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U. S. Nuclear Regulatory Commission
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Subject: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Technical Specification Change Request
Auxiliary Building Crane

Gentlemen:

Over the last 13 years Arkansas Nuclear One, Unit 1 (ANO-1), in association with Babcock & Wilcox (B&W), the ANO-1 fuel vendor, has actively participated with the U.S. Department of Energy in nuclear fuel extended burnup programs. ANO-1 is currently working with B&W in continued activities relating to their extended nuclear fuel burnup program. One of these activities involves the shipment of two fuel rods from ANO-1 to Sweden for a joint B&W and Studsvik Nuclear hot cell examination of high burnup fuel. This is scheduled to occur between October 15, 1991 and January 31, 1992.

The current ANO-1 Technical Specification (TS) 3.8.15 prohibits the handling of a spent fuel shipping cask with the Auxiliary Building crane. This constraint was made by ANO-1 TS Amendment 17, dated December 17, 1976 (1CNA127641), pending NRC evaluation of the spent fuel cask drop accident and the crane design by Arkansas Power & Light (AP&L) and NRC review and approval.

ANO-1 TS Amendment 36, dated October 5, 1978 (1CNA107805), allowed the crane to be utilized during Cycle 3 to handle a cask for removal and shipment of some irradiated burnable poison rod test assemblies. Subsequent to the issuance of Amendment 36, AP&L confirmed its earlier request for the unlimited use of the Auxiliary Building crane to allow additional shipments utilizing the NAC-1 cask via letter 1CAN018018, to the attention of Mr. William D. Miller dated January 21, 1980. The docket does not indicate completion of this review.

On July 10, 1987, ANO-1 TS Amendment 107 was issued to allow another "one time exception" to the TS to handle a spent fuel shipping cask containing six spent fuel rods. The request for that TS change transmitted by our letter dated April 7, 1987 (1CAN048701), originally requested deletion of TS 3.8.15, but the request was modified by our letter dated May 6, 1987 (1CAN058701), for the one time exception. The change was necessary to

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allow the NRC staff additional time to complete the review for deletion of the TS and to accommodate the time restriction due to limited availability of a DOE spent fuel shipping cask. Subsequently, in NRC's letter of December 16, 1987 (1CNA128703), ANO was informed that the NRC was terminating further review of our original request to delete TS 3.8.15.

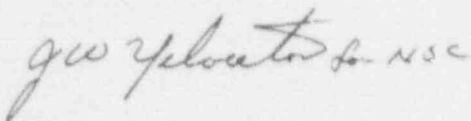
ANO plans to resubmit a TS Change Request to delete TS 3.8.15. However, this will require several months to research previous analyses and to prepare the submittal. Therefore, the purpose of this request is to gain another exception to TS 3.8.15 in order to accommodate the shipment of the two spent fuel rods as early as October 15, 1991.

The circumstances of this proposed TS amendment request are not of an exigent or emergency nature; however, expeditious handling is requested of the exception request due to limited availability of a suitable shipping cask.

In accordance with 10CFR50.91(a)(1), Entergy Operations has evaluated the proposed change using the criteria in 10CFR50.92(c) and has determined that this change involves no significant hazards considerations.

We request that the effective date of this amendment be upon issuance in order to take immediate advantage of the change.

Sincerely,



NSC/kdw
Attachments

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)
COUNTY OF LOGAN) SS

OATH

I, J. W. Yelverton, being duly sworn, subscribe to and say that I am General Manager, Plant Operations for Arkansas Nuclear One; that I have full authority to execute this oath; that I have read the document numbered 1CAN069104, and know the contents thereof; and that to the best of my knowledge, information and belief the statements in it are true.

J. W. Yelverton
J. W. Yelverton

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for the County and State above named, this 27th day of June, 1991.

Sandy Siehenmorgen
Notary Public

My Commission Expires:

May 11, 2000

ENCLOSURE

PROPOSED TECHNICAL SPECIFICATION

AND

RESPECTIVE SAFETY ANALYSES

IN THE MATTER OF AMENDING

LICENSE NO. DPR-51

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT 1

DOCKET NO. 50-313

PROPOSED CHANGE

The proposed change will replace the existing footnote to the Arkansas Nuclear One, Unit 1 (ANO-1) Technical Specification (TS) 3.8.15 with one which will allow a spent fuel cask to be handled by the Auxiliary Building crane for the period of October 15, 1991, through January 31, 1992, for the shipment of two spent fuel rods utilizing a 17 ton shipping cask.

BACKGROUND

The proposed amendment request would revise the ANO-1 TS to allow an exception to TS 3.8.15 to allow the Auxiliary Building crane to handle a spent fuel shipping cask for the purpose of shipping two spent fuel rods. This change request is similar to Amendment 107, dated July 10, 1987, and is proposed to allow use of the cask to meet a schedule constraint pending the submittal and review of a TS change to delete TS 3.8.15.

TS 3.8.15 presently states that a spent fuel shipping cask shall not be carried by the Auxiliary Building crane pending the evaluation of the spent fuel cask drop accident and the crane design by Arkansas Power & Light (AP&L) and NRC review and approval. The related Bases states that upon satisfactory completion of the NRC's review, TS 3.8.15 shall be deleted.

TS 3.8.15 assures that the spent fuel cask drop accident cannot occur prior to completion of the NRC staff's review of this potential accident and the completion of any modifications that may be necessary to preclude the accident or mitigate the consequences. NRC review of this particular issue was incorporated into the staff's resolution of the Generic Issue A-36 related to control of heavy loads near spent fuel. AP&L has completed all actions and submittals required by the issuance of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," as evidenced by NRC Safety Evaluation Report (SER) dated October 11, 1984, and Generic Letter 85-11 dated June 28, 1985. Generic Letter 85-11 indicated that application for a license amendment may be submitted to delete related license conditions citing Generic Letter 85-11 as the basis.

DISCUSSION

In mid 1978, AP&L and B&W began a joint program supported by DCE to design, irradiate, and examine an improved PWR fuel assembly (the Mark BEB) capable of operating to burnups in excess of 50,000 MWD/MTU. Four Mark BEB assemblies were manufactured which incorporated features such as annealed guide tubes, thicker clad, increased plenum volume, lower fill pressure and Inconel 718 hold down springs in place of Inconel X-750 springs. In addition, a few rods with annular pellets and some segmented rods with both solid and annular pellets were included. The assemblies were exposed in ANO-1 for Cycles 5, 6 and 7 during the period from March 1981, to September 1986, and achieved an average burnup of 47,000 MWD/MTU. In July 1987, six peripheral rods were extracted from assembly NJ023Q and sent to the B&W hot cell for examination. Further details and a summary of the hot cell results are presented in DOE report, DOE/ET/34213.16 (BAW-1523.13)

dated December 1990. Although not part of the DOE program, one of the assemblies (NJ023P) was irradiated a fourth time to achieve a burnup of 57,152 MWD/MTU by the end of Cycle 8 in August 1988. Now the B&W Fuel Company wishes to send two segmented fuel rods from this assembly to Studsvik Nuclear, Nykoping, Sweden for ramp testing and further examinations. Transportation of the rods will be by Edlow International using a 17 ton cask. The shipment of six rods that occurred in August 1987, used a 25 ton cask that was handled by the Auxiliary Building crane under the provisions of Amendment 107 to the ANO-1 license. The same precautions taken to accommodate the 25 ton cask movement will be used for this shipment. The precautions, which were outlined in the NRC Safety Evaluation for Amendment 107, are as follows:

1. An automatic limit switch and a power disconnect from the main contact rails will be provided on the Auxiliary Building crane to preclude cask travel over the spent fuel storage pool.
2. Interlocks will also be used to limit the height to which the cask is raised above the floor.
3. Further hoist operation will be prevented by an electrical interlock and the crane hoist control circuits will be disabled under administrative controls once the cask has been raised to the proper height. Consequently, changes in cask height will be prevented during horizontal movement.
4. Cask travel within safe load areas is limited by strict administrative controls in combination with interlocks which limit crane travel to within normal crane load handling areas.

DETERMINATION OF SIGNIFICANT HAZARDS

An evaluation of the proposed change has been performed in accordance with 10CFR50.91(a)(1), regarding no significant hazards consideration using the standards in 10CFR50.92(c). A discussion of those standards as they relate to this amendment request follows:

Criterion 1 - Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated.

ANO's procedures, load paths, crane equipment certification, operator training and other related heavy load handling topics were evaluated as part of the control of heavy loads issue and found acceptable. Spent fuel cask handling is discussed in Section 9.6.2.6 of the ANO-1 SAR, which shows that the cask will never travel over spent fuel. Although cask handling is presently prohibited by TS 3.8.15, ANO-1 SAR Section 9.6.2.6 further evaluates the unlikely event of a cask drop accident and shows that the consequences are acceptable. An exception to TS 3.8.15 to allow handling of a spent fuel shipping cask by the Auxiliary Building crane will have no actual impact on the cask drop or any other previously analyzed accident.

The cask drop evaluation in ANO-1 SAR Section 9.6.2.6 assumes 15 full fuel assemblies, 100 days after shutdown, are involved. Although the DOE extended burnup fuel assemblies have longer operation than the three cycles assumed in the SAR evaluation, they have been stored in the ANO-1 fuel pool much longer than the assumed 100 days, thus the iodine and noble gas inventory available for release has decreased substantially due to isotopic decay. The proposed amendment will allow the movement of only 2 spent fuel rods, a very small fraction of the number of rods in 15 full assemblies (3120 fuel rods). The SAR analysis assumes twenty-five percent of the noble gases and ten percent of the available iodine from all 3120 fuel rods is released. This would be equivalent to the complete release of noble gases and iodine from several hundred individual rods. Therefore, the offsite doses resulting from a cask drop would be much lower than those presented in the SAR. Additionally, this is a one time exception request; only one cask will be moved which represents only a small increase in the probability of a cask drop accident due to reliability of the equipment and precautions utilized. This amendment request, therefore, does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Criterion 2 - Create the Possibility of a New or Different Kind of Accident From any Accident Previously Evaluated.

The proposed amendment request will allow handling of a spent fuel shipping cask by the Auxiliary Building crane where previously prohibited due to pending NRC evaluation of the spent fuel cask drop accident and the crane design by AP&L and NRC review and approval. The cask handling methods and cask drop accident are discussed and evaluated in ANO-1 SAR Section 9.6.2.6. Additionally, the NRC performed an independent evaluation of the radiological consequences of a cask drop accident, as documented in the ANO-1 SER dated June 6, 1973. The evaluation of the unlikely event of a cask drop accident included assessment of equipment failures and has shown the consequences to be within acceptable bounds. No new accident scenarios can be identified related to the proposed amendment request, therefore, this change is bounded by the current analysis in the SAR. The proposed amendment request will, therefore, not create the possibility of a new or different kind of accident from any accident previously evaluated.

Criterion 3 - Involve a Significant Reduction in the Margin of Safety.

Although allowing use of the Auxiliary Building crane where previously prohibited by the TS could increase the possibility of a cask drop accident, the margin of safety is preserved in that the acceptable consequences of the cask drop accident evaluation in SAR Section 9.6.2.6 are not affected by this change. The proposed amendment request will not adversely affect the adequacy and conservatism of the cask drop accident evaluation. The spent fuel cask certificate has been issued and continues to hold an NRC Certificate of Compliance for radioactive materials packages, and load paths and equipment to be used for cask handling have been reviewed and approved by the NRC with the resolution of the control of heavy loads issue. Additionally, this proposed amendment allows a one time use of the cask, which represents only a small increase in the probability of a cask drop accident due to the reliability of the equipment and precautions utilized. Therefore, the cask handling issue at ANO-1 continues to exhibit an acceptable margin of safety and this amendment request will not involve a significant reduction in the margin of safety.

The Commission has also provided guidance concerning the application of these standards by providing examples. This TS change request most closely matches example (iv):

"A relief granted upon demonstration of acceptable operation from an operating restriction that was imposed because acceptable operation was not yet demonstrated."

In this case, demonstration of acceptable operation applies to the acceptable resolution of the NRC review of the control of heavy loads issue for ANO-1, as well as the original FSAR analysis of the offsite dose consequences of a cask drop accident which were accepted by the NRC with issuance of the ANO-1 SER. It should also be noted that exceptions to TS 3.8.15 have been allowed by the NRC to allow cask handling for burnable poison rod assemblies during Cycle 3 operation (TS Amendment 36, dated October 5, 1978) and six spent fuel rods in 1987 (TS Amendment 107, dated July 10, 1987).

Based on the above discussion and evaluation, Entergy Operations concluded that the proposed TS amendment request meets the standards for determining that no significant hazards consideration is involved and, therefore, concluded that this amendment application involves no significant hazards considerations.