

October 11, 2000

Licensee: Entergy Operations, Inc.

Facility: Arkansas Nuclear One, Unit 1

SUBJECT: TELECOMMUNICATION FOR CLARIFICATION OF INFORMATION
RELATING TO ANO-1 LRA

On September 13, 2000, September 18, 2000, September 20, 2000, and October 3, 2000, the staff had conference calls with members of Arkansas Nuclear One, Unit 1 (ANO-1), to obtain clarifying information for the applicant's responses to the staff's request for additional information relating to the Reactor Coolant System, Engineering Safety Features, Steam and Power Conversion Systems, and Fire Protection System. Enclosed is a summary for each of the telecommunications. Each summary contains a list of attendees, a description of each of the staff's concerns, and the specific clarification or additional information being requested by the staff.

/RA/

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

Docket Nos. 50-313

Enclosure: September 13, 2000 Telecommunications Summary
September 18, 2000 Telecommunications Summary
September 20, 2000 Telecommunications Summary
October 3, 2000 Telecommunication Summary

cc w/encl: See next page

Licensee: Entergy Operations, Inc.

Facility: Arkansas Nuclear One, Unit 1

SUBJECT: TELECOMMUNICATION FOR CLARIFICATION OF INFORMATION
RELATING TO ANO-1 LRA

On September 13, 2000, September 18, 2000, and September 20, 2000, the staff had conference calls with members of Arkansas Nuclear One, Unit 1 (ANO-1), to obtain clarifying information for the applicant's responses to the staff's request for additional information relating to the Reactor Coolant System, Engineering Safety Features, and Fire Protection System. Enclosed is a summary for each of the telecommunications. Each summary contains a list of attendees, a description of each of the staff's concerns, and the specific clarification or additional information being requested by the staff.

/RA/

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

Docket Nos. 50-313

Enclosures: September 13, 2000 Telecommunications Summary
September 18, 2000 Telecommunications Summary
September 20, 2000 Telecommunications Summary
October 3, 2000 Telecommunication Summary

cc w/encl: See next page

DISTRIBUTION: See next page

Staff members that contributed to each of these efforts are identified on each of the Telecommunication Summaries.

DOCUMENT NAME:C:\Telecom-2 RCS ESF FP RAIs.wpd, *See previous concurrence.

OFFICE	LA	PM:PDLR	PDLR:D
NAME	EHylton*	RPrato*	CIGrimes
DATE	10/11/00	10/10 /00	10/ 11/00

OFFICIAL RECORD COPY

Arkansas Nuclear One
Docket No. 50-313

cc:

Executive Vice President
& Chief Operating Officer
Entergy Operations, Inc.
P. O. Box 31995
Jackson, MS 39286-1995

Director, Division of Radiation
Control and Emergency Management
Arkansas Department of Health
4815 West Markham Street, Slot 30
Little Rock, AR 72205-3867

Winston & Strawn
1400 L Street, N.W.
Washington, DC 20005-3502

Manager, Rockville Nuclear Licensing
Framatone Technologies
1700 Rockville Pike, Suite 525
Rockville, MD 20852

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 310
London, AR 72847

Mr. Doug Levanway
600 Heritage Blvd.
Jackson, MS 39201

Vice President, Operations Support
Entergy Operations, Inc.
P. O. Box 31995
Jackson, MS 39286-1995

Wise, Carter, Child & Caraway
P. O. Box 651
Jackson, MS 39205

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

County Judge of Pope County
Pope County Courthouse
Russellville, AR 72801

Mr. Douglas J. Walters
Nuclear Energy Institute
1776 I Street, N.W., Suite 400
Washington, DC 20006-3708
DJW@NEI.ORG

Mr. Garry Young
Entergy Operations, Inc.
Arkansas Nuclear One
1448 SR 333 GSB-2E
Russellville, Arkansas 72802
gyoung4@entergy.com

September 13, 2000

Attendees:	Alan Cox	ANO-1
	William Sims	ANO-1
	Natalie Mosher	ANO-1
	Barry Elliot	NRC
	Muhammad Razzaque	NRC
	Robert Prato	NRC

RAI 2.3.1-4 The reactor vessel upper plenum level monitoring components are not considered within the scope of license renewal. This monitoring device was added with post-TMI required components which were typically required to mitigate the consequences of an event.

The applicant stated that these level monitors are used as an alternate/backup means of determining if a bubble has formed in the reactor vessel. However, the applicant also stated that these instruments are not credited for making this determination in design basis event (DBE) analyses. Accident mitigation actions are based on the subcooling margin in the case of a (DBE). The applicant will review the appropriate documentation including the FSAR to verify that these components do not meet the criteria under 10 CFR 54.4(a)(1).

RAI 4.2.3-3 The staff requested that the applicant verifies that the determination of the fluence at the inner diameter of the reactor vessel was determined by using the technique reviewed and approved by the staff in BAW 2241A.

RAI 3.3.2.2.2-1d The staff inquired about a failure earlier this year relating to the hotleg level nozzle welds. This event was not considered in the application because it occurred after the application was submitted. The staff requested that the applicant discuss the effects relating to this event and its implication to the Alloy 600 aging management program.

The applicant informed the staff that welds in question were installed as part of a modification and unique to those nozzles. The failure was not the result of aging, but a design deficiency for that particular application. The applicant will provide the staff with the following information: 1) a description of the design deficiency and how it led to the failure in question; 2) a determination as to other site that are potentially susceptible to this failure, and if not, why not; and 3) a verification that the Alloy 600 program approach for determining susceptible welds is still applicable and need not be adjusted or revised based on the event in question.

Enclosure 1

September 18, 2000

Attendees	:	Alan Cox	ANO-1
		John Richardson	ANO-1
		Natalie Mosher	ANO-1
		Bart Fu	NRC
		Robert Prato	NRC
		Nancy McGuire-Mofit	PNL
	Ken Faris	PNL	

RAI 3.3.3.1-7 The applicant was asked to provide a brief assessment of chlorides and other impurities levels in the hydroxide tank and the potential for cracking of carbon steel. This assessment should include a comparison of ANO-1 hydroxide tank conditions with industry operating experience and the potential for cracking as an applicable aging effect.

RAI 3.3.3.1-2b The applicant was asked if the inspection activities associated with the Borated Water Storage Tank (BWST) was part of the applicant's Inservice Inspection (ISI) Program or Maintenance Rule (MR) Program. They were asked how often this inspection was performed and what criteria were used to initiate corrective actions.

The applicant responded that the inspection activities were part of their Prevent Maintenance Program and not specifically related to ISI or MR. The applicant verified that these activities were proceduralized and performed each refueling outage. The applicant stated that any observed failure of the coating or signs of corrosion would initiate corrective action under 10 CFR Part 50, Appendix B.

The applicant will provide a brief description of the inspection activities performed on the BWST.

RAI 3.3.3.1-6aA discussion took place as to the potential for Boric Acid effecting the Reactor Building Cooling and Purge System fan and cooling units. The applicant recognized the potential for boric acid leaks that may potentially result in the loss of material to these units and their supports, and will verify this potential. If such leak can occur, they will add Boric Acid as an environment for the fan and cooler housing in Table 3.3-5, and the applicant will review its operating history to determine if loss of material due to boric acid corrosion has occurred in the past at ANO-1.

The applicant will document their determination as to whether Boric Acid should be considered an applicable environment, and the results of their operating history review.

Enclosure 2

RAI 3.3.3.3-6 The staff inquired about a failure that occurred earlier this year associated with a modification of the low Pressure Injection Pump. The applicant informed the staff that the failure was due to changes in thermal expansion caused by changes in material associated with the pump bearing housings. The applicant stated that this failure was not age related and that an LER is on file and clearly documents the cause of the failure.

No additional action is required by the applicant relating to this RAI.

September 20, 2000

Attendees:	Gary Young	ANO-1
	Allen Cox	ANO-1
	John Richardson	ANO-1
	Woody Walters	ANO-1
	Natalie Mosher	ANO-1
	Reza Ahahrabli	ANO-1
	Bill Nichols	ANO-1
	Stacy Thompson	ANO-1

Tanya Eaton	NRC
Robert Prato	NRC

2.3.3.2-1 The staff made a general comment relating to this RAI and the RAIs discussed below. There appears to be a general tendency of the applicant to exclude fire protection SSC's required for compliance with 10 CFR 50.48, on the basis that it's not protecting a safety-related SSC that is include within the scope of license renewal under 10 CFR 54.4 (a)(1) or (a)(2). 10 CFR 54.4 only requires that only one of the three criteria be met to include a SSC within the scope of license renewal. There is no requirement which states that FP SSC's required for compliance with 10 CFR 50.48 are included within scope, only if they are also required for the protection of safe shutdown equipment. The requirements for fire protection are specified by General Design Criterion (GDC) 3, Appendix A to 10 CFR Part 50, which provides the basic criteria for fire protection. Therefore, exclusion of fire protection SSC's is not acceptable on the basis that it's not required for protection of safe shutdown equipment, if the SSC was approved as part of the applicant's licensing basis for compliance to 10 CFR 50.48.

No response is required from the applicant relating to this general comment.

2.3.3.2-3 In this RAI, the staff stated that the LRA, Section 2.3.3.2, does not list the following fire protection SSCs within the scope of license renewal: The fire protection jockey pump (casing), shown highlighted on LRA-M-219, sheet 1; the carbon dioxide system, listed as not being within the scope of license renewal in LRA Table 2.2-1; and the fire hydrants, which were not identified in LRA Section 2.3.3.2. These components appear to have fire protection intended functions required for compliance with 10CFR50.48 as stated in 10CFR54.4(a)(3). Provide justification for their exclusion from within the scope of license renewal.

The applicant provided the following basic responses: (1) the fire protection jockey pump (casing) is not required for safe shutdown under the ANO-1 current licensing basis and therefore is not within the scope of license renewal; (2) the carbon dioxide system is not within the scope of license renewal because it does not meet any of the scoping criteria in 10CFR54.4(a); and (3) fire hydrants are not within the scope of license renewal because they do not meet any of the scoping criteria in 10CFR54.4(a).

Enclosure 3

The staff disagrees with the basis for the exclusion of the fire protection jockey pump casing from the scope of license renewal (See staff response to RAI 2.3.3.1-1). Even though failure of the jockey pump casing would not prevent the main fire pumps from operating and is not required for safe shutdown, the purpose of the jockey pump is to maintain yard main pressure; thus minimizing cycling of the main fire protection pumps as identified in SAR Section 9.8.1, Part I and in the ANO-1 fire hazards analysis (FHA) Section 6.0. In order to maintain the intended function, the pressure boundary of the jockey pump must be maintained over a period of time. Furthermore, the jockey pump casing is passive and long-lived and therefore, should be subject to an AMR in accordance with 10 CFR 54.21. Furthermore, an SER dated July 10, 1978, section 4.3.1.2, states that the staff found the fire pumps to conform to the provisions of Appendix A to BTP 9.5-1. Therefore, it is the staff's view that the fire protection jockey pump is required for compliance with 10 CFR 50.48. Furthermore, the jockey pump (casing) should be included within scope of license renewal and subject to an aging management review.

The FHA, Section 6.2.6 states that low pressure CO₂ is used for protection of the turbine generator exciter housing and turbine bearings upon actuation of heat detectors. As stated above, exclusion of fire protection SSC's is not acceptable on the basis that it's not required for protection of safe shutdown or safety-related equipment, if the SSC was approved as part of the applicant's licensing basis for compliance to 10 CFR 50.48 (See staff response to RAI 2.3.3.1-1). In this case, an SER dated July 10, 1978, Section 4.3.2 states that the NRC staff approved the gas fire suppression systems and that they conform to the provisions of Appendix A to APCS BTP 9.5-1 and were therefore acceptable. Therefore, it is the staff's view that the CO₂ system is required for compliance with 10 CFR 50.48, is passive and long-lived, and therefore, should be subjected to an aging management program.

The staff disagrees that fire hydrants are not within the scope of license renewal. Yard hydrants are provided around the exterior of the plant. Areas such as the intake structure, and the yard area have no means of suppression outside of fire hydrants and hose houses as identified in the July 10, 1978 SER. Furthermore, fire hydrants were approved by the NRC staff as conforming to the provisions of Appendix A to the APCS BTP 9.5-1. Hydrants are also integral to performing system flow tests. Lack of maintenance of fire hydrants over time can result in partially closed or shut valves and clogging of hydrants with debris, which will effect the system flow results. Furthermore, it is not uncommon to have fire hydrants credited as a redundant water loop. Please discuss in more detail the regulatory basis for the exclusion of fire hydrants required for 10 CFR 50.48 compliance from within the scope of license renewal. Finally, fire hydrants are considered passive and long-lived components in accordance with 10 CFR 54.21. The applicant does not address programs to manage the aging effects of hydrants over time, which will effect the system flow results. Therefore, it is the staff's view that fire hydrants should be included within the scope of license renewal and subjected to an AMR.

2.3.3.2-5

In this RAI, the staff noted that the LRA, Section 2.3.3.2, states that the fire water distribution system including the portion of the outside loop, sectional control valves, isolation valves, standpipes, and hose stations that are required for protection of safety-related areas are included within the scope of license renewal and are subject to an aging management review. However, a portion of the outside fire protection loop within the scope of license renewal, flow diagram LRA-M-2219, sheet 5, shows piping and valves connected to the outside fire protection loop, which are not highlighted. The staff requested that the applicant verify that the piping and valves which are not highlighted, are not required for the protection of safety-related areas. Furthermore discuss how the failure of the piping and valves which are not highlighted, would not effect the capability of the portion of the outer fire water loop, required for compliance with 10CFR50.48, to perform its intended.

The applicant responded that piping and valves that are not highlighted, on drawing LRA-M-2219, sheet 5, are not required for the protection of safety-related areas. Failure of the piping and valves which are not highlighted, would not effect the capability of the portion of the outer fire water loop, required for compliance with 10CFR50.48, to perform its intended function for ANO-1. Please see ANO-1 SAR page 9.8-6, which states "The Fire Protection System can operate with any single failure. Failure of the jockey pump has no effect on the Fire Protection System as the main fire pump starts when the line pressure decreases to a pre-set pressure point. Failure of the main electric driven pump starts the diesel driven fire pump. The branches off the main fire piping yard loop are equipped with block valves that can be closed in case of failure of a branch line. The yard loop is equipped with sectional control valves to provide isolation of sections of the yard piping in case of failure of any section."

The staff disagrees with the applicant's response that failure of the piping and valves which are not highlighted, would not effect the capability of the portions of the outer fire water loop, required for compliance with 10CFR50.48, to perform its intended function for ANO-1. For example, on drawing LRA-M-2219, the piping which is not highlighted also supplies water to the LL Radwaste Building Fire System. The staff believes that the piping leading to the radwaste building supplies a wet and dry pipe suppression system within the LL radwaste building required for compliance with 10 CFR 50.48, for protection in areas where a fire could release radioactive materials to the environment. Therefore, the piping which connects to the LL Radwaste Building Fire System to the outer water loop should be included within the scope of license renewal and subject to an AMR.

2.3.3.2-7

In this RAI, the staff noted that flow diagram LRA-M-219, sheet 1 omits the following fire protection piping from within scope of license renewal:

- lube oil tank deluge system (D-3)
- lube oil storage tank T-26 (D-1)
- fuel oil tank sprinkler system (D-7)

- MFW pump deluge system (E-3)
- basement sprinkler system (E-3)
- piping located off of FS-43 and FS-90 (Column 2)
- hydrogen seal oil unit deluge system (F-3)
- outside firewater loop to wall sprinkler system (Column 1)

Therefore, the staff requested that the applicant provide justification for the exclusion of fire protection piping, for the systems listed above, from within the scope of license renewal.

The applicant responded that the fire protection system piping listed above is not in the scope of license renewal because it does not meet the scoping criteria in 10CFR54.4(a). As stated on page 2-38 of the ANO-1 LRA, "The safety function of the fire protection system is to minimize the effects of fires on structures, systems and components important to safety as required by 10CFR50 Appendix A, General Design Criteria 3. In accordance with 10CFR54, the components required for compliance with 10CFR50.48 are in the scope of license renewal." In accordance with ANO-1's current licensing basis, the fire protection piping listed above is not required for compliance with 10CFR50.48.

The staff concern is that the turbine building contains a significant amount of combustibles associated with oil from the lube oil storage tank, hydrogen seal oil, feedwater pumps, and other equipment. The SER dated July 10, 1978 shows that the staff approved automatic water sprays for a portion of the turbine building operating floor and automatic deluge systems for the feedwater pumps, the turbine lube oil reservoir, and the hydrogen seal oil unit reservoir as conforming to Appendix A to BTP 9.5-1 and is therefore, acceptable. Failure of the fire protection piping leading to these portions of the fire suppression system would prevent the automatic suppression systems and deluge systems from functioning as designed. In accordance with 10 CFR 50.48, the NRC used the guidance provided in Appendix A to APCS BTP 9.5-1 to ensure that the following overall objectives were met:

- (1) to reduce the likelihood of occurrence of fires,
- (2) to promptly detect and extinguish fires if they occur,
- (3) to maintain the capability to safely shut down the plant if fires occur,
- (4) and to prevent the release of significant amount of radioactive material, if fires occur.

Furthermore, the staff stated that exclusion of fire protection SSC's is not acceptable solely on the basis that it's not required for protection of safe shutdown equipment, if the SSC was approved as part of the applicant's licensing basis for compliance to 10 CFR 50.48. Therefore, it is the staff's view that the following piping systems are required for compliance with 10 CFR 50.48 and should be included within the scope of license renewal and subject to an AMR:

- lube oil tank deluge system (D-3)
- lube oil storage tank T-26 (D-1)
- fuel oil tank sprinkler system (D-7)
- MFW pump deluge system (E-3)
- hydrogen seal oil unit deluge system (F-3)

For the following, the staff needs further clarification on these portions of the fire suppression system. For example, the staff is interested in knowing if these portions were excluded from within scope of license renewal on the basis that the suppression systems in these areas were not protecting safety-related equipment. Although it may not be protecting SR equipment, if these portions of suppression systems were approved for compliance to Appendix A to BTP 9.5-1, they are still required for 10 CFR 50.48 compliance and should be identified within scope of license renewal and subject to an AMR.

- basement sprinkler system (E-3)
- piping located off of FS-43 and FS-90 (Column 2)
- outside firewater loop to wall sprinkler system (Column 1)

October 5, 2000

Attendees	:	Alan Cox	ANO-1
		John Richardson	ANO-1
		Natalie Mosher	ANO-1
		Richard Ellison	ANO-1
		David Jeng	NRC
		George Georgiev	NRC
		Robert Prato	NRC
		David Ma	ANL
		David Raske	ANL

RAI 3.3.3.6-1 The applicant was asked about the intended function of maronite ceiling tiles and floor panels and the associated aging effect. The applicant responded that the maronite ceiling tiles in the control room are in the scope of the rule because they serve to contain the Halon once initiated in the area the Halon is designed to protect. However, the maronite boards do not age in the controlled environment present in the control room.

The floor boards do not serve a similar function because Halon is heavier than air and do not require a barrier to confine the Halon gas below the floor boards. The staff had no additional concerns relating to these components.

RAI 3.3.5-14b The applicant was asked about the potential for pitting in stagnant or low flow areas of non-Class 1 Piping. In its response to this RAI, the applicant claimed that operating experience has shown that maintaining water chemistry is sufficient to prevent pitting in non-Class 1 piping. The staff disagreed and cited the GALL Report as its reference to support this concern. The applicant will review its position and respond to the staff's concern.

RAI 3.3.5-14e The staff raised the concern about MIC being a concern in the fuel oil systems when moisture is present. We recognized that the applicant uses biocides but experience has shown that that may not be enough. The use of chemistry control needs to be supplemented with inspections for a reasonable assurance determination. The applicant referred the staff to the Preventive Maintenance Program in Appendix B, page 76, that identified the use of periodic visual inspections as an AMP for the FOS. Table 3.4.7 does not identify the PM Program as an AMP, therefore, the applicant needs to provide a verification statement to this fact to resolve this discrepancy.

Enclosure 4