

September 13, 2006

Mr. Jeffrey S. Forbes
Site Vice President
Arkansas Nuclear One
Entergy Operations, Inc.
1448 S. R. 333
Russellville, AR 72801

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 2 (ANO-2) RE: ISSUANCE OF
LICENSE AMENDMENT TO RELOCATE SHUTDOWN COOLING (SDC)
SYSTEM OPEN PERMISSIVE INTERLOCK (OPI) LICENSE CONDITION TO
THE TECHNICAL REQUIREMENTS MANUAL (TRM) (TAC NO. MC7540)

Dear Mr. Forbes:

The Commission has issued the enclosed Amendment No. 267 to Facility Operating License No. NPF-6 for ANO-2 (the license). The amendment consists of changes to the license in response to your application dated June 29, 2005, as supplemented by letter dated May 18, 2006.

By letter dated June 29, 2005, Entergy Operations, Inc., the licensee for ANO-2 requested a license amendment to relocate the SDC OPI license condition from the license to the licensee's TRM. The license condition to maintain OPI operability was previously accepted by the NRC staff in a letter to the licensee, dated March 30, 2005, and incorporated into ANO-2's license. The OPI prevents the two SDC suction isolation valves from opening above a selected set point to separate the high-pressure reactor coolant system from the low-pressure SDC system.

A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Drew G. Holland, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosures: 1. Amendment No. 267 to NPF-6
2. Safety Evaluation

cc w/encls: See next page

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* concurred 8/24/06

+ concurred 8/21/06

** concurred 8/30/06

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ENERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 267
Renewed License No. NPF-6

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Operations, Inc. (the licensee), dated June 29, 2005, as supplemented by letter dated May 18, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Renewed Facility Operating License No. NPF-6.
3. The license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance.

The related license condition to maintain functionality of the shutdown cooling open permissive interlock (OPI) is removed from the license as of the date of issuance of this amendment and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Date of Issuance: September 13, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 267
RENEWED FACILITY OPERATING LICENSE NO. NPF-6
DOCKET NO. 50-368

Replace the following pages of the Renewed Facility Operating License No. NPF-6 with the attached revised pages.

Remove

First page
2
3
4
5
6
7
8
9

Insert

First page
2
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9

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 267 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT NO. 2

DOCKET NO. 50-368

1.0 INTRODUCTION

By letter dated June 29, 2005 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML051890052), as supplemented by letter dated May 18, 2006 (ADAMS Accession No. ML061450142), Entergy Operations, Inc., the licensee for Arkansas Nuclear One, Unit 2 (ANO-2), requested a license amendment to relocate the shutdown cooling (SDC) open permissive interlock (OPI) license condition from the license to the licensee's technical requirements manual (TRM). The license condition to maintain OPI operability was previously accepted by the NRC staff in a letter to the licensee, dated March 30, 2005, and incorporated into ANO-2's operating license (ADAMS Accession No. ML050610615). The OPI prevents the two SDC suction isolation valves from opening above a selected set point, to separate the high-pressure reactor coolant system (RCS) from the low-pressure SDC system.

The Nuclear Regulatory Commission (NRC) staff reviewed the existing procedures and administrative controls related to operating the SDC suction isolation valves. The NRC staff requested clarification on the information included in the license amendment request from the licensee during a conference call on May 11, 2006. The licensee submitted clarification to the staff's inquiry, along with a revised TRM basis for the OPI function, by letter dated May 18, 2006. The supplement dated May 18, 2006, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published on December 6, 2005 (70 FR 72671), in the Federal Register.

2.0 REGULATORY EVALUATION

The NRC staff conducted a human factors evaluation to ensure that operator performance would not be adversely affected as a result of the relocation of the OPI license condition from the license to the TRM. The NRC's human factors acceptance criteria related to plant procedures and operator training are based on guidance contained in NUREG-0800, "Standard Review Plan", Chapter 18.0, "Human Factors Engineering" (Revision 1, 2004).

3.0 TECHNICAL EVALUATION

Background

The licensee's SDC system is designed as a low-pressure system. The SDC suction line inside containment contains two normally de-energized, locked-closed, motor-operated valves in series, ensuring that the low-pressure piping is not exposed to normal RCS pressure that could cause an intersystem loss-of-coolant accident (ISLOCA) and resulting radiological fluid release outside the containment building. Two diverse restricted-range pressure measurement channels provide a control room indication of RCS pressure during plant startup and shutdown. These pressure channels provide signals to the two SDC suction isolation valves inside containment. Currently, the OPI prevents the SDC suction isolation valves from opening at RCS pressures above the set point of 400 pounds per square inch absolute (psia). The loss of electric power to either pressure measurement channel prevents the SDC suction isolation valves from being opened by remote-manual means. The controls for the SDC suction isolation valves are key-operated control switches, which are located in the control room to permit remote opening of the valves only when the SDC system is to be used.

Licensee's Justification for Relocating the OPI Function to the TRM

The licensee reviewed the 10 CFR 50.36 criteria to determine if the OPI function needs to be included in ANO-2's license. The licensee concluded that the OPI was not specifically credited for accident analysis or mitigation purposes and that it did not meet the criteria of 10 CFR 50.36 for inclusion in the TSs. The NRC has performed a review of 10 CFR 50.36 and had found that the licensee's assessment is acceptable. However, the licensee chose to relocate the OPI function to the TRM since it will continue to prevent the SDC suction isolation valves from opening at RCS pressure above 400 psia. The licensee has and will continue to use its current administrative controls and procedures to explicitly control the usage of the SDC suction isolation valves during all modes of operation.

The NRC staff has reviewed the licensee's reasons for removal of the license condition that requires OPI to be maintained operable with a specific set point. The NRC staff has concluded that sufficient bases exist to remove the license condition criteria from the license and to include it in the TRM. Specifically, the NRC staff has reviewed the existing procedures and administrative controls related to the SDC suction isolation valves and has concluded that these controls can be relied on to prevent an overpressurization of SDC. More specifically, the licensee indicated that the control room is supplied with an SDC suction pressure alarm with audible and visual indication to alert the operators if RCS pressure is increased when SDC is aligned. A control room annunciator is also used to illuminate and sound when either of the two SDC suction isolation valves inside containment is not fully closed when RCS pressure is above the OPI set point. Additional SDC system alarm indicators are located on the plant computers, including the Safety Parameter Display System.

Evaluation of Administrative Controls and Existing Procedures

The administrative and physical controls that are currently used by the licensee to prevent the inadvertent operation of the SDC suction isolation valves are:

- Danger tags installed on power supplies.

- Normally de-energized, locked-closed SDC suction isolation valves with position indication remaining available during periods when SDC is to be isolated.
- Key-operated hand switches on the control board in the control room for the SDC isolation valves, with permission required from the operations supervisor on duty to use the key.
- SDC suction pressure alarm located in the control room.
- Ladder access to SDC suction isolation valves normally locked.
- Normal and abnormal operating procedures that control the usage of SDC suction isolation valves and manipulation of the physical controls as directed.
- Control room alarm to alert operators if a valve leaves the closed position with RCS pressure above set point.

No additional operator actions or procedure changes will be made to enhance the administrative controls. The NRC staff reviewed the existing procedures that involve the manipulation of the SDC suction isolation valves, including normal procedures that govern SDC system and abnormal procedures that involve loss of SDC system and loss of RCS inventory. The procedures direct the operators to proceed through the administrative controls under supervision and perform additional peer checks when the key is ready to be used with the key-operated control switch. The staff asked the licensee if the relocation of the OPI function to the TRM could potentially cause the licensee to delete the OPI function from the TRM using a subsequent 10 CFR 50.59 review. The inquiry was raised by the staff due to the licensee's current final safety analysis report (FSAR) providing very little safety significant information regarding the usage and design/licensing basis of the OPI function. The staff believes that the OPI function serves as the last line of defense to prevent an ISLOCA, if all of the aforementioned administrative and physical controls were somehow bypassed. The licensee agreed with the staff's assessment and submitted a new TRM basis for the SDC OPI to be included in the licensee's FSAR (TRM is part of the FSAR). The TRM bases are required to be reviewed by the licensee along with the FSAR during the licensee's 10 CFR 50.59 reviews for various components. The staff has reviewed the proposed TRM bases and finds the OPI discussion acceptable for inclusion in the FSAR.

The licensee plans to reinforce throughout subsequent operator training cycles, especially preceding refueling outages, the importance of the current administrative and physical controls for the SDC system. The staff has determined that the relocation of the OPI function from the license to the TRM is acceptable since the administrative controls will be strictly enforced by the existing procedures to maintain the proper operation of the SDC suction isolation valves. The addition of the TRM basis for the OPI function into the licensee's FSAR will allow the licensee to take full consideration of the OPI function's safety significance under future 10 CFR 50.59 reviews.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Arkansas State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding published December 6, 2005 (70 FR 72671). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be adverse to the common defense and security or to the health and safety of the public. Therefore, on the basis of the above review and justification, the staff concludes that the proposed changes to the license are acceptable.

Principal Contributor: G. Armstrong

Date: September 13, 2006

Arkansas Nuclear One

cc:

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September 2005