager
J. Perry, Plant Manager
D. Burgin, Emergency Preparedness Manager
D. Kelly, Radiation Protection Technical Support Manager
B. Sebastian, Radiation Protection Manager
B. Booth, Operations Director
R. Shindel, Senior Reactor Operator
E. Martin, Emergency Diesel Generators System Engineer
A. Bready, Contract Probabilistic Risk Assessment Engineer
M. Azzaro, License Requalification Instructor
B. Tyers, Building Equipment Drains System Engineer
D. Price, Manager Outage Services
M. Crisafulli, Mechanical Maintenance Superintendent
J. Louch, Manager Electrical Maintenance
J. Lewis, Project Manager Reactor
T. Wallender, Project Manager ISFSI
P. Marconni, Dry Cask Storage Loading Supervisor
J. Harris, ALARA Engineer
F. Foster, Operations Maintenance and Technical Instructor

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened/Closed

05000354/2006-005-00	LER	Drywell Hoist Breaker Not Open Prior to Mode 2 Entry (Section 4OA3.2)
----------------------	-----	---

Closed

05000354/2006015-03	URI	Inspection of PRA Quality Issues, and NRC Review of HEP Assigned Value for Battery Charger Cross-tie Operator Action (Section 4OA5.2)
---------------------	-----	---

Discussed

None

LIST OF DOCUMENTS REVIEWED

In addition to the documents identified in the body of this report, the inspectors reviewed the following documents and records:

Hope Creek Generating Station (HCGS) Updated Final Safety Analysis Report
Technical Specification Action Statement Log (SH.OP-AP.ZZ-108)
HCGS Nuclear Controls Operator (NCO) Narrative Logs
HCGS Plant Status Reports
Weekly Reactor Engineering Guidance to Hope Creek Operations
Hope Creek Operations Night Orders and Temporary Standing Orders

Section 1R01: Adverse Weather Protection

Procedures

SH.OP-DG.ZZ-0011, Rev. 5, Station Seasonal Readiness Guide
HC.OP-AB.MISC-0001, Rev. 8, Acts of Nature
HC.OP-GP.ZZ-0003, Rev. 18, Station Preparations for Winter Conditions
NC.OP-DG.ZZ-0002, Rev. 6, Severe Weather Guide

Notifications

20313800 20313991 20317773

Other Documents

DE-CB.EA/EP/EQ-0052, Rev. 2, Configuration Baseline Documentation for Station Service Water
Hope Creek Winter/Grassing Readiness Report and Weekly Update Information

Section 1R04: Equipment Alignment

Procedures

HC.OP-AB.ZZ-0172, Rev. 2, Loss of 4.16KV Bus 10A403 C Channel
HC.OP-GP.PB-0003, Rev. 11, 4.16KV Bus 10A403 Removal And Return To Service - C Channel
HC.OP-AP.ZZ-0108, Rev. 27, Operability Assessment and Equipment Control Program
HC.OP-SO.EA-0001, Rev. 29, Service Water System Operation
HC.OP-SO.EP-0001, Rev. 15, Service Water Traveling Screens System Operation
HC.OP-SO.EG-0001, Rev. 38, Safety & Turbine Auxiliaries Cooling Water System Operation
HC.OP-SO.GJ-0001, Rev 44, Control Area Chilled Water System Operation
HC.OP-SO.GU-0001, Rev 23, Filtration, Recirculation and Ventilation System Operation
HC.OP-SO.GK-0001, Rev 11, Control Area Ventilation System Operation
HC.OP-ST.KJ-0003, Rev. 61, Emergency Diesel Generator 1CG400 Operability Test - Monthly

Completed Surveillances

HC.OP-ST.KJ-0002, Emergency Diesel Generator 1BG400 Operability Test - Monthly, dated 2/16/07

HC.OP-ST.KJ-0004, Emergency Diesel Generator 1DG400 Operability Test - Monthly, dated 2/19/07

Drawings

M-90-1, Sheet 2, Rev 20, Auxiliary Building Control Area Chilled Water Systems, Control Area Chillers

M-90-1, Sheet 3, Rev 17, Auxiliary Building Control Area Chilled Water System

M-78-1, Sheet 1, Rev 15, Aux. Bldg. Control Area Air Flow Diagram

Notifications

20174651	20314099	20314131	20314229	20314442	20317161
20317306	20314006	20315597	20315612	20315893	20317545
20317694	20317939				

Orders

30135080	60068207	60068187	50102696	50102697	50102711
----------	----------	----------	----------	----------	----------

Other Documents

WCD 4193678

Section 1R05: Fire Protection

Procedures

Hope Creek Pre-Fire Plan FRH-II-412, Rev. 3, RCIC Pump & Turbine Room, RHR Pump & Heat Exchanger Rooms & Electrical Equipment Room Elevation: 54'-0"

Hope Creek Pre-Fire Plan FRH-II-571, Rev. 5, HVAC Equipment Rooms Elevation: 178' & 199'

Hope Creek Pre-Fire Plan FRH-II-563, Rev. 6, Control Area HVAC Equipment Rooms Elevations: 155'-3" & 175'-0"

Hope Creek Pre-Fire Plan FRH-II-552, Rev. 7, Control Room & Electrical Access Area Elevation: 137'-0"

Hope Creek Pre-Fire Plan FRH-III-133, Rev. 6, Turbine Building Elevation: 102'-0"

Hope Creek Pre-Fire Plan FRH-II-531, Rev. 7, Diesel Generator Rooms, Elevation: 102'-0"

Hope Creek Pre-Fire Plan FRH-II-471, Rev. 3, Refuel Floor, Elevation: 201'-0"

Hope Creek Pre-Fire Plan FRH-II-424, Rev. 3, MCC Area, Elevation: 77'-0"

Hope Creek Pre-Fire Plan FRH-II-431, Rev. 3, MCC Area, Elevation: 102'-0"

Hope Creek Pre-Fire Plan FRH-II-151, Rev. 4, Turbine Building, Elevation: 137'-0"

HC.FP-AP.ZZ-0004, Rev. 10, Actions for Inoperable Fire Protection - Hope Creek Station Salem and Hope Creek Fire Impairment Log Book, dated 2/23/07

HC.FP-SV.ZZ-0056, Rev. 3, Fire Barrier Inspection

HC.FP-SV.KC-0066, Rev. 3, Control Room Halon Storage Cylinders Volume Check

HC.FP-ST.KC-0048, Halon System Air Flow Test, dated 4/14/06

HC.FP-SV.KC-0066, Control Room Halon Storage Cylinders Volume Check, dated 5/21/06 & 11/15/06

Notifications

20313884	20313939	20314142	20314404	20314543	20314545
20246333	20313985	20314098	20314395	20314434	20314544
20246331	20246334	20246335	20319478		

Other Documents

WCD 4196769

Section 1R06: Flood Protection Measures

Procedures

HC.RW-FT.HB-0001, Rev. 0, Sump Pump Status Check - Monthly
 HC.RW-SO.HG-0001, Rev. 5, Radioactive Drains and Waste System Operation
 HC.ER-DG.ZZ-0002, Rev. 2, System Function Level Maintenance Rule Scoping vs. Risk Reference

Calculations

CALC. No. 11-92, Rev. 5, Reactor BLDG Flooding - EL 54' & 77'
 CALC. No. 11-0067, Rev. 1, High Energy Line Break Analysis in Reactor Building

Completed Surveillances

HC.OP-IS.SK-0101, dated 3/9/07, Plant Leak Detection System Valves - Inservice Test

Drawings

M-97-1 SH.2, Rev. 15, Building and Equipment Drain Reactor Building

Notifications

20184469	20188803	20198042	20216883	20236266	20263789
20281473	20284158	20287943	20300210	20309966	20313916

Orders

70047610	70047651	70052193	70062469	30108744	30119704
30146717	60045525	60050794	60067964		

Other Documents

CALC. No. 11-92, Rev. 5, Reactor BLDG Flooding - EL 54' & 77'
 CALC. No. 11-0067, Rev. 1, High Energy Line Break Analysis in Reactor Building
 Completed Surveillance HC.OP-IS.SK-0101, dated 3/9/07, Plant Leak Detection System Valves - Inservice Test
 Hope Creek Generating Station Individual Plant Examination, dated April 1994

Operating Experience

NRC Information Notice 92-69: Water Leakage from Yard Area Through Conduits into Buildings, dated 9/22/92
 NRC Information Notice 98-31: Fire Protection System Design Deficiencies and Common-Mode Flooding of Emergency Core Cooling System Rooms at Washington Nuclear Project Unit 2, dated 8/18/98

NRC Information Notice 2005-11: Internal Flooding/Spray-Down of safety-Related Equipment
Due to unsealed Equipment hatch Floor Plugs and/or Blocked Floor Drains, dated 5/6/05

Section 1R11: Licensed Operator Requalification Program

Procedures

SH.OP-AS.ZZ-0001, Rev. 13, Operations Standards
HC.OP-AP.ZZ-0108, Rev. 27, Operability Assessment and Equipment Control Program
HC.OP-AB.ZZ-0000, Rev. 3, Reactor Scram
HC.OP-AB.COOL-0001, Rev. 11, Station Service Water
HC.OP-AB.COOL-0002, Rev. 1, SACS / TACS Cooling
HC.OP-AB.BOP-0002, Rev. 7, Main Turbine
HC.OP-EO.ZZ-0101FC, Rev. 10, Reactor Pressure Vessel (RPV) Control Flow Chart
HC.OP-EO.ZZ-0102FC, Rev. 11, Primary Containment Control Flow Chart

Notifications

20313915 20314249 20314006

Other Documents

HCGS Event Classification Guide and Procedures
Completed Emergency Classification Paperwork

Section 1R12: Maintenance Effectiveness

Procedures

HC.ER-DG.ZZ-0002, Rev. 2, System Function Level Maintenance Rule Scoping Vs. Risk Reference
HC.OP-ST.GS-0003, Rev. 5, Reactor Building/Suppression Chamber Vacuum Breaker Operability Test - Monthly

Drawings

M-57-1, Rev. 25, Containment Atmosphere Control

Notifications

20307885 20313916 20314363 20316352 20316532 20317017
20317529 20317530 20317546 20317665 20317723 20317954
20318002 20318003 20309236 20308540

Orders

70064948 70064928

Other Documents

Containment Atmosphere Control Maintenance Rule Availability Graphs (October 2005 - January 2007)
IST Component Requirement for 1-GS-HV-5029
IST Component Requirement for 1-BC-HV-F007A

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

HC.OP-AP.ZZ-0108, Rev. 27, Operability And Equipment Control Program
SH.OP-AP.ZZ-0027, Rev. 12, On-Line Risk Assessment
HC.ER-DG.ZZ-0002, Rev. 2, System Function Level Maintenance Rule Scoping vs. Risk Reference
HC.OP-AB.ZZ-0172, Rev. 2, Loss of 4.16KV Bus 10A403 C Channel
HC.OP-GP.PB-0003, Rev. 11, 4.16KV Bus 10A403 Removal And Return To Service - C Channel
HC.OP-ST.KJ-0003, Rev. 61, Emergency Diesel Generator 1CG400 Operability Test - Monthly
HC.OP-AB.COMP-0001, Rev. 2, Instrument and/or Service Air
HC.OP-AB.COMP-0002, Rev. 4, Primary Containment Instrument Gas
HC.OP-AB.BOP-0006, Rev. 9, Main Condenser Vacuum
HC.OP-AB.BOP-0003, Rev. 3, Turbine Hydraulic Pressure
HC.OP-SO.CH-0001, Rev. 37, Main Turbine Control Oil (EHC) System Operation

Completed Surveillances

HC.OP-ST.ZZ-0001, dated 3/9-12/07, Power Distribution Lineup- Weekly

Notifications

20315597	20315612	20315893	20313722	20313763	20314419
20317956	20318063	20315891	20318031	20318936	

Orders

50102067	50102068	30101292	30135080	60068207	60068187
50102696	50102697	50102711	30146717	30149010	60068538

Other Documents

HCGS PRA Risk Evaluation Forms for Work Week Nos. 701 - 713
HCGS Relay Test Orders
HCGS Relay Work Standards
WCDs 4192439, 4192977, 4193678
Completed Surveillance HC.OP-ST.ZZ-0001, dated 3/9-12/07, Power Distribution Lineup- Weekly

Section 1R15: Operability Evaluations

Procedures

HC.OP-SO.AF-0001, Rev. 33, Extraction Steam, Heater Vents and Drains System Operation
HC.OP-DL.ZZ-0005, Rev. 39, Attachment 9, Operator Action for FWH Level Outside Normal Band
HC.OP-ST-BB-0001, Rev. 35, Recirculation Jet Pump Operability - Daily
HC.OP-AP.ZZ-0108, Rev. 27, Operability Assessment and Equipment Control Program
HC.OP-AB.IC-0001, Rev. 6, Control Rod

Completed Surveillances

HC.OP-ST.BF-0002, dated 3/27/07, Control Rod Drive Accumulator Operability Check - Weekly

Drawings

M-04-1, Rev.11, Vents & Drains Heaters 3,4,5 & 6
E-0018-1, Sh. 1, Rev. 21, Single Line Meter & Relay Diagram 480 Volt Class 1E Unit Substation
10B410, 10B420, 10B430, 10B440, 10B450, 10B460, 10B470, 10B480
M-11-1, Sh. 1, Rev. 29, Safety Auxiliaries Cooling Reactor Building
1-P-EG-06, Sh. 1, Rev. 15, System Isometrics / Reactor Bldg. Safety Auxiliary Cooling System
'A' Pump and Heat Exchangers
FSK-P-1-EA-664-22, Sh. 2, Rev. 22, Small Piping/Intake Structure Lubrication Line From 10T-
544 to Valves SV-2247B & SV-247D
M-10-1, Sh. 3, Rev. 27, Service Water

Notifications

20308814	20308839	20308817	20313243	20313117	20293016
20298253	20310800	20307589	20298160	20287860	20292989
20315364	20315306	20308114	20308041	20314223	20314302
20314378	20314455	20314459	20313791	20314104	

Orders

70041898	70064983	70066093	60067490	70066261	30118865
70060158	70058683	60068125	50089239	70064551	60066868
60067964	70066580	70066614	80091785		

Other Documents

VTD 10855-M-010, Instructions for Installation, Operation, and Maintenance of Closed
Feedwater Heaters
HCGS UFSAR Section 6.8, Filtration, Recirculation, and Ventilating Systems
HCGS UFSAR Section 9.4, Air Conditioning, Heating, Cooling, and Ventilating Systems
VTD PN1-A41-8010-0042, Rev. 6, GEK-90333A, Reactor Recirculation System Operating and
Maintenance Instructions
50.59 Review Form for Rev. 35 to HC.OP-ST-BB-0001
'B' FRVS Charcoal Radioiodine Test Report Dated March 8, 2007
DEH070001, Technical Evaluation for Pipe Hanger Restraint Pin Missing in Hope Creek
1-P-EA-142-C001, Design Calculation for Service Water, Lube Water Supply Header and
Supports 1-P-EA-142-H01 & H02
NRC Inspection Manual Chapter 9900 Technical Guidance: Operability Determinations &

F
u
n
c
t
i
o
n
a

o
r
m
i
n
g
C
o
n
d
i
t
i
o
n
s
A
d
v
e
r
s
e
t
o
Q
u
a
l
i
t
y
o
r
S
a
f
e
t
y
,
d
a
t
e
d
9

NRC Generic Letter 90-05: Guidance For Performing Temporary Non-Code repair of ASME
Code Class 1, 2,, and 3 Piping, dated 6/15/90
Condition Resolution Operability Determination Notebook
SH.MD-GP.ZZ-0240, System pressure Test Data Sheet, dated 2/23/07

Section 1R17: Permanent Plant Modifications

Procedures

HC.OP-SO.DA-0001, Rev. 37, Circulating Water System Operation

Drawings

E-0203-0, Rev. 3, Cooling Tower Basin Miscellaneous Valve & Intake Structure Deicing Valve
J-09-0, sheet 19, Rev. 2, Circulating Water System Intake Structure Deicing Valves

Orders

60065561 80090515

Other Documents

Calculation EA-0020, Deicing Line Hydraulics

Section 1R19: Post-Maintenance Testing

Procedures

ER-AA-430, Rev. 2, Conduct of Flow Accelerated Corrosion Activities
ER-HC-430-9055, Rev. 0, Hope Creek Conduct of Flow Accelerated Corrosion Activities
ER-AA-430-1001, Rev. 2, Guidelines for Flow Accelerated Corrosion Activities
HC.MD-CM.BB-0008, Rev. 1, Reactor Recirculation Pump N-7500 Mechanical Seal Rebuild
HC.MD-CM.BB-0003, Rev. 17, Reactor Recirculation Pump Seal Changeout
NC.NA-AP.ZZ-0050, Rev. 7, Station Post Maintenance Testing
NC.MD-AP.ZZ-0050, Rev. 9, Maintenance Testing Program Matrix
SH.MD-AP.ZZ-0003, Rev. 17, Maintenance Department Written Instruction Use Standard
HC.IC-GP.ZZ-0031, Rev. 16, Bailey / NLI Logic Module, Type 862
HC.IC-GP.ZZ-0070, Rev. 5, Bailey Fuse Module, Type 862
SH.MD-EU.ZZ-0002, Rev. 1, Coupling Alignment
SH.MD-GP.ZZ-0240, Rev. 7, System Pressure Test at Normal Operating Pressure and
Temperature

Drawings

M-02-1, Rev.13, Extraction Steam
M-43-1, Sh. 1, Rev. 31, Reactor Recirculation
M-10-1, Sh. 2, Rev. 36, Service Water
M-15-0, Sh. 5, Rev. 6, Compressed Air (Instrument)

Notifications

20283886	20311406	20311515	20313654	20308267	20307673
20285745	20251290	20281533	20309161	20299477	20240048
20316008	20313750	20313869	20313922	20314247	20314417
20317835					

Orders

70057405	60066866	60063938	30139614	80091551	60066957
70050117	60057129	70050000	70050018	60066940	70056604
50082046	50082042	50082043	60066955	60067170	60056618
80083498	60065779	60055819			

Other Documents

Clearance Order 4021446
MPR Associates 3A Feedwater Heater Pipe Tee Temporary Repair Analysis, Dated January 27, 2007
Ultrasonic Test Results for 3A and 3C Feedwater Heater Pipe Tees
Design Change Package 80083498, Replacement of SSW Emergency Isolation Drain Valves with AOVs
VTD PM0150Q-0050, Rev. 2, Primary Containment Vacuum Relief Valve Instruction Manual
VTD PJ200Q-2385, Rev. 12, 862 - Cabinet Layout BC652-9
VTD PJ200Q-0384, Rev. 6, 862 System Containment Atmosphere Control H2/O2 Analyzer Isln Valve HV-4955B
VTD PJ200Q-0392, Rev. 6, 862 System Containment Atmosphere Control H2/O2 Analyzer Isln Valve HV-5019B
VTD PJ200Q-0389, Rev. 7, 862 System Containment Atmosphere Control H2/O2 Analyzer Isln Valve HV-4959B
VTD PJ200Q-0393, Rev. 8, 862 System Containment Atmosphere Control H2/O2 Analyzer Isln Valve HV-4966B
VTD PJ200Q-1479, Rev. 6, 862 System Containment Atmosphere Control H2/O2 Analyzer Isln Valve Intlk. Ch. 6

Section 1R20: Refueling and Outage Activities

Procedures

HC.OP-SO.AE-0001, Rev. 45, Feedwater System Operation
HC.OP-IO.ZZ-0002, Rev. 46, Preparation for Plant Startup
HC.OP-IO.ZZ-0003, Rev. 75, Startup from Cold Shutdown to Rated Power
HC.OP-IO.ZZ-0004, Rev. 68, Shutdown from Rated Power to Cold Shutdown
HC.OP-IO.ZZ-0007, Rev. 22, Operations from Hot Standby
HC.OP-IO.ZZ-0010, Rev. 6, Scram Recovery
HU-AA-101, Rev. 3, Human Performance Tools and Verification Practices

Drawings

M-05-1, Sh. 2, Rev. 23, Condensate

Notifications

20311494	20311443	20311553	20311743	20311390	20311422
20311536	20311425	20313656	20285745	20308267	

Orders

60067435	80091551	60066957	60066866	70065696
----------	----------	----------	----------	----------

Other Documents

Shutdown Safety Assessment Report for Planned Outage (F71) scheduled to begin 01/26/07 and end 1/30/07

Planned Outage Shutdown and Startup Fuel Defect Sampling Plan

10855-D3.28, Design, Installation and Test Specification of the Nuclear Boiler System

Ultrasonic Thickness Examination Records D-58M / D-54B and D-1M / D-1B

Section 1R22: Surveillance Testing

Procedures

HC.OP-IS.BJ-0001, Rev. 48, HPCI Main and Booster Pump Set - 0P204 and 0P217 - Inservice Test

HC.OP-ST.KJ-0002, Rev. 61, Emergency Diesel Generator 1BG400 Operability Test - Monthly

HC.OP-ST.KJ-0015, Rev. 24, EDG 1BG400 - 24 Hour Operability Run and Hot Restart Test

HC.OP-ST.BE-0002, Rev. 40, B & D Core Spray Pumps - BP206 and DP206 - In-Service Test

HC.OP-ST.BF-0001, Rev. 23, Control Rod Scram Time Surveillance

HC.MD-ST.PK-0002, Rev 29, 125 Volt Quarterly Battery Surveillance

Drawings

M-55-1, Sh. 1, Rev. 38, High Pressure Coolant Injection

M-56-1, Sh. 1, Rev. 31, HPCI Pump Turbine

E-0009-1, Single Line Meter & Relay Diagram, 125V DC System Channels C & D

Notifications

20310373	20309918	20296659	20286240	20313728	20314020
20314252	20314305	20290840	20292488	20295672	20299811
20308626	20299730	20292871	20292432	20316080	20316111
20316404	20293974				

Orders

50099736	50101470	50087561	50101674	60064995	50099699
70055909					

Other Documents

H-1-BE-NEE-0506, Seismic Evaluation of the Vibration Damper and Absorber Installed on the Core Spray Pumps, 1BP206 and 1DP206

H-1-BE-SDC-0739, Core Spray Pump Absorber Decoupling Evaluation

Section 1R23: Temporary Plant Modifications

Procedures

NC.CA-DG.ZZ-0103, Rev. 1, Adverse Condition Monitoring and Contingency Planning

Drawings

E-0436-0, Sh. 1, Rev. 7, Electrical Schematic Diagram 4.16KV Class 1E Ckt. Brkr. Control Chiller Compressor Motor 1AK400

E-0436-0, Sh. 2, Rev. 8, Electrical Schematic Diagram 4.16KV Class 1E Ckt. Brkr. Control Chiller Compressor Motor 1AK400

Notifications

20315548

Orders

80091946 60068169

Other Documents

VTD PM723Q-0013, Sh. 1, Rev. 13, 19FA Electronic Control Diagram for Nuclear Plant Duty

VTD PM723Q-0017, Sh. 0, Rev. 5, Logic Control Annunciation Diagram for 19FQ Machine Emergency

Section 1EP2: Alert and Notification System Testing

Other Documents

Final Rep - 10 Design Review Report

Siren Test Results from 2006 & 2007 (bi-weekly silent test & quarterly audible test)

Maintenance Records from November 2005

Section 1EP3: Emergency Response Organization Augmentation

Other Documents

Salem/Hope Creek Emergency Plan

ERO Member Roster

Section 1EP4: Emergency Action Level and Emergency Plan Changes

Other Documents

All 50.54(q) E-Plan and EAL changes from 2005 & 2006

Section 1EP5: Correction of Emergency Preparedness Weaknesses and Deficiencies

Orders

70053308 70053597 70053973 70054047 70054318

Other Documents

LS-AA-120 "Issue Identification and Screening Process," Rev. 6
LS-AA-125 "Corrective Action Program (CAP) Procedure," Rev. 11
All Issue Reports related to EP from 12/19/05 - 3/27/07
Drill Critique Reports – 2005 & 2006
50.54(t) Audits done by the Nuclear Oversight Committee (2006 & 2007)

Section 1EP6: Drill Evaluation

Procedures

SH.OP-AS.ZZ-0001, Rev. 13, Operations Standards
HC.OP-AP.ZZ-0108, Rev. 27, Operability Assessment and Equipment Control Program
HC.OP-AB.ZZ-0000, Rev. 3, Reactor Scram
HC.OP-AB.COOL-0001, Rev. 11, Station Service Water
HC.OP-AB.COOL-0002, Rev. 1, SACS / TACS Cooling
HC.OP-AB.BOP-0002, Rev. 7, Main Turbine
HC.OP-EO.ZZ-0101FC, Rev. 10, Reactor Pressure Vessel (RPV) Control Flow Chart
HC.OP-EO.ZZ-0102FC, Rev. 11, Primary Containment Control Flow Chart

Notifications

20314006

Other Documents

HCGS Event Classification Guide and Procedures
Completed Emergency Classification Paperwork

Section 2OS1: Access Control to Radiologically Significant Areas

Procedures

RP-AA-460, Rev. 11, Controls for High and Very High Radiation Areas
RP-AA-460,-1001 Rev. 1, Additional High Radiation Exposure Controls

Notifications

20307432 20306791

Section 2OS2: ALARA Planning and Controls

Procedures

RP-AA-270, Rev 3, Prenatal Radiation Exposure
RP-AA-220, Rev 3, Bioassay Program
RP-AA-222, Rev 1, Methods for estimating Internal Exposure from In Vivo and In Vitro Bioassay
Data
RP-AA-400, Rev 4, ALARA Program
RP-AA-401, Rev 7, Operational ALARA Planning and Controls

Other Documents

ALARA Review 2007-25, "A" Rx Recirc Pump Activities

Micro ALARA Review 2007-27, Drywell EPU Strain Guage Repair

Section 2OS3: Radiaiton Monitoring Instrumentation

Procedures

RP-AA-1001, Rev 0, Establishing Collective radiation Exposure Estimates and Goals

Section 4OA1: Performance Indicator Verification

Procedures

LS-AA-2001, Rev. 4, Collecting and Reporting of NRC Performance Indicator Data

LS-AA-2010, Rev. 4, Monthly Data Elements for NRC/WANO Unit/Reactor Shutdown Occurrences

LS-AA-2030, Rev. 4, Monthly Data Elements for NRC Unplanned Power Changes per 7000 Critical Hours

EP-AD-022, " Nuclear Emergency Planning Performance Indicators," Rev. 2

Other Documents

Monthly Operating Reports for the Months of February 2005 through January 2007

Hope Creek NRC Performance Indicators, First Quarter 2005 through Fourth Quarter 2006

ERO Drill Participation PI data, 1Q06, 2Q06, 3Q06 & 4Q06

Public Notification System PI data, 1Q06, 2Q06, 3Q06 & 4Q06

DEP PI data, 1Q06, 2Q06, 3Q06 & 4Q06

Section 4OA2: Identification and Resolution of Problems

Procedures

HC.IC-AP.ZZ-00017, Rev. 0, Bailey Module Reliability Program

HC.SE-PR.RL-0001, Rev. 6, Bailey 862 Logic Module Trending Program

Notifications

20299221 20282154 20299528 20313969 20273165 20273515

20279840 20279843 20279959 20263191 20246345 20239521

20266590 20262063 20308741 20308540 20267024 20251290

Orders

60066860 60059539 60061981 60065779 60065780 60065457

60061183 70054565 70062185 70066463 80089398 80080950

80078654 80080583 70052075 70049308 70048021 70052848

80086890 70064948 60066859 70050000 70050018

Other Documents

RL System Engineer Bailey Solid State Logic Module Failure Trending

VTD PJ200Q-0599, Sh. 0, Rev. 13, 4.16KV System Diesel Generator Circuit Breaker (1)52-40407

PSEG Electronic System Health Indicator Program (eSHIP)

Section 4OA3: Event Followup

Procedures

HC.OP-SO.AE-0001, Rev. 45, Feedwater System Operation
HC.OP-IO.ZZ-0002, Rev. 46, Preparation for Plant Startup
HC.OP-IO.ZZ-0003, Rev. 75, Startup from Cold Shutdown to Rated Power
HC.OP-IO.ZZ-0004, Rev. 68, Shutdown from Rated Power to Cold Shutdown
HC.OP-IO.ZZ-0007, Rev. 22, Operations from Hot Standby
HC.OP-IO.ZZ-0010, Rev. 6, Scram Recovery
HU-AA-101, Rev. 3, Human Performance Tools and Verification Practices

Drawings

M-05-1, Sh. 1, Rev. 24, Condensate
M-05-1, Sh. 2, Rev. 23, Condensate
M-06-1, Sh. 1, Rev. 25, Feedwater
M-16-1, Sh. 1, Rev. 31, Condensate Demineralizer
M-41-1, Sh. 1, Rev. 35, Nuclear Boiler

Notifications

20313656 20285745 20308267

Orders

80091551 60066957 60066866 70065696

Other Documents

10855-D3.28, Design, Installation and Test Specification of the Nuclear Boiler System
Ultrasonic Thickness Examination Records D-58M / D-54B and D-1M / D-1B
Low Reactor Water Level Scram Root Cause Evaluation
Plant Computer System Data Trends

Section 4OA5: Other Activities

Procedures

NC.MD-PM.DCS-0003, Rev. 3, Sealing, Drying, and Backfilling of a Loaded MPC

Notifications

20307164 20304882

Orders

60063929 70063881

Other Documents

DCS Hose Failure During Blowdown and associated Prompt Investigation Report
Contamination Found on HI-TRAC and associated Apparent Cause Report
Dry Cask Storage Lessons Learned Action Items, Canister #1, dated 11/6/2006
Dry Cask Storage Post Job Critique Action Item List, dated 2/7/2007

ALARA Post Job Reviews, Dry Cask Storage Activities, Casks 1-4
Dry Cask Storage Notification Summary

Section 40A7: Licensee-Identified Violations

Procedures

HC.OP-IO.ZZ-0002, Rev 47, Preparation for Plant Startup

Notifications

20307894

Orders

70064553

Other Documents

Root Cause Investigation Report, 10-H-202 Drywell Hoist Breaker Not Open Prior to Mode 2
Entry

HCGS Licensee Event Report 2006-005-00, Dated February 16, 2007

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As Is Reasonably Achievable
ANS	Alert and Notification System
ANSI/ANS	American National Standards Institute / American Nuclear Society
CAP	Corrective Action Program
CEDE	Committed Effective Dose Equivalent
CFR	Code of Federal Regulations
CR	Control Room
DCS	Dry Cask Storage
DEP	Drill and Exercise Performance
EAL	Emergency Action Level
ECCS	Emergency Core Cooling Systems
EDG	Emergency Diesel Generator
EHC	Electro-Hydraulic Control
EOF	Emergency Operations Facility
EP	Emergency Preparedness
ERO	Emergency Response Organization
FRVS	Filtration, Recirculation, and Ventilation System
HCGS	Hope Creek Generating Station
HEP	Human Error Probability
HPCI	High Pressure Coolant Injection
HVAC	Heating, Ventilation and Air Conditioning
IMC	Inspection Manual Chapter
ISFSI	Independent Spent Fuel Storage Installation
LER	Licensee Event Report
LOOP	Loss of Offsite Power
MCC	Motor Control Center
MPC	Multi Purpose Canister
MR	Maintenance Rule
MSPI	Mitigating System Performance Index
NCO	Nuclear Controls Operator
NCV	Non-cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OA	Other Activities
PARS	Publicly Available Records
PIs	Performance Indicators
PRA	Probabilistic Risk Assessment
PSEG	Public Service Enterprise Group Nuclear LLC
RACS	Reactor Auxiliaries Cooling System
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RPV	Reactor Pressure Vessel
SACS	Safety Auxiliaries Cooling System
SRA	Senior Reactor Analyst

SRV	Safety Relief Valve
SSCs	Structures, Systems, and Components
SSW	Station Service Water
TACS	Turbine Auxiliaries Cooling System
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VHRA	Very High Radiation Areas
WCD	Work Clearance Document