



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 E LAMAR BLVD
ARLINGTON, TX 76011-4511

April 28, 2015

Jeremy Browning, Site Vice President
Arkansas Nuclear One
Entergy Operations, Inc.
1448 SR 333
Russellville, AR 72802-0967

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 1 – NRC POST-APPROVAL LICENSE
RENEWAL INSPECTION REPORT 05000313/2015009

Dear Mr. Browning:

On March 19, 2015, U.S. Nuclear Regulatory Commission (NRC) inspectors completed a Post-Approval Site Inspection for License Renewal at the Arkansas Nuclear One, Unit 1. The enclosed report documents the inspection findings, which were discussed with Ms. S. Pyle, Manager, Regulatory Assurance, and other members of your staff.

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

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 (PARS) component of the 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/ Gregory A. Pick for

Gregory E. Werner, Chief
Engineering Branch 2
Division of Reactor Safety

Dockets No. 50-313
License No. DPR-51

cc w/enclosure: Electronic Distribution

April 28, 2015

Jeremy Browning, Site Vice President
Arkansas Nuclear One
Entergy Operations, Inc.
1448 SR 333
Russellville, AR 72802-0967

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 1 – NRC POST-APPROVAL LICENSE
RENEWAL INSPECTION REPORT 05000313/2015009

Dear Mr. Browning:

On March 19, 2015, U.S. Nuclear Regulatory Commission (NRC) inspectors completed a Post-Approval Site Inspection for License Renewal at the Arkansas Nuclear One, Unit 1. The enclosed report documents the inspection findings, which were discussed with Ms. S. Pyle, Regulatory Assurance Manager, and other members of your staff.

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

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 (PARS) component of the 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,

Gregory A. Pick for

Gregory E. Werner, Chief
Engineering Branch 2
Division of Reactor Safety

Dockets No. 50-313
License No. DPR-51

cc w/enclosure:
Electronic Distribution

Distribution:
See next page

ADAMS ACCESSION NUMBER: ML15118A942

■ SUNSI Review By: GAP		ADAMS ■ Yes □ No		■ Publicly Available □ Non-Publicly Available		■ Non-Sensitive □ Sensitive		Keyword: NRC-002
OFFICE	DRS/EB2/SRI	DRS/EB2	EB2/C	DRPE/C	EB2/C			
NAME	G. Pick	N. Okonkwo	G. Werner	N. O'Keefe	G. Werner			
SIGNATURE	/RA/	/RA/	/RA/	/RA/	/RA/ GAP for			
DATE	4/22/2015	4/3/15	4/27/15	4/28/15	4/28/15			

Letter to Jeremy Browning from Gregory E. Werner, dated April 28, 2015

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 1 – NRC POST-APPROVAL LICENSE
RENEWAL INSPECTION REPORT 05000313/2015009

Electronic distribution by RIV:

Regional Administrator (Marc.Dapas@nrc.gov)
Deputy Regional Administrator (Kriss.Kennedy@nrc.gov)
DRP Director (Troy.Pruett@nrc.gov)
DRS Director (Anton.Vegel@nrc.gov)
DRS Deputy Director (Jeff.Clark@nrc.gov)
DRP Deputy Director (Ryan.Lantz@nrc.gov)
Senior Resident Inspector (Brian.Tindell@nrc.gov)
Resident Inspector (Matt.Young@nrc.gov)
Resident Inspector (Abin.Fairbanks@nrc.gov)
Branch Chief, DRP/E (Neil.Keefe@nrc.gov)
Senior Project Engineer, DRP/E (Nick.Taylor@nrc.gov)
Project Engineer, DRP/E (Thomas.Farina@nrc.gov)
Project Engineer, DRP/E (Brian.Correll@nrc.gov)
Project Engineer, DRP/E (Jackson.Choate@nrc.gov)
ANO Administrative Assistant (Gloria.Hatfield@nrc.gov)
Public Affairs Officer (Victor.Dricks@nrc.gov)
Public Affairs Officer (Lara.Uselding@nrc.gov)
Project Manager (Andrea.George@nrc.gov)
Branch Chief, DRS/TSS (Don.Allen@nrc.gov)
ACES (R4Enforcement.Resource@nrc.gov)
RITS Coordinator (Marisa.Herrera@nrc.gov)
Regional Counsel (Karla.Fuller@nrc.gov)
Technical Support Assistant (Loretta.Williams@nrc.gov)
Congressional Affairs Officer (Jenny.Weil@nrc.gov)
RIV Congressional Affairs Officer (Angel.Moreno@nrc.gov)
RIV/ETA: OEDO (Michael.Waters@nrc.gov)
ROPreports
RidsNrrDlr Resource
RidsNrrDirRpb1 Resource
RidsNrrDirRpb2 Resource
RidsNrrDirRerb Resource
OEMail Resource

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000313

License: DPR-51

Report: 05000313/2015009

Applicant: Entergy Operations, Inc.

Facility: Arkansas Nuclear One, Unit 1

Location: Junction of Hwy. 64 West and Hwy. 333 South
Russellville, Arkansas

Dates: March 16 – March 19, 2015

Inspectors: G. Pick, Senior Reactor Inspector
N. Okonkwo, Reactor Inspector

Approved By: Gregory E. Werner, Chief
Engineering Branch 2
Division of Reactor Safety

SUMMARY

IR 05000313/2015009; 03/16/2015 – 03/19/2015; Arkansas Nuclear One, Unit 1; Post-Approval Site Inspection for License Renewal

The report covers an inspection conducted by two regional inspectors in accordance with the NRC Manual Chapter 2515 and the NRC Inspection Procedure 71003. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas." Violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

A. NRC-Identified Findings and Self-Revealing Findings

None

B. Licensee-Identified Violations

None

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution (71152)

a. Inspection Scope

The inspectors reviewed the following corrective actions related to items identified during the license renewal commitment inspection documented in Inspection Report 05000313/2014007. The inspectors selected these items to verify that the licensee had implemented appropriate corrective actions. If the actions were not completed, the inspectors evaluated the proposed implementation dates of the planned corrective actions to ensure they were commensurate with their safety significance. Specific actions were reviewed related to the following:

1. In Condition Report 2014-00092 the licensee documented several pipe lines within the underground piping corrosion risk model that contained unknown pipe segments caused by incorrect line designations.
2. As documented in Non-Cited Violation 05000368/2014007-01, Condition Report C-2014-00597 described deficiencies related to a failure to re-inspect cracks in the Unit 2 reactor building that exceeded acceptance criteria during previous inspections to ensure the reactor building maintained structural integrity.
3. In WT-WTHQN-2012-00675 the licensee tracked corrective actions that resulted from an operating experience evaluation of Regulatory Issue Summary 2011-005, "Information on Revision 2 to The Generic Aging Lessons Learned Report for License Renewal of Nuclear Power Plants," dated July 1, 2011. The licensee determined that the fire protection aging management program needed piping inspections added. In addition, the licensee determined that they needed to develop two new aging management programs.

b. Findings and Observations

The inspectors had the following observations related to the licensee's corrective actions:

1. The licensee had updated their database to include the names of the unknown segments.
2. The licensee had performed an effective extent of condition evaluation as part of the corrective actions for Non-Cited Violation 05000368/2014007-01. However, the inspectors determined that the licensee had not revised their procedure to ensure the guidance specified that identified conditions shall be governed by the current American Society of Mechanical Engineers (ASME) code addition and by any additional inspection requirements specified by the responsible engineer. The licensee tracked this corrective action in Condition Report C-014-00597, Corrective Action 7.

3. The licensee had compared both Units 1 and 2 against Revision 2 of the Generic Aging Lessons Learned (GALL) Report during the operating experience review of Regulator Issue Summary 2011-005. The licensee identified numerous corrective actions in WT-WTHQN-2012-00675 related to the three aging management programs. The licensee planned to implement both the Unit 1 and Unit 2 corrective actions while completing the Unit 2 license renewal activities.
- The licensee initiated LR-LAR-2015-00081, Corrective Action 3, to track implementation of an above ground tanks aging management program related to periodic tank inspections. The program included the following components: Tank T-3, borated water storage tank; Tank T-41B, quality-condensate storage tank; and Tank 2T-3, refueling water tank. Some of the corrective actions to be implemented include:
 - Compare this aging management program to the GALL Report, Revision 2, program elements. Identify inconsistencies and evaluate for changes to existing Unit 1 and Unit 2 programs and issue actions to ensure any identified changes are implemented.
 - Initiate necessary tasks and document changes to provide instructions for ultrasonic testing of the tank bottom thickness.
 - Initiate initial inspections within 5 years of entering the period of extended operation for Unit 1 and Unit 2.
 - Establish repetitive task to inspect the tanks every 10 years after the initial inspections.
 - Develop the necessary inspection requirements and budget for the periodic inspections.
 - The licensee initiated LR-LAR-2015-00081, Corrective Action 4, to track development of program requirements and implementation procedures related to ultrasonic thickness testing of fire water piping. This program applied to Units 1 and 2. Specifically, the corrective action specified, "Provide verification of the ultrasonic testing specifications for this program, location of those specifications (what program document), implementation schedule, reporting inspection results to date, and implementing documents (preventive maintenance tasks, model work orders)."
 - The licensee initiated LR-LAR-2015-00081, Corrective Action 5, to track implementation of a one-time selective leaching aging management program related to piping and component inspections of systems subject to this aging mechanism. This program applied to Units 1 and 2 and will be completed prior to entering the period of extended operation to

determine if there is a related aging effect that requires management. Some of the actions to be implemented include:

- Compare this aging management program to the GALL Report, Revision 2, program elements. Identify inconsistencies and evaluate for changes to existing Unit 1 and Unit 2 programs and issue actions to ensure any identified changes are implemented.
- Develop a one-time aging management program that assesses whether selective leaching is an aging effect requiring management.
- Utilize an XRF alloy analyzer to obtain positive material identification of installed copper and gray cast iron components.
- Define a sample population of components susceptible to selective leaching for evaluation, including fire protection, service water, and auxiliary cooling water systems.
- Determine if previously removed fire protection valve components meet the evaluation criteria.

No findings were identified.

4OA5 Other Activities (71003 – Post Approval License Renewal)

Phase 3 Inspection Activities

The Phase 3 Inspection activities are performed after the licensee enters the period of extended operation. The period of extended operation is the additional 20 years beyond the original 40-year licensed term. Arkansas Nuclear One, Unit 1, began the period of extended operation after midnight on May 20, 2014.

The inspectors performed this inspection to evaluate whether the licensee completed outstanding actions required to comply with the license renewal license condition and commitments and effectively implemented outstanding actions related to select aging management programs.

The inspectors closed Commitments 17850, 17851, 17855, 17872, 17875, and 19358 during this inspection.

In addition, NUREG-1743, "Safety Evaluation Report (SER) Related to the License Renewal of Arkansas Nuclear One, Unit 1," did not have an Appendix A that listed the items the NRC considered commitments. Consequently, a senior project manager in the Division of License Renewal issued a memorandum to file entitled, "Commitment Lists for Renewed Operating License (ROL) Plants with No Commitment Appendix Attached to Its ROL Safety Evaluation Reports/NUREGs for Use with IP 71003," dated March 6, 2007, Attachment 1.3, Arkansas Nuclear One, Unit 1, that documented 11 commitments (ADAMS ML070640041). The inspectors verified that the licensee had

captured these commitments. The inspectors closed the three remaining open commitments, Commitments 5, 7, and 8, during this inspection.

a. Inspection Scope

During this inspection, the inspectors reviewed the licensee actions related to commitments not closed during the Phase 2 license renewal inspection (Inspection Report 05000313/2014007 (ADAMS ML14087A338)). The inspectors evaluated whether the licensee had taken appropriate corrective actions.

The inspectors reviewed program documents, plant procedures, inspection results, and corrective action documents. The inspectors interviewed licensee personnel, including the program owners.

b. Observations

16.1.5 Reactor Vessel Internals Program (17851)

The reactor vessel internals aging management program managed the following aging effects: stress corrosion cracking and irradiation assisted stress corrosion cracking, reduction of fracture toughness by thermal embrittlement and irradiation embrittlement, dimensional changes created by void swelling, and loss of bolted closure integrity because of stress relaxation.

During the previous inspection, the licensee developed, but had not issued, Procedure EN-DC-133, "PWR Vessel Internals Program." This procedure described the implementation of the reactor vessel internals inspections that Electric Power Research Institute (EPRI) MRP-227A, "Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines," dated December 2011, described as "Mandatory" or "Needed." The licensee planned to submit their reactor vessel internals aging management program for review just prior to entering the period of extended operation to allow for the most accurate possible submittal. The licensee tracked their submittal of the reactor vessel internals aging management program to the NRC by LR-LAR-2010-00176, Corrective Action 204.

During this inspection, the inspectors verified that the licensee had issued Procedure EN-DC-133, Revision 1 that described the fleet approach to managing the effects of aging for the reactor vessel internals. The procedure referenced the site-specific reactor vessel internals aging management program for those plants that had entered the period of extended operation. The inspectors verified that Program Document SEP-PVI-ANO1-001, "ANO (PWR) Pressure Vessel Internals Program," Revision 0, appropriately described implementation of the EPRI MRP-227A inspection and monitoring requirements. The inspectors determined that the licensee had submitted their aging management program for review and approval in Letter 1CAN051403, "Reactor Vessel Internals Aging Management Program Plan," dated May 20, 2014. At the time of this inspection, the licensee had not received final approval of their planned aging management program; however, the licensee had submitted the aging management program as committed.

Based on review of the actions implemented related to Commitment 17851, the inspectors determined the licensee had taken appropriate actions to develop their reactor vessel internals aging management program. The inspectors determined that the licensee had met Commitment 5 to develop a reactor vessel internals aging management program as described in a letter to file, Attachment 1.3, Arkansas Nuclear One, Unit 1 (ML070640041). This commitment is closed.

16.1.7 Wall Thinning Inspection Program (17855)

The wall thinning inspection aging management program managed the effects of aging caused by corrosion of the internal surfaces of carbon steel piping and components resulting in the loss of wall thickness.

During the previous inspection, the inspectors determined that the program document did not describe scheduling inspections, basis of line selection, basis for inspection points, and plans for re-inspection. The inspectors had recommended that the system engineer revise the program to include: (1) details of the system lines included for inspection, (2) basis for the selecting the examination points, (3) plans for future inspections, including sample size, and (4) identification of the wall thickness acceptance criteria.

During this inspection, the inspectors reviewed Program Document SEP-WTI-ANO-001, "Wall Thinning Inspection (WTI) Program," Revision 1, and talked with the program manager. The inspectors determined the licensee had included the following in the program document:

- System line descriptions
- Criteria for selecting the examination points
- Future inspections, including sample size
- Acceptance criteria

The inspectors determined that the inspections conducted during the last outage for containment piping routed through containment penetrations P-51 and P-59 met the program acceptance criteria.

Based on review of the actions implemented related to Commitment 17855, the inspectors determined the licensee had taken appropriate actions to develop their wall thinning inspection aging management program. The inspectors determined that the licensee had met Commitment 7 to develop a wall thinning inspection aging management program as described in a letter to file, Attachment 1.3, Arkansas Nuclear One, Unit 1 (ML070640041). This commitment is closed.

16.2.3.6 Subsection IWL Inspection Program (17872)

The Subsection IWL inspection aging management program managed the effects of aging caused by loss of material for tendon anchorages, cracking of concrete, and change in material properties of concrete. This program evaluated the quality and

structural performance of the reactor building post-tensioning system and concrete components.

During the last inspection, the inspectors concluded, generally, the licensee implemented actions to effectively manage the effects of aging during the period of extended operation with one exception. The licensee issued LR-LAR-2010-00176, Corrective Action 316, to develop a tool to compile inspections, results, and findings that would provide a more effective retrieval of history related to structural components, as part of the structures monitoring program. Since the corrective actions identified in LR-LAR-2010-00176, Corrective Action 316, applied to the Subsection IWL inspection program as well as the structures monitoring program, the inspectors concluded that the licensee had not met this commitment.

During this inspection, the inspectors determined that the licensee had established a database to document deficiencies identified during structural inspections. The database identified the location of the deficiencies by building and room or building, floor and sector. The inspectors observed the structural engineer demonstrate the use of the database and asked plans to enter prior inspections into the database. The licensee had not activated the system and indicated the structural inspections beginning this year would provide the baseline data. Although the licensee had no plans to populate the database with historical inspections, the licensee agreed to populate the database with those deficiencies that required monitoring. The inspectors verified that the licensee continued to track development and population of the database using LR-LAR-2010-00176, Corrective Action 345. Corrective Action 345 of LR-LAR-2010-00176, specified, "Identify any previous structural items from the 2010 Maintenance Rule Inspection (Unit 1, 2 and Common) that were noted as required to be tracked for trending purposes."

Based on review of the actions implemented related to Commitment 17872, the inspectors determined the licensee had taken appropriate actions to develop their Subsection IWL inspection aging management program. This commitment is closed.

16.2.3.7 Augmented Inspections Program (19358)

The augmented inspections aging management program managed the effects of aging caused by cracking and loss of material in systems and components that did not require examination in accordance with ASME Section XI. During the previous inspection, the inspectors determined that the licensee established the same controls and performed similar nondestructive examinations as they performed for ASME Section XI components for this commitment with one exception.

During the previous inspection, the inspectors determined the licensee had not performed a one-time inspection of a reactor coolant pump cover because of the potential for high radiation exposure. The licensee had replaced three of the four reactor coolant pump covers and planned to replace the final reactor coolant pump cover in 2019. The licensee revised their commitment to evaluate the effects of aging by taking credit for a reactor coolant pump cover inspection performed at the Davis Besse Nuclear Power Station, Unit 1. The pump vendor supplied identical reactor coolant pumps to Davis Besse and Arkansas Nuclear One, Unit 1. Both facilities had similar operating

conditions (temperatures, pressures, etc.) except for chemistry controls. Davis Besse Nuclear Power Station, Unit 1, had demonstrated their chlorides remained well below the threshold that contributed to stress corrosion cracking. Arkansas Nuclear One, Unit 1, had not monitored for the presence of chlorides and fluorides. Consequently, the licensee reviewed historical records related to adding makeup water to the closed cooling water system. The licensee determined that, if they concentrated all accumulated chlorides in the pump cover for the life of the plant, the concentration would have remained below the stress corrosion cracking threshold of 50 ppm (parts per million). In addition to determining the chloride concentration for the life of the plant, the licensee initiated a flaw tolerance evaluation to determine the susceptibility of the pump cover to a flaw propagating. The licensee initiated Commitment 19358 to track completing the flaw tolerance evaluation.

During this inspection, the inspectors verified the licensee had updated their commitment and had completed the flaw tolerance evaluation, which the inspectors reviewed. The flaw tolerance evaluation demonstrated that the weakest link was a circumferential crack and that the maximum ASME code acceptable crack, if it were present, would take 88 years to propagate from the interior welds through the reactor coolant pump cover. The inspectors identified no concerns with the flaw tolerance evaluation.

Based on review of the actions implemented related to Commitment 19358 related to evaluating the likelihood of a reactor coolant pump casing flaw leaking rather than performing an augmented inspection, the inspectors determined that the licensee demonstrated that they had met their commitment. The inspectors determined that the licensee had met Commitment 8 related to conducting an inspection of their reactor coolant pump casing and an evaluation of the reactor coolant pump cover, as part of their augmented inspection aging management program. This commitment was described in a letter to file, Attachment 1.3, Arkansas Nuclear One, Unit 1 (ML070640041). This commitment is closed.

16.2.13 Maintenance Rule Structural Program (17875)

The Maintenance Rule structural aging management program managed the effects of aging caused by cracking, loss of material, and change in material properties of structures and components. This program included the structures and components identified as being within the scope of license renewal.

During the previous inspection the inspectors identified several issues that prevented closing this commitment. The inspectors questioned: (1) how the licensee planned to monitor whether changes had occurred between inspections; (2) means to retrieve the history of structural components (wall, floor, ceiling, support, etc.) or structures as a whole for other than the 5-year planned inspections; (3) the ability to readily retrieve all available history and trends and to monitor issues identified by other means; and (4) how the licensee monitored for changes in groundwater to determine whether the water chemistry had changed. The licensee issued LR-LAR-2010-00176, Corrective Action 316, to develop a tool to compile inspections, results, and findings that would provide a more effective retrieval of history related to structural components.

During this inspection, the inspectors determined that the licensee:

- Initiated a procedure change that will require the responsible engineer to make an acceptability evaluation according to the code of record.
- Changed their procedures to explicitly require personnel to search for any corrective action documents related to structural deficiencies prior to performing their inspections.
- Developed a database to capture, track, and trend issues identified during field walkdowns and by other means.
- Established requirements and acceptance criteria to sample ground water for pH, chlorides, and sulfates. The licensee defined a non-aggressive environment as one having pH greater than ($>$) 5.5, chlorides less than ($<$) 500 ppm, and sulfates less than ($<$) 1500 ppm. The licensee prescribed a 5-year monitoring frequency.

Based on review of the actions implemented related to Commitment 17875, the inspectors determined the licensee had taken appropriate actions to develop their Maintenance Rule structural aging management program. This commitment is closed.

16.3.1 Reactor Vessel Neutron Embrittlement (17850)

For the extension of plant service-life from 40 years to 60 years, the licensee identified neutron embrittlement of the beltline region, including pressurized thermal shock and Charpy upper-shelf energy reduction as requiring a time-limited aging analysis.

During the previous inspection, the inspectors determined that the licensee was performing an evaluation to demonstrate that the reactor vessel operating period could be extended from 31.2 to 54 effective full power years, which would allow operation through the end of the period of extended operation. Technical Specification 3.4.3 provided the analysis of the pressure and temperature limitations for reactor operations up to 31 effective full power years. Based on operating history of the plant, the licensee determined that they would achieve 31 effective full power years in 2015. The licensee stated they planned to submit a technical specification amendment request in June 2014 that justified extending the pressure temperature operating limits to 54 effective full power years.

During this inspection, the inspectors determined that the licensee submitted their technical specifications amendment request in Letter 1CAN081403, "License Amendment Request – Update the Reactor Coolant Pressure and Temperature and the Low Temperature Overpressure Protection System Limits," dated August 27, 2014. After submitting this technical specification amendment request, a licensee contractor found some inconsistencies in the original test data related to the orientation of test coupons. Consequently, the licensee withdrew and resubmitted the technical specification amendment request in Letter 1CAN111401, "License Amendment Request – Update the Reactor Coolant Pressure and Temperature and the Low Temperature Overpressure Protection System Limits," dated November 21, 2014. The

inspectors reviewed the effective full power year calculations and identified no concerns. Since this technical specification amendment was submitted for approval, the inspectors determined this commitment can be closed since the review and outcome was controlled by another regulatory process.

Based on review of the actions implemented related to Commitment 17850, the inspectors determined the licensee had taken appropriate actions to update their reactor vessel neutron embrittlement time-limited aging analysis. This commitment is closed.

4OA6 Meetings, Including Exit

The inspectors presented the inspection results to Ms. S. Pyle, Manager, Regulatory Assurance, and other members of the licensee staff during an exit meeting conducted on March 19, 2015. The licensee acknowledged the NRC inspection observations. The inspectors retained no proprietary information and verified that no proprietary information was documented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

P. Crosby, Engineer III, Program Engineering
M. Estep, Engineer III, Design Engineering
J. Gray, Engineer III, Program Engineering
D. James, Director, Regulatory Recovery
J. Krentz, Engineer II, Design Engineering
J. McCoy, Director, Engineering
N. Mosher, License Specialist IV, Regulatory Assurance
S. Pyle, Manager, Regulatory Assurance
C. Walker, Senior Engineer, Program Engineering

License Renewal

R. Fougerousse, Consultant, License Renewal – Analysis
E. Gresh, Project Manager
L. Howard, Consultant, License Renewal
M. McInerney, Consultant, License Renewal

COMMITMENTS

The inspectors closed Commitments 17850, 17851, 17855, 17872, 17875, and 19358 in this inspection report.

Additionally, as described in letter, “Commitment Lists for Renewed Operating License (ROL) Plants with No Commitment Appendix Attached to Its ROL Safety Evaluation Reports/NUREGs for Use with IP 71003,” dated March 6, 2007, Attachment 1.3, Arkansas Nuclear One, Unit 1, had 11 commitments listed. The inspectors closed Commitments 5, 7, and 8 that coincide with Commitments 17851, 17855, and 19358, respectively, during this inspection.

Commitments previously closed include:

NRC closed the following Commitments in Inspection Report 05000313/2014007:

17826, 17827, 17828, 17829, 17830, 17831, 17832, 17833, 17834, 17835 & 17843, 17836, 17837, 17838, 17839, 17840 & 17870, 17841, 17844, 17845 & 17846, 17847, 17848, 17849, 17852, 17853, 17854, 17856, 17857, 17858, 17859, 17860 & 17866, 17861, 17862, 17864, 17865, 17867, 17868, 17869, 17871, 17873, 17874, 17876, 17877, 17878, 17879, 17880, 17881, and 17882

Also, NRC closed Commitments 1, 2, 3, 4, 6, 9, 10, and 11 listed in Attachment 1.3 of the March 6, 2007, letter to file described above.

NRC closed Commitments 17842, 17863, and 17882 in Inspection Report 05000313/2013008.

DOCUMENTS REVIEWED

Condition Reports (CR-ANO-1-)

2014-00092 2015-00151

Letters

<u>Number</u>	<u>Title</u>	<u>Date</u>
1CAN051403	Reactor Vessel Internals Aging Management Program Plan	May 20, 2014
1CAN081403	License Amendment Request – Update the Reactor Coolant Pressure and Temperature and the Low Temperature Overpressure Protection System Limits	August 27, 2014
1CAN111401	License Amendment Request – Update the Reactor Coolant Pressure and Temperature and the Low Temperature Overpressure Protection System Limits	November 21, 2014

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Overview of Basis for Changing ASME Section XI Augmented Inspections Program Commitment for One-Time Visual Inspection of Reactor Coolant Pump Cover Prior to Period of Extended Operation	
1301077.401	Water Chemistry Data Evaluation: ANO-1 Reactor Coolant Pump Cover Stress Corrosion Cracking Assessment	1
1301077.402	Flaw Tolerance Evaluation of ANO-1 Reactor Coolant Pump Cover	0
EPRI-1022187	Plant Susceptible Screening for Erosive Attack	November 2010
Calculation ANO1-ME-11-00027	Review of the Wall Thinning Inspection Aging Management Program for License Renewal Implementation	0
LR-LAR-2010-00176	Corrective Actions Related to the Commitments Evaluated During This Inspection	
SEP-CISI-ANO-001	Containment Tendon Inspection	11

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
SEP-FTP-ANO1-001	Arkansas Nuclear One, Unit 1, Reactor Vessel Integrity Program	0
SEP-PVI-ANO1-001	ANO (PWR) Pressure Vessel Internals Program	0
SEP-UIP-ANO	Underground Components Inspection Plan (Rad and Non-Rad Lines)	0 & 1
SEP-WTI-ANO-001	Wall Thinning Inspection (WTI) Program	1

Modifications

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EC-46763	Wall Thinning Aging Management Program Scope	0
EC-46765	1R24 Flow Accelerated Corrosion Program Final Inspection	0

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CEP-C11-004	General and Detailed Visual Examination of Concrete Containments	37
EN-DC-133	PWR Vessel Internals Program	0
EN-DC-150	Condition Monitoring and Maintenance Rule Structure	7
EN-DC-205	Maintenance Rule Monitoring	5
EN-DC-329	Engineering Control and Oversight	6
EN-DC-343	Underground Piping and Tanks Inspection and Monitoring Program	9
EN-VM-105	Planning	15