UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

June 6, 2019

Mr. Richard L. Anderson, Site Vice President
Arkansas Nuclear One
Entergy Operations, Inc.
N-TSB-58
1448 S.R. 333
Russellville, AR 72802-0967

SUBJECT: ARKANSAS NUCLEAR ONE – NRC POST COLUMN 4 INSPECTION REPORT 05000313/2019012 AND 05000368/2019012

Dear Mr. Anderson:

On May 3, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Arkansas Nuclear One, Units 1 and 2. The NRC inspectors discussed the results of this inspection with Mr. John Kirkpatrick, General Manager-Plant Operations, and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC team did not identify any findings or violations of more than minor significance.

NRC Inspection Report 05000313/2018013 and 05000368/2018013, dated June 18, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18165A206), reviewed the last of the specific actions from the Arkansas Nuclear One Comprehensive Recovery Plan to which you committed via a Confirmatory Action Letter, dated June 17, 2016 (ADAMS Accession No. ML16169A193) (EA-16-124). Based on a review of the performance indicators and inspection results at that time, the NRC determined the performance at Arkansas Nuclear One, Units 1 and 2, to be in the Licensee Response Column (Column 1) of the Reactor Oversight Process Action Matrix.

In accordance with Inspection Manual Chapter 0305, Section 10.02.d.7, this inspection report is a follow-up inspection of your improvement initiatives completed since the Confirmatory Action Letter (EA 16-124) was closed to verify that performance improvement was sustained in selected areas. The team used Inspection Procedure 71152, “Problem Identification and Resolution,” to complete the inspection. Based on the results of this inspection, the NRC has concluded that the licensee kept key improvement actions in place and has sustained efforts to improve the safety performance and Arkansas Nuclear One, Units 1 and 2.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at http://www.nrc.gov/reading-rm/adams.html and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Neil O'Keefe, Chief
Project Branch D
Division of Reactor Projects

Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6

Enclosure:
Inspection Report 05000313/2019012 and
05000368/2019012

cc: Electronic Distribution to Arkansas
Nuclear One

U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000313 and 05000368
License Numbers:	DPR-51 and NPF-6
Report Numbers:	05000313/2019012 and 05000368/2019012
Enterprise Identifier:	I-2019-012-0000
Licensee:	Entergy Operations, Inc.
Facility:	Arkansas Nuclear One, Units 1 and 2
Location:	Russellville, Arkansas
Inspection Dates:	April 29, 2019 to May 3, 2019
Inspectors:	J. Dixon, Senior Project Engineer R. Bywater, Resident Inspector, Palo Verde F. Thomas, Resident Inspector, Wolf Creek B. Tindell, Reactor Engineer (Examiner Qualified)
Approved By:	Neil O'Keefe Branch Chief Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Arkansas Nuclear One, Units 1 and 2, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to https://www.nrc.gov/reactors/operating/oversight.html for more information. NRC-identified findings, violations, and additional items are summarized in the table below.

List of Findings and Violations

None

Additional Tracking Items

None

INSPECTION SCOPES

In accordance with Inspection Manual Chapter (IMC) 0305, Section 10.02.d.7, this inspection report is a follow-up inspection of your improvement initiatives completed since the Confirmatory Action Letter (CAL) (EA 16-124) was closed to verify that performance improvement was sustained in selected areas. Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with IMC 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

OTHER ACTIVITIES – BASELINE

71152—Problem Identification and Resolution

Annual Follow-up of Selected Issues (1 Sample)

The team reviewed the licensee's implementation of its corrective action program related to the action taken to sustain safety performance improvement Post Column 4 on Unit 1 and Unit 2 in accordance with IMC 0305, Section 10.02.d.7. This inspection was a follow-up of selected examples of the station's improvement initiatives completed since the CAL (EA 16-124) was closed and reviewed the following areas:

A. Corrective Action Program

Background – Improvements to Corrective Action Program

To address improvement in the implementation and oversight of the corrective action program, self-assessment, performance monitoring, quality of problem evaluations, and use of operating experience, Entergy implemented 34 actions. When closing the CAL, the NRC determined that actions to improve training, defining roles and responsibilities, and management oversight of corrective action program functions resulted in improved identification, evaluation, and corrective actions for performance deficiencies. Problems were being evaluated and assumptions were validated prior to making decisions. Arkansas Nuclear One (ANO) had reduced its reliance on compensatory measures and engineering evaluations for degraded conditions by correcting problems and restoring plant safety margins. Corrective actions were timely and backlogs were reduced. Improved self-assessment and performance monitoring practices identified and addressed declining performance trends. Operating experience issues were being identified and addressed at a low threshold.

On March 29, 2018, the NRC determined that all corrective action program actions were complete and effective in achieving the stated objectives. Therefore, the Identification, Assessment, and Correction of Performance Deficiencies inspection focus area of the CAL was closed in NRC Inspection Report 05000313/2018012 and 05000368/2018012 (ADAMS Accession No. ML18092A005).

Objectives: (1) To review the scope and effectiveness of the tools used by licensee management to monitor the effectiveness of the various processes that make up the corrective action program; (2) to verify that performance assessments are being performed at the department and station level and are effective in identifying and addressing performance trends; and (3) to verify that any changes made since the relevant CAL actions were closed did not reduce the overall effectiveness of the ANO recovery actions.

Observations: To evaluate the licensee's improvement initiatives completed since the CAL, the team reviewed: benchmarks and self-assessments; current performance indicators; current revisions to procedures; nuclear independent oversight audits; and a sample of meeting agendas and reports from Aggregate Performance Review meetings, Department Performance Review meetings, and the Performance Improvement Review Group. The team also interviewed station personnel and attended a Performance Improvement Review Group meeting on April 29, 2019, and the operations department and radiation protection department performance review meetings on April 30, 2019.

The team evaluated the effectiveness of the tools established by ANO to monitor the effectiveness of the various processes that make up the corrective action program. The team noted that from December 2017 to March 2019, the licensee reduced its adverse condition report backlog from 361 to 255 (established goal was <=450) and the backlog of adverse condition reports open greater than 365 days had been reduced to below 22 during this time period (established goal <26). Although the average age of Category A and B (the highest levels of condition reports) corrective actions remained high at 339 days (established goal was <=90 days), this appeared to be reasonable since many of these actions are long-term items, requiring a refueling outage or longer-term engineering work product for completion. Action completion times continued to be tracked by management and schedule adherence for action completion was high at 98.3 percent (established goal was >=95 percent). The team concluded that overall, the indicators used to track backlog, corrective action age, and corrective action schedule adherence were appropriate and continued to indicate an improving trend.

The team also evaluated the effectiveness of the performance assessment process in identifying and addressing performance trends. During the team's review of Aggregate Performance Review and Department Performance Review meeting reports and meetings, the team concluded that these processes were effective at identifying and addressing performance trends at low levels. However, the team noted that the recent (September 2018) Revision 25 to Procedure EN-LI-121, "Trending and Performance Review Process," incorporated significant changes including "Aggregate Performance Issues" and changes to the format of the Performance Improvement Integrated Matrix. The team noted inconsistencies in the implementation of the new process among the reports reviewed and meetings observed and concluded that the change management actions had not resulted in a consistent understanding of expectations across the departments related to how to determine whether an aggregate performance issue existed, how to fill out its associated worksheet, and how to use the revised performance improvement integrated matrix. Procedure EN-LI-121 provided a format and sample content of an Aggregate/Department Performance Review report which the team used to compare against. The team noted and provided the licensee examples of where the reports did not contain the expected information. For example, in the "External Inputs" report area, the sample report provides a brief summary assessing the organization's ability to self-identify issues. The reports reviewed by the team contained external input

data and results, but did not include a performance assessment summary of the results (ability to self-identify).

With respect to the operating experience program, the team noted that Procedure EN-LI-121 does not explicitly identify how the effectiveness of the operating experience program is monitored and assessed. The team noted that the licensee was performing analyses of condition report trend codes during the report preparation to identify negative trends in the number of condition reports caused by problems implementing operating experience, and consequently identify an aggregate performance issue.

The team reviewed corrective action program-related procedural changes made since the relevant CAL actions were closed and concluded the changes did not reduce the effectiveness of the ANO recovery actions.

The team reviewed quality assurance audits and surveillances completed by nuclear independent oversight and concluded they were effective in providing oversight of the corrective action program and related performance improvement initiatives. The nuclear independent oversight staff were effective in the identification of performance gaps and opportunities for continued improvement.

The team reviewed the licensee's current performance or practice and compared it to the performance observed when the actions/topics were closed in the CAL. The team concluded that the licensee's performance continued to improve because the scope and effectiveness of tools to monitor the corrective action program remain effective, assessments at the department and station level remain effective in identifying and addressing performance trends, and changes in programs or procedures since closure of the CAL have not reduced the effectiveness of ANO recovery actions.

B. Equipment Reliability

Background – Improvements to Equipment Reliability and Engineering Programs

To improve implementation of processes and programs that ensure key plant equipment remains available, reliable, and capable of meeting the plant design and licensing bases, including resolving specific equipment conditions, Entergy implemented 25 actions. At the time the CAL was closed, the NRC concluded that ANO had improved the organizational capacity in engineering through targeted hiring, training, and development plans for engineers. This included staffing all engineering programs with trained and qualified program owners and backups. The quality of engineering programs and plant systems were being effectively monitored through the program health and plant health processes. Industry best practices for system health were implemented, including using a multidiscipline plant health committee to review performance trends and develop improvement plans, including those that address equipment aging and obsolescence issues, as well as procurement of strategic spare components.

The NRC reviewed the results of numerous equipment reliability improvement projects and noted that each project was effective in improving the reliability of key plant equipment or restoring lost safety margins. ANO reevaluated the equipment classification of the components and systems most important to safety and stable plant operation, increasing many of the importance rankings using the latest industry

standards. ANO also implemented a process for reviewing preventive maintenance strategies and vendor recommendations during the work planning process, using plant operating and maintenance experience to make timely adjustments to the scope and frequency of the work. A new component maintenance optimization group was also created to place maintenance support engineers and predictive maintenance personnel within the maintenance department to provide technical expertise to support work in progress and preventive maintenance planning.

On June 18, 2018, the NRC determined that all equipment reliability and engineering program improvement actions were complete and effective in achieving the stated objectives. Therefore, the equipment reliability and engineering program inspection focus area of the CAL was closed in NRC Inspection Report 05000313/2018013 and 05000368/2018013 (ADAMS Accession No. ML18165A206).

Objectives: (1) To review a sample of equipment reliability projects that were completed after CAL closure or were ongoing, long-term projects to verify they were completed in a reasonable time and effective; (2) to review the plant health committee process and their prioritization and action to address equipment reliability issues; and (3) to review a sample of engineering programs to assess the results of program assessments, benchmark efforts, and the resolution of previously-identified conditions adverse to quality.

Observations: To evaluate the licensee's improvement initiatives completed since the CAL, the team reviewed benchmarks and self-assessments, engineering change documents, work orders, system health reports, plant health action plans, current performance indicators, revisions to procedures, nuclear independent oversight audits, relevant meeting minutes, and interviewed engineering personnel and supervisors.

The team reviewed a sample of equipment reliability projects that were completed after CAL closure or were ongoing, long-term projects to verify they were completed in a reasonable time and were effective. The team reviewed the safety basis documentation for delaying upgrade work and interviewed plant personnel regarding the specific equipment reliability issues associated with the Unit 2 emergency feedwater terry turbine governor replacement and the Unit 1 emergency diesel generator exhaust stack thinning projects. The safety basis for extending the replacement of the equipment was adequate. For flood protection, the team found that ANO had established adequate preventative maintenance to ensure that flood features would perform their function during a flood for over 500 active and passive flood protection features. However, the team identified instances where ANO had not evaluated preventative maintenance for equipment or did not have adequate work instructions to ensure that the flood protection features were maintained correctly. The licensee had exempted from preventative maintenance evaluation three normally-open manual valves that were required to be closed during a flooding event such that there was no assurance the valves would isolate as required. In addition, the licensee did not provide work instructions to the craft for splicing flood door seals, like the engineered safety features vaults. The licensee captured these observations in the corrective action program for evaluation and correction.

The team also reviewed the plant health committee process and their prioritization and action to address equipment reliability issues. The team observed the plant health committee meeting held on April 29, 2019. Communication amongst committee

members was good and members displayed a willingness to challenge information in a respectful and professional manner and provided meaningful feedback to each other during the meeting. The team concluded that the plant health committee was effective in identifying and addressing plant health issues in a timely manner.

The team reviewed a sample of engineering programs to assess the results of program assessments, benchmark efforts, and the resolution of previously-identified conditions adverse to quality. The team found that ANO had completed self-assessments and benchmark efforts in 2018 and 2019 for each sampled engineering program. During these self-assessments and benchmarking efforts, ANO personnel had identified weaknesses and ANO either resolved the issues or had an adequate and timely plan to resolve the issues.

The team reviewed the licensee's current performance and practice and compared it to the performance observed when the actions/topics were closed in the CAL. The team concluded that the licensee continued to improve because the licensee has completed equipment reliability projects as stated in the CAL and continued to monitor and improve equipment reliability and performance through the plant health committee and self-assessments and benchmarks.

C. Training

Background – Use of Training as an Improvement Tool

Entergy used training as a performance improvement tool in many of the area action plans as part of the Comprehensive Recovery Plan. in the training area action plan, actions were performed to improve the use of training to drive organizational and individual performance improvement. Examples of training performed under other area action plans to address specific problems included: improving knowledge and behaviors in nuclear safety culture; improving worker understanding of corrective action program processes and their assigned roles and responsibilities; achieving industry standards in procedure quality through formal procedure writers certification; and improving risk recognition and management. Supervisory effectiveness was improved through training and individual development plans.

Objective: To verify through representative samples that the fundamental improvement strategy of using training to raise standards, change culture, and improve the ability to perform important roles remains in place and effective.

Observations: To evaluate the licensee's improvement initiatives completed since the closure of the CAL, the team reviewed: initial and continuing training for various activities, for example, corrective action program, operating experience, safety culture, etc.; nuclear independent oversight audits; performance analysis worksheets on training needs evaluations for identified deficiencies or enhancements; and interviewed various supervisors and managers with respect to training needs evaluations.

The team reviewed representative samples of using training as a fundamental improvement strategy to raise standards, change culture, and improve the ability to perform important roles remains in place and was effective. The team noted that the licensee has revised many of the training materials to incorporate lessons learned from the Comprehensive Recovery Plan and the CAL corrective actions. These actions

included revising Procedures EN-LI-102, “Corrective Action Program,” and EN-LI-121, “Trending and Performance Review Process,” to ensure that training is consistently and continually being evaluated as a fundamental improvement strategy. The team noted dozens of examples since closure of the CAL where the licensee evaluated an adverse condition to determine if training should be part of the solution.

The team reviewed the licensee’s current performance or practice and compare it to the performance observed when the actions/topics were closed in the CAL. The team concluded that the licensee is still improving and the objective to use training as a fundamental improvement strategy was satisfied because training is being discussed at all levels in various meetings and forums as a tool to correct behaviors, improve safety culture, better define and train important roles, etc.

D. Safety Culture Monitoring

Background – Improvements in Safety Culture

To improve nuclear safety culture values and behaviors and to ensure commitment by leaders and individuals to emphasize safety over competing goals, Entergy implemented 22 actions. Entergy increased the staffing and funding resources available to ANO to support the workload and improve the safety culture at the station. Efforts to build trust and demonstrate conservative decision-making, improve equipment reliability, reduce work backlogs, and raise standards demonstrated leadership’s commitment to improving safety and performance at ANO. Union leadership and individual contributors became engaged, taking ownership of organizational challenges through committees and working groups to identify and addressed process and teamwork issues. Workers were trained on plant risk and how their job tasks relate to plant safety; allowing workers across the station to identify and report challenges that could affect safety. Training on the corrective action program, including roles and responsibilities, improved worker understanding of the processes available to correct problems, leading to better problem reporting and suggestions to improve processes.

Safety culture surveys conducted throughout the time that ANO was in Column 4 demonstrated an improving trend. The NRC performed safety culture focus group discussions in August 2017 and April 2018 and noted more positive responses. Performance indicators also demonstrated improved outcomes in areas supported by positive safety culture behaviors.

The NRC determined that all Safety Culture improvement actions were complete and effective in achieving the stated objectives. Therefore, the Safety Culture inspection focus area of the CAL was closed in NRC Inspection Report 05000313/2018013 and 05000368/2018013 (ADAMS Accession No. ML18165A206).

Objectives: (1) To review the survey results and metrics used by the licensee to assess trends in overall safety culture and (2) to assess the licensee management’s response to those indicators and trends and the results achieved.

Observations: To evaluate the licensee’s improvement initiatives completed since the CAL, the team reviewed: continuing training on safety culture; nuclear independent oversight audits; 2017 and 2018 safety culture/organizational health survey data results (including the Organizational Health Index (OHI) surveys) and associated corrective

actions; safety culture assessment reports; Nuclear Safety Culture Monitoring Panel procedures and meeting minutes; and interviewed various supervisors and managers. The team reviewed the survey results and metrics used by the licensee to assess trends in overall safety culture. The team also assessed licensee management's response to those indicators and trends and the results achieved.

The team also reviewed the status of actions Entergy planned to take to address the NRC-identified gaps in safety culture in NRC Inspection Report 05000313/2018013 and 05000368/2018013 documented in Condition Reports CR-ANO-C-2018-1736 and CR-HQN-2018-0803 and Learning Organization Report LO-ALO-2018-0029. The team identified that the Entergy fleet procedure for performing safety culture assessments had not been updated to include a process to identify priority groups based on safety culture survey results and other input, which Entergy agreed to change in response to NRC concerns documented in Inspection Report 05000313/2018013 and 050000368/2018013. The procedure had only been changed to include using qualitative methods if safety culture concerns are identified, but did not define a method or criteria to help identify a priority group. The licensee captured this deficiency in Condition Report CR-HQN-2019-0913. The NRC will review the results of the corrective action during a future inspection.

The team reviewed the actions that ANO took in response to the results of the 2018 OHI survey and had no concern about identification of priority groups. ANO appropriately identified groups that either had below average scores or had notable downward changes from the 2017 results. ANO appropriately conducted focused interviews within these groups to help identify the source of the negative responses and develop appropriate corrective actions to address the identified safety culture attributes, and discussed this information during the Nuclear Safety Culture Monitoring Panel meetings. In addition, ANO also brought in a third party assessor to perform further in-depth assessments, including interviews, to provide insights into the safety culture scores and potential corrective actions to improve the culture in these groups and the station overall.

The team reviewed the licensee's current performance or practice and compare it to the performance observed when the actions/topics were closed in the CAL. The team concluded that the licensee is still improving, and the objective to use safety culture to assess trends and establish appropriate corrective actions was satisfied because the licensee has taken significant actions beyond those required by procedure to understand the results of the most recent survey and identify the priority groups using various qualitative measures, including interviews, and establish appropriate corrective actions to address each priority group.

E. Leader Performance

Background – Improvements in Leader Performance

As part of the licensee's causal evaluations that led to the CAL, ANO determined that leaders were not consistently demonstrating and reinforcing standards and expectations. ANO concluded that there were weaknesses in the leader behaviors needed to provide effective communications and build trust with employees, to create a vision to arrest the performance decline, to reinforce high standards and expectations, to foster a learning organization and culture of continuous improvement, and to make sound decisions that manage risk. To address these gaps the licensee developed the Leadership

Fundamentals Area Action Plan. Actions were developed to improve: (1) communicate standards/expectations for leader behaviors, (2) model/reinforce leader behaviors, and (3) to monitor leader behaviors. The NRC evaluated the results of ANO's actions to improve leader performance through early 2018 and closed the associated CAL actions.

During the CAL closure reviews, the team noted that there were changes in the station leadership team composition and capabilities. Leadership assessments, individual development plans, and training and coaching enhanced leader behaviors in the areas that caused the safety culture at ANO to degrade. Station leaders improved their ability to observe and assess performance and address shortfalls. Decision-making was proactive, strategic, conservative, and included seeking input from workers. Increased field presence for leaders improved their understanding of work conditions.

Objectives: (1) To verify that the incentives and metrics intended to improve leader focus on safety and long-term goals remain in place and have been effective; (2) to verify that management actions to monitor current and future staffing needs remain in place and continue to be effective; and (3) to verify that leaders communicate standards and the need for improvement to workers through a planned communication structure and during field observations of work.

Observations: To evaluate the licensee's improvement initiatives completed since the CAL, the team reviewed: supervisor and manager field observation data; current performance indicators; current revisions to procedures; nuclear independent oversight audits; performance, planning, and review metrics; meeting agendas and reports from aggregate and department performance reviews, the performance improvement review group, and the people health committee. The team also interviewed station personnel and attended the leadership and alignment meeting, site focus meeting, and Performance Improvement Review Group meeting on April 29, 2019; and the operations department and radiation protection department performance review meetings on April 30, 2019.

The team verified that the incentives and metrics intended to improve leader focus on safety and long-term goals remain in place and have been effective. The team reviewed a sample of performance, planning, and review metrics and concluded equipment performance monitoring goals remain in place and related and future metrics have become more challenging. The goals have also correlated with an improving trend in equipment performance demonstrated through maintenance rule performance indicators and system health reports.

The team also reviewed management actions that monitor current and future staffing needs remain in place and continue to be effective. The team noted that the Nuclear Strategic Staffing Plan, covering the period of 2016–2020, continues to be updated at least annually, reviewed quarterly, and is discussed weekly among management; and, along with the people health committee remain effective in addressing the staffing needs of individual departments and the station.

The team verified that leaders communicate standards and the need for improvement to workers through a planned communication structure and during field observations of work. The team determined that leaders modeled behaviors demonstrating a focus on safety at meetings, and during communications and informal interactions with staff. Department and station-level assessments addressed ways to improve leader

performance. Implementation of the Supervisor and Paired-Observer field presence initiatives was evident in demonstrating engagement with employees, reinforcing high standards with employees, and in manager coaching of supervisors. During discussions with the team, the licensee also recognized that there are areas where the field presence initiatives may be improved, particularly in the areas of providing additional guidance for performing a quality observation, and capturing valuable performance feedback, even for observations of activities that have met expectations.

The team reviewed the licensee's current performance and practice and compared it to the performance observed when the actions/topics were closed in the CAL. The team concluded that the licensee is still improving because the licensee's actions implemented in the Leadership Fundamentals Area Action Plan that were sampled during this inspection remained in place and were effective.

F. Vendor Oversight

Background – Improvements in Vendor Oversight

During the Inspection Procedure 95003 inspection, NRC Inspection Report 05000313/2016007 and 05000368/2016007 (ADAMS Accession No. ML 16161B279), the NRC team concluded that actions to improve contractor oversight had not yet been fully effective; further action was necessary because oversight plans for contract outage workers were inadequate, qualification requirements for contractors to act as supervisors did not have a consistent standard, and designated ANO oversight personnel lacked adequate guidance and training to perform their oversight role. ANO addressed these gaps on vendor oversight in the vendor oversight area action plan.

Examples of some of the most significant contributors and their corrective actions are: (1) designating a subject matter expert to oversee implementation of the procedures that govern supplemental and contract workers; (2) revising the procedures as required to require trending and performance reviews, span of control, defined responsibilities, risk assessment, and vendor oversight plans; and (3) training on the process changes. The NRC reviewed and closed the most significant contributors of the vendor oversight actions in the CAL after determining that these actions were effective in NRC Inspection Report 05000313/2018012 and 05000368/2018012 (ADAMS Accession No. ML18092A005).

Objectives: (1) To verify that the licensee has sustained adequate oversight of long and short-term vendors and contractors through specific oversight plans that are appropriate to the work; and (2) to verify that vendors and contractors are made aware of station expectations and are held to the same standards as station employees.

Observations: To evaluate the licensee's improvement initiatives completed since the CAL, the team reviewed: benchmarks and self-assessment reports; current performance indicators; current revisions to procedures; nuclear independent oversight audit information; and interviewed various personnel associated with vendor oversight activities. Team members also observed an initial contractor standards and expectations brief, as well as a pre-job brief and walk-down for planned field work.

The team verified that the licensee has sustained adequate oversight of long and short-term vendors and contractors through specific oversight plans that are appropriate

to the work. However, the team noted that Attachment 9.9, "Oversight Plan Scorecard," to Procedure EN-OM-126, "Management and Oversight of Supplemental Personnel," Revision 8, did not include any definitions for scoring criteria areas. This could lead to inconsistent expectations and scoring. The licensee captured this observation in the corrective action program and is revising the procedure to clearly define scoring criteria.

The team also reviewed the licensee's processes to ensure that vendors and contractors are made aware of station expectations and are held to the same standards as station employees. The team observed an initial contractor briefing which provided pertinent information on numerous industrial safety topics (e.g. fall protection, confined spaces, arc flash safety, heat stress), as well as relevant information on nuclear safety topics (e.g., condition report initiation, safety-conscious work environment, and human performance). The brief was informative and presented at an appropriate level for new contractor personnel. The team determined that the processes and procedures used by the station to indoctrinate new vendor and contractor personnel would provide reasonable assurance that they would be held to the same standard as station employees.

The team reviewed the licensee's current performance and practice and compare it to the performance observed when the actions/topics were closed in the CAL. The team concluded that the licensee is still improving, based on document reviews and observed field activities.

G. Procedure/Work Instruction Quality

Background – Improvements in Procedure/Work Instruction Quality

In order to help reduce errors and improve human performance, Entergy implemented actions to identify industry best practices related to improving and maintaining procedure and work instruction quality. Procedures and work instructions were prioritized based on risk, and a 5-year schedule was established to improve all the documents included in the plan. The NRC evaluated the results of ANO's actions to improve procedure and work instruction quality completed through early 2018 and closed the associated CAL actions. The licensee had committed to complete additional longer-term actions to improve lower-priority items, so this inspection reviewed progress since the CAL was closed.

Objectives: (1) To verify that the licensee is making reasonable progress in upgrading procedure quality in terms of human factoring, clarity and technical accuracy; (2) to verify that a stable process to verify and validate the technical adequacy of procedures is being implemented; and (3) to verify the licensee continues to assure that procedure and work instruction writers have the training and guidance needed to maintain the capability to have high quality procedures.

Observations: To evaluate the licensee's improvement initiatives completed since the Confirmatory Action Letter, the team reviewed: benchmarks and self-assessment reports; current performance indicators; revisions to procedures; procedure verification and validation results; nuclear independent oversight audits; relevant meeting minutes; training records; and corrective action documents.

The team reviewed a sample of procedures and work orders to verify that the licensee is making reasonable progress in upgrading procedure quality in terms of human factoring,

clarity and technical accuracy. The team found that ANO has continued to upgrade procedures and work instructions per the commitments and other longer-term actions. In addition, ANO has reduced and maintained a low backlog of requests to change work instructions and procedures (action requests and procedure improvement forms). The team found that work planners are receiving feedback through the planning quality review team and making reasonable progress to improve work order quality, particularly in human factoring and clarity. The team found some examples of clarity and technical accuracy issues; however, the examples were minor in nature and would not have prevented the activity from being accomplished. ANO took corrective actions to address the concerns identified by the team and generated a condition report to document the issues identified.

The team also reviewed the ANO procedure change process to ensure that a stable process is used to verify and validate the technical adequacy of procedures. The team noted that ANO had been verifying and validating procedures on an appropriate schedule, identifying technical issues during the reviews, and implementing appropriate corrective actions. ANO uses a standard for procedure writing and for grading procedure revisions which requires all procedures to have a passing grade of 85 percent or greater. All the procedures that the team reviewed contained an acceptable level of technical accuracy and met the standard with a passing grade.

The team verified that the licensee continues to assure that procedure and work instruction writers have the training and guidance needed to maintain the capability to have high quality procedures. The team noted that the majority of procedure writers and planners were certified with the Procedure Professionals Association course, and ANO planned to certify the remaining procedure writers and planners.

The team reviewed the licensee's current performance and practice and compared it to the performance observed when the actions/topics were closed in the CAL. The team concluded that the licensee is still improving because ANO continues to make reasonable progress in upgrading procedure and work instruction quality in terms of human factoring, clarity and technical accuracy, and continues to train and provide guidance to procedure writers and planners to maintain high quality procedures and work instructions.

(1) These activities constitute one sample, Post Column 4 actions on Unit 1 and Unit 2 on May 3, 2019.

EXIT MEETINGS AND DEBRIEFS

On May 3, 2019, the inspector presented the Post Column 4 inspection results to Mr. J. Kirkpatrick, General Manager-Plant Operations, and other members of the licensee staff. The inspectors verified no proprietary information was retained or documented in this report.

DOCUMENTS REVIEWED

71152 – Problem Identification and Resolution

Condition Reports (CR-ANO-)

C-2013-1304	C-2014-0259	C-2014-2698	C-2015-1240	C-2015-1445
C-2015-2829	C-2015-2832	C-2015-2834	C-2015-2836	C-2015-4626
C-2015-4647	C-2015-5013	C-2015-5014	C-2015-5016	C-2015-5017
C-2015-5018	C-2018-0850	C-2018-1736	C-2018-2111	C-2018-2189
C-2018-3103	C-2018-3256	C-2019-0535	C-2019-0953	C-2019-0956
C-2019-0957	C-2019-0958	C-2019-0960	C-2019-0961	C-2019-0970
C-2019-0972	C-2019-0978	C-2019-1020	C-2019-1151	C-2019-1152
C-2019-1196	C-2019-1254	C-2019-1333	C-2019-1612	C-2019-1641
C-2019-1651				
1-2018-3686	1-2018-4075			
2-2016-3307				

Condition Reports (CR-HQN-)

E-2014-0291	2018-0803	2019-0913

Work Orders

374976	374979	380339	402559	402561	406600	409146
409590	411197	418023	420217	431637	432447	436716
50239082	50240255	52572664	52612565	52730809	52764018	

Procedures

Number	Title	Revision
EN-AD-106	Site Procedure Writer's Manual	2
EN-DC-346	Cable Reliability Program	7
EN-FAP-HR-008	Employee Survey Communication and Response Protocol	1
EN-FAP-LI-001	Performance Improvement Review Group (PRG) Process	13
EN-FAP-OM-005	Nuclear Performance Indicator Program	7
EN-FAP-QV-201	Nuclear Independent Oversight Performance Assessments	4
EN-FAP-QV-202	Nuclear Independent Oversight Performance Reporting	4
EN-FAP-WM-002	Critical Evolutions	5
EN-HR-107	People Health Committee	2
EN-LI-102	Corrective Action Program	36
EN-LI-104	Self-Assessment and Benchmark Process	14
EN-LI-121	Trending and Performance Review Process	25
EN-LI-123-04-ANO-RC	Recovery Project Administrative Controls	0
EN-LI-123-11-ANO-RC	Collective Evaluation and Action Plan Development	0

Procedures Number	Title	Revision
EN-LI-123-12-ANO-RC	Comprehensive Recovery Plan	10
EN-MA-119	Material Handling Program	33
EN-OE-100	Operating Experience Program	32
EN-OM-126	Management and Oversight of Supplemental Personnel	8
EN-OP-116	Infrequently Performed Tests or Evolutions	15
EN-QV-112	Learning Opportunity Review Process	9
EN-QV-134	Employee Survey Response Protocol	2
EN-QV-136	Nuclear Safety Culture Monitoring	16
EN-TQ-127	Leadership Training and Development Program	22
EN-WM-101	On-line Work Management Process	17
EN-WM-105	Planning	23
JA-PI-121-02	Performance Review Meetings	3
OP-1000.006	Procedure Control	70
OP-1104.036	Emergency Diesel Generator Operation	72
OP-1107.001	Electrical System Operations	122
OP-1402.100	Watertight Door Maintenance	13
OP-1402.241	Inspection of Scuppers/Curbs	0
OP-1402.242	Inspection of Watertight Penetration Seals	3
OP-1412.012	Unit 1 Large Westinghouse Motors Lubrication & Inspection	18
OP-1606.042	Operation of the Orion Model 1818 Oxygen Scavenger Monitor	8
OP-2107.001	Electrical System Operations	128

Miscellaneous Documents Number	Title	Revision/Date
ALO-2015-0099		
ALO-2016-0040		
ALO-2016-0102		
ALO-2018-0029		
ALO-2018-0064		
ALO-2019-0019		
ALO-2019-0021		
ASCBT-ADM-POC	Operating Experience Point of Contact Training	1, 2
ASPCS-ESP-PROG	ANO Engineering Support Program (ESP) Training Course Plan	18

Miscellaneous Documents Number	Title	Revision/Date
EC-48861	Radiation Process Monitor (DRM-100) Alarm Delay Filter	0
EC-50092	Room 72 Floor Drain and Equipment Drain Flood Mitigation Modifications	0
EC-58330	2C-27A Unit 2 Instrument Air Compressor Replacement	0
FCBT-GET-PAT	Generic Plant Access Training Utility/Contractor Employee	1
FCBT-SUPV-NSC	Nuclear Safety Culture CBT	0
FFAM-OE-OESPEC	OE Specialist / ICES Coordinator Job	1
FLP-TADM-OPEXP	Operating Experience	7
FSEM-SUPV-NSC	Nuclear Safety Culture	2
OE ANO-2018-03	NIOS Operating Experience – EN-OM-126 Non-Compliance Elevation	November 9, 2018
	2018 OHI Results for ANO	July 2018
	2018 McKensie Results for ANO	March 2019
	ANO Metrics	March 2019
	Engineering Change Review Group (ECRG) Agenda	May 2, 2019
	Open Action Request Report	May 1, 2019
	Planning Quality Review Group Meeting Minutes	September 2018 through February 2019
	Plant Health Committee (PHC) Agenda	April 29, 2019
	Procedure Professionals Association (PPA) Certification Completion List	
	Pursuit of Excellence Metrics	June 2018
	Units 1 and 2 Flooding Features List, Groups 2 and 3	
	ANO Integrated Strategic Workforce Plan	
	APRM and DPRM Reports	April 2018 through April 2019
	NIOS Review of 95003 Supplemental Inspection Readiness	March 26 through April 9, 2019
	NIOS Functional Area Performance Reports	October 17, 2018 and February 25, 2019
	ANO Daily Observation Reports and Paired Observation Reports	April 2019

Miscellaneous Documents Number	Title	Revision/Date
	ANO People Health Committee Meeting Reports	April 2018 through April 2019
	PRG Meeting Packages	April 29 through May 2, 2019
	2018 SNUG (Snubber Users Group) Meeting and ISTD Code Committee Meeting Trip Report	
	Excerpts of Performance Planning and Review Reports	2018-2020
	People Health Committee Presentation	May 2, 2019
	Leadership and Alignment Meeting Presentation	April 29, 2019

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