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1CAN081002

August 10, 2010

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: License Amendment Request
Changes to Technical Specification 3.9.3
Technical Change Traveler – TSTF-312, Revision 1
Arkansas Nuclear One, Unit 1
Docket No. 50-313
License No. DPR-51

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy) hereby requests the following amendment to the Arkansas Nuclear One, Unit 1 (ANO-1) Operating License. The proposed amendment would revise Technical Specification (TS) 3.9.3, "Reactor Building Penetrations", to allow reactor building flow path(s) providing direct access from the reactor building atmosphere to the outside atmosphere to be unisolated under administrative control, during movement of irradiated fuel assemblies. The proposed change is consistent with Technical Specification Task Force (TSTF) Technical Change Traveler 312, Revision 1.

A similar request has been made and approved for several other plants, including Arkansas Nuclear One, Unit 2 (ANO-2).

An explanation of the proposed change is provided in Attachment 1. A mark-up of the affected TS page is contained in Attachment 2 of this submittal. Attachment 3 includes a markup of the associated TS Bases for information only.

The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that the change involves no significant hazards consideration. The bases for these determinations are included in the attached submittal.

The proposed change does include a new commitment. This commitment is summarized in Attachment 4.

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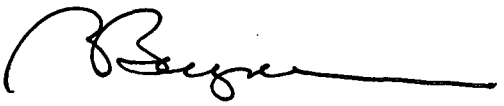
NRR

Entergy requests approval of the proposed amendment by August 2, 2011. Once approved, the amendment shall be implemented within 90 days. Although this request is neither exigent nor emergency, your prompt review is requested.

If you have any questions or require additional information, please contact David Bice at 479-858-5338.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August 10, 2010.

Sincerely,



BLB/rwc

Attachments:

1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (mark-up)
3. Mark-up of Technical Specification Bases (For Information Only)
4. List of Regulatory Commitments

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Attachment 1

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Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

This letter is a request to amend Operating License DPR-51 for Arkansas Nuclear One, Unit 1 (ANO-1).

This proposed License Amendment Request (LAR) is a request pursuant to 10 CFR 50.90 to revise Technical Specification (TS) 3.9.3, "Reactor Building Penetrations".

2.0 PROPOSED CHANGE

The proposed LAR will revise the Limiting Condition of Operation (LCO) 3.9.3, Item (c) by adding a NOTE to allow unisolating reactor building penetration flow path(s) under administrative controls during operations involving irradiated fuel movement inside the reactor building.

3.0 BACKGROUND

The current TS 3.9.3 does not permit opening certain reactor building penetrations during fuel movement inside the reactor building. The proposed change would allow opening these penetration flow path(s) that provide direct access from the reactor building atmosphere to the outside atmosphere under administrative controls during operations involving fuel movement inside the reactor building.

The proposed change implements the NRC approved TSTF-312, Revision 1. Furthermore, TS 3.6.3, "Reactor Building Isolation Valves," currently has a similar provision for temporarily opening reactor building penetrations flow paths in MODES 1 through 4 under administrative controls. These modes are more significant than refueling conditions due to the Reactor Coolant System energy and potential to provide a significant motive force for the expulsion of radionuclides subsequent to a design basis accident.

The allowance to open penetration flow paths under administrative controls will support the performance of other outage activities concurrent with fuel handling activities. For example, performance of Local Leak Rate Testing (LLRT) requires certain reactor building isolation valves (i.e., those subject to Type C testing) to be opened in order to drain the penetration piping, providing direct access from the reactor building atmosphere to the outside atmosphere. Therefore, under the current TS restrictions, LLRT tests cannot be performed during fuel movement inside the reactor building. The proposed change will allow for more efficient performance of outage work while continuing to provide an acceptable barrier against the release of fission product radioactivity to the outside atmosphere during fuel handling activities inside the reactor building.

Administrative controls will be implemented to ensure, in the event of a fuel handling accident (FHA) inside the reactor building, open penetrations will be promptly closed. These administrative controls include an awareness of the temporary flow path conditions and the designation of individuals to isolate the flow paths in the event of a FHA.

4.0 TECHNICAL ANALYSIS

The proposed change will allow the reactor building penetration flow path(s) providing direct access from the reactor building to the outside atmosphere to be open under administrative controls during fuel movement in the reactor building.

The requirements of TS 3.9.3, "Reactor Building Penetrations," ensure that the consequences of a postulated FHA inside the reactor building during irradiated fuel assembly activities remain within acceptable limits. The LCO establishes reactor building penetration closure requirements, which limit the potential escape paths for fission products by ensuring that there is at least one integral barrier to the release of radioactive material. LCO 3.9.3 requires the equipment hatch to be capable of being closed, one door in each air lock be capable of being closed, and each penetration providing direct access from the reactor building atmosphere to the outside atmosphere either (1) be closed by a manual or automatic isolation valve, blind flange, or equivalent, (2) capable of being closed by an OPERABLE reactor building isolation valve, except reactor building purge isolation valves, (3) or capable of being closed by an OPERABLE reactor building purge isolation valve with the purge exhaust radiation monitoring channel OPERABLE.

The proposed TS change to allow the containment penetration flow path(s) to remain open while using administrative controls fully implements NRC approved TS traveler TSTF-312, Revision 1. Furthermore, this approach is consistent with the administrative controls currently allowed by ANO-1 TS for more restrictive, higher operational modes. Current provisions in TS 3.6.3 allow penetration flow paths to be unisolated under administrative controls in MODES 1 through 4. The controls include a designated individual having continuous communication with the Control Room who can isolate the open valve in the event of an accident. This allowance has been determined to be an acceptable means to permit the opening of flow paths in consideration of the administrative controls that minimize the impact of an accident. The aforementioned modes are more significant than the refueling mode of operation due to the RCS energy and potential to provide a significant motive force for the expulsion of radionuclides, subsequent to a design basis accident.

A similar allowance is acceptable for penetrations that are open during irradiated fuel movement provided appropriate administrative controls are utilized. During irradiated fuel movement activities inside the reactor building, the potential for a FHA resulting in pressurization of the reactor building is negligible. Therefore, allowing penetration flow path(s) that have direct access from the reactor building atmosphere to the outside atmosphere to be unisolated is acceptable during fuel movement in the reactor building provided appropriate administrative controls are used. These proposed controls will include an awareness of the open penetration and designation of individual(s) readily available for closing the open penetrations in the event of a FHA inside the reactor building.

In addition to the above, the FHA analysis was revised to support adoption of the use of alternative source term (AST). This analysis is discussed in Section 14.2.2.3 of the ANO-1 Safety Analysis Report, Amendment 23. The NRC Safety Evaluation dated October 21, 2009 (1CNA100901) summarizes the calculation for this event. The analysis assumes 82 of 208 fuel rods (six rows in one assembly) are damaged. The analysis considers both a dropped fuel assembly inside the reactor building with the equipment hatch open and an assembly drop in the spent fuel pool. In both cases, the release is assumed to occur directly to the

environment without filtration. During their review, the NRC concluded that the revised FHA analysis using the AST meets the relevant dose acceptance criteria and is, therefore, acceptable with respect to the radiological consequences of design basis accidents.

The analysis described above is the limiting FHA when considering open penetration flow paths. In the event of a FHA inside the reactor building with open penetrations, transmission of radionuclides to the outside environment is unlikely. This is because the dispersion of radioactive material through the reactor building will not be driven by any pressure differential resulting from the accident. The administrative controls for prompt closure of the reactor building penetration flow paths would minimize the potential spread of radioactive isotopes from the reactor building to the outside environment. Regardless, offsite dose consequences have been shown to be acceptable without reactor building closure and without filtration. The application of administrative controls to close penetrations institutes a conservative measure to further minimize the established dose consequences. Based on the above information, Entergy Operations, Inc. (Entergy) has concluded that the proposed change is acceptable.

The procedural controls that are currently in place for the equipment hatch and the doors for the airlocks are planned to be extended to address other open penetrations following approval of this amendment. In addition, Entergy commits to revising the associated TS Bases consistent with TSTF-312, Revision 1, during implementation of this amendment (see Attachment 4). A markup of the affected TS Bases page is included in Attachment 3 for information only.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

The proposed change will allow the reactor building penetration flow path(s) providing direct access from the reactor building to the outside atmosphere to be open under administrative controls during fuel movement in the reactor building.

Entergy Operations, Inc. (Entergy) has evaluated whether or not a significant hazards consideration is involved with the proposed change by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The status of the penetration flow paths during fuel movement in the reactor building has no affect on the probability of the occurrence of any accident previously evaluated. The proposed change does not alter any plant equipment or operating practices in such a manner that the probability of an accident is increased. Since the consequences of a fuel handling accident (FHA) inside the reactor building with open penetrations flow paths is bounded by the current FHA analyses and the probability of an accident is not affected by the status of the penetration flow paths, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No

   The open reactor building penetration flow paths are not accident initiators. The proposed allowance to open the reactor building penetrations during fuel movement inside the reactor building will not adversely affect plant safety functions or equipment operating practices such that a new or different accident could be created. Therefore, the proposed change does not create the possibility of an accident of a different kind than previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

   Response: No

   Technical Specification (TS) 3.9.3 closure requirements for reactor building penetrations ensure that the consequences of a postulated FHA inside the reactor building during irradiated fuel handling activities are minimized. The Limiting Condition for Operation establishes reactor building closure requirements, which limit the potential escape paths for fission products by ensuring that there is at least one integral barrier to the release of radioactive material. The proposed change to allow the reactor building penetration flow paths to be open during refueling operations under administrative controls does not significantly affect the expected dose consequences of a FHA because the limiting FHA does not credit reactor building closure or filtration. The proposed administrative controls provide assurance that prompt closure of the penetration flow paths will be accomplished in the event of a FHA inside the reactor building. The provisions to promptly isolate open penetration flow paths provide assurance that the offsite dose consequences of a FHA inside containment will be minimized. Therefore, this proposed change does not involve a significant reduction in a margin of safety.

Based on the above evaluations, Entergy concludes that the activities associated with the above described change presents no significant hazards under the standards set forth in 10 CFR 50.92 and that there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change. Moreover, because this change does not involve a significant hazards consideration, it will also not result in a condition which significantly alters the impact of the station on the environment as described in the NRC Final Environmental Statement.

5.2 Applicable Regulatory Requirements / Criteria

The regulatory basis for TS 3.9.3 is to ensure that the reactor building is capable of containing fission product radioactivity that may be released from the reactor core following a FHA inside the reactor building. This ensures that offsite radiation exposures are maintained well within the requirements of 10 CFR 100.

10 CFR 50, Appendix A, General Design Criterion (GDC) 16, "Containment Design," requires that reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as the postulated accident conditions require.

GDC 54, "Piping Systems Penetrating Containment," requires that piping systems penetrating primary reactor containment shall be provided with leak detection, isolation and containment capabilities having redundancy, reliability, and performance capabilities which reflect the importance to safety of isolating these piping systems. Such piping systems shall be designed with a capability to test periodically the operability of the isolation valves and associated apparatus and to determine if valve leakage is within acceptable limits.

GDC 56, "Primary Containment Isolation," describes the isolation provisions that must be provided for lines that connect directly to the containment atmosphere and which penetrate primary reactor containment unless it can be demonstrated that the isolation provisions for a specific class of lines are acceptable on some other defined basis.

Regulatory Guide (RG) 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Plants," provides guidance on acceptable applications of alternative source terms. In Appendix B of this RG, guidance is provided on evaluating the radiological consequences of a FHA.

Entergy revised the FHA analysis using the guidance provided in RG 1.183 as part of its application to use AST. In letter dated October 21, 2009, the NRC issued its safety evaluation with regards to using AST. Entergy had concluded that the radiological consequences resulting from the postulated FHA using the AST at the Exclusion Area Boundary, Low Population Zone and in the Control Room are within the dose criteria specified in 10 CFR 50.67. The NRC concluded the method, assumptions and parameters used in the analyses were consistent with the conservative guidance provided in RG 1.183. In addition, the proposed TS change does not modify the containment barrier functions and those functions remain in compliance with GDC 16, 54, and 56.

In conclusion, Entergy has determined that the proposed change does not require any exemptions or relief from regulatory requirements, other than the TS, and does not affect conformance with any General Design Criterion differently than described in the Safety Analysis Report.

6.0 ENVIRONMENTAL CONSIDERATION

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

Attachment 2

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Proposed Technical Specification Changes (mark-up)

3.9 REFUELING OPERATIONS

3.9.3 Reactor Building Penetrations

LCO 3.9.3 The reactor building penetrations shall be in the following status:

a. The equipment hatch is capable of being closed;

b. One door in each air lock is capable of being closed; and

c. Each penetration providing direct access from the reactor building atmosphere to the outside atmosphere either:

1. closed by a manual or automatic isolation valve, blind flange, or equivalent, or

2. capable of being closed by an OPERABLE reactor building isolation valve, except reactor building purge isolation valves, or

3. capable of being closed by an OPERABLE reactor building purge isolation valve with the purge exhaust radiation monitoring channel OPERABLE.

----------NOTE----------
Penetration flow path(s) providing direct access from the reactor building atmosphere to the outside atmosphere may be unisolated under administrative controls.

APPLICABILITY: During movement of irradiated fuel assemblies within the reactor building.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more reactor building penetrations not in required status.	A.1 Suspend movement of irradiated fuel assemblies within the reactor building.	Immediately

Attachment 3

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Mark-up of Technical Specification Bases
(For Information Only)

LCO

This LCO limits the consequences of a fuel handling accident in the reactor building by limiting the potential escape paths for fission product radioactivity from the reactor building. The LCO requires any penetration providing direct access from the reactor building atmosphere to the outside atmosphere to be closed or capable of being closed by an OPERABLE reactor building isolation device~~valve~~. This LCO requires the reactor building purge isolation valves and the purge exhaust flow path radiation monitor be OPERABLE.

The LCO is modified by a Note allowing~~The~~ reactor building personnel airlock doors, ~~and/or~~ the equipment hatch, and/or other penetrations with direct access from the reactor building atmosphere to the outside atmosphere to~~may~~ be open during movement of irradiated fuel in the reactor building under administrative controls provided that the opening~~one door~~ is capable of being closed in the event of a fuel handling accident. Administrative controls shall ensure that 1) appropriate personnel are aware of the open status of the penetration flow path during movement of irradiated fuel assemblies in the reactor building, and 2)~~that both personnel airlock doors and/or equipment hatch are open, that~~ a specified~~s~~ individual(s) is designated and readily available to close/isolate the flow path ~~an airlock door and the equipment hatch cover following a required evacuation of the reactor building~~in the event of a fuel handling accident, including where applicable, ~~and~~ removal of any obstruction(s) (e.g. cables and hoses) that could prevent closure of an airlock door and the equipment hatch cover be capable of being quickly removed (Ref. 1 and 3). For closure, the equipment hatch cover will be in place with a minimum of four bolts securing the cover to the sealing surface. During outages, a temporary equipment hatch cover may be used in lieu of the permanent equipment hatch cover (Ref. 2).

The definition of "direct access from the reactor building atmosphere to the outside atmosphere" is any path that would allow for the transport of reactor building atmosphere to any atmosphere located outside of the reactor building structure. This includes the Auxiliary Building. As a general rule, closed systems do not constitute a direct path between the reactor building and the outside environments. All permanent and temporary penetration closures should be evaluated to assess the possibility for a release path to the outside environment. For the purpose of determining what constitutes a "direct access" path, no failure mechanisms should be applied to create a scenario which results in a "direct access" path. For example, line breaks, valve failures, power losses or natural phenomenon should not be postulated as part of the evaluation process.

APPLICABILITY

The reactor building penetration requirements are applicable during movement of irradiated fuel assemblies within the reactor building because this is when there is a potential for a fuel handling accident. In MODES 1, 2, 3, and 4, the reactor building penetration requirements are addressed by LCO 3.6.1. In MODES 5 and 6, when movement of irradiated fuel assemblies within the reactor building is not being conducted, the potential for a fuel handling accident does not exist. Therefore, under these conditions no requirements are placed on reactor building penetration status.

Attachment 4

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List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Entergy commits to revising the associated Technical Specification Bases consistent with TSTF-312, Revision 1, during implementation of the amendment	X		Within 90 days of NRC approval of the proposed TS amendment