



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

March 26, 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, UNITS 1 AND 2 – NRC FIRE
PROTECTION BASELINE INSPECTION REPORT (NRC INSPECTION
REPORT 05000313/2019010 AND 05000368/2019010)

Dear Mr. Anderson:

On February 14, 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 you and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any finding or violation of more than minor significance.

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/

Frances C. Ramirez, Chief
Engineering Branch 2
Division of Reactor Safety

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

Enclosure:
Inspection Report 05000313/2019010
and 05000368/2019010

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Numbers: 05000313 and 05000368

License Numbers: DPR-51 and NPF-6

Report Numbers: 05000313/2019010 and 05000368/2019010

Enterprise Identifier: I-2019-010-0000

Licensee: Entergy Operations, Inc.

Facility: Arkansas Nuclear One, Units 1 and 2

Location: Russellville, Arkansas

Inspection Dates: January 27, 2019, to February 14, 2019

Inspectors: J. Mateychick, Senior Reactor Inspector
S. Alferink, Reactor Inspector
B. Correll, Reactor Inspector
C. Stott, Reactor Inspector

Approved By: Frances C. Ramirez, Chief
Engineering Branch 2
Division of Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a triennial fire protection 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.

List of Findings and Violations

No findings or violations of more than minor significance were identified during the inspection.

INSPECTION SCOPES

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 Inspection Manual Chapter (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

71111.05XT - Fire Protection - NFPA 805 (Triennial)

02.01a Fire Protection Inspection Requirements (4 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas and/or fire zones in Unit 1:

(1) Fire Area B-1

- Fire Zone 120-E, "Boric Acid Addition Tank and Pump Room"
- Fire Zone 149-E, "Upper North Electrical Penetration Room"

(2) Fire Area G

- Fire Zone 97-Z, "Cable Spreading Room"
- Fire Zone 129-F, "Control Room"

(3) Fire Area F, Fire Zone 110-L, "South Battery Room"

(4) Fire Area I-1, Fire Zone 98-J, "Uncontrolled Access Corridor"

02.03 B.5.b Inspection Activities (1 Sample)

The inspectors evaluated the following B.5.b Mitigating Strategy: Unit 1 S/G Fill Using B.5.b Portable Pump and Fire Water

INSPECTION RESULTS

The NRC inspectors did not identify any finding or violation of more than minor significance.

EXIT MEETINGS AND DEBRIEFS

On February 14, 2019, the inspector presented the triennial fire protection inspection results to Mr. R. Anderson, Site Vice President, and other members of the licensee staff. The inspectors verified no proprietary information was retained or documented in this report.

DOCUMENTS REVIEWED

71111.05XT - Fire Protection - NFPA 805 (Triennial)

Condition Reports

CR-ANO-1-2016-02865	OE-NOE-2017-00369	CR-ANO-C-2019-00481*
CR-ANO-1-2019-00331*	CR-ANO-C-2019-00138*	CR-ANO-C-2019-00330*
CR-ANO-C-2019-00334	CR-ANO-C-2019-00338*	CR-ANO-C-2019-00356*
CR-HQN-2019-00229*	CR-ANO-C-2006-00048	CR-ANO-1-2017-02151
CR-ANO-C-2016-03917	CR-ANO-C-2016-05172	CR-ANO-C-2017-01899
CR-ANO-C-2017-03649	CR-ANO-C-2018-01485	CR-ANO-2-2019-00396*
CR-ANO-C-2019-00544*	CR-ANO-C-2019-00330*	CR-ANO-1-2017-00366
CR-ANO-C-2016-01065	CR-ANO-C-2016-01798	CR-ANO-C-2016-01802
CR-ANO-C-2016-01924	CR-ANO-C-2016-02693	CR-ANO-C-2016-02845
CR-ANO-C-2016-03534	CR-ANO-C-2017-00634	CR-ANO-C-2017-00938
CR-ANO-C-2017-01171	CR-ANO-C-2017-01185	CR-ANO-C-2017-01186
CR-ANO-C-2017-01622	CR-ANO-C-2017-03749	CR-ANO-C-2017-04485
CR-ANO-C-2017-04825	CR-ANO-C-2018-03184	CR-ANO-C-2018-03392
CR-ANO-C-2019-00303	CR-ANO-C-2019-00334*	CR-ANO-1-2019-00350*

*Issued as a result of inspection activities.

Work Orders

52555301	52672873	52781840	52784156	52797460	52799637
52318884	52668906	52561254	52636369	52652493	52656026
52670078	52791217	52791217	407051-01	52740987	52750973
52759849	52768936	52780282	52789883	52800501	

Procedures

Number	Title	Revision or Date
COPD-024	Risk Assessment Guidelines	67
EN-DC-115	Engineering Change Process	26
EN-DC-127	Control of Hot Work and Ignition Sources	20
EN-DC-128	Fire Protection Impact Reviews	12
EN-DC-161	Control of Combustibles	18
EN-DC-179	Preparation of Fire Protection Engineering Evaluations	5
EN-DC-329	Engineering Programs Control and Oversight	6
EN-DC-330	Fire Protection Program	5
EN-DC-357	NFPA 805 Monitoring Program	3
1000.125	ANO Fire Impairment Program	25
1003.005	Fire Prevention Inspection	19
1003.014	ANO Fire Protection Program	9
1003.015	ANO NFPA 805 Monitoring Program	1
1063.02	Fire Brigade Training Program	17
1104.032	Fire Protection Systems	90
1106.007	Common Feedwater System	5
1203.002	Alternate Shutdown	0
1203.049	Fires in Areas Affecting Safe Shutdown	14
1305.016	Safe Shutdown Instrumentation and Equipment Periodic Testing	28
1306.005	Unit 1 Fire Door Inspection	28

Procedures		
Number	Title	Revision or Date
1306.014	Unit 1 Control Room and Auxiliary Control Room Halon Fire System Inspection	31
1306.015	Unit 1 Fire Hose Station Testing and Hydrostatic Test	35
1306.035	Fire Damper Surveillance Test	9
1307.012	Unit 1 Fire Detection Performance Test	63
1405.016	Unit 1 Penetration Fire Barrier Visual Inspection	25
2105.014	Safety Parameter Display System Operation	18
2203.014	Alternate Shutdown	36
2203.034	Fire or Explosion	22
1203.048	Security Event	36
EN-DC-359	Fire Risk Management During Non-Power Operations for NFPA 805 Plants	2
1203.002	Alternate Shutdown	29
1015.002 ATT J	Decay Heat Removal and LTOP System Control – Protected Area and Interconnecting System Valve Control	3/25/18
1015.002 ATT J	Decay Heat Removal and LTOP System Control – Protected Area and Interconnecting System Valve Control	4/01/18
1015.002 ATT J	Decay Heat Removal and LTOP System Control – Protected Area and Interconnecting System Valve Control	5/01/18
1015.048 ATT F	Shutdown Operations Protection Plan – SOPP for Unit 1 Shutdown Condition 6	3/27/18
1015.048 ATT F	Shutdown Operations Protection Plan – SOPP for Unit 1 Shutdown Condition 6	5/03/18
1015.002 ATT A	Decay Heat Removal and LTOP System Control	3/04/18
1015.002 ATT A	Decay Heat Removal and LTOP System Control	4/01/18
1015.002 ATT A	Decay Heat Removal and LTOP System Control	5/01/18

Drawings		
Number	Title	Revision
E-1, Sheet 3	Common Feedwater 4.16KV Swgr Bus A-15 and A19	0
E-20, Sheet 3	Common Feedwater 480V AC Power Distribution Panels PP51 and PP91	0
E-4, Sheet 2	Common Feedwater 4.16KV Swgr Bus A-15	0
E-4, Sheet 3	Common Feedwater 4.16KV Swgr Bus A-19	0
E-17, Sheet 4	Common Feedwater 125V DC Power Distribution Panel D-151 and D-191	0
E-4, Sheet 1	Meter & Relay Diagram 4160V System Main Supply	32
E-1, Sheet 1	Station Single Line Diagram	62
E-199, Sheet 2	Reactor Coolant Pressurizer ERV Isolation Valve CV1000	15
E-416, Sheet 1	Intake Structure Sluice Gate (SG-1)	13
E-416, Sheet 4	Intake Structure Sluice Gate (SG-5)	11
E-182, Sheet 1C	Reactor Building Sump to Pump P34B Block Valve CV-1406	3
E-216, Sheet 1B	Letdown Coolers E-29A/B Isolation Valve CV-1221	3
E-195, Sheet 1	Limit and Torque Switch Development for MOV's and SOV's	8
E-76, Sheet 1	Typical Circuit Breaker 6900V and 4160V Switchgear	17
E-310, Sheet 3	Common Feedwater Control Valve CV-2660A	0
E-2942, Sheet 2	EP Communication Block Diagram	0

Drawings		
Number	Title	Revision
FP-101	Lower Level Piping	4
FP-102	Upper Level Piping	4
FP-104	FP-104 LL North Piping	4
FP-105	FP-105 LL & UL South Piping	4
M-219, Sheet 1	Piping and Instrument Diagram Fire Water	91
M-2219, Sheet 1	Piping and Instrument Diagram Fire Water	65
M-2219, Sheet 2	Piping and Instrument Diagram Fire Water	71
M-2219, Sheet 5	Piping and Instrument Diagram Unit One/Unit Two Outside Fire Water Loop	54
M-2219 Sheet 5A	Piping and Instrument Diagram AAC Generator Building Fire Water System	0

Miscellaneous Documents

Number	Title	Revision or Date
ASB 1203.002	Alternate Shutdown Procedure Basis Document	29
ER-ANO-2004-0195-000	ANO-1 & 2 Alternate Shutdown Communication System	0
010149	Adequacy of Portable Radios during an Alternate Shutdown Scenario	0
ULD-0-SYS-09	ANO Fire Protection System	7
ULD-0-T02-A	Fire Protection NFPA 805 Topical Fire Service Mutual Aid Agreement – Pope County, Arkansas	2 April 2010
	Letter of Agreement between Entergy Operations, Inc. and London Rural Volunteer Fire Department	12/13/18
	Unit 1 Fire Hazards Analysis	18
	Unit 1 Safety Analysis Report	29
	Unit 1 Technical Requirements Manual	66

Vendor Document

Number	Title	Revision
TDL0150050	Non 1E Switchgear Backup DC Control Power System	1

Modifications

Number	Title	Revision
EC46524	Resolve NFPA-805 Information Notice 92-18 Issues and Spurious Operation of ANO-1 MOV's CV-1221, CV-1405, CV-1406, SG-1, SG-2, SG-3, SG-4	0
EC58985	ANO-1 Electrical Penetration Room Sprinkler Modifications In Accordance With NFPA 805	0
EC66040	ANO-1 Fire Damper Upgrade	0
EC73886	ANO-1 Fire Barrier Upgrade for Redefined Fire Area Boundaries	0
EC 57037	CV-1404 P34A/B Reactor Coolant Decay Heat Suction Isolation Valve - Install Inhibit Circuit to Prevent Spurious MOV Operation – Unit 1 NFPA 805 LAR Item S1-35	0
EC49871	H1 & H2 Switchgear Control Power Upgrade (Child EC) NFPA 805 ANO Unit 1 Items S1-5 and S1-6	0
EC54998	A2 Switchgear Control Power Upgrade (Child EC) NFPA 805 ANO Unit 1 Item S1-3	0
EC47521	Child EC for EC46524 – Resolve IN 92-18 Issues and Spurious	0

Modifications

Number	Title	Revision
EC48709	Operation of ANO-1 MOV CV-1406 Unit 1 and Unit 2 Switchgear Control Power Upgrade	1

Engineering Reports

Number	Title	Revision
PSA-ANO1-03	ANO-1 Fire Probabilistic Risk Assessment (FPRA) Summary Report	5
PSA-ANO1-01-SC-02	ANO-1 MAAP 4.0.5 Analysis to Support the Fire PRA	0
PSA-ANO1-03-FSS	ANO-1 Fire PRA Scenario Report	0
PSA-ANO1-03-HRA	ANO-1 Fire PRA Human Reliability Analysis (HRA) Notebook	0

Calculations

Number	Title	Revision
CALC-10-E-0023-01	ANO-1 Fire Area B-1@120-E Risk Evaluation	0
CALC-10-E-0023-17	ANO-1 Fire Area F Risk Evaluation	0
CALC-10-E-0023-18	ANO-1 Fire Area G Risk Evaluation	0
CALC-10-E-0023-20	ANO-1 Fire Area I-1 Risk Evaluation	0
CALC-83-E-0063-13	Summary Calculation – Flooding Depths due to Fire Protection Discharges and Known Elevations of Safety- Related Electrical Equipment	4
CALC-85-E-0072-05	Time to Core Uncovery Following Opening of the ANO-1 Electromatic Relief Valve with No Makeup Available	0
CALC-85-E-0086-01	SSCA Safe Shutdown Capability Assessment	10
CALC-85-E-0086-02	Manual Action Feasibility Methodology and Common Results	6
CALC-85-E-0086-18	Safe Shutdown Equipment List Methodology	4
CALC-09-E-0008-01	ANO-1 NFPA 805 Non-Power Operations Assessment	2
CALC-ANO1-FP-08-00001	Radioactive Release Transition Report	5
CALC-ANO1-FP-16-00002	ANO-1 NFPA 805 Monitoring Program Phase 2: Screening Using Risk Criteria and Phase 3: Risk Target Value Determination	1
CALC-ANOC-FP-14-00001	Evaluation of Dose Consequences from Fire in a Radwaste Container Stored in an Outside Area	0

ARKANSAS NUCLEAR ONE, UNITS 1 AND 2 – NRC FIRE PROTECTION BASELINE
 INSPECTION REPORT (NRC INSPECTION REPORT 05000313/2019010 AND
 05000368/2019010) – MARCH 26, 2019

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ADAMS ACCESSION NUMBER: ML19085A430

SUNSI Review: ADAMS: Non-Publicly Available Non-Sensitive Keyword:
 By: JMM Yes No Publicly Available Sensitive NRC-002

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