UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

January 31, 2014

Mr. Richard L. Anderson
Vice President
NextEra Energy Duane Arnold, LLC
3277 DAEC Road
Palo, IA 52324-9785

SUBJECT: DUANE ARNOLD ENERGY CENTER – NRC INTEGRATED INSPECTION REPORT 05000331/2013005; 07200032/2013001

Dear Mr. Anderson:

On December 31, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed a baseline inspection at your Duane Arnold Energy Center. On January 14, 2014, the NRC inspectors discussed the results of this inspection with you 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 licensee-identified violations which were determined to be of very low safety significance in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or significance of these NCVs, 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 copies to the Regional Administrator, Region III; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspectors at the Duane Arnold Energy Center.

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 Inspection Manual Chapter (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.

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

Sincerely,

/RA/

Charles Phillips, Acting Chief
Branch 1
Division of Reactor Projects

Docket Nos. 50-331, 72-032
License No. DPR-49

Enclosure:
IR 05000331/2013005; 0720032/2013001
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ™

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-331 and 72-032
License No:	DPR-49
Report Nos:	05000331/2013005; 07200032/2013001
Licensee:	NextEra Energy Duane Arnold, LLC
Facility:	Duane Arnold Energy Center
Location:	Palo, IA
Dates:	October 1 through December 31, 2013
Inspectors:	L. Haeg, Senior Resident Inspector R. Murray, Resident Inspector R. Elliott, Resident Inspector, Acting R. Baker, Operations Engineer V. Myers, Health Physicist, DRS R. Walton, Senior Operations Engineer, DRS R. Edwards, Reactor Inspector MCID/DNMS M. Yoder, NRR Senior Chemical Engineer E. Wong, NRR Chemical Engineer A. Patel, NRR Nuclear Engineer J. Laughlin, Emergency Preparedness Inspector
Approved by:	Charles Phillips, Acting Chief Branch 1 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report (IR) 05000331/2013005; 07200032/2013001; 10/01/2013 – 12/31/2013; Duane Arnold Energy Center; Routine Integrated Inspection Report.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Additionally, this report documents an inspection of loading activities at the Independent Spent Fuel Storage Installation (ISFSI) at the Duane Arnold Energy Center. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross Cutting Areas" dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated July 9, 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

No findings were identified.

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

Duane Arnold Energy Center (DAEC) operated at full power for the entire inspection period except for brief down-power maneuvers to accomplish rod pattern adjustments or to conduct planned surveillance testing activities.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Winter Seasonal Readiness Preparations

a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. 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. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- Auxiliary heating and freeze protection systems.

This inspection constituted one winter seasonal readiness preparations sample 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:

- Reactor Core Isolation Cooling (RCIC) system during High Pressure Coolant Injection planned maintenance;
- 'B' River Water Supply (RWS) subsystem during 'A' RWS planned maintenance; and
- 'A' Residual Heat Removal Service Water (RHRSW) and 'A' Emergency Service Water (ESW) subsystems during 'B' Standby Diesel Generator (SBDG) planned maintenance.

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, UFSAR, Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports (CRs), 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 inspections constituted three quarterly partial system walkdown samples as defined in IP 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

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

- Area Fire Plan (AFP)-31 and -32; Intake Structure Pump Rooms EL 767' 0" and Traveling Screen Areas EL 754' 0", respectively;

- AFP-23; Battery Rooms, Battery Corridor EL 757’ 6”;
- AFP-24; Essential Switchgear Rooms, EL 757' 6";
- AFP-26 and -27; Control Building Control Room Complex and Control Building Control Room Heating Ventilation and Air Conditioning Room; respectively; and
- AFP -28, -29 & -30; Pump House ESW/RHRSW Pump Rooms and Main Pump Room, Pump House Fire Pump and Fire Pump Day Tank Rooms, Pumphouse Safety Related Piping Area EL 747’ 6”; respectively.

The inspectors reviewed these 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 non-functional fire protection equipment, systems, or features in accordance with the licensee’s fire plan.
The inspectors selected these 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. 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 inspections constituted five routine resident inspector tour samples as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

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

a. Inspection Scope

On December 3, 2013, the inspectors observed a crew of licensed operators in the plant’s simulator during licensed operator requalification 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 of the crew:

- licensed operator performance;
- 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;
- oversight and direction from supervisors; and

- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

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 resident inspector quarterly review of licensed operator requalification sample as defined in IP 71111.11 and satisfied the inspection program requirement for the resident inspectors to observe a portion of an in-progress annual requalification operating test during a training cycle in which it was not observed by the NRC during the biennial portion of this IP.

b. Findings

No findings were identified.

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

a. Inspection Scope

During the week of December 23, 2013 (Work Week 1352), the inspectors observed operators in the control room during the performance of scheduled work activities and testing in parallel with extreme winter temperatures and snowfall. These were activities that required heightened awareness and were related to increased risk due to the changing weather conditions. The inspectors evaluated the following areas of the crew:

- licensed operator performance;
- 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 resident inspector quarterly observation of heightened activity or risk sample as defined in IP 71111.11.

b. Findings

No findings were identified.

.3 Annual Operating Test Results (71111.11A)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the Annual Operating Test, administered by the licensee from October 28, 2013, through December 6, 2013, as required by 10 CFR 55.59(a). The results were compared to the thresholds established in IMC 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process," to assess the overall adequacy of the licensee's Licensed Operator Requalification Training Program to meet the requirements of 10 CFR 55.59. Documents reviewed are listed in the Attachment to this report.

This inspection constitutes one annual operating test results inspection sample as defined in Inspection Procedure 71111.11A.

b. Findings

No findings were identified.

.4 Biennial Review (71111.11B)

a. Inspection Scope

The following inspection activities were conducted during the week of December 2, 2013, to assess the effectiveness and adequacy of the facility licensee's implementation and maintenance of its systems approach to training (SAT) based Licensed Operator Requalification Training (LORT) Program, put into effect to satisfy the requirements of 10 CFR 55.59. Documents reviewed are listed in the Attachment to this report.

- Licensee Requalification Examinations (10 CFR 55.59(c); SAT Element 4 as Defined in 10 CFR 55.4): The inspectors reviewed the licensee's program for administration of the LORT annual operating tests to assess the licensee's ability to develop and administer examinations that were acceptable for meeting the requirements of 10 CFR 55.59(a).

  - The inspectors observed the administration of the annual operating test to assess the licensee's effectiveness in conducting the examinations, including the conduct of pre-examination briefings, evaluations of individual operator and crew performance, and post-examination analysis. The inspectors evaluated the performance of one crew in parallel with the facility evaluators during two dynamic simulator scenarios, and evaluated various licensed crew members concurrently with facility evaluators during the administration of several Job Performance Measures.

- Problem Identification and Resolution (10 CFR 55.59(c); SAT Element 5 as Defined in 10 CFR 55.4): The inspectors assessed the licensee's ability to: 1) evaluate the site-specific applicability of recent changes to the boiling water reactor (BWR) Owner's Group Emergency Procedure and Severe Accident Guidelines; 2) implement necessary changes to the facility's Emergency Operating Procedures (EOPs), including the appropriate use of facility design/procedure/license change processes, and the use of the facility's LORT Program to meet the requirements of 10 CFR 55.59(c)(3)(iii); and 3) ensure actions were completed to maintain the facility LORT Program up-to-date.

- The inspectors reviewed the licensee's documentation related to the plant's proposed EOP changes (e.g., affected EOP procedure change requests; proposed EOP flowchart revisions; LORT classroom lesson plans, dynamic simulator scenario guides, and training plans) resulting from the recent revision to the BWR Owner's Group Emergency Procedure and Severe Accident Guidelines.

- The inspectors also observed both the LORT classroom training session and dynamic simulator scenarios conducted for one crew as part of the LORT Cyclic Program. This included a review of the use of feedback from operators, instructors, and supervisors as well as industry experience information. The inspectors evaluated the licensee's effectiveness in conducting training related specifically to facility EOP changes and in ensuring each operator and senior operator was cognizant of requisite changes to mitigating strategies and relevant EOPs.

The inspection activities associated with the observation of an additional crew during administrations of the annual operating examination, as well as the reviews and observations associated with the pending revisions to the facility's EOPs, did not constitute an additional inspection sample as defined in IP 71111.11-05 for the biennial completion requirements. Rather, they were considered optional activities associated with observations of licensed operator performance performed at the discretion of the NRC Regional office in accordance with general guidance provided in IP 71111.11-03.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations

a. Inspection Scope

The inspectors evaluated the following:

- DAEC Maintenance Rule Program Cycle 23 Cyclic Report; December 10, 2010 – December 8, 2012; and
- Residual Heat Removal (RHR) system instrumentation.

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 / 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.

These inspections constituted two routine quarterly evaluation 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:

- RHRSW strainer high differential pressure troubleshooting/evaluation;
- 'B' instrument air compressor 1K90B trip;
- 'B' SBDG spurious annunciators during 'A' SBDG testing;
- Work Week 1348; RCIC simulated automatic actuation testing, Standby Liquid Control pump operability testing, OD-1 Local Power Range Monitor calibration with 'A' Traversing In-core Probe (TIP) machine maintenance issues, and 'A' Reactor Protection System (RPS) power supply transfer following 'A' RPS motor generator bearing replacement maintenance; and
- Work Week 1352 scheduled maintenance and testing.

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 are listed in the Attachment to this report.

These inspections constituted five maintenance risk assessment and emergent work control samples as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- 'A' SBDG jacket coolant/scavenging air leak;
- RHRSW strainer high differential pressure;
- Spent fuel pool storage rack Boral areal density testing results; and
- Main steam line area temperature switch past operability review.

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.

These inspections constituted four operability evaluation samples as defined in IP 71111.15-05.

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:

- 'B' Control Building Chiller testing following planned maintenance;
- 'A' Core Spray testing following vent valve modification;
- 'B' RHRSW testing following planned valve maintenance;
- 'B' SBDG testing following annunciator relay replacement;
- 'B' RPS motor generator set following bearing replacement; and
- 'B' fuel pool cooling pump planned maintenance.

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 the 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.

These inspections constituted six post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

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:

- Surveillance Test Procedure (STP) 3.5.1-02B; 'B' LPCI [Low Pressure Core Injection] System Operability Test (routine);
- STP 3.5.3-04; RCIC Simulated Auto Actuation Test (routine); and
- NS540002A; 'A' Emergency Service Water Operability Test (routine).

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 the TSs, the UFSAR, 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 three routine surveillance testing 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 (EPIPs) as listed in the Attachment to this report.

The licensee transmitted the EPIP 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. Documents reviewed are listed in the Attachment to this report.

This inspection of the emergency action level and emergency plan changes constituted one sample as defined in IP 71114.04-05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Training Observation

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on October 30, 2013, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the CAP. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the Attachment to this report.

This inspection of the licensee's training evolution with emergency preparedness drill aspects constituted one sample as defined in IP 71114.06-06.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

The inspection activities supplement those documented in NRC IR 05000331/2013004 and constitute one complete sample as defined in IP 71124.01-05. Documents reviewed are listed in the Attachment to this report.

.1 Radiation Worker Performance (02.07)

a. Inspection Scope

The inspector assessed radiation worker performance with respect to stated radiation protection work requirements. The inspector 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.

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 IR 05000331/2012005 and constitute one complete sample as defined in IP 71124.02-05. Documents reviewed are listed in the Attachment to this report.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspector reviewed site-specific procedures associated with maintaining occupational exposures as-low-as-reasonably-achievable (ALARA), which included a review of processes used to estimate and track exposures from specific work activities.

b. Findings

No findings were identified.

.2 Radiological Work Planning (02.02)

a. Inspection Scope

The inspector selected the following work activities of the highest exposure significance.

- Refuel floor activities;
- Torus recoat project; and
- Scaffolds in drywell and balance of plant.

The inspector reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements. The inspector determined whether the licensee reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

The inspector compared the results achieved (i.e., dose rate reductions, person-rem used) with the intended dose established in the licensee's ALARA planning for these work activities. The inspector 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 inspector assessed the reasons (e.g., failure to adequately plan the activity, failure to provide sufficient work controls, etc.) for any inconsistencies between intended and actual work activity doses.

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

b. Findings

No findings were identified.

.3 Verification of Dose Estimates and Exposure Tracking Systems (02.03)

a. Inspection Scope

The inspector evaluated whether the licensee established measures to track, trend, and, if necessary, reduce occupational doses for ongoing work activities. The inspector assessed whether trigger points or criteria were established to prompt additional reviews and/or additional ALARA planning and controls.

The inspector evaluated the licensee's method of adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work were encountered. The inspector assessed whether adjustments to exposure estimates (intended dose) were based on sound radiation protection and ALARA principles or if they were just adjusted to account for failures to control the work. The inspector evaluated whether the frequency of these adjustments called into question the adequacy of the original ALARA planning process.

b. Findings

No findings were identified.

.4 Source Term Reduction and Control (02.04)

a. Inspection Scope

The inspector used licensee records to determine the historical trends and current status of significant tracked plant source terms known to contribute to elevated facility aggregate exposure. The inspector assessed whether the licensee made allowances or developed contingency plans for expected changes in the source term as the result of changes in plant fuel performance issues or changes in plant primary chemistry.

b. Findings

No findings were identified.

.5 Problem Identification and Resolution (02.06)

a. Inspection Scope

The inspector evaluated whether problems associated with ALARA planning and controls are being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Residual Heat Removal System performance indicator 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, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of October 1, 2012 through September 30, 2013, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 one MSPI residual heat removal system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Cooling Water Systems performance indicator for the period from the fourth quarter 2012 through the third quarter 2013. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of October 1, 2012 through September 30, 2013, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 one MSPI cooling water system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures performance indicator for the period from the fourth quarter 2012 through the third quarter 2013. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC Integrated Inspection Reports for the period of October 1, 2012 through September 30, 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 one safety system functional failures sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

.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 Semi-Annual 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 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of May 1, 2013 through October 31, 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 semi-annual trend inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

.4 Selected Issue Follow-Up Inspection: Cable Condition Monitoring Program

a. Inspection Scope

During daily reviews of the licensee's CAP, the inspectors reviewed corrective action items documenting the identification of water intrusion into embedded and normally non-accessible electrical cable conduits. As part of the licensee's cable condition monitoring program, and prior NRC-issued findings over the prior four years associated with water intrusion into areas containing electrical cables, the inspectors reviewed a snapshot of CRs related to the identification of water within cable conduits or cable vaults, and the results of insulation resistance testing of electrical cables. Section 4OA7 of this Inspection Report discusses a licensee-identified violation related to this inspection sample. The inspectors noted that overall, the licensee was adjusting inspection and test frequencies in accordance with program requirements.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Findings

No findings were identified.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report (LER) 05000331/2013-002-00 and -01; Condition Prohibited By Technical Specifications – Reactor Core Isolation Cooling System

This event, which occurred on August 22, 2013, was associated with the RCIC system tripping on overspeed during post-maintenance testing. The licensee performed troubleshooting and identified that the failure of the RCIC system to start was due to a failed dropping resistor within the RCIC turbine governor circuitry. The licensee replaced the dropping resistor and satisfactorily restored the RCIC system to an operable status following testing. This event was reviewed by the inspectors and a preliminary White finding and Apparent Violation of TS 3.5.3, Condition B, was documented in NRC IR 05000331/2013004. The licensee supplemented this LER with Revision 01 after performing a root cause evaluation that determined that the dropping resistor had been in a failed state since June 21, 2013; and therefore, the RCIC system had been inoperable for greater than its TS allowed action time of 14 days. Along with replacing the dropping resistor, additional corrective actions included improvements to the CAP and operability determination procedures, as well as a planned modification to RCIC turbine the governor circuitry. Documents reviewed are listed in the Attachment to this report. These LERs are closed.

This event follow-up review constituted one sample as defined in IP 71153-05.

.2 (Closed) LER 05000331/2013-003-00; Condition Prohibited By Technical Specifications – Spent Fuel Storage

This event, which occurred on September 10, 2013, was associated with the licensee's receipt of spent fuel pool rack areal density test results for testing performed in June, 2013, as part of a Duane Arnold license renewal commitment item. The testing identified 19 locations that measured average areal densities below the values assumed in the licensee's criticality analysis of record. This resulted in the licensee's spent fuel pool racks not conforming to the K-infinity and enrichment limits within TS Design Specifications 4.3.1.1(i) and (iii). Prior to the testing, the licensee contracted a contingency criticality analysis and determined a lower acceptable areal density value to support operability of the spent fuel pool racks. The licensee performed a root cause evaluation and determined that measurement uncertainties in the testing and procurement specifications lead to the lower results, and that there was no indication of actual degradation. The inspectors, with assistance from NRC specialists, determined that although the spent fuel pool racks were not conforming to the TS Design Specifications, the spent fuel pool racks remained operable based on reviews of the licensee's contingency criticality analysis. Additionally, the inspectors reviewed IMC 0612, Appendix B, "Issue Screening," and determined that a violation of TS was not warranted due to traditional enforcement criteria within the NRC Enforcement Policy not applying to the issue, as well as a performance deficiency not existing since the issue was not reasonably within the licensee's ability to foresee and correct. Corrective actions included administrative controls on the type of fuel stored in the spent fuel pool until longer term actions could be completed to revise the criticality analysis of record, UFSAR, and TS. Additionally, the licensee plans to submit a commitment item to the NRC acknowledging the long term corrective actions and completion dates. Documents reviewed are listed in the Attachment to this report. This LER is closed.

This event follow up review constituted one sample as defined in IP 71153-05.

.3 (Closed) LER 05000331/2013-004-00; Condition Prohibited By Technical Specifications – Main Steam Line Steam Leak Detection

This event, which occurred between December 23 and December 28, 2012, was associated with Main Steam Line (MSL) area temperature indicating switch (TIS)-4479 values being recorded outside of STP 3.0.0-01, "Instrument Checks," acceptance criteria. The licensee's initial past operability review in March, 2013, concluded that the instrument remained operable due to no "firm evidence" existing of past inoperability. The Past Operability Review (POR) was subsequently revised in October, 2013, and the licensee concluded that TIS-4479 was indeed inoperable for not meeting the qualitative acceptance criteria of the STP. Section 4OA7 of this report documents a licensee identified violation associated with this event. Corrective actions included replacing TIS-4479 and clarifying STP guidelines for acceptance criteria. Documents reviewed are listed in the Attachment to this report. This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153-05.

.4 (Closed) LER 05000331/2013-005-00; Condition Prohibited By Technical Specifications – Main Steam Line Steam Leak Detection

This event, which occurred between May 5 and June 22, 2013, was associated with MSL area TIS-4480 erratic behavior as documented within STP 3.0.0-01, "Instrument

Checks." Although the recorded values for the instrument were within the quantitative acceptance criteria of the STP, the instrument was not tracking with the other channels in the system qualitatively. The TIS-4480 was declared inoperable on June 22, 2013, but the POR conclusion was similar to the conclusion in Section 4OA3.3 above for TIS-4479, in that, no firm evidence of past inoperability had existed. The license revised the POR in October, 2013, and reached a similar conclusion, in that, TIS-4480 was not passing the qualitative acceptance criteria of the STP. Section 4OA7 of this report documents a licensee identified violation associated with this event. Corrective actions included replacing TIS-4480 and clarifying STP guidelines for acceptance criteria. Documents reviewed are listed in the Attachment to this report. This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153-05.

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation (ISFSI) at Operating Plants (60855.1)

Operations of an ISFSI

a. Inspection Scope

The inspector conducted document reviews, held discussions with licensee staff, and performed a walk-down of the ISFSI to verify compliance with the applicable Certificate of Compliance, the TS, the UFSAR, and approved ISFSI procedures. During the walk-down, the material condition of the ISFSI pad and Horizontal Storage Modules (HSM) was evaluated and the inspector observed the licensee perform routine surveillance activities.

Site procedures were reviewed to verify that adequate controls were in place to monitor the dose resulting from the operation of the ISFSI. The inspector reviewed several routine surveys performed by the licensee around the pad and conducted independent surveys to verify dose rates. Additionally, the inspector reviewed the associated procedures for unloading a dry fuel storage canister, should that be necessary.

Condition reports and the associated follow up actions were reviewed to determine whether corrective actions were adequate and conducted in a timely manner to correct the issues. In addition, a number of Title 10 CFR Part 72.48, "Changes, Tests, and Experiments," and 10 CFR 50.59, "Changes, Tests, and Experiments" screenings were reviewed, specifically those associated with the operation of an ISFSI.

Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 14, 2014, the inspectors presented the inspection results to Mr. R. Anderson, Site Vice President, 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 ISFSI operational inspection were presented on November 22, 2013, to Mr. R. Anderson, Site Vice President, and other members of the licensee's management and staff. Licensee personnel acknowledged the information presented;

- The inspection results for the areas of radiological hazard assessment and exposure controls and occupational ALARA planning and controls were presented to Mr. R. Anderson, Site Vice President, on November 22, 2013;

- The inspectors discussed operator requalification annual operating test results with Mr. E. Murray, Senior Operations Training Instructor, via telephone on December 16, 2013; and

- On December 6, 2013, the inspectors presented the licensed operator requalification program biennial review inspection results to Mr. K. Kleinheinz, Engineering Director, 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. Proprietary material received during the inspection was returned to the licensee.

4OA7 Licensee-Identified Violations

The following violations of very low significance (Green) or Severity Level IV were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as NCVs.

- Technical Specification 5.7.2, "High Radiation Areas with dose Rates Greater than 1.0 rem/hour at 30 Centimeters from the Radiation Source or from any Surface Penetrated by the Radiation, but less than 500 rads/hour at 1 Meter from the Radiation Source or from any Surface Penetrated by the Radiation," requires in part that, access to, and activities in, each area shall be controlled by means of a radiation work permit (RWP) or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures. Contrary to the above, on October 8, 2013, two licensee personnel went into areas of a locked high radiation area (LHRA), in which they were not briefed to enter and therefore, were not knowledgeable of the dose rates. Specifically, the two personnel were

briefed under a radiation work permit on the scope of work, travel path, and dose rates in the travel path and work area in order to investigate a steam leak on a component. After investigating the steam leak, these personnel decided to go to another location within the LHRA to ensure that another similar component did not have similar issues. This additional area was beyond the area that the personnel had been briefed to enter and this LHRA had elevated radiation levels subject to TS 5.7.2.

The finding was determined to be of very low safety significance (Green) because it was not an ALARA planning issue, there was no overexposure nor potential for overexposure, and the licensee's ability to assess dose was not compromised. The licensee documented the issue in CR 01910625, and issued a departmental human performance clock reset to re-emphasize the requirements for LHRA entries at the station.

- Title 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires in part, that activities affecting quality shall be prescribed by documented instructions, procedure of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, and procedures. General Maintenance Procedure (GMP)-ELEC-39, "Electrical Man-Hole Inspection," Revision 1 was used for inspection of man-hole (MH) 105 that contained safety related control, instrumentation, and communication cables. Per this GMP, a CR is required to be initiated if water was found in the man-hole. Contrary to the above, the licensee identified that on April 5, 2013, a CR was not initiated when MH105 was found to contain water partially submerging control, instrumentation, and communication cables for three safety related station substation breakers within the MH and the sump pump was found to be non-functional. Although the water was removed from MH 105 on April 5, 2013, the failure to initiate a CR for the existence of water and the non-functional sump pump resulted in the identification of water in MH 105 during a bi-annual inspection on October 23, 2013; and repeated partial submergence of safety related cables contained within the man-hole.

  The finding screened as very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition and the finding did not involve the complete or partial loss of a support system that contributes to the likelihood of, or cause, an initiating event and affected mitigation equipment. The licensee documented the procedure non-compliance in CRs 01920567 and 01920572, and performed a condition evaluation to determine why prior corrective actions to address the non-functional sump pump were not effective to ensure that cables within MH 105 would not come in contact with water. Corrective actions included communications to applicable plant departments to emphasize the requirements of GMP-ELEC-39 and the station's CAP.

- Technical Specification 3.3.6.1, Primary Containment Isolation Instrumentation, requires in part, that if any MSL tunnel temperature instrument channel was inoperable, the associated MSL must be isolate within 12 hours. Contrary to the above, MSL tunnel temperature instrument TIS-4479 was inoperable between December 23 and December 28, 2012, and the associated 'C' MSL was not

isolated as required within the TS-allowed completion time of 12 hours. Additionally, MSL tunnel instrument TIS-4480 was inoperable between May 5 and June 22, 2013, and the associated 'D' MSL was not isolated as required within the TS-allowed completion time of 12 hours. The licensee determined that STP 3.0.0-01, "Instrument Checks." did not have adequate guidance for qualitative channel checks of the instruments. This procedure inadequacy resulted in the MSL tunnel temperature instruments passing the quantitative acceptance criteria even though qualitatively the single channel's indicated value had diverted from the other channels over time.

The finding screened as very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment, containment isolation system, and heat removal components. The licensee documented the conditions prohibited by TS for TIS-4479 and 4480 in CRs 01835557 and 01884408, respectively; replaced the MSL tunnel area TIS instruments, and revised STP 3.0.0-01 to contain qualitative instrument check guidance.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

R. Anderson, Site Vice President
G. Pry, Plant General Manager
K. Kleinheinz, Engineering Director
M. Davis, Emergency Preparedness and Licensing Manager
G. Young, Nuclear Oversight Manager
R. Wheaton, Operations Director
R. Porter, Radiation Protection Manager
W. Bentley, Maintenance Director
D. Olsen, Chemistry Manager
J. Schwertfeger, Security Manager
C. Hill, Training Manager
J. Dubois, Program Engineering Manager
R. Mothena, Corporate Emergency Preparedness Director
B. Murrell, Licensing Engineer Analyst
L. Swenzinski, Licensing Engineer
B. Clark, Senior System Engineer
E. Murray, Senior Operations Training Instructor

Nuclear Regulatory Commission

C. Lipa, Chief, Reactor Projects Branch 1
M. Chawla, Project Manager, NRR

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None

Closed

05000331/2013002-00	LER	Condition Prohibited By Technical Specifications - Reactor Core Isolation Cooling System (Section 4OA3.1)
05000331/2013002-01	LER	Condition Prohibited By Technical Specifications - Reactor Core Isolation Cooling System (Section 4OA3.1)
05000331/2013003-00	LER	Condition Prohibited By Technical Specifications - Spent Fuel Storage (Section 4OA3.2)
05000331/2013004-00	LER	Condition Prohibited By Technical Specifications - Main Steam Line Steam Leak Detection (Section 4OA3.3)
05000331/2013005-00	LER	Condition Prohibited By Technical Specifications - Main Steam Line Steam Leak Detection (Section 4OA3.4)

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

OP-AA-102-1002 (DAEC); Seasonal Readiness; Revision 9
OP-AA-102-1002; Seasonal Readiness; Revision 2
Abnormal Operating Procedure (AOP) 903; Severe Weather; Revision 44

1R04

OP-AA-102-1003; Guarded Equipment; Revision 4
OP-AA-102-1003 (DAEC); Guarded Equipment (DAEC Specific Information); Revision 27
Operating Instruction (OI) 401A4; 'B' River Water Supply System Valve Lineup Checklist; Revision 14
OI 150A1; RCIC System Electrical Lineup; Revision 2
OI 150A2; RCIC System Valve Lineup and Checklist; Revision 12
OI 150A4; RCIC System control Panel Lineup; Revision 3

1R05

Administrative Control Procedure (ACP) 1203.53; Fire Protection; Revision 18
ACP 1412.4; Impairments to Fire Protection Systems; Revision 67
DAEC Fire Plan – Volume 1, Program; Revision 67
AFP 31; Intake Structure Pump Rooms, EL 767'; Revision 26
AFP 32; Traveling Screen Areas, EL 754'; Revision 27
AFP 23; Battery Rooms, Battery Corridor EL 757'; Revision 25
AFP 24; Essential Switchgear Rooms, EL 757'; Revision 29

1R06

AOP-902; Flood; Revision 48

1R11

DAEC 50008; Training Program Description; Revision 26
Training Department Administrative Procedure (TDAP) 1801.4; Simulator Configuration Management; Revision 17
TDAP 1835; Licensed Operator Requalification Program Examinations; Revision 19
TDAP 1867; Examination Security Process; Revision 14
DAEC EOP Bases Document; EOP Cautions; Revision 10
DAEC EOP Bases Document; EOP Flowchart Use and Logic; Revision 10
DAEC EOP Bases Document; EOP Curves and Limits; Revision 13
DAEC EOP Bases Document; EOP 2 Primary Containment Control Guideline; Revision 14
DAEC [Operations Department Instruction]-039; Strategies for Successful Transient Mitigation; Revision 4

Training Notes, DAEC EOP Changes; RPV Pressure Control Enhancements; October 1, 2013
PDA OPS SEG [Simulator Exercise Guide] 2013F-03S; EOP Changes, Revision 0
DAEC 50008 Lesson Plan 2013B-03L; AOP 301.1 Station Blackout; Revision 0
EOP 1-RPV Control; Revision 18
ATWS-RPV Control; Revision 21
ED-Emergency Depressurization; Revision 9
RPV/F-RPV Flooding; Revision 14
DAEC SAM [Severe Accident Management] Program Manual; White Paper on Implementation of Severe Accident Management Guidance Using 10 CFR 50.59; Revision 0
Procedure Change Request (PCR) 01903119; EOP 1-RPV Control; Revision 18
PCR 01903121; ATWS-RPV Control; Revision 21
PCR 01903123; ED-Emergency Depressurization; Revision 9
PCR 01903125; RPV/F-RPV Flooding; Revision 14

1R12

CR 01822922; Unusually Large Number of Calibrations Required

1R13

Work Planning Guideline-2; Online Risk Management Guideline; Revision 63
OP-AA-104-1007; Online Aggregate Risk; Revision 02
WM-AA-1000; Work Activity Risk Management; Revision 14
WM-AA-1000 (DAEC); Work Activity Risk Management (DAEC); Revision 01
WM-AA-100-1000; Work Activity Risk Management; Revision 0
OP-AA-102-1003; Guarded Equipment; Revision 4
OP-AA-102-1003 (DAEC); Guarded Equipment (DAEC Specific Information); Revision 27
Work Week 1348 Work Activity Risk Management Summary and Weekly Probabilistic Risk Analysis
AOP 518; Failure of Instrument Service Air; Revision 34
CR 01924484; 'A' TIP Machine Will Not Insert Past 0010 In Auto
CR 01925035; 'A' TIP Machine Stalled at Position 10
CR 01925053; Need to Perform Cleaning on TIP Drive Control Units 'B' and 'C'

1R15

EN-AA-203-1001; Operability Determinations/Functionality Assessments; Revision 13
OP-AA-100-1000; Conduct of Operations; Revision 11
CR 01913704; 'A' Emergency Diesel Generator Jacket Coolant/Scavenging Air Water System Leak

1R18

ACP 103.2; 10 CFR 50.59 Screening Process; Revision 42
FP-E-MOD-03; Temporary Modifications; Revision 10

1R19

ACP 1408.1; Work Order Task(s); Revision 182
MD 024; Post Maintenance Testing Program; Revision 77

STP 3.7.5-03B; B Control Building Chiller Operability Including Operation at Reduced Loading; Revision 0
CAL-M13-001; Core Spray High Point Vent, EBBB017
WO 40249187-01; Low Pressure Core Spray
STP 3.5.1-01A; A Core Spray System Operability Test; Revision 18
NS510002A; A CS System Leakage Walkdown; Revision 8
OI 151; Core Spray System; Revision 72
OI 358; Reactor Protection System; Revision 64

1R22

ACP 107; Surveillance Tests; Revision 15
STP 3.5.1-02B; B LPCI System Operability Tests; Revision 13
STP 3.5.3-04; RCIC Simulated Auto Actuation Tests; Revision 17
STP 3.6.2.1-01; Suppression Pool Water Temperature Surveillance; Revision 8
OP-AA-1000; Conduct of Infrequently Performed Test or Evolutions; Revision 3

1EP4

Emergency Plan; Section B; Revision 34
EPIP 1.2; Notifications; Revision 44
Evacuation Time Estimate Study Update

2RS1

CR 01910625; Walkdown Scope Increase
Survey 09-892; TB 780', Turbine Area, March 27, 2009
HP-21; HP Briefing Checklist Summary; October 7, 2013
HP-55; Radiological Work Screening Form; October 7, 2013
HP-58; Radiation Work Permit (RWP) Briefing Attendance Sheet; October 8, 2013
RWP 13-0010; Routine Operations Duties; Revision 01
RWP 13-0033; DAEC Management, Planning, Engineering Inquiries; Revision 00
HPP 3111.09; Providing Radiological Briefings; Revision 23

2RS2

RP-AA-104-1000; ALARA Implementing Procedure; Revision 3 and 5
HPP 3102.03; Radiation Protection Job Planning; Revision 36
DAEC 5-Year ALARA Plan 2013-2017
CR 01814642; RFO23 PIP3 OPS Project Dose at 137% Outage to Date
CR 01814645; RP Technician Dose at 158% Outage to Date
CR 01815683; Lead Shielding Removed in Drywell Before Work Complete
CR 01831164; ALARA Not Adequately Considered in EC277661
CR 01833059; Evaluate 'A' Core Spray Venting Method for Reducing Pressure
CR 01847061; 2013 RP Excellence Plan
CR 01876136; Elemental Cobalt Found on New Valve in Warehouse
ALARA Package 12-R1; Perform refuel floor activities; various dates
ALARA Package 12-TO; Torus Recoat Project; various dates
ALARA Package 12-C1; Scaffolds in Drywell and Balance of Plant; various dates

4OA1

MSPI Basis Document; Revision 14

4OA2

OP-AA-100-1002; Plant Status Control Management; Revision 1
PI-AA-101-1000; Focused Self-Assessment Planning, Conduct and Reporting; Revision 9
ACP 1410.2; LCO Tracking and Safety Function Determination Program; Revision 31
ACP 1410.5; Clearance Program; Revision 103
ACP 1410.15; Plant Status Control Program; Revision 7
ACP 101.01; Procedure Use and Adherence; Revision 51
PI-AA-204; Condition Identification and Screening; Revision 22
PI-AA-100-1007; Apparent Cause Evaluation; Revision 7
CR 1918597; Water Identified in Conduit 1A105

4OA5

2011 Dry Fuel Storage Campaign #2 ALARA Plan; Revision 1
2012 Annual Radiological Environmental Operating Report; 5/7/13
50.59 Screening 10655; RFP 210 – Reactor Pressure Vessel Reassembly, PCR 01814194
ACP 118.0; Conduct of the Duane Arnold Energy Center On-Site Dry Spent Fuel Storage Program; Revision 15
CR 01700996; NRC ISFSI Inspection Regarding Reactor Building Crane
CR 01701842; Seismic Analysis During Insertion of DSC into HSM
CR 01703042; Areas for Improvement Identified by NRC ISFSI Inspector
CR 01763263; 72.48 Question Related to Dry Fuel Transfer Cask
CR 01763263; 72.48 Question Related to Dry Fuel Transfer Cask 2
CR 01773719; ISFSI Bird Screen Repair Timeliness
CR 01874630; ISFSI DBD-Stated EALS vs. Actual E-Plan EALS
CR 01898346; QHSA ISFSI: Procedure Revision Not Issued Under CE 01700996
CR 01898347; QHSA ISFSI: CA 01703042-01 Was Improperly Closed
CR 01914524; ISFSI Walkdown – Deficient Signage at ISFSI
CR 01914676; ISFSI – Visual Inspection Criteria
CR 01915200; ISFSI – Unresolved Issue
CR 01920596; Incomplete Analysis Prior to use of ISFSI for Fuel Storage
DAEC-2012-023-00; Implementation of NRC Approved SER; 9/11/12
DFS 304; Loaded Dry Shielded Canister/Transfer Cask from ISFSI to Refueling Floor Operations; Revision 8
DFS 401; Dry Shielded Canister Lid Removal Operations; Revision 6
DFS 402; Transfer Cask/Dry Shielded Canister Fuel Unloading Operations; Revision 3
Duane Arnold Energy Center 10 CFR 72.212 Evaluation Report for the NUHOMS-61BT Dry Spent Fuel Storage System; Revision 15
Inspection of ISFSI for CAP065697/CE007249
STP 3.0.0-01; Surveillance Test Procedure Instrument Checks; Revision 135
Survey 11-1586; ISFSI Pad; 12/15/11
Survey 11-1634; ISFSI Annex Bldg; 12/21/11

Survey 12-28; ISFSI Area and HSMs; 1/8/13
Survey 12-789; ISFS Area and HSMs; 6/28/12
Survey 13-481; ISFSI Area and HSMs; 4/19/13
Survey 13-519; ISFSI Garage; 4/27/13
Survey 13-798; ISFSI Area and HSMs; 2/8/13

LIST OF ACRONYMS USED

ACP	Administrative Control Procedure
ADAMS	Agencywide Document Access Management System
AFP	Area Fire Plan
ALARA	As-Low-As-Is-Reasonably-Achievable
AOP	Abnormal Operating Procedure
BWR	Boiling Water Reactor
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DAEC	Duane Arnold Energy Center
EOP	Emergency Operating Procedure
EPIP	Emergency Plan Implementing Procedure
ESW	Emergency Service Water
GMP	General Maintenance Procedure
HSM	Horizontal Storage Module
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
ISFSI	Independent Spent Fuel Storage Installation
LER	Licensee Event Report
LHRA	Locked High Radiation Area
LORT	Licensed Operator Requalification Training
LPCI	Low Pressure Core Injection
MH	Man-Hole
MSL	Main Steam Line
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
OI	Operating Instruction
PI	Performance Indicator
POR	Past Operability Review
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RPS	Reactor Protection System
RWP	Radiation Work Permit
RWS	River Water Supply
SAM	Severe Accident Management
SAT	Systems Approach to Training
SBDG	Standby Diesel Generator
SEG	Simulator Exercise Guide
STP	Surveillance Test Procedure
TDAP	Training Department Administrative Procedure
TIP	Traversing In-Core Probe
TIS	Temperature Indicating Switch
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order

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Sincerely,

/RA/

Charles Phillips, Acting Chief
Branch 1
Division of Reactor Projects

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Letter to Richard Anderson from Charles Phillips dated January 31, 2014

SUBJECT: DUANE ARNOLD ENERGY CENTER – NRC INTEGRATED INSPECTION REPORT 05000331/2013005; 07200032/2013001

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