



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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LISLE, IL 60532-4352

February 13, 2014

Mr. Larry Weber
Senior Vice President and
Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2
NRC INTEGRATED INSPECTION REPORT 05000315/2013005;
05000316/2013005

Dear Mr. Weber:

On December 31, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your D. C. Cook Nuclear Power Plant, Units 1 and 2. On February 11, 2014, the NRC inspectors discussed the results of this inspection with Mr. J. Gebbie and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

No NRC-identified or self-revealing findings were identified during this inspection. However, inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or severity of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the D. C. Cook Nuclear Power Plant.

As a result of the Safety Culture Common Language Initiative, the terminology and coding of cross-cutting aspects were revised beginning in calendar year (CY) 2014. New cross-cutting aspects identified in CY 2014 will be coded under the latest revision to IMC 0310. Cross-cutting aspects identified in the last six months of 2013 using the previous terminology will be converted to the latest revision in accordance with the cross-reference in IMC 0310. The revised cross-cutting aspects will be evaluated for cross-cutting themes and potential substantive cross-cutting issues in accordance with IMC 0305 starting with the CY 2014 mid-cycle assessment review.

L. Weber

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Kenneth Riemer, Chief
Branch 2
Division of Reactor Projects

Docket Nos. 50-315; 50-316
License Nos. DPR-58; DPR-74

Enclosure:
IR 05000315/2013005; 05000316/2013005
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 05000315; 05000316
License Nos: DPR-58; DPR-74

Report No: 05000315/2013005; 05000316/2013005

Licensee: Indiana Michigan Power Company

Facility: D. C. Cook Nuclear Power Plant, Units 1 and 2

Location: Bridgman, MI

Dates: October 1, through December 31, 2013

Inspectors: J. Ellegood, Senior Resident Inspector
P. LaFlamme, Resident Inspector
J. Gilliam, Acting Resident Inspector
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Approved by: Kenneth Riemer, Chief
Branch 2
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report (IR) 05000315/2013005, 05000316/2013005; 10/01/2013 – 12/31/2013; D. C. Cook Nuclear Power Plant, Units 1 And 2; Plant Modifications; Licensee Identified Violations.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated January 28, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

None

Other Findings:

Violations of very low safety significance 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 corrective action program. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 Operated at or near 100 percent power until December 13, 2013, when the licensee reduced power to about 25 percent for maintenance activities in containment. Unit 1 returned to 100 percent power on December 16, 2013, and remained at or near 100 percent for the remainder of the inspection period.

Unit 2 began the inspection period at 50 percent power in preparation for a refueling outage. The licensee shutdown and entered mode 3 on October 3, 2013. The licensee took the reactor critical on November 11, 2013. The licensee synchronized to the grid on November 12, 2013, and reached 100 percent power on November 18, 2013. Unit 2 operated at or near 100 percent for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Impending Adverse Weather Condition – High Wind and Blowing Snow Conditions

a. Inspection Scope

On November 12 through 14, 2013, high wind and blowing snow conditions existed near the site and surrounding area. Specifically, blowing snow can adversely impact the Independent Spent Fuel Storage Installation (ISFSI) dry cask storage units by blocking the ventilation flow paths. In response to the blowing and drifting snow, the licensee performed visual inspections of the ISFSI dry cask storage unit ventilation systems and removed snow that had built up around the ventilation screens. On November 13, 2013, the inspectors walked down the ISFSI dry cask storage units to ensure the ventilation system screens were free of snow and ice. In addition, the inspectors walked down the ISFSI emergency diesel generator and control house to ensure equipment was adequately protected from inclement weather conditions. The inspectors reviewed licensee procedures and discussed compensatory measures with operations. The inspectors conducted a site walkdown including the Unit 1 345KV and Unit 2 765KV switch yards to check for maintenance or other apparent deficiencies that could affect system operations during the inclement weather conditions. The inspectors also reviewed CAP items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one sample for impending adverse weather readiness as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- Unit 1 turbine driven and east motor driven auxiliary feedwater pump;
- Unit 1 north safety injection pump; and
- Unit 2 turbine driven and east motor driven auxiliary feedwater pump.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report (UFSAR), Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted three partial system walkdown samples as defined in IP 71111.04-05.

b. Findings

No findings were identified.

.2 Semiannual Complete System Walkdown

a. Inspection Scope

On December 18, 2013, the inspectors performed a complete system alignment inspection of the Unit 2 250 volts direct current system to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups; electrical power availability; system pressure and temperature indications, as appropriate; component labeling; component lubrication; component and equipment cooling; hangers and supports; operability of support systems; and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a

sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment to this report.

These activities constituted one complete system walkdown sample as defined in IP 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Fire Zone 65 A/B, Unit 2 SI pump rooms;
- Fire Zone 42 A/B/C/D, Unit 1 4Kv Complex;
- Fire Zone 46 A/B/C/D, Unit 2 4Kv Complex; and
- Fire Zone 64 A/B, Unit 1 SI pump rooms.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan.

The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event.

Using the documents listed in the Attachment to this report, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

These activities constituted four quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

a. Inspection Scope

The inspectors reviewed selected risk important plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the UFSAR, engineering calculations, and abnormal operating procedures to identify licensee commitments. The specific documents reviewed are listed in the Attachment to this report. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the circulating water systems. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the corrective action program to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following plant area(s) to assess the adequacy of watertight doors and verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments:

- Unit 1 and Unit 2 emergency diesel generator rooms

Documents reviewed during this inspection are listed in the Attachment to this report.

This inspection constituted one internal flooding sample as defined in IP 71111.06-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08P)

From October 21, through October 24, 2013, the inspectors conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the reactor coolant system, steam generator tubes, emergency feedwater systems, risk-significant piping and components and containment systems.

The inspections described in Sections 1R08.1, 1R08.2, R08.3, IR08.4 and 1R08.5 below constituted one Inservice Inspection sample as defined in Inspection Procedure (IP) 71111.08.

Piping Systems ISI

a. Inspection Scope

The inspectors either observed or reviewed the following non-destructive examinations mandated by the American Society for Mechanical Engineers (ASME) Section XI Code to evaluate compliance with ASME Code Section XI and Section V requirements and if any indications and defects were detected, to determine if these were dispositioned in accordance with the ASME Code or an NRC approved alternative requirement.

- Risk-informed (RI) ultrasonic examination (UT) of a 1.5" Nozzle (Branch Connection) Weld to the Reactor Coolant System (2-RCS-17-09N); ;

- RI UT of a 3" Nozzle (Branch Connection) Weld to the Reactor Coolant System (2-RC-17-06N);
- RI UT of a Feedwater Reducer to Elbow Weld (2-FW-76-11S);
- UT of Pressurizer Upper Head to Spray Nozzle Weld, 4"-2-RC-28;
- UT of Pressurizer Upper Head to Spray Nozzle Weld, 4"-2-RC-28-IRS;
- UT of Reactor Pressure Vessel Studs (2-RPV-Stud, 1 through 54);
- Radiographic Film of Ice Condenser Train "B" Containment Isolation Valve, 2-DCR-611;
- Visual examination (VT-1) of Safety Injection, Body-to-Bonnet Bolting of SI-161-L3; and
- VT-3 of Safety Injection, Valve Body Internal Surface of SI-161-L3.

The inspectors reviewed the following examinations completed during the previous outage with relevant/recordable conditions/indications accepted for continued service to determine if acceptance was in accordance with the ASME Code Section XI or an NRC approved alternative.

- Indication (UT) Disposition of Upper Head to Relief Nozzle Weld (6"-2-RC-22); and
- Indication (UT) Disposition of Upper Head to Relief Nozzle Weld (6"-2-RC-25).

The inspectors reviewed the following pressure boundary welds completed for risk significant systems since the beginning of the last refuelling outage to determine if the licensee applied the pre-service non-destructive examinations and acceptance criteria required by the Construction Code and ASME Code, Section XI. Additionally, the inspectors reviewed the welding procedure specification and supporting weld procedure qualification records to determine if the weld procedures were qualified in accordance with the requirements of Construction Code and the ASME Code Section IX.

- Weld repair/replacement of Class 1, pressurizer liquid space sample shutoff valve (valve 2-NRV-102 and actuator);
- Weld repair/replacement of Class 2, containment spray piping drain valve (valve 2-CTS-160W); and
- Weld repair/replacement of Class 2, ice condenser AHU's drains containment isolation valve (valve 2-DCR-611).

b. Findings

No findings of significance were identified.

.1 Reactor Pressure Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

No exams were required this outage. Therefore, no NRC review was completed for this inspection procedure attribute.

b. Findings

No findings of significance were identified.

.2 Boric Acid Corrosion Control

a. Inspection Scope

The inspectors performed an independent walkdown of the reactor coolant system and related lines in the containment including the under vessel penetrations, which had received a recent licensee boric acid walkdown and verified whether the licensee's Boric Acid Corrosion Control visual examinations emphasized locations where boric acid leaks can cause degradation of safety significant components.

The inspectors reviewed the following licensee evaluations of reactor coolant system components with boric acid deposits to determine if degraded components were documented in the Corrective Action Program. The inspectors also evaluated corrective actions for any degraded reactor coolant system components to determine if they met the ASME Section XI Code.

- AR 2012-5759; Packing Leak Evaluation on 2-ICM-111 RHR Pumps to RC Loops 2 and 3 Cold Legs Shutoff Valves;
- AR 2012-5397; Leak from 2-SI-155W;
- AR 2012-5765; Active Boric Acid Packing Leak on 2-SI-214E; and
- AR 2012-11213; 2-QPI-421, Active Boric Acid Leak.

The inspectors reviewed the following corrective actions related to evidence of boric acid leakage to determine if the corrective actions completed were consistent with the requirements of the ASME Code Section XI and 10 CFR Part 50, Appendix B, Criterion XVI.

- AR 2012-5457; U2C20 NOP/NOT Outage Pressure Test for 2-IFI-54-V1;
- AR 2012-5453; Inactive Boric Acid Issues Identified During NOP/NOT Walkdown for 2-QRV-51, 2-QRV-61 and QPX-200-V1;
- AR 2012-7686; 2-PP-26S Outboard Seal Boric Acid Leak; and
- AR 2012-13577; Various Inactive Boric Acid Leaks on 2-IMO-256, 2-CS-439-4, and 2-CS-438-1.

b. Findings

No findings of significance were identified.

.3 Steam Generator Tube Inspection Activities

a. Inspection Scope

No exams were required this outage. Therefore, no NRC review was completed for this inspection procedure attribute.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of ISI/Steam Generator related problems entered into the licensee's corrective action program and conducted interviews with licensee staff to determine if:

- the licensee had established an appropriate threshold for identifying ISI/Steam Generator related problems;
- the licensee had performed a root cause (if applicable) and taken appropriate corrective actions; and
- the licensee had evaluated operating experience and industry generic issues related to ISI and pressure boundary integrity.

The inspectors performed these reviews to evaluate compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The corrective action documents reviewed by the inspectors are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification (71111.11Q)

a. Inspection Scope

On December 5, 2013, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator training to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations; and
- oversight and direction from supervisors.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator regualification program simulator sample as defined in IP 71111.11.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On December 13, 2013, the inspectors observed licensed operators in Unit 1 perform a down power to 25 percent power. This was an activity that required heightened awareness or was related to increased risk. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms (if applicable);
- correct use and implementation of procedures;
- control board (or equipment) manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications (if applicable).

The performance in these areas was compared to pre-established operator action expectations, procedural compliance and task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- Supplemental diesel generators;
- offsite power systems; and
- main feedwater system.

The inspectors reviewed events such as where ineffective equipment maintenance had resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;

- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

This inspection constituted three quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Risk associated with core offload and switch yard work activities on October 10, 2013;
- risk associated with spent fuel pool pump temporary power removal, week of October 27, 2013; and
- risk associated with Unit 2 auxiliary feedwater work, week of December 2, 2013.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

Documents reviewed during this inspection are listed in the Attachment to this report. These maintenance risk assessments and emergent work control activities constituted three samples as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- Unit 1 upper airlock;
- solid state protection system;
- Unit 1 lower airlock;
- Unit 2 auxiliary feedwater due to closure of flow control valve;
- Unit 2 turbine driven auxiliary feedwater pump due to steam leak; and
- Unit 1 lower radial support structure.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the 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. The inspectors compared the operability and design criteria in the appropriate sections of the TS and UFSAR to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted six samples as defined in IP 71111.15-05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following modification(s):

- Alternate AC Feed to Annunciator Logic Cabinet I/O Chassis Fans;
- Design Changes EC-0000051509, "Unit 1 LBLOCA Analysis LOTIC2 Error Fix, Revision 0" and EC-0000050387, "Implementation of Unit 2 Best-Estimate Large Break LOCA Analysis, Revision 0"; and
- Elimination of the 650' Elevation Auxiliary Missile Blocks from the Design of Units 1 and 2.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system(s). The inspectors, as applicable, observed ongoing and completed work activities to ensure that the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. As applicable, the inspectors verified that relevant procedure, design, and licensing documents were properly updated. Lastly, the inspectors discussed the plant modification with operations, engineering, and training personnel to ensure that the individuals were aware of how the operation with the plant modification in place could impact overall plant performance. Documents reviewed are listed in the Attachment to this report.

This inspection constituted three permanent plant modification samples as defined in IP 71111.18-05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following post-maintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- Unit 2 AB emergency diesel generator governor and fuel injector replacement;
- Unit 1 CD emergency diesel generator fuel injector replacement;
- Unit 2 centrifugal charging pump discharge valve;
- 2-QRV-251 maintenance and packing replacement;
- Unit 2 west centrifugal charging rotor replacement;
- Unit 2 ice condenser air handling unit drain line to radioactive waste holdup tank containment isolation valve, 2-DCR-610 radiography test following replacement; and
- Unit 2 solid-state protection system Train A card replacement.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the

equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted seven post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the Outage Safety Plan (OSP) and contingency plans for the Unit 2 refueling outage (RFO), conducted October 3 thru November 12, 2013 to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured defense-in-depth maintenance. During the RFO, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below:

- licensee configuration management, including maintenance of defense-in-depth commensurate with the OSP for key safety functions and compliance with the applicable TS when taking equipment out of service;
- implementation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing;
- installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error;
- controls over the status and configuration of electrical systems to ensure that TS and OSP requirements were met, and controls over switchyard activities;
- monitoring of decay heat removal processes, systems, and components;
- controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system;
- reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss;
- controls over activities that could affect reactivity;
- maintenance of secondary containment as required by TS;
- licensee fatigue management, as required by 10 CFR 26, Subpart I;
- refueling activities, including fuel handling and sipping to detect fuel assembly leakage;
- startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing; and
- licensee identification and resolution of problems related to RFO activities.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted one RFO sample as defined in IP 71111.20-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- Unit 2 LOOP/LOCA (loss of offsite power with loss-of-coolant accident) testing (routine);
- Unit 2 shiftily surveillance requirements to continue core alterations surveillance test (routine);
- Unit 2 ice condenser intermediate deck door lift force testing (ice condenser);
- Unit 2 local leak rate surveillance (containment isolation valve); and
- North spent fuel pit pump surveillance (inservice test)

The inspectors observed in-plant activities and reviewed procedures and associated records to determine the following:

- did preconditioning occur;
- the effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the USAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;

- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted two routine surveillance testing samples, one inservice testing sample, and two containment isolation valve samples as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The Office of Nuclear Security and Incident Response headquarters' staff performed an in-office review of the latest revisions to the Emergency Plan and various Emergency Plan Implementing Procedures are listed in the Attachment to this report.

The licensee transmitted the Emergency Plan Implementing Procedures revisions to the NRC pursuant to the requirements of 10 CFR Part 50, Appendix E, Section V, "Implementing Procedures." The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment to this report.

This emergency action level and emergency plan change inspection did not constitute a sample as defined in IP 71114.04-05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of routine licensee emergency drills on June 4 and December 5, 2013, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Emergency Operations facility and Technical Support Center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors validated activation of the facilities were timely. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

This emergency preparedness drill inspection constituted one sample as defined in IP 71114.06-05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

This inspection constituted one complete sample as defined in IP 71124.01-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed all licensee performance indicators for the Occupational Exposure Cornerstone for followup. The inspectors reviewed the results of radiation protection program audits (e.g., licensee's quality assurance audits or other independent audits). The inspectors reviewed any reports of operational occurrences related to occupational radiation safety since the last inspection. The inspectors reviewed the results of the audit and operational report reviews to gain insights into overall licensee performance.

b. Findings

No findings were identified.

.2 Radiological Hazard Assessment (02.02)

a. Inspection Scope

The inspectors determined if there have been changes to plant operations since the last inspection that may result in a significant new radiological hazard for onsite workers or members of the public. The inspectors evaluated whether the licensee assessed the potential impact of these changes and has implemented periodic monitoring, as appropriate, to detect and quantify the radiological hazard.

The inspectors reviewed the last two radiological surveys from selected plant areas and evaluated whether the thoroughness and frequency of the surveys were appropriate for the given radiological hazard.

The inspectors conducted walkdowns of the facility, including radioactive waste processing, storage, and handling areas to evaluate material conditions and performed independent radiation measurements to verify conditions.

The inspectors selected the following radiologically risk-significant work activities that involved exposure to radiation:

- core alteration activities;
- auxiliary building valve maintenance;
- containment valve maintenance; and
- eddy current testing of excess letdown heat exchanger.

For these work activities, the inspectors assessed whether the pre-work surveys performed were appropriate to identify and quantify the radiological hazard and to establish adequate protective measures. The inspectors evaluated the radiological survey program to determine if hazards were properly identified, including the following:

- identification of hot particles;
- the presence of alpha emitters;
- the potential for airborne radioactive materials, including the potential presence of transuranics and/or other hard-to-detect radioactive materials. This evaluation may include licensee planned entry into non-routinely entered areas subject to previous contamination from failed fuel.;
- the hazards associated with work activities that could suddenly and severely increase radiological conditions and that the licensee has established a means to inform workers of changes that could significantly impact their occupational dose; and severe radiation field dose gradients that can result in non-uniform exposures of the body.

The inspectors observed work in potential airborne areas and evaluated whether the air samples were representative of the breathing air zone. The inspectors evaluated whether continuous air monitors were located in areas with low background to minimize false alarms and were representative of actual work areas. The inspectors evaluated the licensee's program for monitoring levels of loose surface contamination in areas of the plant with the potential for the contamination to become airborne.

b. Findings

No findings were identified.

.3 Instructions to Workers (02.03)

a. Inspection Scope

The inspectors selected various containers holding non-exempt licensed radioactive materials that may cause unplanned or inadvertent exposure of workers, and assessed whether the containers were labeled and controlled in accordance with 10 CFR 20.1904, "Labeling Containers," or met the requirements of 10 CFR 20.1905(g), "Exemptions To Labeling Requirements."

The inspectors reviewed the following radiation work permits used to access high radiation areas and evaluated the specified work control instructions or control barriers:

- RWP 132103; U2C21 Core Alteration Activities; Revision 0;
- RWP 132128; U2C21 Auxiliary Building Valve Maintenance; Revision 0;
- RWP 132145; U2C21 Containment Valve Maintenance; Revision 0; and
- RWP 132173; U2C21 Eddy Current testing of 2-HE-13 (Excess Letdown Heat Exchanger); Revision 0.

For these radiation work permits, the inspectors assessed whether allowable stay times or permissible dose (including from the intake of radioactive material) for radiological significant work under each radiation work permit were clearly identified. The inspectors evaluated whether electronic personal dosimeter alarm set-points were in conformance with survey indications and plant policy.

The inspectors reviewed selected occurrences where a worker's electronic personal dosimeter noticeably malfunctioned or alarmed. The inspectors evaluated whether workers responded appropriately to the off-normal condition. The inspectors assessed whether the issue was included in the Corrective Action Program and dose evaluations were conducted as appropriate.

For work activities that could suddenly and severely increase radiological conditions, the inspectors assessed the licensee's means to inform workers of changes that could significantly impact their occupational dose.

b. Findings

No findings were identified.

.4 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

The inspectors observed locations where the licensee monitors potentially contaminated material leaving the radiological control area and inspected the methods used for control, survey, and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use and evaluated whether the work was performed in accordance with plant procedures and

whether the procedures were sufficient to control the spread of contamination and prevent unintended release of radioactive materials from the site. The inspectors assessed whether the radiation monitoring instrumentation had appropriate sensitivity for the type(s) of radiation present.

The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material. The inspectors evaluated whether there was guidance on how to respond to an alarm that indicates the presence of licensed radioactive material.

The inspectors reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters. The inspectors assessed whether or not the licensee has established a de facto "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area.

The inspectors selected several sealed sources from the licensee's inventory records and assessed whether the sources were accounted for and verified to be intact.

The inspectors evaluated whether any transactions, since the last inspection, involving nationally tracked sources were reported in accordance with 10 CFR 20.2207.

b. Findings

No findings were identified.

.5 Radiological Hazards Control and Work Coverage (02.05)

a. Inspection Scope

The inspectors evaluated ambient radiological conditions (e.g., radiation levels or potential radiation levels) during tours of the facility. The inspectors assessed whether the conditions were consistent with applicable posted surveys, radiation work permits, and worker briefings.

The inspectors evaluated the adequacy of radiological controls, such as required surveys, radiation protection job coverage (including audio and visual surveillance for remote job coverage), and contamination controls. The inspectors evaluated the licensee's use of electronic personal dosimeters in high noise areas as high radiation area monitoring devices.

The inspectors assessed whether radiation monitoring devices were placed on the individual's body consistent with licensee procedures. The inspectors assessed whether the dosimeter was placed in the location of highest expected dose or that the licensee properly employed an NRC-approved method of determining effective dose equivalent.

The inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel in high-radiation work areas with significant dose rate gradients.

The inspectors reviewed the following radiation work permits for work within airborne radioactivity areas with the potential for individual worker internal exposures:

- core alteration activities;
- auxiliary building valve maintenance; and
- containment valve maintenance.

For these radiation work permits, the inspectors evaluated airborne radioactive controls and monitoring, including potential for significant airborne levels (e.g., grinding, grit blasting, system breaches, and entry into tanks, cubicles, and reactor cavities). The inspectors assessed barrier (e.g., tent or glove box) integrity and temporary high-efficiency particulate air ventilation system operation.

The inspectors examined the licensee's physical and programmatic controls for highly activated or contaminated materials (nonfuel) stored within spent fuel and other storage pools. The inspectors assessed whether appropriate controls (i.e., administrative and physical controls) were in place to preclude inadvertent removal of these materials from the pool.

The inspectors examined the posting and physical controls for selected high radiation areas and very-high radiation areas to verify conformance with the occupational performance indicator.

b. Findings

No findings were identified.

.6 Risk Significant High Radiation Area and Very-High Radiation Area Controls (02.06)

a. Inspection Scope

The inspectors discussed with the radiation protection manager the controls and procedures for high-risk- high radiation areas and very-high radiation areas. The inspectors discussed methods employed by the licensee to provide stricter control of very-high radiation area access as specified in 10 CFR 20.1602, "Control of Access to Very-High-Radiation Areas," and Regulatory Guide 8.38, "Control of Access to High and Very-High-Radiation Areas of Nuclear Plants." The inspectors assessed whether any changes to licensee procedures substantially reduce the effectiveness and level of worker protection.

The inspectors discussed the controls in place for special areas that have the potential to become very-high radiation areas during certain plant operations with first-line health physics supervisors (or equivalent positions having backshift health physics oversight authority). The inspectors assessed whether these plant operations require communication beforehand with the health physics group, so as to allow corresponding timely actions to properly post, control, and monitor the radiation hazards including re-access authorization.

The inspectors evaluated licensee controls for very-high radiation areas and areas with the potential to become a very-high radiation area to ensure that an individual was not able to gain unauthorized access to the very-high radiation area.

b. Findings

No findings were identified.

.7 Radiation Worker Performance (02.07)

a. Inspection Scope

The inspectors observed radiation worker performance with respect to stated radiation protection work requirements. The inspectors assessed whether workers were aware of the radiological conditions in their workplace and the radiation work permit controls/limits in place, and whether their performance reflected the level of radiological hazards present.

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be human performance errors. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. The inspectors discussed with the radiation protection manager any problems with the corrective actions planned or taken.

b. Findings

No findings were identified.

.8 Radiation Protection Technician Proficiency (02.08)

a. Inspection Scope

The inspectors observed the performance of the radiation protection technicians with respect to all radiation protection work requirements. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace and the radiation work permit controls/limits, and whether their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be radiation protection technician error. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

b. Findings

No findings were identified.

.9 Problem Identification and Resolution (02.09)

a. Inspection Scope

The inspectors evaluated whether problems associated with radiation monitoring and exposure control were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's Corrective Action Program. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involve radiation monitoring and exposure controls. The inspectors assessed the licensee's process for applying operating experience to their plant.

b. Findings

No findings were identified.

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

The inspection activities supplement those documented in NRC Inspection Report 05000315(316)/2012002 and 05000315(316)/2012004, and constitute one complete sample as defined in IP 71124.02-05.

.1 Radiological Work Planning (02.02)

a. Inspection Scope

The inspectors compared the results achieved (dose rate reductions, person-rem used) with the intended dose established in the licensee's as-low-as-reasonably-achievable (ALARA) planning for selected work activities. The inspectors compared the person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements, and evaluated the accuracy of these time estimates. The inspectors assessed the reasons (e.g., failure to adequately plan the activity, failure to provide sufficient work controls) for any inconsistencies between intended and actual work activity doses.

The inspectors determined whether post-job reviews were conducted and if identified problems were entered into the licensee's CAP.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05)

This inspection constituted one complete sample as defined in Inspection Procedure (IP) 71124.05-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the plant UFSAR to identify radiation instruments associated with monitoring area radiological conditions including airborne radioactivity, process streams, effluents, materials/articles, and workers. Additionally, the inspectors reviewed the instrumentation and the associated TS requirements for post-accident monitoring instrumentation including instruments used for remote emergency assessment.

The inspectors reviewed a listing of in-service survey instrumentation including air samplers and small article monitors, along with instruments used to detect and analyze workers' external contamination. Additionally, the inspectors reviewed personnel contamination monitors and portal monitors, including whole-body counters, to detect workers' internal contamination. The inspectors reviewed this list to assess whether an adequate number and type of instruments were available to support operations.

The inspectors reviewed licensee and third-party evaluation reports of the Radiation Monitoring Program since the last inspection. These reports were reviewed for insights into the licensee's program and to aid in selecting areas for review ("smart sampling").

The inspectors reviewed procedures that govern instrument source checks and calibrations, focusing on instruments used for monitoring transient high radiological conditions, including instruments used for underwater surveys. The inspectors reviewed the calibration and source check procedures for adequacy and as an aid to smart sampling.

The inspectors reviewed the area radiation monitor alarm setpoint values and setpoint bases as provided in the TSs and the UFSAR.

The inspectors reviewed effluent monitor alarm setpoint bases and the calculation methods provided in the Offsite Dose Calculation Manual (ODCM).

b. Findings

No findings were identified.

.2 Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors walked down effluent radiation monitoring systems, including at least one liquid and one airborne system. Focus was placed on flow measurement devices and all accessible point-of-discharge liquid and gaseous effluent monitors of the selected systems. The inspectors assessed whether the effluent/process monitor configurations aligned with ODCM descriptions and observed monitors for degradation and out-of-service tags.

The inspectors selected portable survey instruments that were in use or available for issuance and assessed calibration and source check stickers for currency as well as instrument material condition and operability.

The inspectors observed licensee staff performance as the staff demonstrated source checks for various types of portable survey instruments. The inspectors assessed whether high-range instruments were source checked on all appropriate scales.

The inspectors walked down area radiation monitors and continuous air monitors to determine whether they were appropriately positioned relative to the radiation sources or areas they were intended to monitor. Selectively, the inspectors compared monitor response (via local or remote control room indications) with actual area conditions for consistency.

The inspectors selected personnel contamination monitors, portal monitors, and small article monitors and evaluated whether the periodic source checks were performed in accordance with the manufacturer's recommendations and licensee procedures.

b. Findings

No findings were identified.

.3 Calibration and Testing Program (02.03)

Process and Effluent Monitors

a. Inspection Scope

The inspectors selected effluent monitor instruments (such as gaseous and liquid) and evaluated whether channel calibration and functional tests were performed consistent with radiological effluent TSSs/ODCM. The inspectors assessed whether; (a) the licensee calibrated its monitors with National Institute of Standards and Technology traceable sources; (b) the primary calibrations adequately represented the plant nuclide mix; (c) when secondary calibration sources were used, the sources were verified by the primary calibration; and (d) the licensee's channel calibrations encompassed the instrument's alarm set-points.

The inspectors assessed whether the effluent monitor alarm setpoints were established as provided in the ODCM and station procedures.

For changes to effluent monitor setpoints, the inspectors evaluated the basis for changes to ensure that an adequate justification existed.

b. Findings

No findings were identified.

.4 Laboratory Instrumentation

a. Inspection Scope

The inspectors assessed laboratory analytical instruments used for radiological analyses to determine whether daily performance checks and calibration data indicated that the frequency of the calibrations was adequate and there were no indications of degraded instrument performance.

The inspectors assessed whether appropriate corrective actions were implemented in response to indications of degraded instrument performance.

b. Findings

No findings were identified.

.5 Whole Body Counter

a. Inspection Scope

The inspectors reviewed the methods and sources used to perform whole body count functional checks before daily use of the instrument and assessed whether check sources were appropriate and aligned with the plant's isotopic mix.

The inspectors reviewed whole body count calibration records since the last inspection and evaluated whether calibration sources were representative of the plant source term and that appropriate calibration phantoms were used. The inspectors looked for anomalous results or other indications of instrument performance problems.

b. Findings

No findings were identified.

.6 Post-Accident Monitoring Instrumentation

a. Inspection Scope

Inspectors selected containment high-range monitors and reviewed the calibration documentation since the last inspection.

The inspectors assessed whether an electronic calibration was completed for all range decades above 10 rem/hour and whether at least 1 decade at or below 10 rem/hour was calibrated using an appropriate radiation source.

The inspectors assessed whether calibration acceptance criteria were reasonable; accounting for the large measuring range and the intended purpose of the instruments.

The inspectors selected effluent/process monitors that were relied on by the licensee in its emergency operating procedures as a basis for triggering emergency action levels and subsequent emergency classifications, or to make protective action recommendations during an accident. The inspectors evaluated the calibration and availability of these instruments.

The inspectors reviewed the licensee's capability to collect high-range, post-accident iodine effluent samples.

As available, the inspectors observed electronic and radiation calibration of these instruments to assess conformity with the licensee's calibration and test protocols.

b. Findings

No findings were identified.

.7 Portal Monitors, Personnel Contamination Monitors, and Small Article Monitors

a. Inspection Scope

For each type of these instruments used on site, the inspectors assessed whether the alarm setpoint values were reasonable under the circumstances to ensure that licensed material is not released from the site.

The inspectors reviewed the calibration documentation for each instrument selected and discussed the calibration methods with the licensee to determine consistency with the manufacturer's recommendations.

b. Findings

No findings were identified.

.8 Portable Survey Instruments, Area Radiation Monitors, Electronic Dosimetry, and Air Samplers/Continuous Air Monitors

a. Inspection Scope

The inspectors reviewed calibration documentation for at least one of each type of instrument. For portable survey instruments and area radiation monitors, the inspectors reviewed detector measurement geometry and calibration methods and had the licensee demonstrate use of its instrument calibrator as applicable. The inspectors conducted comparison of instrument readings versus an NRC survey instrument if problems were suspected.

As available, the inspectors selected portable survey instruments that did not meet acceptance criteria during calibration or source checks to assess whether the licensee had taken appropriate corrective action for instruments found significantly out of calibration (i.e., greater than 50 percent). The inspectors evaluated whether the licensee had evaluated the possible consequences of instrument use since the last successful calibration or source check.

b. Findings

No findings were identified.

.9 Instrument Calibrator

a. Inspection Scope

As applicable, the inspectors reviewed the current output values for the licensee's portable survey and area radiation monitor instrument calibrator unit(s). The inspectors assessed whether the licensee periodically measures calibrator output over the range of the instruments used through measurements by ion chamber/electrometer.

The inspectors assessed whether the measuring devices had been calibrated by a facility using National Institute of Standards and Technology traceable sources and whether corrective factors for these measuring devices were properly applied by the licensee in its output verification.

b. Findings

No findings were identified.

.10 Calibration and Check Sources

a. Inspection Scope

The inspectors reviewed the licensee's 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," source term to assess whether calibration sources used were representative of the types and energies of radiation encountered in the plant.

b. Findings

No findings were identified.

.11 Problem Identification and Resolution (02.04)

a. Inspection Scope

The inspectors evaluated whether problems associated with radiation monitoring instrumentation were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involve radiation monitoring instrumentation.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

This inspection constituted one complete sample as defined in IP 71124.06-05.

Inspection Planning and Program Reviews (02.01)

Event Report and Effluent Report Reviews

a. Inspection Scope

The inspectors reviewed the radiological effluent release reports issued since the last inspection to determine whether the reports were submitted as required by the ODCM/TSSs. The inspectors reviewed anomalous results, unexpected trends, or abnormal releases identified by the licensee for further inspection to determine whether they were evaluated, were entered in the CAP, and were adequately resolved.

The inspectors selected radioactive effluent monitor operability issues reported by the licensee as provided in effluent release reports, to review these issues during the onsite inspection, as warranted, given their relative significance and determine whether the issues were entered into the CAP and adequately resolved.

b. Findings

No findings were identified.

Offsite Dose Calculation Manual and Final Safety Analysis Report Review

a. Inspection Scope

The inspectors reviewed UFSAR descriptions of the radioactive effluent monitoring systems, treatment systems, and effluent flow paths so they could be evaluated during inspection walkdowns.

The inspectors reviewed changes to the ODCM made by the licensee since the last inspection against the guidance in NUREG-1301, 1302 and 0133, and Regulatory Guides 1.109, 1.21 and 4.1. When differences were identified, the inspectors reviewed the technical basis or evaluations of the change during the onsite inspection to determine whether they were technically justified and maintain effluent releases as-low-as-reasonably-achievable.

The inspectors reviewed licensee documentation to determine whether the licensee has identified any non-radioactive systems that have become contaminated as disclosed either through an event report or the ODCM since the last inspection. This review provided an intelligent sample list for the onsite inspection of any 10 CFR 50.59 evaluations and allowed a determination whether any newly contaminated systems have an unmonitored effluent discharge path to the environment, whether any required ODCM revisions were made to incorporate these new pathways and whether the associated effluents were reported in accordance with Regulatory Guide 1.21.

b. Findings

No findings were identified.

Groundwater Protection Initiative Program

a. Inspection Scope

The inspectors reviewed reported groundwater monitoring results and changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater.

b. Findings

No findings were identified.

Procedures, Special Reports, and Other Documents

a. Inspection Scope

The inspectors reviewed Licensee Event Reports, event reports and/or special reports related to the effluent program issued since the previous inspection to identify any additional focus areas for the inspection based on the scope/breadth of problems described in these reports.

The inspectors reviewed effluent program implementing procedures, particularly those associated with effluent sampling, effluent monitor set-point determinations, and dose calculations.

The inspectors reviewed copies of licensee and third party (independent) evaluation reports of the Effluent Monitoring Program since the last inspection to gather insights into the licensee's program and aid in selecting areas for inspection review (smart sampling).

b. Findings

No findings were identified.

Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors walked down selected components of the gaseous and liquid discharge systems to evaluate whether equipment configuration and flow paths align with the

documents reviewed in Section 02.01 above and to assess equipment material condition. Special attention was made to identify potential unmonitored release points (such as open roof vents in boiling water reactor turbine decks, temporary structures butted against turbine, auxiliary or containment buildings), building alterations which could impact airborne, or liquid effluent controls, and ventilation system leakage that communicates directly with the environment.

For equipment or areas associated with the systems selected for review that were not readily accessible due to radiological conditions, the inspectors reviewed the licensee's material condition surveillance records, as applicable.

The inspectors walked down filtered ventilation systems to assess for conditions such as degraded high-efficiency particulate air/charcoal banks, improper alignment, or system installation issues that would impact the performance or the effluent monitoring capability of the effluent system.

As available, the inspectors observed selected portions of the routine processing and discharge of radioactive gaseous effluent (including sample collection and analysis) to evaluate whether appropriate treatment equipment was used and the processing activities align with discharge permits.

The inspectors determined if the licensee has made significant changes to their effluent release points (e.g., changes subject to a 10 CFR 50.59 review or require NRC approval of alternate discharge points).

As available, the inspectors observed selected portions of the routine processing and discharging of liquid waste (including sample collection and analysis) to determine whether appropriate effluent treatment equipment is being used and that radioactive liquid waste is being processed and discharged in accordance with procedure requirements and aligns with discharge permits.

b. Findings

No findings were identified.

Sampling and Analyses (02.03)

a. Inspection Scope

The inspectors selected effluent sampling activities, consistent with smart sampling, and assessed whether adequate controls have been implemented to ensure representative samples were obtained (e.g., provisions for sample line flushing, vessel recirculation, composite samplers, etc.).

The inspectors selected effluent discharges made with inoperable (declared out-of-service) effluent radiation monitors to assess whether controls were in place to ensure compensatory sampling was performed consistent with the radiological effluent TSS/ ODCM and that those controls were adequate to prevent the release of unmonitored liquid and gaseous effluents.

The inspectors determined whether the facility was routinely relying on the use of compensatory sampling in lieu of adequate system maintenance, based on the frequency of compensatory sampling since the last inspection.

The inspectors reviewed the results of the inter-laboratory comparison program to evaluate the quality of the radioactive effluent sample analyses and assessed whether the inter-laboratory comparison program includes hard-to-detect isotopes as appropriate.

b. Findings

No findings were identified.

.3 Instrumentation and Equipment (02.04)

Effluent Flow Measuring Instruments

a. Inspection Scope

The inspectors reviewed the methodology the licensee uses to determine the effluent stack and vent flow rates to determine whether the flow rates were consistent with radiological effluent TSs/ODCM or UFSAR values, and that difference between assumed and actual stack and vent flow rates did not affect the results of the projected public doses.

b. Findings

No findings were identified.

Air Cleaning Systems

a. Inspection Scope

The inspectors assessed whether surveillance test results since the previous inspection for TS required ventilation effluent discharge systems (high-efficiency particulate air and charcoal filtration), such as the Standby Gas Treatment System and the Containment/Auxiliary Building Ventilation System, met TS acceptance criteria.

b. Findings

No findings were identified.

Dose Calculations (02.05)

a. Inspection Scope

The inspectors reviewed all significant changes in reported dose values compared to the previous radiological effluent release report (e.g., a factor of 5, or increases that approach Appendix I criteria) to evaluate the factors which may have resulted in the change.

The inspectors reviewed radioactive liquid and gaseous waste discharge permits to assess whether the projected doses to members of the public were accurate and based on representative samples of the discharge path.

Inspectors evaluated the methods used to determine the isotopes that are included in the source term to ensure all applicable radionuclides are included within detectability standards. The review included the current 10 CFR Part 61 analyses to ensure hard-to-detect radionuclides are included in the source term.

The inspectors reviewed changes in the licensee's offsite dose calculations since the last inspection to evaluate whether changes were consistent with the ODCM and Regulatory Guide 1.109. Inspectors reviewed meteorological dispersion and deposition factors used in the ODCM and effluent dose calculations to evaluate whether appropriate factors were being used for public dose calculations.

The inspectors reviewed the latest Land Use Census to assess whether changes (e.g., significant increases or decreases to population in the plant environs, changes in critical exposure pathways, the location of nearest member of the public or critical receptor, etc.) have been factored into the dose calculations.

For the releases reviewed above, the inspectors evaluated whether the calculated doses (monthly, quarterly, and annual dose) are within the 10 CFR Part 50, Appendix I and Technical Specification dose criteria.

The inspectors reviewed, as available, records of any abnormal gaseous or liquid tank discharges, (e.g., discharges resulting from misaligned valves, valve leak-by, etc.) to ensure the abnormal discharge was monitored by the discharge point effluent monitor. Discharges made with inoperable effluent radiation monitors, or unmonitored leakages were reviewed to ensure that an evaluation was made of the discharge to satisfy 10 CFR 20.1501 so as to account for the source term and projected doses to the public.

b. Findings

No findings were identified.

Groundwater Protection Initiative Implementation (02.06)

a. Inspection Scope

The inspectors reviewed monitoring results of the Groundwater Protection Initiative to determine if the licensee had implemented its program as intended and to identify any anomalous results. For anomalous results or missed samples, the inspectors assessed whether the licensee had identified and addressed deficiencies through its Corrective Action Program.

The inspectors reviewed identified leakage or spill events and entries made into 10 CFR 50.75 (g) records. The inspectors reviewed evaluations of leaks or spills and reviewed any remediation actions taken for effectiveness. The inspectors reviewed onsite contamination events involving contamination of ground water and assessed whether the source of the leak or spill was identified and mitigated.

For unmonitored spills, leaks, or unexpected liquid or gaseous discharges, the inspectors assessed whether an evaluation was performed to determine the type and amount of radioactive material that was discharged by:

- Assessing whether sufficient radiological surveys were performed to evaluate the extent of the contamination and the radiological source term and assessing whether a survey/evaluation had been performed to include consideration of hard-to-detect radionuclides.
- Determining whether the licensee completed offsite notifications, as provided in its Groundwater Protection Initiative implementing procedures.

The inspectors reviewed the evaluation of discharges from onsite surface water bodies that contain or potentially contain radioactivity, and the potential for ground water leakage from these onsite surface water bodies. The inspectors assessed whether the licensee was properly accounting for discharges from these surface water bodies as part of their effluent release reports.

The inspectors assessed whether onsite ground water sample results and a description of any significant onsite leaks/spills into ground water for each calendar year were documented in the Annual Radiological Environmental Operating Report for the Radiological Environmental Monitoring Program or the Annual Radiological Effluent Release Report for the Radiological Effluent Technical Specifications.

For significant, new effluent discharge points (such as significant or continuing leakage to ground water that continues to impact the environment if not remediated), the inspectors evaluated whether the offsite dose calculation manual was updated to include the new release point.

b. Findings

No findings were identified.

Problem Identification and Resolution (02.07)

a. Inspection Scope

Inspectors assessed whether problems associated with the Effluent Monitoring and Control Program were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee CAP. In addition, they evaluated the appropriateness of the corrective actions for a selected sample of problems documented by the licensee involving radiation monitoring and exposure controls.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (71124.07)

This inspection constituted one complete sample as defined in IP 71124.07-05.

Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the annual radiological environmental operating reports and the results of any licensee assessments since the last inspection to assess whether the Radiological Environmental Monitoring Program was implemented in accordance with the TSs and ODCM. This review included reported changes to the ODCM with respect to environmental monitoring, commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, Inter-Laboratory Comparison Program, and analysis of data.

The inspectors reviewed the ODCM to identify locations of environmental monitoring stations.

The inspectors reviewed the UFSAR for information regarding the environmental monitoring program and meteorological monitoring instrumentation.

The inspectors reviewed quality assurance audit results of the program to assist in choosing inspection “smart samples.” The inspectors also reviewed audits and technical evaluations performed on the vendor laboratory if used.

The inspectors reviewed the annual effluent release report and the 10 CFR Part 61, “Licensing Requirements for Land Disposal of Radioactive Waste,” report, to determine if the licensee was sampling, as appropriate, for the predominant and dose-causing radionuclides likely to be released in effluents.

b. Findings

No findings were identified.

Site Inspection (02.02)

a. Inspection Scope

The inspectors walked down select air sampling stations and dosimeter monitoring stations to determine whether they were located as described in the ODCM and to determine the equipment material condition. Consistent with smart sampling, the air sampling stations were selected based on the locations with the highest X/Q, D/Q wind sectors, and dosimeters were selected based on the most risk-significant locations (e.g., those that have the highest potential for public dose impact).

For the air samplers and dosimeters selected, the inspectors reviewed the calibration and maintenance records to evaluate whether they demonstrated adequate operability of these components. Additionally, the review included the calibration and maintenance records of select composite water samplers.

The inspectors assessed whether the licensee had initiated sampling of other appropriate media upon loss of a required sampling station.

The inspectors observed the collection and preparation of environmental samples from different environmental media (e.g., ground and surface water, milk, vegetation, sediment, and soil) as available to determine if environmental sampling was representative of the release pathways as specified in the ODCM and if sampling techniques were in accordance with procedures.

Based on direct observation and review of records, the inspectors assessed whether the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the UFSAR, NRC Regulatory Guide 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants," and licensee procedures. The inspectors assessed whether the meteorological data readout and recording instruments in the control room and, if applicable, at the tower were operable.

The inspectors evaluated whether missed and/or anomalous environmental samples were identified and reported in the annual environmental monitoring report. The inspectors selected events that involved a missed sample, inoperable sampler, lost dosimeter, or anomalous measurement to determine if the licensee had identified the cause and had implemented corrective actions. The inspectors reviewed the licensee's assessment of any positive sample results (i.e., licensed radioactive material detected above the lower limits of detection) and reviewed the associated radioactive effluent release data that was the source of the released material.

The inspectors selected structures, systems, or components that involve or could reasonably involve licensed material for which there is a credible mechanism for licensed material to reach ground water, and assessed whether the licensee had implemented a sampling and monitoring program sufficient to detect leakage of these structures, systems, or components to ground water.

The inspectors evaluated whether records, as required by 10 CFR 50.75(g), of leaks, spills, and remediation since the previous inspection were retained in a retrievable manner.

The inspectors reviewed any significant changes made by the licensee to the ODCM as the result of changes to the land census, long-term meteorological conditions (3-year average), or modifications to the sampler stations since the last inspection. They reviewed technical justifications for any changed sampling locations to evaluate whether the licensee performed the reviews required to ensure that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment.

The inspectors assessed whether the appropriate detection sensitivities with respect to TSs/ODCM were used for counting samples (i.e., the samples meet the TSs/ODCM required lower limits of detection). The licensee uses a vendor laboratory to analyze the Radiological Environmental Monitoring Program samples so the inspectors reviewed the results of the vendor's quality control program, including the inter-laboratory comparison, to assess the adequacy of the vendor's program.

The inspectors reviewed the results of the licensee's Inter-Laboratory Comparison Program to evaluate the adequacy of environmental sample analyses performed by the licensee. The inspectors assessed whether the inter-laboratory comparison test included the media/nuclide mix appropriate for the facility. If applicable, the inspectors reviewed the licensee's determination of any bias to the data and the overall effect on the Radiological Environmental Monitoring Program.

b. Findings

No findings were identified.

Identification and Resolution of Problems (02.03)

a. Inspection Scope

The inspectors assessed whether problems associated with the Radiological Environmental Monitoring Program were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP. Additionally, they assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involved the Radiological Environmental Monitoring Program.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

4OA1 Performance Indicator Verification (71151)

.1 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the Reactor Coolant System (RCS) Leakage performance indicator for both Unit 1 and 2 for the period from the fourth quarter 2012 through the third quarter 2013. To determine the accuracy of the Performance Indicator (PI) data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, was used. The inspectors reviewed the licensee's operator logs, RCS leakage tracking data, issue reports, event reports and NRC Integrated Inspection Reports for the period of fourth quarter 2012 through the third quarter 2013 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two reactor coolant system leakage samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the RCS specific activity PI for D.C. Cook Nuclear Power Plant, Units 1 and 2 for the period from the second quarter 2012 through the second quarter 2013. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013 to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's reactor coolant system chemistry samples, TS requirements, issue reports, event reports, and NRC Integrated Inspection Reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a RCS sample. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two reactor coolant system specific activity samples as defined in IP 71151-05.

b. Findings

None

Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the occupational radiological occurrences PI for the period from the second quarter 2012 through the second quarter 2013. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 2013 to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry dose rate and accumulated dose alarms and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very-high radiation area entrances to determine the adequacy of the controls in place for these areas. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one occupational exposure control effectiveness sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual
Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the radiological effluent TS/ODCM radiological effluent occurrences PI for the period from the second quarter 2012 through the second quarter 2013. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated September, 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Radiological Effluent Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

.1 Routine Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: identification of the problem was complete and accurate; timeliness was commensurate with the safety significance; evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective

actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the Attachment to this report.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 Semiannual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 40A2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of April 2013 through September 2013, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

This review constituted one semiannual trend inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

.4 Annual Sample: Review of Operator Workarounds

a. Inspection Scope

The inspectors evaluated the licensee's implementation of their process used to identify, document, track, and resolve operational challenges. Inspection activities included, but were not limited to, a review of the cumulative effects of the operator workarounds on system availability and the potential for improper operation of the system, for potential impacts on multiple systems, and on the ability of operators to respond to plant transients or accidents.

The inspectors performed a review of the cumulative effects of operator workarounds. The documents listed in the Attachment to this report were reviewed to accomplish the objectives of the inspection procedure. The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold, had entered them into their CAP and proposed or implemented appropriate and timely corrective actions which addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an Initiating Event, if the challenge was contrary to training, required a change from long-standing operational practices, or created the potential for inappropriate compensatory actions. Daily plant and equipment status logs, degraded instrument logs, and operator aids or tools being used to compensate for material deficiencies were also assessed to identify any potential sources of unidentified operator workarounds.

This review constituted one operator workaround annual inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Temporary Instruction 2515/182 - Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks

a. Inspection Scope

Leakage from buried and underground pipes has resulted in ground water contamination incidents with associated heightened NRC and public interest. The industry issued a guidance document, NEI 09-14, "Guideline for the Management of Buried Piping Integrity," (ADAMS Accession No. ML1030901420) to describe the goals and required actions (i.e., commitments made by the licensee) resulting from this underground piping and tank initiative. On December 31, 2010, NEI issued Revision 1 to NEI 09-14, "Guidance for the Management of Underground Piping and Tank Integrity," (ADAMS Accession No. ML110700122), with an expanded scope of components which included underground piping that was not in direct contact with the soil and underground

tanks. On November 17, 2011, the NRC issued Temporary Instruction (TI) 2515/182, "Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks," to gather information related to the industry's implementation of this initiative. In April 2013, the industry issued Revision 3 to NEI 09-014 to address changes in the program scope and milestone dates (ADAMS Accession No. ML13130A322).

From December 16 – December 19, 2013, the inspectors conducted a review of records and procedures related to the licensee's program for buried pipe, underground pipe, and tanks in accordance with Phase II of TI-2515/182. This review was done to confirm that the licensee's program contained attributes consistent with Sections 3.3 A and 3.3 B of NEI 09-14 and to confirm that these attributes were scheduled and/or completed by the NEI 09-14 Revision 3 deadlines. The inspectors interviewed licensee staff responsible for the Buried Pipe Program and reviewed documentation to determine whether the program was managed effectively.

Based upon the scope of the review described above, Phase II of TI-2515/182 was completed.

b. Observations

The licensee's Buried Piping and Underground Piping and Tanks Program was inspected in accordance with Paragraph 03.02.a of the TI and it was confirmed that activities which correspond to completion dates specified in the program, which have passed since the Phase I inspection was conducted, have been completed. Additionally, the licensee's Buried Piping and Underground Piping and Tanks Program was inspected in accordance with Paragraph 03.02.b of the TI and responses to specific questions found in:

<http://www.nrc.gov/reactors/operating/ops-experience/buried-pipe-ti-phase-2-insp-req-2011-11-16.pdf>, were submitted to the NRC Headquarters staff.

c. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On February 11, 2014, the inspectors presented the inspection results to Mr. J. Gebbie, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The results of the inservice inspection with Mr. J. Gebbie on October 24, 2013;
- the inspection results for the area of radiation monitoring instrumentation with Mr. J. Gebbie, Site Vice President, on December 13, 2013;
- The inspection results for the areas of radiological hazard assessment and exposure controls; occupational ALARA planning and controls; and RCS specific

activity performance indicator verification with Mr. J. Gebbie, Site Vice President, on October 31, 2013;

- The inspection results for the areas of radioactive gaseous and liquid effluent treatment; radiological environmental monitoring; and occupational exposure control effectiveness and RETS/ODCM radiological effluent occurrences performance indicator verification with Mr. M. Scarpello, Nuclear Regulatory Assurance Manager, on October 8, 2013; and
- On Friday, September 13, 2013, the inspectors presented the preliminary results of the Plant Modifications Inspection by a conference phone call to Mr. M. Bellville, the Nuclear Engineering Manager, and other members of the licensee staff.
- The Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks (TI -2515/182) was presented to the Performance Assurance Supervisor, Mr. B. Kusisto, and other members of the licensee staff on December 19, 2013.
- Inspection report re-exit performed with Mr. C. Wohlgamuth on February 11, 2014.

The inspectors confirmed that none of the potential report input discussed was considered proprietary.

40A7 Licensee-Identified Violations

The following violation of very low safety significance (Green) or Severity Level IV 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 a NCV.

- Sub-paragraph 50.36a (a)(2) of 10 CFR Part 50, requires the licensee to submit a report to the Commission annually that specifies the quantity of each of the principal radionuclides released to unrestricted areas in liquid and in gaseous effluent during the previous 12 months, including any other information as may be required by the Commission to estimate maximum potential annual radiation doses to the public resulting from effluent releases.

The NRC Safety Guide 23 "Onsite Meteorological Programs" states that knowledge of meteorological conditions in the vicinity of the reactor is important in providing a basis for estimating maximum potential annual radiation doses resulting from radioactive materials released in gaseous effluents. The Safety Guide also described a suitable onsite meteorological program to provide meteorological data needed to estimate potential radiation doses to the public as a result of the routine or accidental release of radioactive material to the atmosphere and to assess other environmental effect. The Safety Guide states that meteorological instruments should be inspected and serviced at a frequency which will assure at least a 90 percent data recovery and which will minimize extended periods of instrument outage.

Contrary to sub-paragraph 50.36a (a)(2) of 10 CFR Part 50, the licensee failed to submit information required by the Commission to estimate maximum potential annual radiation doses to the public resulting from effluent releases. Specifically, the licensee was not able to maintain Meteorological Tower instrumentation so that data recovery remained above 90 percent for the calendar year 2012,

information that the Commission required to estimate maximum potential doses to the public.

After identifying the error, the licensee took corrective action to prevent further loss of meteorological data due to equipment failure by troubleshooting and repairing Meteorological Tower instrumentation and instituting additional data recovery efforts in 2013. The licensee's corrective actions were entered into the CAP as Condition Reports AR 2013-12764 and AR 2013-15116.

Because the licensee identified the failure to properly recover data, the inspectors determined that the violation met the requirements of a licensee identified NCV.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

J. Gebbie, Site Vice-President
M. Bellville, Nuclear Engineering Manager
R. Deweese, Program Engineering Manager
B. Ego, Buried Pipe Program Owner
R. Hall, ISI Engineering Programs
J. Harner, Environmental Manager
G. Hill, Nuclear Safety Analysis Supervisor
R. Hite, Radiation Protection Manager
B. Kusisto, Performance Assurance Supervisor
J. Labis, Employee Concerns Program Principal Investigator
K. Patterson, Engineering Programs
J. Ross, Plant Engineering Director
M. Scarpello, Nuclear Regulatory Affairs Manager
C. VanderZwaag, CVCS and ESW System Manager
R. Wynegar, Regulatory Affairs

Nuclear Regulatory Commission

B. Jose, Acting Branch Chief, Engineering Branch 2
T. Wengert, Project Manager

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

1R01 Adverse Weather Protection

- 12-IHP-5040-EMP-004, Plant Winterization and De-Winterization, Revision 21
- 12-OHL-4030-SOM-009, Unit 12 Tours – ISFSI, Revision 8
- 12-OHP-4030-018-001, SFSC Hi-Storm Overpack Monthly/Annual Visual Surveillance, Revision 2

1R04 Equipment Alignment

- 1-OHP-4021-008-002, Placing Emergency Core Cooling System in Standby Readiness, Revision 29
- 1-OHP-4030-156-017E, East Motor Driven Auxiliary Feedwater System Test, Revision 9
- 1-OHP-4030-156-156-017T, Turbine Driven Auxiliary Feedwater system Test, Revision 15
- 2-OHP-4030-256-017T, Turbine Driven Auxiliary Feedwater System Test, Revision 16
- 2-OHP-4030-256-017W, Turbine Auxiliary Feedwater System Test, Revision 8
- AR 2012-14347-1, Perform Condition Evaluation on Water Detected in Oil Sample, November 16, 2012
- AR 2013-18897, Unit 2 CD Battery Ground, December 11, 2013
- OP-2-12003-30, 250 VDC Main One-Line Diagram, Revision 30
- Unit 2, 250 VDC Distribution System Health Report, December 16, 2013

1R05 Fire Protection

- Fire Hazards Analysis, D.C. Cook Units 1 and 2, Revision 16

1R06 Internal Flooding

- 1-5179-27 Sht. 2, Station Drainage Piping in Fill & Slab Diesel Generator Area, Revision 27
- 1-5179-28 Sht. 1 of 5, Station Drainage Piping in Fill & Slab Turbine Room, Revision 28
- SD-061206-001, Flooding Evaluation Report for D.C. Cook Nuclear Power Plant, Revision 3

1R08 Inservice Inspection Activities

- 12-QHP-5050-NDE-006, Visual Examination: VT-1 and VT-3, Revision 5
- 12-QHP-5070-NDE-002, Visual VT-2 Examinations, Revision 5
- AR 2011-11572, Wrong ASME XI Code Table Referenced in ISI Evaluation
- AR 2012-10935, 2-LPD-320N Inspected Due to Leak-By
- AR 2012-1711, 2-IFI-262 BA Leak
- AR 2012-3944, Fallen Heat Shield Bolts
- AR 2012-4059, Rag Found in Condenser Makeup Line
- AR 2012-4157, Dropped Rag in Reactor Cavity During Baffle Bolt Exams
- AR 2012-4344, 2-HE-A FME Barrier Creates FME Concern in "A" Condenser
- AR 2012-4892, Foreign Material in an Improperly Identified FME Area
- AR 2012-5403, 2-RH-104E has Dry Boric Acid Around the Valve Packing

- AR 2012-7005, Wet Boric Acid Found on 2-ICM-111 in U2 L/C
- AR 2013-16045, Math Error in ISI Flaw Evaluation
- DTG-ENG-FLAW, Desktop Guide for ASME Section XI Flaw Evaluation, Revision 0
- GT 2013-16190, 12-QHP-5070-NDE-002, Procedure Enhancement, October 23, 2013
- PQR 136, for WPS 8.1TS, Revision 1
- PQR 219, SMAW for WPS 8.1TS, Revision 1
- PQR 256, GTAW for WPS 8.1TS, Revision 1
- PQR 258, SMAW for WPS 8.1TS, Revision 1
- Report 2-CTS-60, Liquid Penetrant Examination, April 2, 2012
- Report 2-DCR-611, Liquid Penetrant Examination, October 17, 2013
- Report 2-NRV-102, Liquid Penetrant Examination, March 28, 2012
- Report No. (J.O.No.) 55417327-27 (2-DCR-611), Radiographic Inspection Report, Welds OW1-2, October 17, 2013
- Report No. U2-VE-12-004, UT of Upper Head to Relief Nozzle, 6"-2-RC-22, March 27, 2012
- Report No. U2-VE-12-005, UT of Upper Head to Relief Nozzle, 6"-2-RC-25, March 27, 2012
- Report No. U2-VE-13-009, 4" (2-RC-28) Upper Head to Spray Nozzle, October 7, 2013
- Report No. U2-VE-13-010, 4" (2-RC-28-IRS) Upper Head to Spray Nozzle, October 7, 2013
- Report No. U2-VE-13-012, 1.5" Nozzle Branch Connection" (2-RC-17-09N), October 11, 2013
- Report No. U2-VE-13-014, UT of 3" Nozzle (Branch Connection), October 11, 2013
- Report No. U2-VE-13-018, Feedwater Reducer-to-Elbow Weld (2-FW-76-11S), October 16, 2013
- Report No. U2-VE-13-026, UT of RPV Studs 1-54, October 15, 2013
- Report No. U2-VT-13-017, VT-3 of Valve Body Internal Surface for SI-161-L3, October 17, 2013
- Report No. U2-VT-13-018, VT-1 of Body-to-Bonnet Bolting for SI-161-L3, October 18, 2013
- WO 55382551, Replace Valve 2-CTS-160W, April 2, 2012
- WPS 8.1TS, Manual Gas Tungsten Arc and Shielded Metal ARC Welding, P-8 to P-8, Revision 3
- WPS 8.1TS, Manual Gas Tungsten Arc and Shielded Metal ARC Welding, P-8 to P-8, Revision 5

1R11 Licensed Operator Regualification Program

- 2-OHP-4022-IFR-001, Instrument Failure Response, Revision 4

1R12 Maintenance Effectiveness

- AR 2012-6248, SDG-2 Automatic Shutdown Following Start
- AR 2012-8883, MRule Unavailability Time Exceeded for Offsite Power
- AR 2012-9264, SDG #1 Tripped on Under Frequency
- Maintenance Rule (a)(1) Action Plan, Offsite Power System, Revision 1
- Maintenance Rule (a)(1) Action Plan, Unit 1 Main Feedwater, Revision 3
- Maintenance Rule (a)(1) Action Plan, Supplemental Diesel Generators, September 20, 2012
- System Health Report, Supplemental Diesel Generator, Q4 2012

1R13 Maintenance Risk Assessments and Emergent Work Control

- PMI-4100, Shutdown Risk Management, Revision 6
- PMP-2291-OLR-001, Online Risk Management, Revision 27

1R15 Operability Determinations and Functionality Assessments

- 51 - 8066063 – 000, Test Results, Lower Radial Support System Bolt Torque, DC Cook, April 5, 2013
- AR 2012-11657, Airlock Door Leaking, September 19, 2012
- AR 2012-12372, Airlock Door Leaking Air, October 4, 2012
- AR 2013-10860, Limit Switch on 2-FMO-221 Incorrectly Set, July 29, 2013
- AR-2012-13400, Unit 1 Upper Containment Airlock Failed LLRT, October 25, 2012
- AR-2013-17267, 2-QT-506 Has Potential Steam Leak, November 8, 2013
- Badge Access Transaction Reports, Unit 1 Upper Containment Airlock, October 25, 2012
- DIT-B-02992-00, AFW FMO Valves Allowable Flow Retention Position Band, Revision 0
- LTR-RIDA-13-65, D.C. Cook Unit 1 Lower Radial Support Clevis Insert Acceptable Minimum Bolting Pattern Analysis Project - Response to NRC Questions on WCAP-17588-P, Revision 1
- MD-12-DG-011-N, Effect of EDG Frequency on Pump BHP, Revision 0

1R18 Plant Modification

- 12-4550, Technical Support Center Elevations 633'-0" and 643'-5" Plans and Reflected Ceiling Plans, Revision 25
- 12-EHP-4075-TCA-001, Operator Time Critical Actions, Revision 2
- 12-EHP-5040-MOD-001, Temporary Modifications, Revision 20
- 12-THP-6020-CHM-322, Vent Stack Gaseous Sampling, Revision 0
- AR 2010-8696, Unit 1 and Unit 2 BELOCA Analysis Issue, August 27, 2010
- AR 2013-16909-1, Loss or CR Annunciators
- AR 2013-17091, Failure to Have Adequate Outlet Valves' Leakage Monitoring Methods, November 5, 2011
- AR 2013-6855, CTS Hx Outlet Valve 1-WMO-713 Inspection Identified Severe Rubber Seat Damage Causing Excessive Leakage, May 7, 2013
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- Design Information Transmittal DIT-B-03459, Leakage As Little As 487 gpm Through One Outlet Valve Could Invalidate the LBLOCA Analysis, June 14, 2011
- Design Review of Plant Shielding and Environmental Qualification of Equipment for Spaces/Systems Which May Be Used In Post-Accident Operations, dated December 10, 1980
- EC 49191, Elimination of the 650' Elevation Auxiliary Missile Blocks from the Design of Units 1 and 2, Revision 0
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- GT 2013-14728, PM Task Required to Track Performing CTS Hx Outlet Valves Leakage Evaluation, October 2, 2013
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- OP-1-98065-26, 120 AC Distribution CAB "CCRP-2" Elementary Diagram. Revision 0
- Plant Operations Review Committee (PORC) Meeting Minutes, Leakage Detection Instruments Cannot Detect Difference Between 100 gpm and 486 gpm Leak, June 24, 2011
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- PS-1-92087-24, Control Room Northwest Rear Rack AC Distribution Wiring Diagram, Revision 0

- PS-1-92107-22, Annunciator Logic Cabinet #1 Wiring Diagram, Revision 0
- RSC-232, Equipment Hatch Dose Rates – Gap Release, Revision 2

1R19 Post-Maintenance Testing

- 12-IHP-6030-032-004, Emergency Diesel Generator Woodward 2301A Analog Governor Tuning and Adjustment, Revision 5
- 12-MHP-5021-032-041, Emergency Diesel Engine Bendix Fuel Injection Pump Removal and Installation, October 14, 2013
- 12-MHP-5021-032-051, Nova Swiss Fuel Injector Line Maintenance, Revision 3
- 12-QHP-5070-NDE-002, Visual VT-2 Examinations, Revision 5
- 2-IHP-SP-55435967A, Replacement of Train “A” SSPS Cards, Revision 0
- 2-OHP-4021-032-008AB, Operating DG2AB Subsystems, October 16, 2013
- 2-OHP-4030-203-052W, West Centrifugal Charging Pump Operability Test, Revision 16
- 2-OHP-4030-232-027AB, AB Diesel Generator Operability Test (Train B), October 16, 2013
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- AR 2012-9434, Oil Leaks Downstream of 2-PP-50W-alop
- AR 2012-9435, 2-PP-50W Inboard Bearing Oil Leaks
- AR 2012-9436, Multiple Oil Leaks on 2-PP-50W-DC (speed increaser)
- AR 2013-0853, Housekeeping Issues from Boric Acid Build Up
- AR 2013-17070, On the Spot Change No. 2 Performed on 2-IHP-6030-202-003
- AR 2013-19082, Multiple Alarms Associated with SSPS, No Evolutions in Progress
- AR 2013-7001, Wet Boric Acid Found on 2-IMO-52 in US U/C
- OP-2-98371-2, Solid State and Reactor Protection Safeguard System Multiplexing Train ‘A’, Revision 2
- WO 55231639-07, MTM, 2-OME-150-AB-Hydact, PMT Leak Inspection, October 14, 2013
- WO 55405910-05, OPS, 2-OME-150-AB-EN, Operability Run, October 16, 2013
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- WO 55435374-02, MTI, 2-65X-TDTV, Post-Maintenance Test, November 7, 2013
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1R20 Refueling and Other Outage Activities

- 12-OHP-4050-FHP-034, Reactor Vessel Head Installation With Fuel in the Vessel, Revision 16
- 2-OHP-4021-001-001, Plant Heat Up From Cold Standby to Hot Shutdown, Revision 75
- 2-OHP-4021-001-001, Reactor Startup, Revision 50
- 2-OHP-4021-002-013, Reactor Coolant System Vacuum Fill, Revision 25
- 2-OHP-4021-013-005, Visual Audio Count Rate Channel, Revision 14
- 2-OHP-4021-050-001, Turbine Generator Normal Startup and Operation, Revision 44
- DWG 2-5663-13, Unit 2 RCS Loop Details, Revision 13
- Outage Critical Path Schedule, Various Dates Between October 2 and November 14
- U2C21 Outage Risk Review PORC Presentation
- WO 55362551-37, Mansell Transducers: Normalize for RCS Drain Down, No Date/Revision

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- 12-MHP-4030-010-004, Ice Condenser Intermediate Deck Door Surveillance, October 29, 2013
- 12-OHP-4030-018-130S, South Spent Fuel Pit Pump Surveillance Test, November 3, 2013
- 2-EHP-4030-234-203, Unit 2 LLRT, Revision 19
- 2-OHP-4030-232-217B, DG2AB Load Sequencing & ESF Testing, October 3, 2013

- AR 2013-15889, U2C21 LLRT Failure 2-SI-189
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- AR 2013-16742, U2C21 LLRT Failure 2-DCR-206
- AR 2013-16743, U2C21 LLRT Failure 2-N-160
- AR 2013-17148, 2-ICM-306 Train B Recirc Sump Enclosure Has Water Inside
- AR 2013-3319, 2-QPI-252-V1 Has a BA leak
- TDB-1-FIG-15-1, Safety-Related Pump Inservice Test Hydraulic Reference, Revision 125
- WO 55316327-06, OPS, Perform As-Found Type C Step C091 on 2-CCW-142, October 7, 2013
- WO 5540255-07, OPS, 2-CCW-244-72, As-Left LLRT 2-EHP-4030-234-203 C109, As-Found LRT Stop 109 Complete 240 Scam, October 27, 2013
- WOT 55419260-28, Performed VT-2 System Leakage Test on 2-PP-50W Inboard/Outboard Mech., October 24, 2013

1EP4 Emergency Action Level and Emergency Plan Changes

- Emergency Plan; Revision 31 and 32
- Evacuation Time Estimate Study Update
- PMP-2080-EPP-101; Emergency Classification; Revision 16

1EP6 Drill Evaluation

- RMT-2080-TSC-001, Activation and Operation of the TSC, Revision 20
- D.C. Cook Emergency Plan, Revision 33
- D.C. Cook 2013 Evaluated Exercise Scenario, June 2013
- D.C. Cook December 5, 2013 Unannounced Drive –In Drill Scenario
- 3rd Quarter 2013 Drill/Exercise Performance Indicator Report

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- 12-THP-6010-RP-011, Radioactive Source Control, Revision 22
- 12-THP-6010-RPP-301, Radiation Protection Actions for Restricted Area Material Control Revision 11
- 12-THP-6010-RPP-407, Special Radiological Evolutions, Revision 27
- AR 2013-14664, Electronic Dosimeter Dose Alarm Received During Initial Containment Entry, October 2, 2013
- AR 2013-15973, ACADNo.21088 Received an Accumulated Dose Alarm, October 21, 2013
- AR 2013-16162, 2-OME-4, Pressurizer Vendor Exam Exceeded Its Radiation Work Permit Dose Estimate, October 23, 2013
- PMP-6010-RPP-301, Control of Material in a Restricted Area, Revision 25
- RWP 132103, ALARA Plan U2C21 Core Alteration Activities, Revision 0
- RWP 132128, U2C21 ALARA Plan Auxiliary Building Valve Maintenance, Revision 0
- RWP 132145, U2C21 ALARA Plan Containment Valve Maintenance, Revision 0
- RWP 132173, U2C21 ALARA Plan Eddy Current Testing of 2-HE-13 (Excess Letdown Heat Exchanger), Revision 0
- RWP 132192, U2C21 ALARA Plan 2-OME-4, Pressurizer Vendor Examinations, Heater Inspections, Troubleshooting and Support Activities, Revision 0

2RS2 Occupational ALARA Planning and Controls

- AR 2013-14314, Procedure Violation of PMP-6010-ALA-001
- AR 2013-6441, Temporary Lead Shielding Was Removed From U-1 Regenerative Heat Exchanger Room
- AR 2013-7142, Work Order Task Are Not Being Used to Track Outage Dose
- PMP-6010-ALA-001, ALARA Program Review of Plant Work Activities, Revision 26
- RWP 132128, U2C21 ALARA Plan Auxiliary Building Valve Maintenance, Revision 0
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- RWP 132173, U2C21 ALARA Plan Eddy Current Testing of 2-HE-13 (Excess Letdown Heat Exchanger), Revision 0

2RS5 Radiation Monitoring Instrumentation

- 12-THP-6010-RPC-515, Calibration of the Eberline Model AMS-4, Revision 4, Revision 12
- 12-THP-6010-RPC-517, Calibration of Portable Doserate Instruments, Revision 5
- 12-THP-6010-RPC-525, Calibration of the Eberline RM-14, RM-30 and Ludlum 177
- 12-THP-6010-RPC-535, Calibration of the ORTEC FastScan Whole Body Counter, Revision 1
- 12-THP-6010-RPC-555, Calibration of the MGP Model AMP-50 and AMP-100 Area Monitor, Revision 3
- 12-THP-6010-RPC-566, Source Characterization and Verification for the J. L. Shepherd Models M89 and M143-S, Revision 9
- 12-THP-6010-RPC-570, Calibration of the Canberra ARGOS-5WBAB Personnel Monitor, Revision 5
- 12-THP-6010-RPC-571, Calibration of the Canberra GEM-5 Personnel Monitor, Revision 1
- 12-THP-6010-RPC-588, Calibration of the MGP TelePole Wide Range, Revision 2
- 12-THP-6010-RPC-596, Calibration of the Thermo Scientific Small Article Monitor, SAM-12, October 8, 2013
- 12-THP-6010-RPC-810, Eberline Radiation Monitoring System Channel Restoration, Revision 14
- 12-THP-6010-RPI-500, Instrument Issue and Operation Testing, Revision 33
- 12-THP-6010-RPI-803, Operation of the Radiation Monitoring System, Revision 39
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- 12-THP-6010-RPI-810, Eberline Radiation Monitoring System Channel Calibration, VRS 1500 Noble Gas High Range Gamma Radiation Detector, September 5, 2013
- 12-THP-6010-RPP-212, Operation of the ORTEC FastScan Whole Body Counter, Revision 5
- AR 2012-1245, RRS-1001, Liquid Radwaste Effluent Radiation Monitor is Reading Negative Values, January 27, 2012
- AR 2012-13554, Use History Telepole: 117 Failed As-Found Data
- AR 2012-2037, AMS-4 Number 461 Failed As-Found Data
- AR 2012-2802, 2-ERS-2303, U2 Train A Lower Containment Radiation Monitor, Failed Source Check
- AR 2012-9257, Small Articles Monitor SAM-12-146 Voltage Manually Adjusted
- AR 2013-10446, Had to Adjust High Voltage on Small Articles Monitor SAM-12-146
- AR 2013-14639, Replacement Detector for 1-MRA-1701 Failed Surveillance
- AR 2013-4323, Use History Analysis: ESP2-2343 Failed As-Found Data
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- AR 2013-6046, Radiation Protection Alpha/Beta Scaler Remained in Service After Failed Quality Control
- AR 2013-6721, Use History Analysis: EXT-3092 Failed As-Found Data
- Calibration Certificate 17786, HPI REM-500 Neutron Survey Meter, September 12, 2013

- Calibration Certificate 7708-05866716-0, MGP Instruments AMP-200, March 1, 2013
- D.C. Cook Nuclear Plant Updated Final Safety Analysis Report, Chapter 11, Revision 21.2
- GT-12-0877, Determine If Calibration Frequency is Adequate, January 19, 2012
- GT-2013-18968, Enhance 12 THP-6010-RPP-212 Gain Adjust Criteria, December 12, 2013
- Review of Certified Off-Site Calibration of RadCal Radiation Monitor, July 11, 2012
- RS-C-136, Radiological Support Section Calculation, September 15, 1987
- WO 55372928, Perform Surveillance Calibration Procedure 2-IHP-4030-213-032A (Containment Upper Compartment Train A High Range Radiation Monitor 2-VRA-2310 Channel Calibration), August 30, 2012
- WO 55372929, Perform Surveillance Calibration Procedure 2-IHP-4030-213-032B (Containment Upper Compartment Train B High Range Radiation Monitor 1-VRA-1410 Channel Calibration), August 16, 2012
- WO 55389388, Perform Calibration Procedure 1-IHP-4030-113-032B (Containment Lower Compartment Train B High Range Radiation Monitor 1-VRA-1410 Channel Calibration), August 22, 2012
- WO 55389726, Perform Surveillance Calibration for 1-VRA-1310, (Containment 650 Elevation High Range Train A), August 31, 2012

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- 2013-05272, Ineffective Corrective Actions for Meteorological Tower Repairs
- AR 2011-11422, Gas Decay Tank Pressure Lowered Via Clearance Boundary Leak
- AR 2011-12250, Midas Precipitation Monitor Not Indicating Properly
- AR 2012-01563, Sampling Lower Containment: Tritium With Charcoal Cartridge
- AR 2012-01596, Monitor Tank Permit Discrepancies
- AR 2012-02180, Evaluate Equipment Important to Emergency Preparedness
- AR 2012-02258, Midas Meteorological Data Channels Indicating Bad Quality
- AR 2012-02305, Midas Points are Not Reliable
- AR 2013-00861, Procedure Approval Contained Extraneous Review
- AR 2013-04991, Unit 1 Stack Particulate Filter Shows Alpha Above Lower Limit of Detection
- AR 2013-12570, Errors in 12-THP-6010-RPP-405
- AR 2013-12697, Scaffold Found in Contact with Plant Equipment
- AR 2013-12724, Add Additional Information to the Site 10CFR75g File
- AR 2013-12764, NRC Voiced Concern over Meteorological Tower Performance
- D.C. Cook Units 1 and 2 Annual Radioactive Effluent Release Report, April 2012
- D.C. Cook Units 1 and 2 Annual Radioactive Effluent Release Report, April 29, 2013
- D.C. Cook 2011 10 CFR Part 61 Scaling Factor Report, February 17, 2012
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- WO 55371470, 2 HV-AES-1 Engineered Safety Feature, Auxiliary Building Ventilation Surveillance, March 15, 2012
- WO 55380038-01, 2-HV-AES-2, Engineered Safety Feature, Auxiliary Building Ventilation Exhaust Testing, December 19, 2012
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- WO 55391311-01, Spent Fuel Pool Exhaust Ventilation Testing, July 10, 2012
- WO 55400825-02, Meteorological Instrumentation Calibration, August 29, 2012
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2RS7 Radiological Environmental Monitoring Program

- 12-THP-6010-RPP-632, Collection of Environmental Air Samples, Revision 10
- 12-THP-6010-RPP-635, Collection of Milk Samples, Revision 5
- 12-THP-6010-RPP-642, Collection of Drinking Water Samples, Revision 7
- 2011 Annual Quality Assurance Report for the Radiological Environmental Monitoring Program (REMP), March 1, 2012
- Annual Radiological Environmental Operating Report, Donald C. Cook Nuclear Plants Units 1 and 2, May 10, 2013
- AR 2011-12250, Midas Precipitation Monitor Not Indicating Quality
- AR 2012-2258, Midas Meteorological Data Channels Indicating Bad Quality
- AR 2012-2305, Midas Points Are Not Reliable
- AR 2013-12671, Evaluate Acidification Process for Water Samples Collected for Radiological Environmental Monitoring Program
- AR 2013-12672, Evaluate Siting of ONS-2 and ONS-6
- AR 2013-5272, Ineffective Corrective Actions for MET Tower Repairs
- ENVI-8916-GPI-001, Groundwater Protection Program, Revision 0
- Environmental Dosimetry Company, Annual Quality Assurance Status Report, January - December 2011, April 12, 2012
- Performance Assurance Audit, PA-12-01, Radiological Environmental Monitoring Program (REMP), March 1, 2012
- Performance Assurance Audit, PA-13-01, Radiological Environmental Monitoring Program (REMP) and Offsite Dose Calculation Manual (ODCM), March 1, 2013
- PMP-6010-OSD-001, Off-Site Dose Calculation Manual, Revision 24

4OA1 Performance Indicator Verification

- 1-THP-620-CHM-121, Unit 1 Reactor Coolant System Sampling; Revision 9
- PMP-7110-PIP-001, Reactor Oversight Program Performance Indicators and Monthly Operating Report Data, Revision 13

4OA2 Problem Identification and Resolution

- DTG-OPS-060, Operations Burden Aggregate Impact Assessment, Revision 0
- Operator Burden Impact Assessment by Watchstation, September 30, 2013
- PA-13-05, Material and Control Audit, August 29, 2013
- PA-13-18, Independent Spent Fuel Storage, August 5, 2013
- PA-SR-13-002, Performance Assurance Radiation Protection Surveillance, March 13, 2013
- PMP-4010-OWA-001, Oversight and Control of Operator Burden, Revision 10
- Unit 1 & Unit 2 Operator Burden Report, November 27, 2013

4OA5 Other Activities

- 12-EA-6090-061-251-003, Plant Heating Boiler OME-10 East (East Middle) Storage Tanks Leakage Test, Revision 6
- 12-EA-6090-061-251-004, Plant Heating Boiler OME-10 West (West Middle) Storage Tanks Leakage Test, Revision 6
- 12-EA-6090-061-251-004, Plant Heating Boiler OME-10 West (West Middle) Storage Tanks Leakage Test, Revision 6
- 12-EAP-4030-032-002AB, AB Emergency Diesel Fuel Oil Storage Tank Leakage Test, Revision 3

- 12-EAP-4030-032-002CD, CD Emergency Diesel Fuel Oil Storage Tank Leakage Test, Revision 3
- 12-EPH-5070-UPTI-001, Underground Piping and Tank Integrity Program, Revision 2
- 12-QHP-5050-NDE-008, Ultrasonic Examination for Thickness Measurements, Revision 3
- AR 2013-15121, U2 South Circ Water Discharge Tunnel Inspection Finding, October 8, 2013
- Crane Technical Paper No. 410, Flow of Fluid Through Valves, Fittings, and Pipes, Equation 3-12
- GT 00852155, Buried Pipe Leak Test Measured Leakage, May 27, 2009
- GT 2012-13474, UPTI Program Risk Ranking & Pipe Location Validation – NRC Observation, November 30, 2012
- Q2-2013, Quarterly Program Health Report, AEP D. C. Cook Underground Pipe and Tank Program, October 26, 2013
- Quick - Hit Self-Assessment, Underground Pipe and Tanks Integrity Program Inspection Plan GT 2013-5852-3 Engineering Programs, June 17, 2013
- Report No. PLR-07-184, G-Scan Assessment of Diesel Fuel Oil Lines, May 2007, Revision 0
- Report No. R20459OP, ROV Inspection of the South Intake Tunnel, November 2, 2010
- TS-O-3025, Perform Underground Piping & Tank Integrity Program Owner Activities, Revision 0
- WO55320479, 12-DR-132, Pressurize and Leak Check Underground Pipe, May 26, 2009
- WO55356993, Excavation, Work/Installation Activities, March 8, 2010
- WO55372575, CD Emergency Diesel Fuel Oil Storage, August 28, 2012
- WO55419526, U2 South Circ Water Discharge Tunnel inspection, October 8, 2013

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ALARA	As-Low-As-Reasonably-Achievable
ASME	American Society for Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CTS	Containment Spray
CY	Calendar Year
ESW	Essential Service Water
gpm	Gallons Per Minute
Hx	Heat Exchanger
LBLOCA	Large Break Loss-of-coolant Accident
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
ISFSI	Independent Spent Fuel Storage Installation
ISI	Inservice Inspection
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OSP	Outage Safety Plan
PARS	Publicly Available Records System
PI	Performance Indicator
RCS	Reactor Coolant System
RFO	Refueling Outage
RI	Risk Informed
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Test
VT	Visual Examination
WO	Work Order

L. Weber

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Sincerely,

/RA/

Kenneth Riemer, Chief
Branch 2
Division of Reactor Projects

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NRC INTEGRATED INSPECTION REPORT 05000315/2013005;
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