

May 9, 2000

LICENSEE: Entergy Operations, Inc

FACILITY: Arkansas Nuclear One, Unit 1

SUBJECT: APRIL 27, 2000 MEETING MINUTES, ARKANSAS NUCLEAR ONE, UNIT 1,
LICENSE RENEWAL APPLICATION REVIEW

Dear Mr. Anderson:

On April 27, 2000, members of the Entergy staff met with NRC staff members in a public meeting to discuss the license renewal application (LRA) for Arkansas Nuclear One, Unit 1 (ANO-1). Enclosure 1 to this letter is the handout from the meeting that identifies the specific areas of the LRA discussed during the meeting.

In general, the staff had concerns in the following areas: missing descriptions of attributes for various aging management programs, discrepancies between tables (and/or text) in the application, events or anticipated occurrences not addressed in scoping methodology, treatment of fatigue, and linkage between aging management programs and the applicable components, particularly for the auxiliary systems. In most areas, information needs involved subjects that were addressed by Duke or BG&E in their applications or responses to staff questions.

Entergy was responsive to the specific areas discussed and, in many cases, indicated that responses would not be difficult to prepare. They described their review process, and their reasons for the level of information provided in the application. We discussed the lessons from the review activities performed to date and the NRC staff will incorporate the lessons-learned into the license renewal process.

As a result of this meeting and the information shared, the staff is expecting revisions to the necessary tables to reflect the text of the LRA and Entergy's response to the staff's request for additional information (RAIs); additional details to supplement the LRA in response to the staff's RAIs, and identification of the appropriate references that will provide the basis for the aging management programs credited in the ANO-1 LRA.

C. G. Anderson

-2-

May 9, 2000

We will continue to exchange information as necessary to ensure a clear understand of the level of information needed for the staff's review, and an understand of Entergy's response to the staff's requests for information.

Sincerely,

/RA/

Robert J. Prato, Project Manager
License Renewal and Standardization Branch
Division of Regulatory Improvement Program
Office of Nuclear Reactor Regulation

Docket No. 50-313

Enclosure: As stated

cc w/encl: See next page

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/RA

Robert J. Prato, Project Manager
License Renewal and Standardization Branch
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cc w/encl: See next page

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*** See previous concurrence**

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NAME	EHylton *	RPrato *	RWessman *	CIGrimes
DATE	5/ 3 /00	5/ 3 /00	5/ 5 /00	5/ 9/00

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APRIL 27, 200, MEETING ATTENDANCE LIST
LICENSE RENEWAL APPLICATION TECHNICAL REVIEW

<u>Participant</u>	<u>Organization</u>
1. Edward Andruszkiewicz	NRC/NRR
2. Andrea Lee	NRC/NRR/DE/EMCB
3. John Fair	NRC/NRR/DE/EMEB
4. Amar Pall	NRC/NRR/DE/EEIB
5. Jeff Mulvehill	Southern Nuclear
6. Yueh-Li (Renee) Li	NRC/NRR/DE/EMEB
7. Meena Khanna	NRC/NRR/DE/EMCB
8. Sikhindra Mitra	NRR/NRR/DRIP/RLSB
9. Alan Cox	Entergy
10. Garry G. Young	Entergy
11. Natalie Mosher	Entergy Ops
12. J. Rajan	NRC/NRR/DE/EMEB
13. Hans Ashar	NRC/NRR/DE/EMEB
14. Dick Wessman	NRC/NRR/DE
15. Chris Grimes	NRC/NRR/DRIP/RLSB
16. Y. S. Kim	NRC/NRR/DE/EMEB
17. Farideh Saba	NUSIS
18. P. Milano	NRC/NRR/DE/EMCB
19. J. Davis	NRC/NRR/DE/EMCB
20. M. Banic	NRC/NRR/DE/EMCB
21. K. Wichman	NRC/NRR/DE/EMCB
22. Kamal Manoly	NRC/NRR/DE/EMEB
23. Goutam Bagchi	NRC/NRR/DE
24. George Georgiev	NRC/NRR/DE/EMCB
25. Juan Peralta	NRC/NRR/DIPM/IQMB
26. Greg Galletti	NRC/NRR/DIPM/IQMB
27. Duc Nguyen	NRC/NRR/DE/EEIB
28. Pat Patnaik	NRC/NRR/DE/EMCB
29. John Rycyna	CNS FOR OPPO
30. Butch Burton	NRC/NRR/DRIP/RLSB
31. David C. Jeng	NRC/NRR/DE/EMEB
32. W. H. Bateman	NRC/NRR/DE/EMCB
32. Robert Prato	NRC/NRR/DRIP/RLSB

ARKANSAS NUCLEAR ONE, UNIT 1

LICENSE RENEWAL APPLICATION

TECHNICAL REVIEW

ANO-1/OCONEE REVIEW COMPARISON (Scoping and Screening Methodology, Section 2.1)

<u>ISSUE</u>	<u>Oconee</u>	<u>ANO-1</u>	<u>Difference</u>
Scoping methodology	<p>Scoping of safety-related SSCs was based on DBEs including:</p> <p>(1) 20 DBAs - FSAR Chapter 15, Accident Analysis</p> <p style="text-align: center;">-and-</p> <p>(2) An additional 13 events including Anticipated Operational Occurrences, Natural Phenomema, and External Events</p>	<p>Scoping of safety-related SSCs was based on DBEs including:</p> <p>(1) 17 DBAs - FSAR Chapter 14, Accident Analysis</p>	<p>ANO-1 Application does not describe a methodology for scoping of safety related SSCs based on DBEs that include Anticipated Operational Occurrences, Natural Phenomema, and External Events</p>

**ANO-1/OCONEE REVIEW COMPARISON
(Reactor Coolant System/Section 3.2)**

<u>ISSUE</u>	<u>OCONEE</u>	<u>ANO-1</u>	<u>DIFFERENCE</u>
GSI-190	Plant Specific Resolution Incorporating Environmental Factors (NUREG-1723 Section 4.2)	Vague Reference to Risk Informed ISI Program	No Specific Proposal for Staff Review
Bulletin 88-08	Commitment to Verify Existing Analysis With Thermal Data (NUREG-1723 Section 4.2)	Statement that Scope of Previous Commitment Modified by ASME Code Case N-560	Details of Modified Inspection Program Not Provided

Contact: J. Fair

ANO-1/OCONEE REVIEW COMPARISON (Engineered Safeguards/Section 3.3)

<u>ISSUE</u>	<u>OCONEE</u>	<u>ANO-1</u>
ESF Components Subject to Aging Effects	Addressed Effects of Aging for Reactor Building Spray Nozzles, BWST Carbon Steel External Piping/Components, and Reactor Building Cooling System Heat Exchanger Copper Fins (Section 3.5.21).	Did Not Specifically Address the Effects of Aging for Reactor Building Spray Nozzles, BWST Carbon Steel External Piping/Components, and Reactor Building Cooling System Heat Exchanger Copper Fins (Section 3.3).

*Contact:
P. Milano*

ISSUE

OCONEE

ANO-1

Potential Aging Effects

Listed “Loss of Material” and “Cracking” as Potential Aging Effects Associated With the Exposure to a Boric Acid Environment (Section 3.5.3.1).

Only Listed “Cracking” as a Potential Aging Effect Associated With the Exposure to a Boric Acid Environment (Section 3.3).

Operating History

Provided Specific Reference With Regard to Reviews of Operating History With Affects on Aging (Section 3.5.3.2).

Specific Reference With Regard to Reviews of Operating History With Affects on Aging Was Not Provided (Section 3.3).

*Contact:
P. Milano*

**ANO-1/OCONEE REVIEW COMPARISON
(Steam and Power Conversion System/Section 3.5)**

<u>ISSUE</u>	<u>OCONEE</u>	<u>ANO-1</u>
Galvanic Corrosion	Identified the components that were potentially affected by the loss of material due to galvanic corrosion and discussed the galvanic susceptibility inspection that manages the aging effects of galvanic corrosion (Section 3.7.2.2).	Did not Identify the components that were potentially affected by the loss of material due to galvanic corrosion and did not address how the aging effects of galvanic corrosion would be managed (Section 3.5.2).

*Contact:
G.Georgiev*

ISSUE

OCONEE

ANO-1

Selective Leaching
of Cast Iron

Addressed the aging effects of selective leaching of the emergency feedwater system valve components made of cast iron and discussed how the aging effects of these components will be managed during extended operation (Section 3.7.2.2).

Did not address aging effects of selective leaching of the emergency feedwater system valve components made of cast iron and did not address how the aging effects of these components would be managed during extended operation (Section 3.5.3).

Contact:
G.Georgiev

**ANO-1/OCONEE REVIEW COMPARISON
(Structures and Structural Components/Section 3.6)**

<u>ISSUE</u>	<u>OCONEE</u>	<u>ANO-1</u>
Structural Joint Sealants and Caulking	Addressed How the Aging Effects of Structural Joint Sealants and Caulking Will be Managed During Extended Operation (Section 3.8.3.1.8).	Did Not Specify Structural Joint Sealants and Caulking as Components in the License Renewal Scope (Section 2.4). Did Not Provide Specific Information Addressing Aging Effects Management of Structural Joint Sealants and Caulking (Section 3.6).

Contact: D. Jeng

ANO-1/OCONEE REVIEW COMPARISON (Electrical I&C System and EQ/Section 3.7)

<u>ISSUE</u>	<u>OCONEE</u>	<u>ANO-1</u>
Electrical and Instrumentation and Control Component Types	Provided a List of Electrical and Instrumentation and Control <u>Component Types</u> (Section 2.2.3.7.2.1).	Only Identified Those <u>Systems</u> Containing Electrical Components That are in the Scope of LR (Section 2.2.1).
	Identified the Fire Protection Electrical Components (Section 2.2.3.7.2.1).	No Reference to Fire Protection Electrical Components (Section 2.5.2).

*Contacts:
D. Nguyen
A. Pal*

<u>ISSUE</u>	<u>OCONEE</u>	<u>ANO-1</u>
Underlying Assumptions Regarding EQ Calculations	Provided Discussion Regarding Major Plant Modifications or Events to Have Changed the Temperature and Radiation Values That Were Used in the Underlying Assumptions in the EQ Calculations (Section 4.2.8.2).	No Discussion Provided Regarding Major Plant Mods, etc. to Change the Temperature and Radiation Values Used in the Underlying Assumptions in EQ Calculations (Section 4.4).

Contacts:
D. Nguyen
A. Pal

ISSUE

Refined Temperature Data for the Reactor, Auxiliary, Turbine, and Alternate Diesel Buildings

OCONEE

Provided Discussion of How the Refined Temperature Data Was Determined (Section 4.2.8.2).

ANO-1

Discussion of the Determination of the Refined Temperature Data Was Not Provided (Section 4.4).

*Contacts:
D. Nguyen
A. Pal*

***Aging Management Program
Comparison
Oil Analysis Program***

Draft SRP Elements for Aging Management Program	Addressed in Oconee SER Section Number(s)	ANO-1 LRA Comment and Section Number(s)
Program Scope	3.6.3.3.2	4.14
<ul style="list-style-type: none"> • identified program 		Not Complete RAI: Table 3.4–2 of the LRA lists Oil Analysis as an aging management program for fouling in diesel fire pump subsystem heat exchanger(s). The environments listed are treated water for the inside of tubing and lube oil for the exterior of tubing. Please clarify whether the oil analysis program applies to fouling in a treated water environment.
<ul style="list-style-type: none"> • identified structures and components 		Discrepancies: RAI: The applicant cited Oil Analysis Program to manage loss of material in both carbon steel compressor and condenser (heat exchanger) bodies exposed to lubricating oil [Table 3.4-13]. But Section 4.14 of Appendix B to the LRA, which describes this program, includes control room ventilation compressor but not condenser within its scope. Please explain this discrepancy.
Preventive or Mitigative Actions	Not Stated/Not Required	Not Stated/Not Required
<ul style="list-style-type: none"> • described activities 		
<ul style="list-style-type: none"> • provided the basis for these activities 		

Draft SRP Elements for Aging Management Program	Addressed in Oconee SER Section Number(s)	ANO-1 LRA Comment and Section Number(s)
Parameters Inspected or Monitored		
<ul style="list-style-type: none"> • identified the parameters 		YES
<ul style="list-style-type: none"> • identified the technique for measuring 		NO RAI: Please describe the oil analysis process or methods used to detect a loss of material or cracking in a given component, i.e., how the measurement of particulates in an oil sample provides information leading to the detection of the applicable aging effect for a particular component.
Detection of Aging Effects		
<ul style="list-style-type: none"> • identified sampling frequency 		YES
Monitoring and Trending Activities		RAI: The applicant has not provided sufficient information to assess whether monitoring and trending activities are in place that would predict loss of material or cracking, and allow timely corrective actions for components exposed to lube oil environments. Please provide this information
<ul style="list-style-type: none"> • identified activities 		NO

Draft SRP Elements for Aging Management Program	Addressed in Oconee SER Section Number(s)	ANO-1 LRA Comment and Section Number(s)
Acceptance Criteria		
<ul style="list-style-type: none"> identified acceptance criteria 		<p>NO</p> <p>RAI: Please describe the acceptance criteria, and their bases with respect to applicable aging effects and environments, for the oil analysis activities listed in Section 4.14 of Appendix B to the LRA. Include the method(s) for analyzing results of the listed tests.</p>
<ul style="list-style-type: none"> provided the basis for the acceptance criteria 		<p>NO</p>
Operating Experience		
<ul style="list-style-type: none"> discussed operating experience with existing programs, including past corrective actions resulting in program enhancements 		<p>Not Complete</p> <p>RAI: In Section 4.14, Oil Analysis of Appendix B to the LRA, the applicant states that operating experience and monitoring of lube oil has shown that the oil has remained free of excess water, but does not address the presence of particulates. The staff would like to know whether the surfaces of components exposed to lubrication oil have experienced any significant losses of material or cracking thus far during operation at ANO-1. Provide objective evidence that the oil analysis activities will successfully manage the stated aging effects and ensure maintenance of intended functions of components in the applicable auxiliary systems.</p>

***Aging Management Program Comparison
Service Water Chemical Control***

Draft SRP Elements for Aging Management Program	Addressed in Oconee SER Section Number(s)	ANO-1 LRA Comment and Section Number(s)
Aging Management Program	Treated Water Systems Stainless Steel Inspection	Service Water Chemical Control
Program Scope		
<ul style="list-style-type: none"> • identified program 	4.3.13	4.6.5
<ul style="list-style-type: none"> • identified structures and components 	4.3.13	Not Specific
Preventive or Mitigative Actions		
<ul style="list-style-type: none"> • described activities 	4.3.13	Not Addressed
<ul style="list-style-type: none"> • provided the basis for these activities 	4.3.13	Not Addressed
Parameters Inspected or Monitored		
<ul style="list-style-type: none"> • identified the parameters 	4.3.13	Not Specific
<ul style="list-style-type: none"> • identified the technique for measuring 	4.3.13	Not Specific
Detection of Aging Effects		
<ul style="list-style-type: none"> • identified sampling frequency 	4.3.13	Not Specific "As Required"
Monitoring and Trending Activities		
<ul style="list-style-type: none"> • identified activities 	Not Identified	Not Identified

Draft SRP Elements for Aging Management Program	Addressed in Oconee SER Section Number(s)	ANO-1 LRA Comment and Section Number(s)
Acceptance Criteria		
<ul style="list-style-type: none"> • identified acceptance criteria 	4.3.13	Not Specific "In Site Procedures"
<ul style="list-style-type: none"> • provided the basis for the acceptance criteria 	4.3.13	Not Specific "Based on EPRI Guidelines" 4.6.5
Operating Experience		
<ul style="list-style-type: none"> • discussed operating experience with existing programs, including past corrective actions resulting in program enhancements 	Not Addressed One time inspection	General Discussion 4.6.5

Arkansas Nuclear One
Docket No. 50-313

cc:

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& Chief Operating Officer
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