



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION IV  
1600 E LAMAR BLVD  
ARLINGTON, TX 76011-4511

September 1, 2015

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

**SUBJECT: MID-CYCLE ASSESSMENT LETTER FOR ARKANSAS NUCLEAR ONE,  
UNITS 1 AND 2 (REPORT 05000313/2015005 AND 05000368/2015005)**

Dear Mr. Browning:

On August 13, 2015, the Nuclear Regulatory Commission (NRC) completed its mid-cycle performance review of Arkansas Nuclear One, Units 1 and 2. The U.S. Nuclear Regulatory Commission reviewed the most recent quarterly performance indicators (PIs) in addition to inspection results and enforcement actions from July 1, 2014 through June 30, 2015. This letter informs you of the U.S. Nuclear Regulatory Commission's assessment of your facility during this period and its plans for future inspections at your facility.

The NRC determined the performance at Arkansas Nuclear One, Units 1 and 2 during the most recent quarter was within the Multiple/Repetitive Degraded Cornerstone Column of the U.S. Nuclear Regulatory Commission's Reactor Oversight Process (ROP) Action Matrix based on having one Yellow finding in the Initiating Events Cornerstone for Units 1 and 2, and one Yellow finding in the Mitigating Systems Cornerstone for Units 1 and 2. In addition, based on the results of a Frequently Asked Question (FAQ) review completed by the ROP Working Group on February 19, 2015, you have revised your reported Unplanned Scrams per 7,000 Critical Hours PI in the Initiating Events Cornerstone for Unit 2, and the revised PI result was White for the second and third quarters of 2014, and then returned to Green in the fourth quarter of 2014.

In a letter to you dated June 23, 2014 (ML14174A832), the U.S. Nuclear Regulatory Commission informed you of its final significance determination associated with an inspection finding in the Initiating Events Cornerstone for Units 1 and 2 that was identified in the first quarter of 2014. That finding, which the NRC concluded was of substantial safety significance (Yellow), involved your staff's failure to provide adequate oversight for the planned movement of the Unit 1 turbine stator in March 2013 using a temporary hoisting assembly.

In a letter to you dated January 22, 2015 (ML15023A076), the U.S. Nuclear Regulatory Commission informed you of its final significance determination associated with an inspection finding in the Mitigating Systems Cornerstone for Units 1 and 2 that was identified in the third quarter of 2014.

That finding, which the NRC concluded was of substantial safety significance (Yellow), involved your staff's failure to design, construct, and maintain the Units 1 and 2 auxiliary building and emergency diesel fuel storage building flood barriers so that they would protect safety-related equipment from flooding. In addition to ROP baseline inspections, the NRC plans to conduct a supplemental inspection in accordance with Inspection Procedure 95003, "Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs or One Red Input." The objectives of this inspection are: (1) to provide information to be used to determine whether continued operation of the facility is acceptable and whether additional regulatory actions are necessary to arrest declining plant performance; (2) to provide an independent assessment of the extent of risk significant issues to aid in the determination of whether an unacceptable margin of safety or security exists; (3) to independently assess the adequacy of the programs and processes used by the licensee to identify, evaluate, and correct performance issues; (4) to independently evaluate the adequacy of programs and processes in the strategic performance areas; (5) to provide insight into the overall root and contributing causes of the identified performance deficiencies; (6) to determine if the NRC oversight process provided sufficient warning to significant reductions in safety; and (7) to evaluate your licensee's third-party safety culture assessment and conduct a graded assessment of your safety culture based on the results of the evaluation. You will receive separate notification when we schedule this inspection.

The U.S. Nuclear Regulatory Commission also plans to conduct a supplemental inspection in accordance with Inspection Procedure 95001, "Supplemental Inspection for One or Two White Inputs in a Strategic Performance Area," due to the Unplanned Scrams per 7000 Critical Hours PI transitioning to the White (low to moderate safety significance) range for the second and third quarters of 2014. The objectives of this inspection are: (1) to provide assurance that the root causes and contributing causes of risk-significant performance issues are understood; (2) to provide assurance that the extent of condition and extent of cause of risk-significant performance issues are identified; (3) to provide assurance that the corrective actions for risk-significant performance issues are sufficient to address the root and contributing causes and prevent recurrence. We will plan this inspection when you notify us in writing of your readiness for inspection.

The enclosed inspection plan lists the inspections scheduled through June 30, 2017. Routine inspections performed by resident inspectors are not included in the inspection plan. The inspections listed during the second half of the inspection plan are tentative and may be revised at the end-of-cycle performance review. The U.S. Nuclear Regulatory Commission provides the inspection plan to allow for the resolution of any scheduling conflicts and personnel availability issues. The U.S. Nuclear Regulatory Commission will contact you as soon as possible to discuss changes to the inspection plan should circumstances warrant any changes. This inspection plan does not include security related inspections, which will be sent via separate, non-publicly available correspondence.

In accordance with Inspection Manual Chapter 0305, "Operating Reactor Assessment Program," the U.S. Nuclear Regulatory Commission is considering conducting an additional problem identification and resolution inspection during the second half of 2016. You will be notified separately when this inspection is scheduled.

In response to the accident at Fukushima, the Commission issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," which requires licensees to develop, implement, and maintain guidance

and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities following a beyond-design-basis external event. Additionally, the Commission issued Order EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," which requires licensees to have a reliable means of remotely monitoring wide-range Spent Fuel Pool levels to support effective prioritization of event mitigation and recovery actions in the event of a beyond-design-basis external event. The U.S. Nuclear Regulatory Commission is conducting audits of licensee efforts towards compliance with these Orders. The audit has been completed for Arkansas Nuclear One, and the information gathered will aid staff in development of the ultimate Safety Evaluation for the site. After the NRC staff receives the Final Compliance letter for the site, the Final Safety Evaluation will be issued. Then, the U.S. Nuclear Regulatory Commission staff will confirm through inspections the full implementation of the orders mentioned above by performing Temporary Instruction 2515/191, "Inspection of the Implementation of Mitigating Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans."

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the U.S. Nuclear Regulatory Commission's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the U.S. Nuclear Regulatory Commission Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Please contact Neil O'Keefe at (817) 200-1574 with any questions you have regarding this letter.

Sincerely,

*/RA/*

Marc L. Dapas  
Regional Administrator  
Region IV

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

Enclosure:  
Arkansas Nuclear One  
Units 1 and 2 Inspection/Activity Plan

and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities following a beyond-design-basis external event. Additionally, the Commission issued Order EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," which requires licensees to have a reliable means of remotely monitoring wide-range Spent Fuel Pool levels to support effective prioritization of event mitigation and recovery actions in the event of a beyond-design-basis external event. The U.S. Nuclear Regulatory Commission is conducting audits of licensee efforts towards compliance with these Orders. The audit has been completed for Arkansas Nuclear One, and the information gathered will aid staff in development of the ultimate Safety Evaluation for the site. After the NRC staff receives the Final Compliance letter for the site, the Final Safety Evaluation will be issued. Then, the U.S. Nuclear Regulatory Commission staff will confirm through inspections the full implementation of the orders mentioned above by performing Temporary Instruction 2515/191, "Inspection of the Implementation of Mitigating Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans."

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the U.S. Nuclear Regulatory Commission's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the U.S. Nuclear Regulatory Commission Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Please contact Neil O'Keefe at (817) 200-1574 with any questions you have regarding this letter.

Sincerely,

/RA/

Marc L. Dapas  
Regional Administrator  
Region IV

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

Enclosure:  
Arkansas Nuclear One  
Units 1 and 2 Inspection/Activity Plan

ADAMS ACCESSION NUMBER: ML15243A553

<input checked="" type="checkbox"/> SUNSI Review By: NOKeefe		ADAMS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available		<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive	
OFFICE	RIV/BC/DRP	RIV/D/DRS	RIV/D/DRP	RIV/RA			
NAME	NOKeefe; RDR	AVegel	TPruett	MLDapas			
SIGNATURE	/RA/	/RA/	/RA/	/RA/			
DATE	8/26/15	8/26/15	8/27/15	8/27/15			

OFFICIAL RECORD COPY

Letter to Jeremy Browning from Neil O'Keefe dated September 1, 2015

SUBJECT: MID-CYCLE ASSESSMENT LETTER FOR ARKANSAS NUCLEAR ONE,  
UNITS 1 AND 2 (REPORT 05000313/2015005 AND 05000368/2015005)

DISTRIBUTION:

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 (Margaret.Tobin@nrc.gov)  
Resident Inspector (Andy.Barrett@nrc.gov)  
Branch Chief, DRP/E (Neil.OKeefe@nrc.gov)  
Senior Project Engineer, DRP/E (John.Dixon@nrc.gov)  
Project Engineer, DRP/E (Brian.Correll@nrc.gov)  
Project Engineer, DRP/E (Jackson.Choate@nrc.gov)  
Public Affairs Officer (Victor.Dricks@nrc.gov)  
Public Affairs Officer (Lara.Uselding@nrc.gov)  
RIV State Liaison Officer (Bill.Maier@nrc.gov)  
Project Manager (Andrea.George@nrc.gov)  
Acting Team Lead DRS/TSS (Eric.Ruesch@nrc.gov)  
Director, DIRS, NRR (Scott.Morris@nrc.gov)  
Deputy Director, DIRS, NRR (Allen.Howe@nrc.gov)  
Director, DORL, NRR (Anne.Boland@nrc.gov)  
Deputy Director, DORL, NRR (George.Wilson@nrc.gov)  
Director, NSIR/DPR (Rob.Lewis@nrc.gov)  
Chief, PLB IV, DORL, NRR (Michael.Markley@nrc.gov)  
Regional Counsel (Karla.Fuller@nrc.gov)  
RITS Coordinator (Marisa.Herrera@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 (Cindy.Rosales-Cooper@nrc.gov)  
ROAssessment Resource@nrc.gov  
ROPreports@nrc.gov

Distribution via Listserv for Arkansas Nuclear One

**Arkansas Nuclear One**  
**Inspection / Activity Plan**  
**07/01/2015 - 06/30/2017**

Unit Number	Planned Dates Start	Planned Dates End	Inspection Activity	Title	No. of Staff on Site
			<b>EXAM - INITIAL OPERATOR EXAM</b>		4
2	07/27/2015	07/31/2015	X02545	INITIAL EXAM ANO (8/2015)	
2	08/24/2015	08/29/2015	X02545	INITIAL EXAM ANO (8/2015)	
1, 2	07/13/2015	07/17/2015	<b>EB1-07</b>	<b>- ANO TRIENNIAL HEAT SINK PERFORMANCE</b> Heat Sink Performance	1
2	01/01/2016	02/29/2016	<b>95003</b>	<b>- 95003 PREPARATION AND INSPECTION</b> Adverse Weather (System/Seasonal)	28
1, 2	01/01/2016	02/29/2016	IP 7111101-Seasonal	Adverse Weather (System/Seasonal)	
1, 2	01/01/2016	02/29/2016	IP 95003	Inspection For Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inp	
2	09/21/2015	10/02/2015	<b>71111.08</b>	<b>- INSERVICE INSPECTION 2R24</b> Inservice Inspection Activities - PWR	1
1, 2	10/05/2015	10/09/2015	<b>EP-1</b>	<b>- BIENNIAL EP PROGRAM INSPECTION</b> Alert and Notification System Testing	1
1, 2	10/05/2015	10/09/2015	IP 71111402	Alert and Notification System Testing	
1, 2	10/05/2015	10/09/2015	IP 71111403	Emergency Preparedness Organization Staffing and Augmentation System	
1, 2	10/05/2015	10/09/2015	IP 71111404	Emergency Action Level and Emergency Plan Changes	
1, 2	10/05/2015	10/09/2015	IP 7111405	Correction of Emergency Preparedness Weaknesses and Deficiencies	
1, 2	10/05/2015	10/09/2015	<b>EP-2</b>	<b>- EP PERFORMANCE INDICATORS</b> Drill/Exercise Performance	1
1, 2	10/05/2015	10/09/2015	IP 71151-EP01	Drill/Exercise Performance	
1, 2	10/05/2015	10/09/2015	IP 71151-EP02	ERO Readiness	
1, 2	10/05/2015	10/09/2015	IP 71151-EP03	Alert & Notification System Reliability	
1	07/25/2016	07/29/2016	<b>EXAM - INITIAL EXAM ANO U1</b>		5
1	08/22/2016	09/02/2016	X02568	INITIAL EXAM ANO UNIT 1 (08/2016)	
			X02568	INITIAL EXAM ANO UNIT 1 (08/2016)	
1, 2	06/06/2016	06/10/2016	<b>EB2-05XT</b>	<b>- TRIENNIAL FIRE PROTECTION INSPECTION</b> Fire Protection - NFPA 805 (Triennial)	4
1, 2	06/20/2016	06/24/2016	IP 7111105X	Fire Protection - NFPA 805 (Triennial)	
			<b>EXAM - INITIAL EXAM</b>		5
2	01/09/2017	01/13/2017	X02585	INITIAL EXAM ANO UNIT 2 (02/2017)	
2	02/06/2017	02/10/2017	X02585	INITIAL EXAM ANO UNIT 2 (02/2017)	
1, 2	06/27/2016	07/01/2016	<b>RS 5678</b>	<b>- RADIATION SAFETY - TEAM</b> Radiation Monitoring Instrumentation	4
1, 2	06/27/2016	07/01/2016	IP 71124.05	Radiation Monitoring Instrumentation	
1, 2	06/27/2016	07/01/2016	IP 71124.06	Radioactive Gaseous and Liquid Effluent Treatment	
1, 2	06/27/2016	07/01/2016	IP 71124.07	Radiological Environmental Monitoring Program	
1, 2	06/27/2016	07/01/2016	IP 71124.08	Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation	

This report does not include INPO and OUTAGE activities.

This report shows only on-site and announced inspection procedures.

**Arkansas Nuclear One**  
**Inspection / Activity Plan**  
**07/01/2015 - 06/30/2017**

Unit Number	Planned Dates Start	Planned Dates End	Inspection Activity	Title	No. of Staff on Site
1	07/18/2016	07/22/2016	<b>INSP</b> IP 7111111B	<b>- BIENNIAL REQUAL INSPECTION U1</b> Licensed Operator Requalification Program	2
2	07/18/2016	07/22/2016	<b>INSP</b> IP 7111111B	<b>- BIENNIAL REQUAL INSPECTION U2</b> Licensed Operator Requalification Program	2
1	08/22/2016	08/26/2016	<b>EP-2</b> IP 71151-EP01	<b>- EP PERFORMANCE INDICATORS</b> Drill/Exercise Performance	2
1	08/22/2016	08/26/2016	IP 71151-EP02	ERO Readiness	
1	08/22/2016	08/26/2016	IP 71151-EP03	Alert & Notification System Reliability	
1,2	08/22/2016	08/26/2016	<b>EP-3</b> IP 7111401	<b>- BIENNIAL EP EXERCISE INSPECTION</b> Exercise Evaluation	4
1,2	08/22/2016	08/26/2016	IP 7111404	Emergency Action Level and Emergency Plan Changes	
1,2	08/29/2016	09/02/2016	<b>TSB 52B</b> IP 71152B	<b>- BIENNIAL PI&amp;R INSPECTION</b> Problem Identification and Resolution	4
1,2	09/12/2016	09/16/2016	IP 71152B	Problem Identification and Resolution	
1,2	09/26/2016	09/30/2016	<b>RS 12 PI</b> IP 71124.01	<b>- RADIATION SAFETY</b> Radiological Hazard Assessment and Exposure Controls	2
1,2	09/26/2016	09/30/2016	IP 71124.02	Occupational ALARA Planning and Controls	
1,2	09/26/2016	09/30/2016	IP 71151-OR01	Occupational Exposure Control Effectiveness	
1,2	09/26/2016	09/30/2016	IP 71151-PR01	RETS/ODCM Radiological Effluent Occurrences	
1	09/26/2016	10/07/2016	<b>71111.08</b> IP 7111108P	<b>- INSERVICE INSPECTION 1R26</b> Inservice Inspection Activities - PWR	1
1,2	10/31/2016	12/02/2016	<b>EB1-21T</b> IP 7111121	<b>- ANO COMPONENT DESIGN BASIS INSPECTION</b> Component Design Bases Inspection	5
1,2	03/13/2017	03/17/2017	<b>RS 13 PI</b> IP 71124.01	<b>- RADIATION SAFETY</b> Radiological Hazard Assessment and Exposure Controls	3
1,2	03/13/2017	03/17/2017	IP 71124.03	In-Plant Airborne Radioactivity Control and Mitigation	
1,2	03/13/2017	03/17/2017	IP 71151-OR01	Occupational Exposure Control Effectiveness	
1,2	03/13/2017	03/17/2017	IP 71151-PR01	RETS/ODCM Radiological Effluent Occurrences	
2	03/13/2017	03/23/2017	<b>71111.08</b> IP 7111108P	<b>- INSERVICE INSPECTION 2R25</b> Inservice Inspection Activities - PWR	1
2	03/20/2017	03/24/2017	<b>EB2-03</b> IP 71003	<b>- LICENSE RENEWAL INSPECTION (PHASE 1)</b> Post-Approval Site Inspection for License Renewal	2

This report does not include INPO and OUTAGE activities.

This report shows only on-site and announced inspection procedures.

Arkansas Nuclear One  
Inspection / Activity Plan  
07/01/2015 - 06/30/2017

Unit Number	Planned Dates Start	Planned Dates End	Inspection Activity	Title	No. of Staff on Site
-------------	---------------------	-------------------	---------------------	-------	----------------------

**TSB 52B - BIENNIAL PI&R**

1, 2	05/01/2017	05/05/2017	IP 71152	Problem Identification and Resolution	
1, 2	05/15/2017	05/19/2017	IP 71152	Problem Identification and Resolution	

4

---

This report does not include INPO and OUTAGE activities.  
This report shows only on-site and announced inspection procedures.