



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

April 4, 2016

Mano Nazar  
President and Chief Nuclear Officer  
Nuclear Division  
NextEra Energy  
P. O. Box 14000  
Juno Beach, FL 33408-0420

SUBJECT: REISSUE - TURKEY POINT NUCLEAR GENERATING STATION - NRC  
INTEGRATED INSPECTION REPORT 05000250/2015004 and  
05000251/2015004

Dear Mr. Nazar:

On January 27, 2015, the U.S. Nuclear Regulatory Commission (NRC) issued the subject inspection report for Turkey Point Units 3 and 4 – NRC Integrated Inspection Report (IR) 05000250/2015004 and 05000251/2015004, (ADAMS Accession Number ML16027A147).

In the Inspection Scope of Section 40A1 "Performance Indicator Verification (IP 71151)", subsection .1 "Barrier Integrity Cornerstone," of the previously issued IR, we documented an incorrect number of samples. We request that the entire report be replaced with the enclosure to this letter.

In accordance with Title 10 of the Code of Federal Regulations 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Agency Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agency wide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room). If you have any questions, please contact me at (404) 997-4539.

Sincerely,

/RA/

LaDonna B. Suggs, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

Enclosure: As stated

cc: Distribution via ListServ

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M. Nazar

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Letter to Mano Nazar from LaDonna B. Suggs dated April 4, 2016

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INTEGRATED INSPECTION REPORT 05000250/2015004 and  
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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos: 50-250, 50-251

License Nos: DPR-31, DPR-41

Report Nos: 05000250/2015004, 05000251/2015004

Licensee: Florida Power & Light Company (FP&L)

Facility: Turkey Point Nuclear Generating Station, Units 3 & 4

Location: 9760 S. W. 344th Street  
Homestead, FL 33035

Dates: October 1 to December 31, 2015

Inspectors: T. Hoeg, Senior Resident Inspector  
M. Endress, Resident Inspector  
M. Bates, Senior Operations Engineer  
R. Williams, Senior Reactor Inspector  
B. Pursley, Health Physicist  
C. Dykes, Health Physicist  
J. Panfel, Health Physicist  
B. Kellner, Senior Health Physicist  
P. Capehart, Senior Operations Engineer

Approved by: LaDonna B. Suggs, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

Enclosure

## SUMMARY

IR 05000250/2015004, 05000251/2015004; 10/01/2015 – 12/31/2015; Turkey Point Nuclear Generating Station, Units 3 and 4; Refueling Outage & Other Outage Activities.

The report covered a three-month period of inspection by the resident inspectors and specialist inspectors from the Region II office. One Green non-cited violation (NCV) was identified. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," (SDP) dated April 29, 2015. The cross-cutting aspects were determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements were dispositioned in accordance with the NRC's Enforcement Policy dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

### NRC-Identified and Self-Revealing Findings

#### Cornerstone: Barrier Integrity

- Green: A self-revealing NCV of Technical Specification (TS) 6.8.1, "Procedures and Programs," was identified when the licensee failed to properly implement procedure 3-PMI-072.6, "Steam Dump to Atmosphere Control Loop Calibration." Specifically, the licensee incorrectly installed a temporary electrical jumper in reactor operator console 3C02 instead of 3C04, in contrast to Step 6.3.2 of 3-PMI-072.6. This action resulted in actuation of a 3B 4160 volt (V) vital bus lockout circuit causing loss of power to the B train of Unit 3 (U3) spent fuel pool (SFP) cooling. Immediate corrective actions were taken to remove the jumper and restore the B train of SFP cooling. The licensee entered the condition in its corrective action program (CAP) as action request (AR) 02088911 and 02088914.

The performance deficiency was determined to be more than minor because it was associated with the human performance attribute of the barrier integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system (RCS), and containment) protect the public from radionuclide releases. In addition, the performance deficiency, if left uncorrected, had the potential to lead to a more significant safety concern. The finding was screened using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," Tables 2 and 3, dated July 1, 2012, and Appendix G Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings," Exhibit 4 for Barrier Integrity, dated May 9, 2014. The inspectors determined the finding was of very low safety significance (Green) because it was not associated with low temperature over pressurization, freeze seals, steam generator nozzle dams, criticality, drain down or leakage paths, or the containment barrier. Furthermore, one train of SFP cooling remained in operation, the rate of SFP temperature rise was low (~ 2 °F/hour), and additional methods remained available to limit SFP temperature rise. This finding was assigned a cross cutting aspect associated with the procedure adherence element of the human performance area because the licensee failed to correctly execute step 6.3.2 of procedure 3-PMI-072.6 (H.8). (Section 1R20)

### Licensee-Identified Violations

Violations of very low safety or security significance or Severity Level IV that were identified by the licensee have been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's CAP. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Unit 3 began this inspection period at 100 percent of Rated Thermal Power (RTP) where it remained until October 19, 2015, when it was shut down for a scheduled refueling outage (RFO). Unit 3 was restarted November 29, 2015, and returned to 100 percent of RTP on December 9, 2015, where it remained through the end of this inspection period.

Unit 4 (U4) began this inspection period at 100 percent of RTP where it remained through the end of this inspection period.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection (IP 71111.01)

##### .1 Readiness for Seasonal Extreme Weather Conditions

###### a. Inspection Scope

During the month of December, the inspectors reviewed and verified the status of actions taken by the licensee for winter readiness prior to the onset of cool weather. The inspectors reviewed licensee procedure OP-AA-102-1002, "Seasonal Readiness," Attachment 7, "Cold Weather Readiness Check List," and Attachment 14, "Turkey Point Site Specific Guidance." The inspectors reviewed system health reports and open CAP ARs for the emergency diesel generators (EDGs) and auxiliary feedwater (AFW) pumps to determine if any deficiencies existed that could affect operation of equipment immersion heaters. The inspectors performed walk downs of systems that could be affected by cold weather as outlined in the licensee site specific guidance including the following areas:

- U3 and U4 EDGs
- AFW pumps
- U3 and U4 charging pumps
- U3 and U4 boric acid storage tanks

###### b. Findings

No findings were identified.

#### 1R04 Equipment Alignment (IP 71111.04)

##### .1 Partial Equipment Walk Downs (Quarterly)

###### a. Inspection Scope

The inspectors conducted three partial alignment verifications of the safety-related systems listed below. These inspections included reviews using plant lineup procedures, operating procedures, and piping and instrumentation drawings, which were

compared with observed equipment configurations to verify that the critical portions of the systems were correctly aligned to support operability. The inspectors also verified that the licensee had identified and resolved, by entering them in the CAP, equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers. Documents reviewed are listed in the Attachment. This inspection constitutes three samples.

- 4B EDG while 4A EDG was out of service (OOS)
- 4A and 4B high head safety injection (HHSI) pumps while 3A and 3B HHSI pumps were OOS
- 3B EDG while 3A EDG was OOS

b. Findings

No findings were identified.

1R05 Fire Protection (IP 71111.05)

.1 Fire Area Walk downs

a. Inspection Scope

The inspectors walked down the following five plant areas to evaluate conditions related to control of transient combustibles, ignition sources, material condition, and operational status of fire protection systems including fire barriers used to prevent fire damage and propagation. The inspectors reviewed these activities using provisions in the licensee's procedure 0-ADM-016, "Fire Protection Plan" and 10 CFR Part 50, Appendix R. The inspectors routinely reviewed the licensee's fire impairment lists and monitored the associated corrective actions for completion. The inspectors reviewed the AR report database to verify that fire protection problems were being identified and appropriately resolved in the CAP. The inspectors' tours of the selected areas verified the fire protection equipment was installed as shown on the applicable fire plan drawings and appeared functional and ready for usage. This inspection constitutes five samples. The following areas were inspected:

- U4 Pipe and Valve Room, Fire Zone 030
- U3 Containment Building, Fire Zone 060
- U4 4B Vital Battery Room, Fire Zone 102
- U3 and U4 Mechanical Equipment Room, Fire Zone 097
- Auxiliary Building Electrical Equipment Room, Fire Zone 025

b. Findings

No findings were identified.



## .2 Fire Protection - Drill Observation

### a. Inspection Scope

On December 9, 2015, the inspectors observed an unannounced fire drill that took place within the station power block just outside the 3D31/4D31 non vital 125 VDC switchgear room in the turbine building. The drill was observed to evaluate the readiness of the plant fire brigade to fight fires and the control room to make the proper emergency action level (EAL) classification. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief meeting, and took appropriate corrective actions as required. Specific attributes evaluated were:

- Proper wearing of fire protective gear and self-contained breathing apparatus
- Proper use and layout of fire hoses
- Employment of appropriate fire-fighting techniques
- Sufficient fire-fighting equipment brought to the scene
- Effectiveness of command and control
- Search for victims and propagation of the fire into other plant areas
- Smoke removal operations
- Utilization of pre-planned strategies
- Adherence to the pre-planned drill scenario
- Drill objective

The inspectors also observed the placement and charging of the fire hoses used to simulate extinguishing the fire.

### b. Findings

No findings were identified.

## 1R08 Inservice Inspection Activities (IP 71111.08)

### a. Inspection Scope

#### Non-Destructive Examination Activities and Welding Activities

From October 26–29, 2015, the inspectors conducted an onsite review of the implementation of the licensee's inservice inspection (ISI) program for monitoring degradation of the RCS boundary, risk-significant piping and component boundaries, and containment boundaries in U3.

The inspectors either directly observed or reviewed the following non-destructive examinations (NDEs) mandated by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code of Record: 2007 Edition with 2008 Addenda) to evaluate compliance with the ASME Code, Section XI and Section V requirements, and if any indications or defects were detected, to evaluate if they were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement. The inspectors also reviewed the qualifications of the NDE technicians performing the examinations, to determine whether they were current and in compliance with the ASME Code requirements.

- Ultrasonic Examination of Loop B 18-inch Feedwater Nozzle-to-Pipe weld, Augmented Examination (observed)
- Ultrasonic Examination (UT) of Loop B 14-inch Feedwater Pipe-to-Elbow weld, Augmented Examination (observed)
- Visual Examination of the Reactor Pressure Vessel bottom-mounted instrumentation penetrations (reviewed)
- Visual Examination (VT-3) of Spring Hanger 3-RCH-27, Class 1 Support (observed)
- VT-3 of Dual Spring Hanger VS-1G-12, Class 1 Support (observed)

The inspectors either directly observed or reviewed the following welding activities, qualification records, and associated documents in order to evaluate compliance with procedures and the ASME Code, Section XI and Section IX requirements. Specifically, the inspectors reviewed the work order (WO), repair and replacement plan, weld data sheets, welding procedures, procedure qualification records, welder performance qualification records, and NDE reports.

- WO 4030098001, Repair of PZR HTR Sleeve #11, Class 1 (reviewed)
- WO 4029647301, Valve 3-298C Replace Valve, Class 2 (reviewed)

During non-destructive surface and volumetric examinations performed since the previous RFO, the licensee did not identify any relevant indications that were analytically evaluated and accepted for continued service; therefore, no NRC review was completed for this inspection procedure (IP) attribute.

#### Pressurized Water Reactor Vessel Upper Head Penetration Inspection Activities

The inspectors verified that for the U3 vessel head, a bare metal visual examination and a volumetric examination were not required during this outage, in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D).

The licensee did not identify any relevant indications that were accepted for continued service. Additionally, the licensee did not perform any welding repairs to the vessel head penetrations since the beginning of the last U3 RFO; therefore, no NRC review was completed for these IP attributes.

#### Boric Acid Corrosion Control Inspection Activities

The inspectors reviewed the licensee's boric acid corrosion control program activities to determine if the activities were implemented in accordance with the commitments made in response to NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants," and applicable industry guidance documents. Specifically, the inspectors performed an onsite records review of procedures, and the results of the licensee's containment walkdown inspections performed during the current RFO. The inspectors also interviewed the Boric Acid Corrosion Control (BACC) program owner, conducted an independent walkdown of containment to evaluate compliance with licensee's BACC program requirements, and verified that degraded or non-conforming conditions, such as boric acid leaks, were properly identified and corrected in accordance with the licensee's BACC and CAP.

The inspectors reviewed the following engineering evaluations, completed for evidence of boric acid leakage, to determine if the licensee properly applied applicable corrosion rates to the affected components; and properly assessed the effects of corrosion induced wastage on structural or pressure boundary integrity in accordance with the licensee procedures.

- AR 02014343, Boric Acid Evaluation
- AR 02021132, Boric Acid Evaluation
- AR 02025309, Boric Acid Evaluation
- AR 02038045, Boric Acid Evaluation

The inspectors reviewed the following condition reports (CRs) and associated corrective actions related to evidence of boric acid leakage, to evaluate if the corrective actions completed were consistent with the requirements of the ASME Code and 10 CFR Part 50, Appendix B, Criterion XVI.

- AR 02086287, CV-3-2819 has corrosion on electrical connection
- AR 02086292, MOV-3-866B inactive minor dry white boric acid at packing
- AR 02086231, 3-309D inactive minor dry white boric acid at packing
- AR 02086226, 3-306B inactive minor dry white boric acid at packing
- AR 02086218, 3-120G inactive dry white boric acid at D/S pipe cap
- AR 02086240, 3-572 inactive dry white boric acid at packing
- AR 02086239, 3-542, inactive dry white boric acid at packing

#### Steam Generator Tube Inspection Activities

The inspectors verified that for the U3 steam generator tubes, no inspection activities were required this RFO, in accordance with the requirements of the ASME Code, the licensee's TS, and Nuclear Energy Institute (NEI) 97-06, "Steam Generator Program Guidelines."

#### Identification and Resolution of Problems

The inspectors reviewed a sample of ISI-related issues entered into the CAP to determine if the licensee had appropriately described the scope of the problem, and had initiated corrective actions. The review also included the licensee's consideration and assessment of operating experience events applicable to the plant. The inspectors performed this review to ensure compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements.

#### b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (IP 71111.11).1 Licensed Operator Requalification Exama. Inspection Scope

Annual Review of Licensee Requalification Examination Results: On December 30, 2015, the licensee completed the annual requalification operating examinations required to be administered to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the individual operating examinations and the crew simulator operating examinations in accordance with IP 71111.11, "Licensed Operator Requalification Program." These results were compared to the thresholds established in Section 3.02, "Requalification Examination Results," of IP 71111.11.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Reviewa. Inspection Scope

The inspectors performed the following inspection sample of a simulator observation and assessed licensed operator performance while training. These observations included procedural use and adherence, response to alarms, communications, command and control, and coordination and control of the reactor plant operations.

On October 8, 2015, the inspectors assessed licensed operator performance in the plant-specific simulator during a training evolution. The training scenario was started with the unit in Mode 1 at 100 percent power and included a fire lasting greater than 15 minutes, a loss of reactor coolant accident (LOCA), a reactor trip, a safety injection, a residual heat removal (RHR) pump seal failure, and a radiological release to the environment.

During this simulator observation, the simulator board configurations were compared with actual plant control board configurations reflecting recent plant changes or modifications. The inspectors specifically evaluated the following attributes related to operating crew performance and the licensee evaluation:

- Clarity and formality of communication
- Ability to take timely action to safely control the unit
- Prioritization, interpretation, and verification of alarms
- Correct use and implementation of off-normal and emergency operating procedures and emergency plan implementing procedures
- Control board operation and manipulation, including high-risk operator actions
- Oversight and direction provided by shift supervisor, including ability to identify and implement appropriate TS actions and emergency plan classification and notification
- Crew overall performance and interactions
- Evaluator's control of the scenario and post scenario evaluation of crew performance

b. Findings

No findings were identified.

.3 Control Room Observations

a. Inspection Scope

The inspectors performed daily assessments of licensed operators in the control room during their performance of routine operations. These observations included daily surveillance testing, log keeping, response to alarms, communications, shift turnovers, and coordination of plant activities. These observations were conducted to verify operator compliance with station operating guidelines, such as use of procedures, control and manipulation of components, and communications. The inspectors also performed the following three focused control room observations during reactivity manipulations and Mode changes:

On November 19, 2015, the inspectors performed a focused observation on U4 consisting of a RCS primary water dilution per 0-OP-046, Enclosure 6, "Chemical Volume Control System Boron Concentration Control." Specifically, the inspectors observed the reactor operators' performance of the pre-job brief per 0-ADM-200, Attachment 7, "Planned Reactivity Manipulations for Maintaining Steady State Plant Conditions" and verified the operators complied with the applicable procedure during the evolution.

On December 1, 2015 and December 2, 2015, the inspectors performed a focused observation in the U3 control room during low power physics testing in accordance with procedure 0-OSP-040.19, "Low Power Physics Testing." The inspectors observed the pre-evolution operating crew brief, control rod movements, monitoring of subcritical multiplication, and data collection.

On December 3, 2015, the inspectors performed a focused observation on U3 during a reactor startup per procedure 3-GOP-301, "Hot Standby to Power Operations." The inspectors reviewed the expected critical boron concentration calculation and the control rod pull sequence plan used during the observed reactor startup. The inspectors reviewed the recorded reactor startup physics data to ensure it was as calculated by the licensee reactor engineering staff.

This inspection constitutes three samples. The inspectors focused on the following conduct of operations attributes as appropriate:

- Operator compliance and use of procedures
- Control board manipulations
- Communication between crew members
- Use and interpretation of plant instruments, indications and alarms
- Use of human error prevention techniques
- Documentation of activities, including initials and sign-offs in procedures
- Supervision of activities, including risk and reactivity management

b. Findings

No findings were identified.

.4 Biennial Requalification

a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the weeks of November 30, 2015 through December 21, 2015, the inspectors reviewed documentation associated with the licensee's operator requalification program biennial written examinations. The activity performed by the inspectors was conducted to assess the licensee's effectiveness in implementing requalification requirements identified in 10 CFR Part 55, "Operators' Licenses." The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and IP 71111.11, "Licensed Operator Requalification Program." Documentation reviewed included two biennial written examinations. The records were inspected using the criteria listed in IP 71111.11. Documents reviewed during the inspection are documented in the List of Documents Reviewed.

The sample is now complete because the remainder of this sample was previously inspected and documented in the third quarter integrated inspection report (05000250&251/2015003).

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (IP 71111.12)

a. Inspection Scope

The inspectors reviewed known equipment problems associated with the U3 steam generator steam flow module FM-3-474D affecting the maintenance rule program and equipment performance history trends associated with the equipment. Specifically, the inspectors reviewed AR 02081538.

The inspectors reviewed the licensee's activities to meet the requirements of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and licensee procedure NAP-415, "Maintenance Rule Program Administration." The inspectors focused on maintenance rule scoping, characterization of maintenance problems and failed components, risk significance, determination of a(1) or a(2) performance criteria classification, corrective actions, and the appropriateness of established performance goals and monitoring criteria. The inspectors also interviewed responsible engineers and observed or reviewed corrective maintenance activities. The inspectors verified that equipment problems were being identified and appropriately entered into the licensee's CAP. The inspectors used the licensee maintenance rule

database, system health reports, maintenance rule unavailability status reports, and the CAP as sources of information on tracking and resolution of issues. This inspection constitutes one sample.

- U3 FM-3-474D Flow Module Bias Potentiometer

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors completed in-office reviews and control room inspections of the licensee's risk assessment of five emergent or planned maintenance activities. The inspectors verified the licensee's risk assessment and risk management activities using the requirements of 10 CFR 50.65(a)(4); the recommendations of Nuclear Management and Resource Council 93-01, "Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 3; and procedures 0-ADM-068, "Work Week Management;" WM-AA-1000, "Work Activity Risk Management;" and 0-ADM-225, "On Line Risk Assessment and Management." The inspectors also reviewed the effectiveness of the licensee's contingency actions to mitigate increased risk resulting from the degraded equipment and the licensee is assessment of aggregate risk using procedure OP-AA-104-1007, "Online Aggregate Risk." The inspectors discussed the on-line risk monitor (OLRM) results with the control room operators and verified all applicable OOS equipment was included in the OLRM calculation. The inspectors evaluated the following five risk assessment samples during the inspection period:

- U3 3A 4kV Bus, U3 Startup Transformer (SUT), and 3A and 3B HHSI pumps OOS
- U3 3A 4kV Bus, U3 SUT, and 3D Vital 480V Motor Control Cabinet (MCC) OOS
- U3 3-312A Valve Inspection and Repair with Freeze Seal (WO 40411630)
- U3 SUT OOS, U3 3A Sequencer OOS, and 3A and 3B EDGs Running
- U3 Train 2 AFW, U4 Train 2 AFW, and U3 3B Emergency Containment Cooler OOS

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (IP 71111.15)

a. Inspection Scope

The inspectors evaluated the technical adequacy of the licensee evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred for the five operability evaluations described in the ARs listed below. The inspectors reviewed applicable sections of the updated Final Safety Analysis Report (UFSAR) to determine if the system or component remained available to perform its intended function. In addition, when applicable, the inspectors reviewed compensatory measures implemented to verify that

the affected equipment remained capable of performing its intended design function. The inspectors also reviewed a sampling of CRs to verify that the licensee routinely identified and corrected any deficiencies associated with operability evaluations. This inspection constitutes five samples.

- AR 02083336, U3 RHR Gas Voids
- AR 02082853, Pressurizer Steam Sample Line Containment Isolation Valve (CV-4-951) OOS
- AR 02053124, 3B EDG Oil Leak
- AR 02086176, 3A FT-3-414 Bent and Unsupported
- AR 02093957, 4B EDG TS-4-6132 Broken

b. Findings

No findings were identified.

1R18 Plant Modifications (IP 71111.18)

Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the following two permanent plant modifications. The inspectors reviewed the 10 CFR 50.59 screening and technical evaluation to verify that the modifications had not affected system operability or availability. The inspectors reviewed associated plant drawings, design analyses, and UFSAR documents impacted by these modifications and discussed the changes with licensee personnel to verify that the modifications were consistent with the WO and associated documents. The inspectors observed portions of the modifications and surrounding areas to determine if conditions resulted in any potential unsafe conditions not described in the engineering change documentation. Additionally, the inspectors reviewed and verified that any conditions associated with the modifications were being identified and entered into the CAP. This inspection constitutes two samples.

- EC 280399, U3 Reactor Coolant Pump (RCP) Seal Replacement Modification
- EC 285012, FT-4-494 U4 Steam Generator C Steam Flow Detector Line Replacement

b. Findings

No findings were identified.

1R19 Post Maintenance Testing (IP 71111.19)

a. Inspection Scope

For the five post maintenance tests and associated WOs listed below, the inspectors reviewed the test procedures and either witnessed the testing or reviewed test records to determine whether the scope of testing adequately verified that the work performed was completed satisfactorily and demonstrated that the affected equipment was operable.



The inspectors verified that the requirements in licensee procedure 0-ADM-737, "Post Maintenance Testing," were incorporated into the test requirements. The inspectors reviewed the following WOs consisting of five inspection samples:

- WO 40281614, U3 Pressurizer Pressure Operated Relief Valve PCV-3-455C
- WO 40419666, U4 Steam Generator C Steam Flow Detector FT-4-494
- WO 40371127, 3B Containment Spray Pump Check Valve Inspection
- WO 40419961, Reactor Protection System 3-P7-1-B Relay Replacement
- WO 40161059, 3B50 Load Center Relay Replacements

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (IP 71111.20)

.1 Unit 3 Refueling Outage PT3-28 (one sample)

a. Inspection Scope

Outage Planning, Control and Risk Assessment

During daily outage planning activities by the licensee, the inspectors reviewed the risk reduction methodology employed by the licensee during RFO PT3-28 meetings including outage control center (OCC) morning meetings, operations daily team meetings, and schedule performance update meetings. The inspectors examined the licensee implementation of shutdown safety assessments during PT3-28 in accordance with administrative procedure ADM-051, "Outage Risk Assessment and Control," to verify if a defense in depth concept was in place to ensure safe operations and avoid unnecessary risk. In addition, the inspectors regularly monitored outage planning and control activities in the OCC, and interviewed responsible OCC management personnel during the outage to ensure system, structure, and component configurations, and work scope were consistent with TS requirements, site procedures, and outage risk controls.

Monitoring of Shutdown Activities

The inspectors performed walk downs of important systems and components used for RHR from the reactor core and SFP during the shutdown period, including the intake cooling water system, component cooling water (CCW) system, and SFP cooling system.

Outage Activities

The inspectors examined outage activities to verify that they were conducted in accordance with TS, licensee procedures, and the licensee's outage risk control plan. Some of the more significant inspection activities accomplished by the inspectors were as follows:

- Walked down selected safety-related equipment clearance orders
- Verified operability of RCS pressure, level, flow, and temperature instruments during various modes of operation
- Verified electrical systems availability and alignment
- Verified shutdown cooling system and SFP cooling system operation
- Evaluated implementation of reactivity controls
- Reviewed control of containment penetrations
- Examined foreign material exclusion (FME) controls put in place inside containment (e.g., around the refueling cavity, near sensitive equipment and RCS breaches) and around the SFP
- Observed fuel loading and unloading in the SFP and in containment

#### Monitoring of Plant Heat up and Containment Closure Activities

The inspectors examined the applicable TS, license conditions, and verified administrative prerequisites were being met prior to reactor plant mode changes. The inspectors reviewed measured RCS leak rates, and verified containment integrity was properly established. The inspectors performed a containment closeout inspection prior to the reactor plant startup to verify no evidence of leakage or debris were left in containment that could affect plant operations.

#### Reactor Startup and Mode Changes

On December 2, 2015, the inspectors observed the U3 reactor startup and turbine synchronization to the electrical grid and associated Mode changes. The inspectors reviewed the recorded reactor startup physics data in order to determine it was as-calculated by the licensee reactor engineering staff. The inspectors determined that startup and Mode changes were performed in accordance with licensee procedures 0-OSP-040.16, "Initial Criticality After Refueling Outage and Nuclear Design Verification," and 3-GOP-301, "Mode 3 to Power Operations."

#### Corrective Action Program

The inspectors reviewed ARs generated during PT3-28 to evaluate the licensee's threshold for initiating ARs. The inspectors reviewed CRs to verify priorities, Mode holds, and significance levels were assigned as required. Resolution and implementation of corrective actions of several ARs were also reviewed for completeness. The inspectors routinely reviewed the results of site oversight of daily surveillances of outage activities.

#### b. Findings

Introduction: A Green self-revealing NCV of TS 6.8.1, "Procedures and Programs," was identified for the licensee's failure to correctly execute procedure 3-PMI-072.6, "Steam Dump to Atmosphere Control Loop Calibration." The failure resulted in actuation of a 3B 4160 V vital bus lockout circuit causing loss of power to the B train of U3 SFP cooling.

Description: On November 4, 2015, at 2112 hours, Instrumentation and Controls technicians were performing procedure 3-PMI-072.6, "Steam Dump to Atmosphere Control Loop Calibration," when a temporary electrical jumper was incorrectly installed in

the control room reactor operator console 3C02 instead of 3C04, in contrast to step 6.3.2 of 3-PMI-072.6. At the time of the event, U3 was defueled with all of its fuel temporarily relocated to the SFP. The 3A 4160 V vital bus was de-energized for planned maintenance and all 480 V vital load centers were powered by the 3B 4160 V vital bus. Separate load centers provided power to two separate trains of U3 SFP cooling pumps, and the 3A train pump was powered from Unit 4 electrical switchgear.

The incorrectly placed jumper actuated a 3B 4160 V vital bus lockout circuit causing all associated Unit 3 480 V vital load and motor control centers to de-energize. Numerous equipment was rendered OOS including the B SFP cooling pump and the 3B CCW pump. The 3B CCW pump provided cooling to both U3 SFP cooling heat exchangers. Upon loss of the 3B CCW pump, the standby 3C CCW pump started on low pressure as designed, providing cooling to the 3A SFP cooling train. Immediate corrective action was taken to remove the jumper and restore the B train of SFP cooling. However, the loss of one train of SFP cooling for approximately four hours caused the SFP temperature to rise from approximately 110 °F to 117 °F. The licensee restored U3 load and motor control centers at 0207 hours on November 5, 2015, and by 0300 hours the SFP temperature had returned to normal.

The licensee entered the condition in its CAP as AR 02088911 and 02088914. Corrective actions included site-wide briefings of lessons learned from the event, quality reviews of procedure 3-PMI-072.6, and enhanced oversight of maintenance activities.

Analysis: The inspectors determined that the failure to correctly implement maintenance procedure 3-PMI-072.6 was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the human performance attribute of the barrier integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, RCS, and containment) protect the public from radionuclide releases. Specifically, the licensee's failure to correctly execute step 6.3.2 of procedure 3-PMI-072.6 rendered one of two SFP cooling trains OOS, causing the SFP temperature to rise from approximately 110 °F to 117 °F over a four-hour period. While the performance deficiency did not directly challenge the integrity of the fuel cladding, if left uncorrected, the SFP temperature would have continued to increase, potentially affecting SFP inventory.

The finding was screened using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," Tables 2 and 3, dated July 1, 2012, and Appendix G Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings," Exhibit 4 for Barrier Integrity, dated May 9, 2014. The inspectors determined the finding was of very low safety significance (Green) because it was not associated with low temperature over pressurization, freeze seals, steam generator nozzle dams, criticality, drain down or leakage paths, or the containment barrier. Furthermore, one train of SFP cooling remained in operation, the rate of SFP temperature rise was low (~2 °F/hour), and additional diverse compensatory methods remained available to limit SFP temperature rise. This finding was assigned a cross cutting aspect associated with the procedure adherence element of the human performance area because the licensee failed to correctly execute step 6.3.2 of procedure 3-PMI-072.6 (H.8).

Enforcement: Technical Specification 6.8.1 requires that procedures required by the licensee's Quality Assurance Topical Report (QATR) be established, implemented, and maintained. The QATR includes procedures listed in Appendix A of NRC Regulatory Guide 1.33, Revision 2, dated February 1978, including procedures for calibrations. The licensee implements TS 6.8.1 requirements, in part, using procedure 3-PMI-072.6, "Steam Dump to Atmosphere Control Loop Calibration." Step 6.3.2 of procedure 3-PMI-072.6, requires that a jumper be installed in reactor operator console 3C02. Contrary to this requirement, on November 4, 2015, at 2112 hours, a maintenance technician mistakenly installed a jumper in reactor operator console 3C04. This action resulted in actuation of a 3B 4160 V vital bus lockout circuit causing loss of power to the B train of U3 SFP cooling. The licensee took immediate corrective action to remove the jumper. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy, because it was of very low safety significance and was entered in the licensee's CAP as AR 02088911 and 02088914. (NCV 05000250/2015004-01, Failure to correctly follow procedure 3-PMI-072.6, "Steam Dump to Atmosphere Control Loop Calibration.")

1R22 Surveillance Testing (IP 71111.22)

a. Inspection Scope

The inspectors either reviewed or observed the following five surveillance tests to verify that the tests met the TS requirements, the UFSAR description, the licensee's procedural requirements, and demonstrated that systems were capable of performing their intended safety functions and operational readiness. In addition, the inspectors evaluated the effect of the testing activities on the plant to ensure that conditions were adequately addressed by the licensee staff and that after completion of the testing activities, equipment was returned to the status required for the system to perform its safety function. The inspectors verified that any surveillance deficiencies were documented in the licensee's CAP. This inspection constitutes two surveillance test samples, one inservice testing (IST) sample, and two containment isolation valve leak test samples. The inspectors reviewed the following tests:

Surveillance Test:

- 0-OSP-059.13, U4 Flux Map
- 3-OSP-072.5, U3 Main Steam Safety Valve Setpoint Verification

In-Service Tests:

- 3-OSP-206.1, Component Cooling Water MOV-3-1418 Valve Test (IST)

Containment Isolation Valve Test:

- 3-OSP-051.5, U3 Local Leak Rate Test, Penetration 8 CV-3-951
- 3-OSP-051.5, U3 Local Leak Rate Test, Penetration 14 CV-3-204

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (IP 71114.06)

.1 Emergency Preparedness Drill

a. Inspection Scope

On October 8, 2015, the inspectors observed an emergency preparedness drill and the performance of the licensee's emergency response organization. The drill included a simulated fire in the U4 laydown area, a LOCA inside containment, followed by a RHR pump seal failure and radiological release to the environment. The fire, lasting greater than 15 minutes, required an unusual event emergency declaration and notification to state and local county officials and the NRC per licensee procedure 0-EPIP-20101, "Duties of the Emergency Coordinator." The scenario progressed to a loss of two RCS barriers with the loss or potential loss of a third barrier requiring a general emergency declaration and an additional notification. The inspectors observed the crew in the plant simulator, including simulated implementation of emergency procedures. The inspectors observed the emergency response organization staff in the control room simulator and technical support center while they implemented the event classification guidelines and emergency response procedures. The inspectors determined that the emergency classification and notifications were made in accordance with the licensee emergency plan implementing procedure 0-EPIP-20101. The inspectors attended the licensee's post drill critique, reviewed the licensee's critique items, and discussed inspector observations with the licensee to verify that drill issues were identified and captured in the licensee's CAP. This inspection constitutes one sample.

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (IP 71124.01)

a. Inspection Scope

Hazard Assessment and Instructions to Workers. During facility tours, the inspectors directly observed labeling of radioactive material and postings for radiation areas, high radiation areas, and airborne radioactivity areas established within the radiologically controlled area (RCA) of the U3 containment building, auxiliary building, the Independent Spent Fuel Storage Installation (ISFSI), and radioactive waste processing and storage locations. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys for selected RCA areas. The inspectors reviewed survey records for several plant areas including surveys for alpha emitters, airborne radioactivity, gamma surveys with a range of dose rate gradients, and pre-job surveys for upcoming tasks. The inspectors also discussed changes to plant operations that could contribute to changing radiological conditions since the last inspection. For selected outage jobs, the inspectors attended pre-job briefings and reviewed Radiation

Work Permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers.

Hazard Control and Work Practices. The inspectors evaluated access barrier effectiveness for selected Locked High Radiation Area (LHRA) locations and discussed changes to procedural guidance for LHRA and Very High Radiation Area controls with Radiation Protection (RP) supervisors. The inspectors observed and evaluated controls for the storage of irradiated material within the SFP. Established radiological controls (including airborne controls) were evaluated for selected U3 RFO 28 (U3R28) tasks including RCP seal replacements, reactor cavity decontamination and reactor sump demobilization activities. In addition, the inspectors reviewed licensee controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations.

Through direct observations and interviews with licensee staff, the inspectors evaluated occupational workers' adherence to selected RWPs and RP technician proficiency in providing job coverage. Electronic dosimeter (ED) alarm set points and worker stay times were evaluated against area radiation survey results for selected U3 RFO jobs, including the reactor sump demobilization and reactor cavity decontamination. The inspectors discussed the use of personnel dosimetry (extremity dosimetry and multibadging in high dose rate gradients) with RP staff. The inspectors also evaluated worker response to dose and dose rate alarms during selected work activities.

Control of Radioactive Material. The inspectors observed surveys of material and personnel being released from the RCA using small article monitor (SAM), personnel contamination monitor (PCM), and portal monitor instruments. As part of IP 71124.05, the inspectors reviewed the last two calibration records for selected release point survey instruments and discussed equipment sensitivity, alarm setpoints, and release program guidance with licensee staff. The inspectors reviewed records of leak tests on selected sealed sources and discussed nationally tracked source transactions with licensee staff.

Problem Identification and Resolution. The inspectors reviewed CAP documents associated with radiological hazard assessment and exposure control. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with licensee procedures. The inspectors also reviewed recent self-assessment results.

Radiation protection activities were evaluated against the requirements of the UFSAR Section 11; TS Sections 6.8 Procedures and Programs and 6.12 High Radiation Area; 10 CFR Parts 19 and 20; Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas in Nuclear Power Plants"; and approved licensee procedures. Licensee programs for monitoring materials and personnel released from the RCA were evaluated against 10 CFR Part 20 and IE Circular 81-07, "Control of Radioactively Contaminated Material." Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

2RS2 Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls (IP 71124.02)

a. Inspection Scope

Work Planning and Exposure Tracking. The inspectors reviewed work activities and their collective exposure estimates for U3 RFO. The inspectors reviewed ALARA planning packages for the following high collective exposure tasks: SG cleaning (including bundle flushing, sludge lancing, and foreign object search and retrieval); refueling activities; RCP seal replacement; bottom mounted inspection, and; various valve work. For the selected tasks, the inspectors reviewed established dose goals and discussed assumptions regarding the bases for the current estimates with responsible ALARA planners. The inspectors evaluated the incorporation of exposure reduction initiatives and operating experience. Adjustments made to planned doses were also reviewed, along with the basis of those adjustments. Post-job reviews from both the current and previous RFO were assessed. Where applicable, the inspectors discussed changes to established estimates with ALARA planners and evaluated them against work scope changes or unanticipated elevated dose rates.

Source Term Reduction and Control. The inspectors reviewed the collective exposure three-year rolling average from 2012-2014 and reviewed historical collective exposure trends. The inspectors evaluated historical dose rate trends and compared them to current data.

Radiation Worker Performance. In conjunction with IP 71124.01, radiation worker performance was evaluated during several tasks both within containment and the auxiliary building. The inspectors specifically evaluated both the use of ALARA briefings and remote technologies, including teledosimetry and remote visual monitoring, to reduce dose.

Problem Identification and Resolution. The inspectors reviewed and discussed selected CAP documents associated with ALARA program implementation. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with licensee procedures. The inspectors also reviewed recent self-assessment results.

ALARA program activities were evaluated against the requirements of the UFSAR Section 11, applicable TS Sections 6.8 and 6.12, 10 CFR Part 20, and approved licensee procedure. Records reviewed are listed in the Attachment.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (IP 71124.03)

a. Inspection Scope

Engineering Controls: Licensee engineering controls used to control and mitigate airborne radioactivity were reviewed and discussed. The inspectors evaluated selected U3 engineering controls including temporary High Efficiency Particulate Air (HEPA) filtration systems for selected outage tasks with the potential for generating airborne

activity conditions. The evaluations included procedural guidance, operability testing, and established configurations during specific outage tasks. In addition, plant guidance and its implementation for the monitoring of potential airborne beta-gamma and alpha-emitting radionuclides for outage tasks associated with refueling activities, head disassembly, and valve maintenance were reviewed and discussed with cognizant licensee representatives.

Use of Respiratory Protection Devices: Program guidance for issuance and use of respiratory protection devices were reviewed and discussed with responsible licensee representatives. The inspectors reviewed Total Effective Dose Equivalent (TEDE) ALARA evaluations conducted for select U3 outage tasks. Use of respiratory protective equipment was evaluated for selected workers involved in U3 outage activities. The inspectors toured selected onsite compressors available for supplying breathing air for current outage activities and reviewed Grade D or greater air certification for permanent and temporary on-site compressors used for supplied-line breathing air and self-contained breathing apparatus (SCBA) bottle fill-station activities. Training, fit testing, and medical qualifications for selected RP, maintenance, and operations using respiratory protection for outage activities were reviewed and discussed with cognizant licensee representatives.

Self-Contained Breathing Apparatus for Emergency Use: The inspectors reviewed current status, operability and availability of select respiratory and SCBA equipment maintained within the U3 and U4 control rooms, B5B lockers, and U3 and U4 reactor auxiliary building locations. Maintenance activities for selected respiratory protective equipment (e.g., compressed gas cylinders, regulators, valves, and hose couplings), by certified vendor technicians were reviewed for selected SCBA units. Training, fit testing, and medical qualifications for selected RP, maintenance, and operations staff assigned Emergency Response Organization duties were reviewed and discussed with cognizant licensee representatives. For selected U3 and U4 control room operators, the inspectors discussed and reviewed annual hands-on SCBA training activities, including donning, doffing, and functionally checking SCBA equipment, bottle change out, and also reviewed availability of corrective lens, as applicable, for on-shift personnel.

Problem Identification and Resolution: The inspectors reviewed selected CAP documents within the area of radiological airborne controls and respiratory protection activities. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with licensee procedures PI-AA-104-1000, Corrective Action, Rev. 6, and O-ADM-533, Corrective Action Program Guidance, Rev. 14. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Specific licensee CAP documents reviewed for airborne radionuclide concentration monitoring and mitigation are listed in the Attachment.

Radiation Protection program activities associated with airborne radioactivity monitoring and controls were evaluated against details and requirements documented in the UFSAR, TS Section 3/4.9.9, Containment Ventilation System, 3/4.9.13, Radiation Monitoring, and 6.8.1, Procedures and Programs; 10 CFR Part 20, and also approved licensee procedures. Documents reviewed are listed in the Attachment.

The inspectors completed all specified line-items detailed in IP 71124.03.



b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (IP 71124.04)

a. Inspection Scope

The inspector evaluated current RP program guidance and its implementation for monitoring and assessing occupational workers' internal and external radiation exposure. The review included quality assurance activities, results, and responses to identified issues; and individual dose results for selected occupational workers.

External Dosimetry: The inspector reviewed and discussed RP program guidance for monitoring external and internal radiation exposures of occupational workers. The inspector verified National Voluntary Laboratory Accreditation Program certification data and discussed program guidance for storage, processing and results for dosimeters currently in use. The inspector also reviewed and discussed the comparison between ED and thermoluminescent dosimeter data.

Internal Dosimetry: Program guidance, instrument detection capabilities, and select results for assessing internally deposited radionuclides were reviewed and discussed in detail. The inspector evaluated licensee follow-up *in vivo* monitoring results and dose assignment for three workers involved in contamination events having the potential for internal deposition of radioactive material. In addition, the current licensee and contract vendor laboratory analysis capabilities for the collection and analysis of *in vitro* samples were reviewed and discussed in detail.

Special Dosimetric Situations: The inspector reviewed monitoring conducted and results for two declared pregnant workers since the last inspection. The methodology and results of monitoring occupational workers within non-uniform external dose fields and assignment of effective dose equivalent results were discussed in detail. In addition, the adequacy of dosimetry program guidance and its implementation for shallow dose assessments and supporting calculations for an individual involved in a select contamination event were evaluated. Neutron monitoring guidance and implementation for select "at power" containment entries were reviewed and discussed. RP staff proficiency involved in conducting skin dose assessments, neutron monitoring, and whole body counter (WBC) operations were evaluated through review and discussions of completed records and supporting data.

Problem Identification and Resolution: The inspectors reviewed and discussed selected CAP documents associated with occupational dose assessment. The reviewed items included ARs, self-assessments, and quality assurance audit documents. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with licensee procedures PI-AA-104-1000, Corrective Action, Rev. 6, and 0-ADM-533, Corrective Action Program Guidance, Rev. 14.

Radiation protection program occupational dose assessment guidance and activities were evaluated against the requirements of the UFSAR Section 11; TS Sections 6.8.1, Procedures and Programs, and 6.12, High Radiation Area; 10 CFR Parts 19 and 20; and approved licensee procedures. Records reviewed are listed in the Attachment.

The inspectors completed all specified line-items detailed in IP 71124.04.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (IP 71124.05)

a. Inspection Scope

Radiation Monitoring Instrumentation: During tours of the auxiliary building, turbine building, SFP areas, and RCA exit point, the inspectors observed installed radiation detection equipment including the following instrument types: area radiation monitors (ARMs), airborne monitors, liquid and gaseous effluent monitors, PCMs, SAMs, and portal monitors. The inspectors observed the physical location of the components, and noted the material condition.

In addition to equipment walkdowns, the inspectors observed source checks and alarm setpoint testing of various portable and fixed detection instruments, including ion chambers, telepoles, PCMs, SAMs, and portal monitors. For the portable instruments, the inspectors observed the use of a high-range check source and reviewed records of periodic output value testing for a calibration source. The inspectors reviewed recent calibration records and evaluated alarm setpoint values for selected ARMs, PCMs, portal monitors, SAMs, effluent monitors, and a WBC. This included a sampling of instruments used for post-accident monitoring such as containment high-range ARMs and effluent monitor high-range noble gas and iodine channels. Radioactive sources used to calibrate selected ARMs and effluent monitors were evaluated for traceability to national standards. Calibration stickers on portable survey instruments and air samplers were noted during inspection of storage areas for ready-to-use equipment. The inspectors also reviewed countroom quality assurance records for gamma ray spectrometry equipment and liquid scintillation detectors.

Problem Identification and Resolution: Selected licensee CAP documents associated with instrumentation were reviewed and assessed. The inspectors evaluated the licensee's ability to identify and resolve the identified issues in accordance with licensee procedures. The inspectors also reviewed recent self-assessment results.

Operability and reliability of selected radiation detection instruments were reviewed against details documented in the following: 10 CFR Part 20; NUREG-0737, "Clarification of Three Mile Island Action Plan Requirements"; TS Section 3; UFSAR Chapters 11; and applicable licensee procedures. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

#### 4OA1 Performance Indicator Verification (IP 71151)

##### .1 Barrier Integrity Cornerstone

###### a. Inspection Scope

The inspectors reviewed licensee submittals for the Unit 3 and 4 Performance Indicators (PI) listed below for the period October 1, 2014, through September 30, 2015, to verify the accuracy of the PI data reported during that period. Performance indicator definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," and licensee procedure 0-ADM-032, "NRC Performance Indicators Turkey Point," were used to check the reporting for each data element. The inspectors checked operator logs, plant status reports, CRs, system health reports, and PI data sheets to verify that the licensee had identified the required data, as applicable. The inspectors interviewed licensee personnel associated with PI data collection, evaluation, and distribution.

###### Cornerstone: Mitigating Systems

- Residual Heat Removal System
- High Pressure Injection System
- Emergency AC Power System
- Heat Removal System
- Cooling Water System

###### b. Findings

No findings were identified.

##### .2 Radiation Safety Cornerstones

###### a. Inspection Scope

Occupational Radiation Safety Cornerstone: The inspectors reviewed recent Occupational Exposure Control Effectiveness PI results for the occupational radiation safety cornerstone, and reviewed PI records generated from October 2014 through October 2015. For the assessment period, the inspectors reviewed ED alarm logs and selected CRs related to controls for exposure significant areas. Documents reviewed are listed in the Attachment.

Public Radiation Safety Cornerstone: The inspectors reviewed recent radiological control effluent release occurrences PI results for the public radiation safety cornerstone, and reviewed PI records generated from October 2014 through October 2015. For the assessment period, the inspectors reviewed cumulative and projected doses to the public contained in liquid and gaseous release permits and CRs related to radiological effluent TS/Offsite Dose Calculation Manual issues. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (IP 71152)

.1 Daily Review

a. Inspection Scope

As required by IP 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 screening of items entered daily into the licensee's CAP. This review was accomplished by reviewing daily printed summaries of ARs and by reviewing the licensee's electronic AR database. Additionally, RCS unidentified leakage was checked on a daily basis to verify no substantive or unexplained changes. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2 Annual Sample: Missed Fire Watch Tours

a. Inspection Scope

The inspectors selected AR 02056905, "Missed Fire Watch Tours" for a more in-depth review of the circumstances and the corrective actions that followed. The AR report was reviewed to ensure that an appropriate evaluation was performed and corrective actions were specified and prioritized in accordance with the licensee's program. Other attributes checked included disposition of operability and resolution of the problem, including cause determination, past operability determination, and corrective actions. The inspectors interviewed plant personnel and evaluated the CR in accordance with the requirements of the licensee's corrective actions process as specified in licensee's procedures PI-AA-204, "Condition Identification and Screening Process," and PI-AA-205, "Condition Evaluation and Corrective Action." This inspection constitutes one sample.

b. Findings and Observations

No inspector findings were identified. A licensee-identified violation of very low safety significance (Green) is documented in Section 4OA7 of this report. The licensee identified that employees failed to perform hourly required fire watch roves. The inspectors noted that the licensee's evaluation for the missed fire watch roves concluded that there was no violation of any TS requirement since TS do not require fire watches for degraded fire protection features. The licensee concluded that the missed roves represented a reduction in the effectiveness of the Fire Protection Program (FPP) and the loss of a defense-in-depth feature.

The licensee determined the root cause of the event to be that operations management was not engaged with the fire watch program. The licensee also determined that a direct cause was that fire watch employees willfully chose non-compliance with fire

protection requirements. Immediate corrective actions for this event included the immediate denial of site access for the individuals who failed to conduct the roves. The licensee also updated the fire protection procedure, 0-ADM-016.4, to include Operations Management Responsibilities and Oversight that requires observations, audits, and assessments to ensure regulatory requirements are met. The licensee also conducted an extent of condition and determined that no other missed tours were present in other departments based on data collected and security access logs.

### .3 Semi-Annual Trend

#### a. Inspection Scope

The inspectors performed a review of the licensee's records including ARs, CAP health reports, apparent cause evaluation reports, and various corrective action review board reports to assess an adverse trend in the performance of reactor protection transmitters. The inspectors reviewed licensee AR 02088175, which identified an adverse trend in protection transmitter calibration check results. The inspectors evaluated the effectiveness of the licensee's corrective actions and the significance of the problems, including attributes such as accurate documentation, reportability, evaluation, corrective actions, and problem resolution. This inspection constitutes one sample.

#### b. Findings and Observations

No inspector findings were identified. The licensee noted that the transmitters in question, Rosemount pressure transmitters, are expected to drift a slight amount. The licensee also noted that both the transmitter age and replacement of components tended to exacerbate the transmitter drift through the calibration cycle. The licensee concluded that even with the noted transmitter drift, the transmitters still performed satisfactorily and were within TS compliance. The inspectors did not identify any additional trends not observed by the licensee's trending activities.

### 4OA5 Other Activities

#### .1 Independent Spent Fuel Storage Facility Walk down (IP 60855.1)

#### a. Inspection Scope

On December 17, 2015, the inspector conducted a walk down of the ISFSI protected area per IP 60855.1, "Operation of an ISFSI at Operating Plants." The inspectors observed each cask building temperature indicator and passive ventilation system to be free of any obstruction, allowing natural draft convection decay heat removal through the air inlet and air outlet openings. The inspectors observed associated cask building structures to be structurally intact and radiation protection access and security controls to the ISFSI area to be satisfactory.

#### b. Findings

No findings were identified.

#### 4OA6 Meetings

The resident inspectors presented the inspection results to Mr. Tom Summers and other members of licensee management on January 15, 2016. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary information. The licensee did not identify any proprietary information.

#### 4OA7 Licensee-identified Violation

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

10 CFR 50.48 states that each operating nuclear power plant must have a fire protection plan that satisfies Criterion 3 of Appendix A of this part. Turkey Point Renewed Operating License condition D, for Units 3 and 4, states that the licensee shall implement and maintain in effect all provisions of the approved FPP as described in the UFSAR Appendix 9.6A. The approved FPP is implemented, in part, by 0-ADM-016, Fire Protection Program, as referenced in Section 7.2 of UFSAR Appendix 9.6A. Section 5.6 of 0-ADM-016 requires that, for non-functional post-fire safe shutdown components, engineering evaluations should identify appropriate compensatory actions, including hourly fire roves. Contrary to the above, between May 1st, 2014, and April 23rd, 2015, hourly fire watch patrols were not conducted on numerous occasions in fire zones that required regular hourly tours due to fire protection equipment impairment. The failure to perform the fire watch tours did not cause the inoperability of any equipment but resulted in the loss of a defense-in-depth feature for fire detection in fire zones affected by an impaired or non-functional fire safety component or feature. This violation was associated with the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability and capability of the systems that respond to initiating events to prevent undesirable consequences. The inspectors determined the finding to be of very low safety significance (Green) after performing a detailed risk evaluation in accordance with Manual Chapter 0609, Appendix A, because the missed fire watch tours reflected a low degradation of the Fire Prevention and Administrative Controls FPP element in that other area fire protection defense-in-depth features such as automatic fire detection (smoke detectors), automatic fire suppression capability (sprinklers), manual suppression capability (fire brigade), and safe shutdown capability from the main control room were still available. The licensee entered this violation into their CAP as AR 02056905.

ATTACHMENT: SUPPLEMENTARY INFORMATION

## **SUPPLEMENTARY INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel:**

F. Banks, Quality Manager  
C. Cashwell, Training Manager  
P. Czaya, Licensing  
C. Domingos, Plant General Manager  
T. Eck, Security Manager  
M. Guth, Licensing Manager  
O. Hanek, Licensing Engineer  
A. Katz, Projects Manager  
G. Melin, Operations Manager  
S. Mihalakea, Licensing  
K. Ohara, Emergency Preparedness Manager  
J. Pallin, Engineering Director  
D. Sluszka, Work Controls Manager  
B. Stamp, Operations Director  
T. Summers, Site Vice-President  
D. Barrow, Maintenance Director  
R. Hess, General Operations Training Supervisor  
M. Wilson, Operations Training Supervisor

#### **NRC Personnel:**

B. Bishop, Senior Project Engineer  
A. Beaston, Project Engineer  
A. Vargas, Project Engineer

### **LIST OF ITEMS OPENED, CLOSED AND DISCUSSED**

#### **Opened and Closed**

05000251/2015004-01	NCV	Failure to correctly follow procedure 3-PMI-072.6, "Steam Dump to Atmosphere Control Loop Calibration." (Section 1R20)
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## LIST OF DOCUMENTS REVIEWED

### **Section 1R01: Adverse Weather**

0-ONOP-103.3, Severe Weather Preparations

### **Section 1R04: Equipment Alignment**

3-NOP-022, Emergency Diesel Generator Fuel Oil System

3-NOP-023, Emergency Diesel Generator

4-NOP-022, Emergency Diesel Generator Fuel Oil System

4-NOP-023, Emergency Diesel Generator

3-OP-201, Filling/Draining the Refueling Cavity and the SFP Transfer Canal

4-OP-201, Filling/Draining the Refueling Cavity and the SFP Transfer Canal

P&ID 5613-M-3022, Emergency Diesel Engine and Oil System

P&ID 5613-M-3062, Safety Injection System

P&ID 5614-M-3062, Safety Injection System

### **Section 1R05: Fire Protection**

0-ONOP-016.10, Pre-Fire Plan Guidelines and Safe Shutdown Manual Actions

### **Section 1R08: Inservice Inspection Activities**

#### Procedures:

0-ADM-537, Boric Acid Corrosion Control Program, Rev. 11

3-OSP-045.1, ASME Section XI Quality Group A Bolting Examination, Rev. 2

MA-AA-1000, Plant Leak Management Procedure, Rev. 6

NDE 4.15, Visual Examination (VE) ASME Section XI Code Case N-722-1 and N-729-1, Rev. 4

NDE 4.2, Visual Examination VT-2 Conducted During System Pressure Tests, Rev. 10

NDE 4.3, Visual Examination VT-3, Rev. 12

NDE 5.16, Ultrasonic Examination Technique for the Detection of Cracking in Feedwater Piping, Rev. 10

NDE 5.18, Ultrasonic Thickness Measurement, Rev. 8

#### Calculations:

EC 284178, Review of Degradation and Operational Assessments at End-of-Cycle 27 for Turkey Point Unit 3

#### Work Orders/Work Requests:

WO 4029647301, Valve 3-298C Replace Valve

WO 4030098001, Repair of PZR HTR Sleeve #11

#### CAP Documents:

AR 1771920, Audit shows no self-assessments performed on the welding control program

AR 1858601, BOP, ISI and FAC Quick Hit Self-Assessment for 2012 Outages (SL-1-24, SL-2-20, TP-3-26, TP-4-27)

AR 2086224, Inconsistent gaps were identified between CRDM/RPI plates and the seismic plate bumper

AR 2086933, Debris inside spring hanger

#### Miscellaneous Documents:

2012 Welding May 2012 Quality Assurance Assessment



AES 13118520-2Q-3, Condition Monitoring and Operational Assessment for the Turkey Point Unit 3 Steam Generators Based on Eddy Current Examination End of Cycle 26, March 2014  
 Calibration Data Sheet for UT Instruments SN: 136P1106C031381, K07639  
 Calibration Data Sheet No.: 5.16-002  
 Certificate of Conformity NDE Probe SN: SE1110  
 Certificate of Personnel Qualification ID No.: D0360, C2231, C6756  
 ENG-CSI -2.3, Steam Generator Integrity Program Administration, Rev. 32  
 ENG-CSI-2.2, Planning and Reporting Results of Steam Generator Tubing Examinations, Rev. 44  
 ER-AP-116, Boric Acid Corrosion Control, Rev. 0  
 Focused Self-Assessment Report 1837244, Boric Acid Corrosion Control Program  
 Krautkramer Transducer Certificate of Conformity SN: 012Y39  
 Personnel Certification Statement: T. Thomas, B. Thompson, M. Smith, and M. Johnson  
 Quick Hit Assessment Report 1892958, Boric Acid Corrosion Control Leak Evaluations  
 Ultrasonic Instrument Calibration Data Record and Certification SN: 01R6B7  
 Visual Examination Evaluation Sheet: 4.3.001  
 Visual Examination Record Data Sheets: #4.3-008 and #4.3-009

**Section 1R11: Licensed Operator Regualification Process**

0-ADM-211, Emergency and Off-Normal Operating Procedure Usage  
 TR-AA-230-1007, Conduct of Simulator Training and Evaluation  
 TR-AA-220-1004, Licensed Operator Continuing Training Annual Operating and Biennial Written Exams, Revision 1  
 TR-AA-230-1004, SAT Implementation, Revision 5  
 PTN OPS LOC15 SRO EXM1, Administered 10/06/2015  
 PTN OPS LOC15 SRO EXM2, Administered 11/29/2015

**Section 1R15: Operability Evaluations**

0-ADM-213, Technical Specification Related Equipment Out of Service Logbook  
 0-ADM-226, Operability Screening and Condition Reports  
 EN-AA-203-1001, Operability Determinations and Assessments

**Section 1R18: Plant Modifications**

5610-M-410-40, NX Seal Assembly  
 SPEC-C-021, Turkey Point Units 3 & 4 Tubing and Tubing Supports  
 WO 40419666

**Section 1R19: Post Maintenance Testing**

0-ADM-737, Post Maintenance Testing  
 MA-AA-203-1000, Maintenance Functional Testing

**Section 1R20: Refueling and Other Outage Activities**

0-ADM-009, Containment Closeout Inspection  
 MA-AA-101-1000, Foreign Material Exclusion Procedure  
 0-ADM-556, Fuel Assembly and Insert Shuffles

**Section 2RS1: Radiological Hazard Assessment and Exposure Controls**

**Procedures, Guidance Documents, and Manuals**

0-HPA-001, Radiation Work Permit Initiation and Termination, Rev. 4

RP-AA-102-1000, Alpha Monitoring, Rev. 2  
 RP-AA-103-1006, Conduct of Radiological Diving Operations, Rev. 1  
 RP-AA-107, Radioactive Material Control Program, Rev. 0  
 RP-AA-107-1003, Unconditional and Conditional Release of Material, Rev. 1  
 RP-SR-103-1001, Posting Requirements for Radiological Hazards, Rev. 2  
 RP-SR-103-1002, High Radiation Area Controls, Rev. 3  
 RP-SR-103-1008, Remote Monitoring, Rev. 5  
 0-HPS-025.2, Posting and Survey Requirements for Fuel Movement, Rev. 4B  
 0-HPS-027.1, Work Controls in Hot Particle Areas, Rev. 0  
 0-HPS-106, Survey & Posting Guidelines for Plant Evolutions, Rev. 5

#### Records and Data Reviewed

2015 NSTS Annual Inventory Reconciliation, Dated 01/15/15  
 Radioactive Source Leak Test Results, Dated 10/15/2015  
 Air Calculation Sheet, (ACS) A/S Log Ref No. P1-15-1023, U3 RCB REACTOR Sump During Demob, Dated 11/17/2015  
 ACS, A/S Log Ref No. P0-15-1011, U3 RCB 30' 6" Routine, Dated 11/17/2015  
 ACS, A/S Log Ref No. P0-15-1013, Vac Shack During Tool & Respirator Decon, Dated 11/17/2015  
 ACS, A/S Log Ref No. P0-15-1021, U3 RCB 58' By REACTOR Head Stand, Dated 11/17/2015  
 ACS, A/S Log Ref No. P0-15-1025, U3 RCB Upper REACTOR Cavity, Dated 11/17/2015  
 PTN-M-20150604-3, U4 10 Foot Pipeway, Dated 06/04/2015  
 PTN-M-20150930-2, U4 10 Foot Pipeway, Dated 09/30/2015  
 PTN-M-20150914-1, U3 10 Foot Pipeway, Dated 09/14/2015  
 PTN-M-20150930-3, U3 10 Foot Pipeway, Dated 09/30/2015  
 PTN-M-20150711-25, U4 "B" RHR Pump Room, Dated 07/11/2015  
 PTN-M-20151010-2, U4 "B" RHR Pump Room, Dated 10/10/2015  
 PTN-M-20150918-5, U4 Charging Pump Room, Dated 09/18/2015  
 PTN-M-20151011-7, U4 Charging Pump Room, Dated 10/11/2015  
 PTN-M-20141120-6, Unit 4 "B" RHR Dose Alarm Follow-up, Dated 11/20/2014  
 PTN-M-20151020-6, Aux Bldg 3-240 Valve, Dated 10/20/2015  
 PTN-M-20151021-25, U3 Containment 14 ft elev Inside Biowall, Dated 10/21/2015  
 PTN-M-20151022-15, U3 Containment 14 ft elev Inside Biowall, Dated 10/22/2015  
 PTN-M-20151027-30, U3 Containment 14 ft elev Inside Biowall, Dated 10/27/2015  
 PTN-M-20150311-6, ISFSI Pad Semi-Annual, Dated 03/11/2015  
 PTN-M- 20150918-6, ISFSI Pad Semi-Annual, Dated 09/18/2015  
 RWP Number (No.) 15-3000 U3R28 Initial Containment Entry and when Containment is posted as a Locked High Radiation Area, Rev. 0  
 RWP No. 15-3008, Containment General Outage Maintenance (Bulk Work), Rev 0  
 RWP No. 15-3013, Regenerative Heat Exchanger Room Work (Bulk Work), Rev. 0  
 RWP No. 15-3014, Reactor Sump - Non Legacy Boric Acid Work, Rev. 0  
 RWP No. 15-3018, RCP Work (Bulk Work), Rev. 0  
 RWP No. 15-3205, Outage Locked High Radiation Area Work, Rev. 0

#### CAP Documents

Nuclear Oversight Report # PTN-14-002, Radiation Protection and Radwaste, Dated 08/18/2014  
 AR 01996578  
 AR 01997251  
 AR 01997991

AR 02006239  
 AR 02008430  
 AR 02009674  
 AR 02020231  
 AR 02024963  
 AR 02029276  
 AR 02033046  
 AR 02033644  
 AR 02044544  
 AR 02044742  
 AR 02049552  
 AR 02058970

## **Section 2RS2: ALARA**

### Procedures and Guidance Documents

0-HPA-001, Radiation Work Permit Initiation and Termination, Rev. 04  
 0-HPA-072, Installation, Control, and Removal of Permanent and Temporary Shielding, Rev. 03  
 RP-AA-104, ALARA Program, Rev. 04  
 RP-AA-104-100, ALARA Implementing Procedure, Rev. 06  
 RP-AA-104-2003, Five Year ALARA Plan Template, Rev. 01  
 Primary Strategic Water Chemistry Plan, FPL PTN Units 3 & 4, 08/15/2013

### Records and Data Reviewed

10 CFR Applicability Determination Form, TSR 15-03, Temporary Lead Shielding Installation on Containment 14' Cavity Drain Valves, 10/18/15  
 ALARA Review No. 2015-006, U3R28 Refueling Activities, Including Ultra-Sonic Fuel Cleaning, Rev. 0  
 ALARA Review No. 2015-007, Generator Bundle Flush, Sludge Lance, and FOSAR, Rev. 0  
 ALARA Review No. 2015-008, U3 A, B, C RCP Seal Replacement – Fukushima Upgrade – A Motor Replacement, and PMs. Rev. 0  
 ALARA Review No. 2015-010, U3 BMI (Bottom Mounted Inspection), Rev. 0  
 ALARA Review No. 2015-013, PCV-3-455A and PCV-3-455B, Rev. 0  
 Job-In-Progress Review No. 2015-007, S/G secondary sludge lancing and FOSAR, Rev. 0  
 Job-In-Progress Review No. 2015-008, U3 A,B,C RCP Seal Replacement, Rev. 0  
 Job-In-Progress Review No. 2015-010, U3 BMI, Rev. 0  
 PTN ALARA Review Board Meeting Minutes, 03/23/15, 06/29/15, 09/04/15  
 PTN Nuclear Oversight Report #PTN-14-002, Subject: Radiological Protection and Radwaste, 05/09/14  
 PTN Quick Hit Assessment Report #1938751/1927754, "Self Assessment of ALARA", 04/23/14  
 PTN-3-R28 Refueling Outage 0500 Turnover 11/03/15, 11/05/15  
 PTN-3-R28 Refueling Outage 1700 Turnover 11/12/15  
 PTN 5-Year ALARA Plan 2015-2020  
 RP Survey #PTN-M-20151029-34, Unit 3 Regenerative Heat Exchangers 14', 10/29/2015  
 RP Survey #PTN-M-20151029-27, Unit 3 Regenerative Heat Exchangers 14', 10/28/2015  
 RP Survey #PTN-M-20151028-36, U3 Containment 14' Inside Biowall, 10/28/2015  
 RP Survey #PTN-M-20151026-22, U3 Containment 14' Inside Biowall, 10/26/2015  
 RP Survey #PTN-M-20151020-19, U3 Containment 14' Inside Biowall, 10/20/2015

Temporary Shielding Request (TSR) No. 2015-03, U3 RCB, 14' Elevation, Cavity Drain Valves, 07/20/2015

TSR No. 2015-17, U3 RCB, 14' Regen. Heat Exchanger Room, 07/22/2015

### CAP Documents

AR 01921887

AR 01997991

AR 01909707

AR 02072141

AR 01997680

AR 02043416

AR 02038064

### **Section 2RS3: In-Plant Airborne Radioactivity Control and Mitigation**

#### Procedures and Guidance Documents

0-ADM-041, PTN Respiratory Protection Plan, Rev. 9

0-ADM-533, Corrective Action Program Guidance, Rev. 14

0-ADM-605, Control of Radioactive Material, Rev. 4

0-HPA-028, High Efficiency Particulate Air (HEPA) Filtration Ventilation Systems in the Radiation Controlled Area, Rev. 2A

0-HPS-062.2, Use of the Self-Contained Breathing Apparatus, Rev.1

0-HPS-063.2, Maintenance and Accountability of Respiratory Protective Equipment, Rev. 7

0-HPS-063.4, Selection and Issuance of Respiratory Protection Equipment, Rev. 3

0-HPS-065.2, Operation and Maintenance of the Respirator Fit-Test System, Rev. 4

0-HPS-090, Inventory of Radiation Protection Emergency Equipment, Rev. 2

PI-AA-104-1000, Corrective Action, Rev. 6

RP-AA-102-1000, Alpha Monitoring, Rev. 2

RP-TP-102-1001, Radiological Air Sample Assay, Rev. 4

#### Records and Data Reviewed

Air Sample Log, for the period 10/1 thru 11/5/2015

Air Calculation Sheet and Gamma Spectroscopy Analysis, Air Sample # P1-I1-15-0405, U-3 RCB Lower Reactor Cavity, 10/26/2015

Certificate of Testing, PortaCount Bench 2, S/N 8030111513, 07/08/2015; and S/N 8030111601, 06/10/2015

HP-90, SCBA Inventory, Inspection, and Repair Records, September and October 2015

HP-93Respirator, Inventory, Inspection, and Repair Record, September and October 2015

HP-93.1, SCBA Air Bottle Inspection and Inventory Records, September and October 2015

HP-93.6, Air Quality Certificate, Bauer Air Compressor, Dated 08/05/2015, and 05/11/2015

List of SCBA Qualified Operations, Maintenance, and Health Physics Personnel, 10/01/2015

Scott Authorized Service Center Certificates for selected vendor employees, Dated 08/22/2014

Scott PosiChek3, Visual/Functional Test Results, Regulators: 89200090, Dated 09/22/2015;

89200100, Dated 09/23/2015; 89200101, Dated 09/22/2015; 89200109, Dated 09/22/2015; and 89200149, Dated 09/23/2015;

Unitech Service Group, DOP Test Results, HEPA Unit Type, Portable, HEPA S/N 018, Dated 06/23/2015; S/N 033, Dated 06/23/2015; and S/N 040, Dated 06/24/2015

Vendor Laboratory Compressed Air/Gas Quality Testing Report Results, Bauer Air Compressor, Dated 08/05/2015, and 07/31/2015

CAP Documents

Quick Hit/Department Assessment Report, 2014 Respiratory Protection Program Annual Review (AR 2014222), 04/07/2015

AR 01911462  
 AR 01845706  
 AR 01877007  
 AR 01889000  
 AR 01900277  
 AR 01964422  
 AR 01997251  
 AR 01938504  
 AR 02057725  
 AR 02020932

**Section 2RS4: Occupational Dose Assessment**Procedures and Guidance Documents

0-HPA-030, Personnel Monitoring of External Dose, Rev. 3  
 0-HPS-023, Environmental Radiation Monitoring, Rev. 1  
 0-HPS-026.2, Response Protocols for Whole Body Counting Entrance and Exit, Rev. 3  
 0-HPS-031.1, Whole Body Dosimetry Issue, Rev. 3A  
 0-HPS-031.2, Multibadge Exposure Monitoring, Rev. 0B  
 RP-AA-101-2004, Method for Monitoring and Assigning Effective Dose Equivalent (EDE) for High Dose Gradient Work, Rev. 3  
 RP-SR-101-1003, Personnel Contamination Monitoring and Decontamination, Rev. 3  
 RP-TP-101-1005, Internal Dose Assessment, Rev. 1  
 RP-TP-101-1000, Exposure Investigations, Rev. 0A  
 RP-TP-102-1002, Hard to Detect Radionuclides and Contamination Controls, Rev. 1  
 RP-TP-105-3008, Operation of the Radiation Protection Apex-In Vivo Whole Body Counting Equipment, Rev. 2

Records and Data Reviewed

ABACOS-2000 Nuclide Libraries, 11/05/2015  
 Alpha Smear Log, 01/08/2015 thru 11/05/2015  
 Dosimetry Task Matrix, Daily Fastscan QC Check, October 2015  
 Extended Fastscan QA File Control Charts, 10/06/2015 thru 11/04/2015  
 Extended Fastscan WBC System Calibration Report, System # 97-7040, 10/23/2013 and 10/22/2014  
 EDE Multibadge Datasheets, Pack ID# 5010 and 5012, 11/04/2015  
 "Fastscan 1" WBC System Calibration Report, System # 97-7040, 10/23/2013 and 10/22/2014  
 HP-55A, Turkey Point Plant Environmental Radiation Controlled Area Radiation Levels Results Log [including ISFSI], 06/24/14 thru 12/26/14  
 HP-55A, Turkey Point Plant Environmental Radiation Controlled Area Radiation Levels Results Log [including ISFSI], 12/26/14 thru 6/23/15  
 NVLAP Lab Code 100555-0, On-Site Assessment Report and Accreditation Certificate, 06/11/2015  
 QA 1000 File, "2013 Alpha Smear Summary: Unit 4 R27 Refueling Outage", 06/13/2014  
 Sensitivity Study of Personnel Contamination Monitors used at Turkey Point Nuclear Station, 02/10/2010

Technical Support Document No. 15-058, Rev 00, Neutron Dosimetry Evaluation at Turkey  
 Point Nuclear Power Plant, 08/21/2015  
 Report, Turkey Point 2015 Site TEDE Dose, Top 25, 11/04/2015  
 Report, Turkey Point 2015 Annual (all sites) TEDE, Top 25, 11/04/2015

CAP Documents

AR 01861722  
 AR 01940206  
 AR 01959134  
 AR 01979141  
 AR 02013453  
 AR 02024069  
 AR 02076960

**2RS5: Radiation Monitoring Instrumentation**

Procedures

0-HPT-072, Calibration and Operation of Canberra Personnel Monitors, Rev. 2  
 0-HPT-018, Calibration of Survey Instruments, Rev. 4  
 0-HPT-010, Radiation Protection Instrument Plan, Rev. 6  
 RP-TP-105-3007, Operation and Calibration of the GEM-5 Gamma Exit Monitor, Rev 4

Calibrations and Data

Work Order 40033883, ARMS Cal Inside Containment (RD-1401-03), 02/2012  
 Work Order 40323168, ARMS Cal Inside Containment (RD-1401-03), 03/2014  
 Work Order 40170223, T.S R-4-19 S/G Liquid Sample PRMS Cal, 05/2013  
 Work Order 40280868, T.S R-4-19 S/G Liquid Sample PRMS Channel CAL, 12/2014  
 Work Order 40273313, T.S. Plt Vent SPING Rad-6304 PM Cal, 09/2014  
 Work Order 40113819, T.S. Plt Vent SPING Rad-6304 PM Cal, 12/2012  
 Work Order 40161233, T.S. RAD-6311 A/B Cont HI Range ARMS CAL Per 3-PMI-066.3,  
 02/2013  
 Work Order 40219065, T.S. RAD-6311 A/B Cont HI Range ARMS CAL Per 3-PMI-066.3,  
 03/2014  
 Work Order 40323168, T.S. RD-4-15 SJAЕ 18 Monthly PM CAL, 01/2015  
 Work Order 40247970, T.S. RD-4-15 SJAЕ Spiking cause alarms, 07/2013  
 Calibration of the FASTSCAN WBC System #97-7040, 10/2013 & 10/2014  
 HP-7:5.4 CRONOS Calibration Records for #1302-27, 09/24/14 & 03/19/14; #0912-039 ,  
 10/02/2014 & 10/11/2013; #1005-048 05/26/2015 & 06/09/2014; #1005-049 04/27/2015 &  
 04/29/2014; #1006-037 06/15/2015 & 06/20/2014; #1302-029 07/22/2015 & 07/22/2014;  
 #1302-028 01/13/12015 & 07/23/2014.  
 GEM-5 Calibration Certificates: #1423, #1424, 07/2014 & 07/2013; #1425 07/2014 & 06/2015  
 Canberra Personnel Monitor Calibration Data Sheet Argos 5AB Serial #0904-107, 03/2015  
 Canberra Personnel Monitor Calibration Data Sheet Argos 5AB Serial #0904-107, 03/2014  
 Canberra Personnel Monitor Calibration Data Sheet Argos 5AB Serial #0904-107, 01/2014  
 Canberra Personnel Monitor Calibration Data Sheet Argos 5AB Serial #0904-108, 07/2015  
 Canberra Personnel Monitor Calibration Data Sheet Argos 5AB Serial #0904-108, 01/2015  
 Canberra Personnel Monitor Calibration Data Sheet Argos 5AB Serial #1107-185, 03/2015  
 Canberra Personnel Monitor Calibration Data Sheet Argos 5AB Serial #1107-185, 02/2015  
 System Health Report 07/01/2015-09/30/2015  
 F & J Model LV-14M Calibration Record Serial #s 4029, 4030, 4031, 06/2015

Calibration of the Count Room MCA System, Detector Two, 06/2014  
 RADECO H809V/C Air Sampler Calibration Record, HPI# 1485E 02/2015  
 Controlled Settings- Eberline AMS 4, #1847, 10/2015; #2551, 10/2015; #1836 10/2015, #1283  
 8/2015, #1080 08/2015, #12872 05/2015, #1638 08/2015, #1079 08/2015  
 Radiation Detection Instrument Calibration and Maintenance Record, Telepole #6605-081,  
 11/12/2015 & 05/07/2015; RO-20 #105 10/22/2015  
 HP-7-21, Shepard Model 89 Shielded Range Calibrator Certification Form, 02/2015

#### CAP Documents

PTN-14-002, Radiological Protection and Radwaste Audit, 03/03/2014  
 AR 01895614  
 AR 02035780  
 AR 01945528  
 AR 02042545  
 AR 02009932

#### **Section 40A1: Performance Indicator Verification**

0-ADM-032, NRC Performance Indicators Turkey Point, Rev. 5  
 List of Dose and Dose Rate Alarms October 1, 2014 to September 30, 2015  
 Monthly Gaseous Dose Report, October 2015  
 Monthly Liquid Dose Report, October 2015  
 2014 Annual Radioactive Effluent Report  
 AR 01909707  
 AR 02063559  
 AR 02083253

#### **Section 40A2: Problem Identification and Resolution**

AR 2046565, Engineering CAP Indicator for Quality of Cause Analysis  
 AR 02038459, Safety Issue, No Safety Chain on Emergency Ladder  
 AR 02039495, Unable To Complete 0-GME-005.03 for 4AD07 SBO Breaker  
 AR 02039635, Station Blackout Tie Breaker Testing  
 AR 02040240, RCS A HI Tave Alarmed Early Following Dilution  
 AR 02040257, 4A Charging Pump Needs Oil  
 AR 02040258, 3B Charging Pump Fluid Drive Needs Oil  
 AR 02040265, 4B Turbo Oil Pump Minor Oil Seal Leak  
 AR 02041403, Time Delay Actuation Outside Acceptable Band  
 AR 02041408, Time Delay Actuation Outside Acceptable Band  
 AR 02041612, 3P253A 3A 4KV Room Sump Pump Does Not Turn Off  
 AR 02041798, Spalling Concrete in Unit 4 Spent Fuel Pool Room  
 AR 02041864, 3A EDG Coolant Reservoir Stained With Coolant  
 AR 02044844, 4KV Switchgear Sump High Level  
 AR 02044936, Performed Level 3 Leak Rate Investigation on Unit 3  
 AR 02044977, Unit 3 Gamma Metric Channel Alarm Causing a Distraction  
 AR 02045014, N-3-31 Detector Replacement  
 AR 02045085, 3B RCP Motor Has Oil Leak and Needs Replacement  
 AR 02046549, Active Boric Acid Leak at Bonnet of 4-873B  
 AR 02046555, Maintenance Rule A(1) Status for NIS Source Range Detectors  
 AR 02047770, Errors in Unit 4 Post Trip Review Restart Report  
 AR 02047817, Coolant Leak From the 3B EDG  
 AR 02049161, Excessive Ripple on the 22 Vdc Power Supply

AR 02049180, Missing Bolt and Washer on 3B Belt Guard  
AR 02049269, 10 CFR 50.59 Screening for Rod Control System Monitoring  
AR 02049306, FME Found in 4P212A Pump Casing  
AR 20241958, U4 RHR Pump High Radiation Barrier Is Unsafe  
AR 02097053, Level 3 Mispositioning Event  
AR 02097144, RHR Pump Testing



## LIST OF ACRONYMS

AFW	Auxiliary Feedwater
ALARA	As Low As Reasonably Achievable
AR	Action Request
ARM	Area Radiation Monitor
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CR	Condition Report
EAL	Emergency Action Level
ED	Electronic Dosimeter
EDG	Emergency Diesel Generator
FME	Foreign Material Exclusion
FPP	Fire Protection Program
GOP	General Operating Procedure
HEPA	High Efficiency Particulate Air
HHSI	High Head Safety Injection
ICW	Intake Cooling Water
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
IST	Inservice Testing
LCO	Limiting Condition of Operation
LER	Licensee Event Report
LHRA	Locked High Radiation Area
LOCA	Loss of Coolant Accident
NAP	Nuclear Administrative Procedure
NCV	Non-Cited Violation
NDE	Non-Destructive Examination
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OCC	Outage Control Center
OLRM	On-Line Risk Monitor
ONOP	Off Normal Operating Procedure
OOS	Out of Service
OSP	Operations Surveillance Procedure
P&ID	Piping and Instrumentation Drawing
PCM	Personnel Contamination Monitor
PI	Performance Indicator
PW	Primary Water
QATR	Quality Assurance Topical Report
RCA	Radiologically Controlled Area
RCE	Root Cause Evaluation
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RFO	Refueling Outage
RHR	Residual Heat Removal
RP	Radiation Protection

RTP	Rated Thermal Power
RWP	Radiation Work Permit
SAM	Small Article Monitor
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process
SFP	Spent Fuel Pool
SAM	Small Article Monitor
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process
SG	Steam Generator
SFP	Spent Fuel Pool
SI	Safety Injection
SUT	Startup Transformer
TEDE	Total Effective Dose Equivalent
TS	Technical Specifications
U3	Unit 3
U4	Unit 4
UFSAR	Updated Final Safety Analysis Report
WBC	Whole Body Counter
WO	Work Order