

November 27, 2001

LICENSEE: Wolf Creek Nuclear Operating Corporation (WCNOC)

FACILITY: Wolf Creek Generating Station (WCGS)

SUBJECT: SUMMARY OF NOVEMBER 15, 2001, MEETING TO DISCUSS LICENSEE'S APPLICATIONS DATED APRIL 3 AND AUGUST 7, 2001 (TAC NOS. MB1638 AND MB2599)

A meeting was held on Thursday, November 15, 2001, between the NRC staff and the licensee. Since the licensee's representative was at the NRC on other matters, the meeting was held to clarify the licensee's technical specification amendment applications dated April 3 and August 7, 2001, that will: (1) expand and revise the core operating limits report, and (2) allow the containment equipment hatch to be open during core alterations in the plant refueling outage, respectively. The meeting was scheduled at the request of the project manager on November 7, 2001, and the meeting notice was issued on November 8, 2001.

Enclosure 1 is the list of attendees. Enclosure 2 includes the handout provided by the licensee at the meeting on the April 3, 2001, application and is available in ADAMS with the accession number ML013200262. Enclosure 3 is the e-mail sent by the licensee on the August 7, 2001, application. The staff did not provide any handout at the meeting.

The NRC staff and the licensee discussed the licensee's responses to the project manager's questions in Enclosures 2 and 3. Based on the discussion, the licensee stated that it would revise some of its responses to the questions. The licensee agreed to submit the additional information for WCGS in supplemental letters for the two license amendment request reviews.

The last two pages of Enclosure 2 provide the current schedules for Strategic Teaming And Resource Sharing (STARS) plant licensing submittals for four license amendment requests. STARS is a group that represents four licensees, including WCNOC. The first license amendment request listed is the subject of WCNOC's application dated August 7, 2001, which was discussed in this meeting. The other STARS plants are listed with the scheduled dates for their applications. The other license amendment requests shown are the following: (1) changes to Surveillance Requirement (SR) 3.0.3 - missed surveillance requirements; (2) changes to SR 3.3.1.2 - low power calorimetric requirement; and (3) changes to modify the definition of

positive reactivity addition. The plants in STARS are the Callaway Plant, Comanche Peak Steam Electric Station, Diablo Canyon Power Plant, South Texas Project, and WCGS.

**/RA/**

Jack N. Donohew, Senior Project Manager, Section 2  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-482

Enclosures: 1. List of Attendees  
2. Licensee's Handout  
3. Licensee's E-Mail of October 12, 2001

cc w/encls: See next page

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**/RA/**

Jack N. Donohew, Senior Project Manager, Section 2  
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**PKG: ML013240212**

**Enclosure Two: ML013390114**

**ADAMS Accession No.: ML013240143**

**Meeting Notice: ML013120503**

OFFICE	PDIV-2/PM	PDIV-2/LA	PDIV-2/SC
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Wolf Creek Generating Station

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LICENSEE'S APPLICATIONS OF APRIL 3 AND AUGUST 7, 2001

NOVEMBER 15, 2001

**WOLF CREEK NUCLEAR OPERATING CORPORATION**

S. Wideman

**NRC**

J. Donohew

LICENSEE'S E-MAIL OF OCTOBER 12, 2001

**From:** Wideman Steven G <stwidem@WCNOC.com>  
**To:** "Jack Donohew (E-mail)" <JND@nrc.gov>  
**Date:** 10/12/01 12:12PM  
**Subject:** Response to NRC Project Manager Questions on LAR on the EquipmentHatch

Jack - on September 7, 2001, you provided by e-mail 12 questions on the application dated August 7, 2001 (ET 01-0021), that proposed changes to TS 3.9.4 to allow the containment equipment hatch to be open during CORE ALTERATIONS and movement of irradiated fuel assemblies inside containment.

The attached file provides a response to the 12 questions.

<<NRC PM Questions.doc>>

Let me know if we need to discuss these responses further.

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Enclosure 3

## QUESTIONS ON THE OPEN EQUIPMENT HATCH AMENDMENT REQUEST

The following are questions on the application dated August 7, 2001, (ET 01-0021) that proposed changes to Technical Specification (TS) 3.9.4 to allow the equipment hatch to be open during movement of irradiated fuel assemblies inside containment.

1. How many days after the date of issuance of the amendment are needed to implement the amendment?

**Response:** As discussed in the cover letter, the amendment would be implemented prior to Refueling Outage 13, which is currently scheduled for September 2003.

2. The proposed revision to LCO 3.9.4 does not include a requirement in the proposed LCO for administrative controls to exist when the equipment hatch is open during core alterations or fuel movement inside containment. The justification for the proposed amendment, however, is relying on administrative controls. Address why the requirement for administrative controls is not included in the revised LCO for the equipment hatch being open.

**Response:** The proposed revision to LCO 3.9.4 did not specifically include administrative control requirements in the LCO since the proposed change is similar to the approval (Amendment No. 95, dated February 28, 1996) to allow the personnel airlock door to be open during CORE ALTERATIONS or movement of irradiated fuel assemblies. Administrative controls are specified in TS 3.9.4 for penetrations having direct access from the containment atmosphere to the outside atmosphere as proposed by TSTF-312. Another example is TS 3.6.3, Containment Isolation Valves, which allow penetration flow paths to be unisolated under administrative controls. In these cases, the administrative controls is specified in the TS to ensure the status of multiple penetrations. As such, administrative controls on single penetrations such as the personnel airlock or equipment hatch do not need to be specified in the TS. Amendment Nos. 115 and 93 for the Vogtle units were issued on September 11, 2000 to allow the equipment hatch to be open and did not specify administrative controls in the LCO. The WCNO license amendment request changes to LCO 3.9.4 are consistent with those approved for the Vogtle plants.

3. The proposed additional surveillance requirement (SR) does not have a reference to the capability for "rapid closure" of the equipment hatch. The justification for the proposed amendment, however, appears to be relying on administrative controls to promptly close the equipment hatch. Because the capability to close the equipment hatch and the capability to close the hatch promptly may be different as to what is required, address why the word "promptly" should not be added to the new SR.

**Response:** The same hardware, tools, equipment, and procedure are used to close the equipment hatch in all situations. The difference is that a designated individual will be present and available to direct closure of the equipment hatch when there is fuel in the reactor building and the equipment hatch is open. This is the same administrative control as that utilized to allow the personnel air lock to be open during CORE ALTERATIONS or movement of irradiated fuel assemblies inside containment (License Amendment No. 95).

The purpose of the SR is to ensure that the equipment necessary to close the hatch is at hand so that the hatch can be closed promptly in the event of a fuel handling accident inside containment. This equipment is dedicated for this purpose, and by adding a SR to ensure that the equipment is at hand precludes delays that would occur if the tools, etc. had to be rounded up. As such, there is no distinction between that which is required to close the hatch and that which is required to close the hatch promptly.

The WCNO license amendment request to add new SR 3.9.4.2 is consistent with those approved for the Vogtle plant.

4. It is believed that the written procedures/procedural controls discussed in the application should also include the following: (1) a single person responsible to coordinate the designated individuals that are readily available to close the equipment hatch and the control room should be in direct communication to that single person, (2) all tools and equipment required to close the hatch are on hand and dedicated to that purpose, and (3) before the outage personnel responsible for the hatch closure are trained on the procedures and equipment to close the hatch promptly. Address why these three items should not be added to the description of the administrative controls.

**Response:** Concerning item (1) in the above question, the existing administrative controls ensure that a designated individual is readily available to close the air lock following an evacuation that would occur in the event of a fuel handling accident. This same individual is responsible for closing the equipment hatch, thus additional written procedures/procedural controls are not necessary. These administrative controls are consistent with the administrative controls approved in Amendment No. 95 for the personnel air lock and Amendment No. 135 for containment penetrations. Direct and continuous communication with the control room is not necessary as the designated individual is readily available via other reliable communication systems.

Concerning item (2) in the above question, the proposed SR demonstrates that the necessary hardware, tools, and equipment are available to install the equipment hatch. The proposed TS Bases further states that the 7 day Frequency is adequate considering that the hardware, tools, and equipment are dedicated to support equipment hatch closure. As such, the TS SR is sufficient for ensuring the necessary equipment is available and does not need to be duplicated as an administrative control.

Concerning item (3) in the above question, training is provided to selected individuals responsible for various containment operations activities including personnel air lock and equipment hatch operation, as well as conditions that may require closure of these penetrations.

5. There are statements in the application that (1) "a backup propane generator is available if offsite power is lost" and (2) "during shutdown conditions administrative controls ensure that an appropriate missile barrier is in place during the threat of severe weather that could result in the generation of tornado driven missiles." Address why these statements should not be included in the description of administrative controls, because it appears that they are also being relied upon to either close the equipment hatch promptly or protect the inside of containment from external missiles while the hatch is open.

**Response:** The statements in the application concerning the backup propane generator and the administrative controls for installing an appropriate missile barrier in the event of severe weather are contingency actions for an abnormal event. These contingencies are addressed in plant procedures. As discussed in the Response to Question 4, it was WCNOG's intent that the administrative controls associated with the various containment openings be the same.

6. Address why the two previous bullets should not be included in the discussion of administrative controls that is proposed to be added to the Bases of the Technical Specifications (TSs). A distinction should be made between specific administrative controls that are being relied upon to promptly close the equipment hatch, and what are examples of administrative controls to perform this function.

**Response:** The responses to Questions 4 and 5 address this question. It was WCNOG's intent that the administrative controls associated with the various containment openings be the same and all the specific actions necessary for the proper closure of the equipment are not necessary to be specified in the TS Bases.

7. The staff will be relying on the description of the administrative controls if it approved the proposed amendment. The proposed changes to the TS Bases are the only description of the administrative controls being relied upon where changes to the controls are governed by the regulations or the TSs. Changes to the Bases are governed by the TSs (i.e., the change controls are 10 CFR 50.59). Because the staff would be relying on these administrative controls, it requests a condition in the amendment that the proposed changes to the TS Bases would be added to the Bases during the implementation of the amendment so that (1) the requirements for the administrative controls are in place before the proposed amendment can be used and (2) any changes to the administrative controls would be governed by the TSs. Address the acceptability of such a condition on the license.

**Response:** WCNOG believes that a condition to the license is not necessary based on the following. The original submittal specifies that the amendment would be implemented prior to Refueling Outage 13. Amendment letters to the licensee specify that the license amendment is effective as of its date of issuance and shall be implemented by a specific time frame. Implementation activities are such that the changes to the TS Bases and procedure changes are necessary to utilize the amendment. Proposing a license condition that indicates the TSs would govern any changes to administrative controls would require a license amendment request to change the controls, which is contrary to the purposes of the TS Bases and TS Bases Control Program. Conditioning the license is inconsistent with what was approved in Amendment Nos. 115 and 93 for the Vogtle units and Amendment No. 95 for WCGS.

Changes to the procedures specifying the administrative controls for the equipment hatch fall within the 50.59 process.

8. Provide the estimated time for the rapid closure of the open equipment hatch and the basis for the estimate. Discuss the hatch closure time with respect to (1) the stated minimum time of 5 hours for the core to boil with loss of residual heat removal (RHR) cooling at the beginning of fuel offload with the minimum succeeding time for fuel

damage and fission product release, and (2) the time for severe weather, with winds high enough to carry missiles, to reach the site.

**Response:** The equipment hatch is typically closed in less than one hour. This is based upon review of past plant logs and discussions with containment coordinators. Thus, this time is well within the minimum time of 4 hours (Technical Specification 3.9.5, Required Action A.4) for the core to boil with loss of RHR cooling at the beginning of fuel offload. However, it should be noted that core boiling and loss of RHR do not apply here because to move fuel inside containment requires a minimum of 23 feet of water over the reactor vessel flange.

With respect to (2), see the response to question 10.

9. Explain how the potential accident of the equipment hatch being open during an outage and a tornado missile entering the containment through the open hatch is addressed for the site? Is the potential accident analyzed in the Updated Safety Analysis Report (USAR)? Discuss if the reference in the application to having an "appropriate" missile barrier in place before severe weather reaches the site is the means by which this accident is addressed.

**Response:** USAR Section 9.1.4 indicates that the fuel handling system, in accordance with GDC-2, is protected from the effects of external events, including tornadoes and the missiles generated from the tornado. USAR Section 3.5.1.4 discusses missiles generated by natural phenomenon. USAR Section 3.5.2 which discusses which systems are to be protected, states in part: "All safety-related systems and components to be protected from tornado missiles are enclosed within protective structures which meet the requirements of Regulatory Guide 1.117. Openings to these structures are designed to prevent the entry of the design basis missile when the result would preclude the safety functions of the enclosed system or components. Prevention of missile entry includes the use of missile doors and barriers at openings and adjacent buildings as shields in penetration areas. The missile barriers are designed utilizing the procedures given in Section 3.5.3." USAR Section 3.8.1.2.1.1, states in part: "A moveable missile shield is provided on the outside of the reactor building to protect the equipment hatch. During shutdown conditions, the equipment hatch cover with 6 bolts provides adequate missile protection for the safety related equipment inside the containment building. Administrative controls ensure the hatch cover is in place during the threat of severe weather that could result in the generation of tornado driven missiles."

In 1998, Configuration Change Package 7784 was generated to address the use of the equipment hatch for missile protection in MODES 5, 6, and fuel offloaded. The analysis for the reactor building equipment hatch (ZX01) in plant MODES 5, 6, and fuel offloaded were performed in calculation 16577-753-C002, revision 0. The methodology used for this calculation is from Bechtel Topical Report BC-TOP-3-A, "Tornado and Extreme Wind Design Criteria for Nuclear Power Plants." This topical report provides criteria for the design of nuclear power plant structures for extreme winds and tornado effects. For WCGS, the characteristics of externally generated missiles are listed in USAR Table 3.5-1.

This Configuration Change Package determined that the equipment hatch connected to the containment liner plate with 6 bolts (bolt numbers 1, 2, 6, 7, 19, 20) can withstand tornado missile impact. However, in this configuration, a local portion of the hatch will yield and deform permanently. This yielding will not create any perforation or penetration in the hatch. USAR Section 3.5.3, Barrier Design Procedure, states in part: "Tornado-resistant structures may sustain local missile damage, such as partial penetration and local cracking and/or permanent deformation, provided that structural integrity is maintained, perforation is precluded, and the contained seismic Category I systems, components, and equipment are not subjected to damage by secondary missiles, such as from concrete spalling and scabbing."

10. Discuss if the intent is to have the "appropriate" missile barrier in place before the severe weather reaches the site, with the equipment hatch open or not fully in place, to protect the inside of the containment from tornado-driven missiles, or is it the intent to have the equipment hatch back in place and bolted before the severe weather reaches the site to protect the containment? Discuss what is in place to ensure that the intent will be met.

**Response:** The intent is that the equipment hatch be installed upon the arrival of threatening weather conditions which could generate missiles. Procedure MPM C151Q-01, "Containment Equipment Hatch Maintenance and Operation," specifies that the equipment hatch door shall be in place with six bolts installed upon the arrival of threatening weather conditions which could generate missiles. Furthermore, OFN SG-003, "Natural Events," is entered for a tornado warning and verifies that the containment equipment hatch is closed.

Procedure AI 14-006, "Severe Weather," provides the following definitions:

Severe Weather/Tornado Watch – Severe weather is possible within the designated watch area. Personnel should be alert to adverse weather changes.

Severe Weather Warning – Severe weather has been reported or is imminent. Personnel should take the necessary precautions.

Tornado Warning – A tornado has been sighted and could potentially strike the plant. Personnel should take cover immediately.

11. Describe the "appropriate" missile barrier. Given the function of the barrier described in the two previous bullets, provide the basis that the barrier will perform that function with respect to the Wolf Creek licensing basis tornado missiles in USAR Section 3.5.

**Response:** See the response to Question 9.

12. Discuss the procedure(s) that define the severe weather that could result in tornado missiles at the site and, therefore, would cause (1) an appropriate missile barrier to be put in place to protect the inside of containment from such missiles and/or (2) the equipment hatch to be put back in place with sufficient bolts to protect the inside of containment. Explain what will be done by the procedure(s) in response to the severe weather, including what is required related to having the equipment hatch open (1) during outages and (2) during core alterations or fuel movement inside containment.

**Response:** See the response to Question 10.