

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Richard A. Muench
Vice President Technical Services

AUG 7 2001

ET 01-0021

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station: P1-137
Washington, D. C. 20555

Subject: Docket No. 50-482: Revision to Technical Specification 3.9.4,
"Containment Penetrations"

Gentlemen:

Wolf Creek Nuclear Operating Corporation (WCNOC) herewith transmits an application for amendment to Facility Operating License No. NPF-42 for the Wolf Creek Generating Station (WCGS).

This amendment application would revise Technical Specifications (TS) 3.9.4, "Containment Penetrations," to allow the equipment hatch to be open during CORE ALTERATIONS and/or during movement of irradiated fuel assemblies within containment. Appropriate TS Bases changes are included to reflect the proposed changes.

The WCNOC Plant Safety Review Committee and the Nuclear Safety Review Committee have reviewed this amendment application. Attachments I through VI provide the required affidavit, description of proposed license changes and assessment, existing marked-up TS pages, revised TS pages, proposed TS Bases changes (provided for information only), and summary of regulatory commitments made in this submittal.

WCNOC requests approval of the proposed license amendment by January 15, 2003 to allow sufficient time for planning prior to Refueling Outage 13 scheduled for September 2003. The amendment will be implemented prior to Refueling Outage 13.

It has been determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92. Pursuant to 10 CFR 51.22(b), no environmental assessment need be prepared in connection with the issuance of this amendment.

A001

WCNOC is submitting this license amendment application in conjunction with the industry consortium of five plants as a result of a mutual agreement known as Strategic Teaming and Resource Sharing (STARS). The STARS group consists of the five plants operated by TXU Electric, AmerenUE, Wolf Creek Nuclear Operating Corporation, Pacific Gas and Electric, and STP Nuclear Operating Company. The plant specific license amendment requests will be submitted on a staggered basis.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Kansas State Official. If you should have any questions regarding this submittal, please contact me at (620) 364-4034, or Mr. Tony Harris at (620) 364-4038.

Very truly yours,



Richard A. Muench

RAM/rlr

- Attachments:
- I - Affidavit
 - II - Evaluation
 - III - Markup of Technical Specification pages
 - IV - Retyped Technical Specification pages
 - V - Proposed Bases Changes (for information only)
 - VI - List of Commitments

- cc:
- V. L. Cooper (KDHE), w/a
 - J. N. Donohew (NRC), w/a
 - W. D. Johnson (NRC), w/a
 - E. W. Merschoff (NRC), w/a
 - Senior Resident Inspector (NRC), w/a

STATE OF KANSAS)
) SS
COUNTY OF COFFEY)

Richard A. Muench, of lawful age, being first duly sworn upon oath says that he is Vice President Technical Services of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the contents thereof; that he has executed the same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By *Richard A. Muench*
Richard A. Muench
Vice President Technical Services

SUBSCRIBED and sworn to before me this 7th day of Aug., 2001.

Cindy Novinger
Notary Public



Expiration Date 7/8/02

ATTACHMENT II
EVALUATION

EVALUATION

1.0 INTRODUCTION

This letter is a request to amend Operating License NPF-42 for the Wolf Creek Generating Station (WCGS).

This amendment application would revise Technical Specifications (TS) 3.9.4, "Containment Penetrations," to allow the equipment hatch to be open during CORE ALTERATIONS and/or during movement of irradiated fuel assemblies within containment. Appropriate TS Bases changes are included to reflect the proposed changes. The proposed changes will permit the optimization of outages to achieve an overall risk reduction while also reducing outage time and cost. A significant contributor to this risk reduction is the ability to postpone operations early in the outage that, from a practical standpoint to achieve a short outage time, must be performed soon after shutdown when there is no TS requirement for a closed containment. The proposed changes will allow some of these operations to be accomplished later, when the reactor vessel is open and covered by 23 feet of water at which time the risk of a severe core damage accident is very low.

2.0 DESCRIPTION OF PROPOSED AMENDMENT

The proposed change would revise Limiting Condition for Operation (LCO) 3.9.4 to allow the equipment hatch to be open during CORE ALTERATIONS and/or during movement of irradiated fuel assemblies within containment, provided that it is capable of being closed. A new Surveillance Requirement would be added to verify the capability to install the equipment hatch, if the hatch is open, at a Frequency of seven days.

The TS Bases are revised to reflect the changes to LCO 3.9.4 and the addition of the new Surveillance Requirement. Additionally, the Bases are revised to identify the administrative controls associated with the allowance to maintain the equipment hatch open.

3.0 BACKGROUND

The equipment hatch, which is part of the containment pressure boundary, provides a means for moving large equipment and components into and out of containment. Technical Specification 3.9.4, "Containment Penetrations," requires that the equipment hatch be closed and held in place by four bolts during fuel movement and CORE ALTERATIONS. This requirement ensures that a release of fission products within the containment will be restricted from escaping to the environment.

As described in Section 3.8.2.1.1 of the Updated Safety Analysis Report (USAR), the equipment hatch is a welded steel assembly with a double-gasketed, flanged, and bolted cover. A moveable missile shield is provided on the outside of the reactor building to protect the equipment hatch. 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.

The equipment hatch is raised and lowered with two dedicated hoists. Each hoist is electrically powered from the normal non-class 1E electrical distribution system and a backup propane generator is available if offsite power is lost for any reason. Both hoists are needed to close the equipment hatch.

4.0 REGULATORY REQUIREMENTS AND GUIDANCE

The regulatory basis for TS 3.9.4, "Containment Penetrations," is to ensure that the primary containment is capable of containing fission product radioactivity that may be released from the reactor core following a fuel handling accident inside containment. This ensures that offsite radiation exposures are maintained well within the requirements of 10 CFR 100.

10 CFR Part 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 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.

GDC 61, "Fuel Storage and Handling and Radioactivity Control," requires that the fuel storage and handling, radioactive waste, and other systems which may contain radioactivity shall be designed to assure adequate safety under normal and postulated accident conditions.

GDC 64, "Monitoring Radioactivity Releases," requires monitoring the reactor containment atmosphere, spaces containing components for recirculation of loss-of-coolant accident fluids, effluent discharge paths, and the plant environs for radioactivity that may be released from normal operations, including anticipated operational occurrences, and from postulated accidents.

U. S. NRC Regulatory Guide 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors," is NRC guidance which describes a method acceptable to the NRC staff for licensee evaluation of the potential radiological consequences of a fuel handling accident.

NUREG/CR-5009, "Assessment of the Use of Extended Burnup Fuel in Light Water Power Reactors," relates to the expected release fraction for the radioactive iodine. According to this report, the calculated release fraction for extended burnup fuel may be up to 20% higher than that assumed in Regulatory Guide 1.25 for iodine-131.

NUREG-0800, "U. S. NRC Standard Review Plan," Section 15.7.4, provides guidance to the NRC staff for the review and evaluation of system design features and plant procedures provided for the mitigation of the radiological consequences of postulated fuel handling accidents.

The parameters of concern and the acceptance criteria applied are based on the requirements of 10 CFR 100 with respect to the calculated radiological consequences of a fuel handling accident and GDC 61 with respect to appropriate containment, confinement, and filtering systems.

5.0 TECHNICAL ANALYSIS

The proposed changes would allow the equipment hatch to be open under administrative controls during CORE ALTERATIONS and/or during movement of irradiated fuel assemblies within containment, provided that it is capable of being closed. Allowing the equipment hatch to be open during CORE ALTERATIONS or movement of irradiated fuel raises the concern that radioactive materials could potentially be released through the open hatch and vented to the outside environment should accidents that involve fission product releases occur. Postulated accidents that could result in a release of radioactive material through the open hatch include a fuel handling accident that results in breaching of the fuel rod cladding, and a loss of residual heat removal (RHR) cooling event that leads to core boiling and uncover. To provide the basis for justifying the proposed change, the concern with the potential radiological consequences of the two accidents that could result in a release of radioactive material through the open equipment hatch are discussed below.

Fuel Handling Accident

During movement of irradiated fuel assemblies within containment, the most severe radiological consequences are anticipated to result from a fuel handling accident. The fuel handling accident is a postulated event that involves damage to irradiated fuel. Fuel handling accidents include dropping a single irradiated fuel assembly, or a handling tool or heavy object, onto other irradiated fuel assemblies.

The radiological consequences of a design basis fuel handling accident in containment have been previously evaluated assuming that the containment is open to the outside atmosphere. All airborne activity reaching the containment atmosphere is assumed to be exhausted to the environment within 2 hours of the accident. The calculated offsite and control room operator doses are within the acceptance criteria of Standard Review Plan 15.7.4 (Reference 10.6) and General Design Criteria (GDC) 19. On the basis of this evaluation, various revisions to Technical Specification Section 3.9.4, "Containment Penetrations," have been accepted by the NRC (References 10.1, 10.2, and 10.3).

During refueling operations, the potential for containment pressurization as a result of a fuel handling accident is not likely. Therefore, the majority of the radioactive material releases from the accident would be held up inside containment with only a minimal amount of radioactive material released through the open equipment hatch. However, the combined dose consequences of this potential release with the releases through other unisolated penetration flow paths and the open personnel airlock doors, will be bounded by the current licensing basis fuel handling accident analysis. The current design basis fuel handling analysis does not credit the containment building barriers. It is assumed that all gap activity is released from the damaged rods and all the gaseous effluent escaping from the refueling pool is released directly to the environment within two hours through the open personnel airlock doors. In addition, no credit is taken for mixing of the gaseous effluents with the surrounding building atmosphere and removal of any iodine by the atmosphere filtration system filters.

According to Section 15.7.4 of the USAR (Reference 10.5), the resulting offsite dose consequences with both personnel air lock doors open were calculated to be 64.1 rem thyroid and 0.18 rem whole body at the exclusion area boundary. These results are well within the 10 CFR 100 limits. Since the total amount of radioactive material available for immediate release into the water during a postulated fuel handling accident will be the same, the potential dose consequences from a simultaneous release of the gaseous effluents through the unisolated penetration flow paths, the open personnel airlock doors and the open equipment hatch will not be different from the previous analysis that assumes radioactivity to be released only through the open personnel airlock doors. Therefore, allowing the equipment hatch to be open during CORE ALTERATIONS or movement of irradiated fuel would not invalidate the conclusion that the potential dose consequences from a fuel handling accident will be well within the 10 CFR 100 guideline limits.

Loss of RHR Cooling

The release of radioactive material is anticipated to be insignificant as a result of core boil-off due to a loss of RHR cooling, if the event does not continue for an extended period of time resulting in core uncover and subsequent core damage. If core boil-off continues, the compartments in the vicinity of the core could be pressurized and thereby provide a driving force for the containment atmosphere to be released via the open hatch flow path to the outside atmosphere. However, the radiological consequences of this release of radioactive materials due to core boil-off, with no consideration for core uncover and core damage, is expected to be significantly less than the radiological consequences arising from a postulated fuel handling accident because the total coolant activity (corresponding to a 1% fuel defect) is less than the total gap activities in the damaged rods at the earliest time fuel offloading may be commenced (100 hours after shutdown).

A review of calculations performed for the outage risk assessment revealed that the time to core boil would be greater than 5 hours should a loss of RHR cooling event occur at the beginning of fuel offloading, based on the normal water level maintained in the refueling pool (i.e., ≥ 23 ft above the top of the reactor vessel flange). Technical Specification 3.9.5 requires that corrective actions be taken immediately to restore the RHR cooling as soon as possible if RHR loop requirements are not met (by having one RHR loop operable and in operation). In addition, operators are required to close all containment penetrations providing direct access from the containment atmosphere to the outside environment within 4 hours. If an operator takes actions to restore the RHR cooling capability or uses an alternative method of core cooling within the five hour time interval, the scenario involving core boiling and subsequent containment pressurization would not be present. With all penetrations closed within the specified time period, the potential for the coolant to boil and subsequently cause the release of radioactive gas to the containment atmosphere, if RHR cooling was not restored, would not be of concern.

Administrative Controls

NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," (Reference 10.4), Section 11.3.6.5, provides the following guidance:

".... for plants which obtain license amendments to utilize shutdown safety administrative controls in lieu of Technical Specification requirements on primary or secondary

containment operability and ventilation system operability during fuel handling or core alterations, the following guidelines should be included in the assessment of systems removed from service:

- During fuel handling/core alterations, ventilation system and radiation monitor availability (as defined in NUMARC 91-06) should be assessed, with respect to filtration and monitoring of releases from the fuel. Following shutdown, radioactivity in the RCS decays fairly rapidly. The basis of the Technical Specification operability amendment is the reduction in doses due to such decay. The goal of maintaining ventilation system and radiation monitor availability is to reduce doses even further below that provided by the natural decay, and to avoid unmonitored releases.
- A single normal or contingency method to promptly close primary or secondary containment penetrations should be developed. Such prompt methods need not completely block the penetration or be capable of resisting pressure. The purpose is to enable ventilation systems to draw the release from a postulated fuel handling accident in the proper direction such that it can be treated and monitored.”

The proposed changes do not affect the OPERABILITY requirements for any ventilation system or radiation monitors, nor does it affect their availability. The Control Room Emergency Ventilation System will be required to be OPERABLE by TS 3.7.10, “Control Room Emergency Ventilation System (CREVS),” as well as the containment atmosphere radioactivity monitors (TS 3.3.6, “Containment Purge Isolation Instrumentation”). The only affected containment penetration that provides direct access to the outside atmosphere is the equipment hatch. Existing TS requirements on other penetrations that provide direct access are not affected.

Containment ventilation at WCGS is accomplished via the Containment Purge and Exhaust System which includes the Containment Shutdown Purge System and Containment Minipurge System. These systems are not credited in any of the dose analyses, so there are no associated TS OPERABILITY requirements for these systems. The Containment Shutdown Purge System operates to supply outside air into the containment for ventilation and cooling or heating needed for prolonged containment access following a shutdown and during refueling. The system may also be used to reduce the concentration of noble gases within containment prior to and during personnel access. The Containment Minipurge System may be used during power operations to reduce the concentration of noble gases within the containment prior to and during personnel access or to equalize internal and external pressures. Both systems share purge supply and exhaust containment penetrations. Each penetration is equipped with two valves in parallel inside containment and two valves in parallel outside containment.

Once cold shutdown is achieved, only the Containment Shutdown Purge System is required to operate. The system is manually initiated from the control room. The Containment Shutdown Purge System is designed to maintain the airborne radioactivity below the level required for personnel occupancy during refueling, and the Containment Minipurge System is designed to maintain airborne radioactivity below the required level for personnel occupancy during reactor power operation. The exhaust from these systems is ducted to the unit vent that is located at the top of the containment building. The HEPA filter elements and charcoal adsorber sections are tested periodically in accordance with Regulatory Guide 1.140. The handswitches for the fan units and the handswitches for the purge valves are located in the control room. Therefore, in the event of a fuel handling accident inside containment with the equipment hatch open, the containment purge can be easily controlled from the control room.

Exhaust from the containment is processed through the Containment Purge and Exhaust System charcoal adsorption train prior to discharge through the unit vent. The Containment Purge and Exhaust System is monitored for radioactivity, both upstream and downstream of the charcoal adsorber. The containment atmosphere radioactivity monitors (GT RE-31 and GT RE-32) continuously monitor the containment atmosphere for particulate, iodine, and gaseous radioactivity. The containment purge radiation monitors (GT RE-22 and GT RE-33) continuously monitor the containment purge exhaust duct during purge operations for particulate, iodine, and gaseous radioactivity. These monitors isolate the Containment Purge and Exhaust System on high gaseous activity via the Engineered Safety Features Actuation System (ESFAS). In the event of a fuel handling accident inside containment, the control room alarm function of the required containment radiation monitors will be in service, and the radiation monitors will provide indication of the magnitude of the release, thereby minimizing the potential for unmonitored release.

During CORE ALTERATIONS, USAR Section 9.1.4.2.3.1 (Reference 10.7), requires that direct communications be maintained between the control room and personnel at the refueling station. Therefore, if a fuel handling accident were to occur inside containment, the control room would be immediately informed, and action would be promptly initiated in accordance with off-normal procedures to mitigate the consequences.

If open, the equipment hatch will be maintained in an isolable condition, and the TS and Bases provides the requirements for closure of the equipment hatch. Administrative controls consisting of written procedures will be established prior to the implementation of the proposed change. These procedural controls would require:

1. Appropriate personnel are aware of the open status of the containment during movement of irradiated fuel or CORE ALTERATIONS.
2. Specified individuals are designated and readily available to close the equipment hatch following an evacuation that would occur in the event of a fuel handling accident.
3. Any obstructions (e.g., cables and hoses) that would prevent rapid closure of an open equipment hatch can be quickly removed.

These administrative controls provide protection equivalent to that afforded by the administrative controls used to establish containment closure for a containment personnel air lock. Outage shift/containment supervision is responsible for coordinating the equipment hatch closure activities. Personnel are designated for each shift during which CORE ALTERATIONS and/or movement of irradiated fuel (with the equipment hatch open) will take place. While these personnel will have normal outage related duties, these duties will not interfere with their availability to respond to the closure of the equipment hatch. Personnel responsible for closure of the equipment hatch receive training associated with the backup generator and equipment hatch operation.

An assessment of the radiological consequences, as described above for the proposed changes, concludes that site boundary doses remain well within the 10 CFR 100 limits and control room doses meet GDC 19 criteria without taking credit for closure of the equipment hatch. The administrative controls provide reasonable assurance that containment closure as a defense-in-depth measure can be reestablished quickly to limit releases much lower than assumed in the dose calculation.

Risk Significance

Based on the results of conservative dose calculations provided in this submittal, the risk to the health and safety of the public as a result of a fuel handling accident inside the containment with the equipment hatch open is minimal. Actual fuel handling accidents which have occurred in the past have resulted in minimal or no releases, which shows that the assumptions and methodology utilized in the radiological dose calculations are very conservative. Radioactive decay is a natural phenomenon. It has a reliability of 100 percent in reducing the radiological release from fuel bundles. In addition, the water level that covers the fuel bundles is another natural method that provides an adequate barrier to a significant radiological release. The requirement for at least 100 hours of decay prior to fuel movement is maintained in USAR Section 9.1.4.2.3.1 (Reference 10.7) and the requirement for water level is maintained in the TS. In addition, the requirements for isolable air locks, an isolable equipment hatch, isolable penetrations, and containment radiation monitors is maintained in the TS. The Containment Purge and Exhaust System will be available in accordance with the aforementioned NUMARC 93-01 guidelines to further reduce radiological release. Therefore, the risk to the health and safety of the public as a result of allowing the equipment hatch to be open during fuel movement is minimal.

6.0 REGULATORY ANALYSIS

The method of analysis used for evaluating the potential radiological consequences of the postulated fuel handling accident is in compliance with Regulatory Guide 1.25 and the guidance in NUREG-0800, Section 15.7.4 and NUREG/CR-5009. The analysis presented in Section 15.7.4 of the WCGS USAR, demonstrating the adequacy of the system design features and plant procedures provided for the mitigation of the radiological consequences of postulated fuel handling accidents, assumes no credit is taken for iodine removal by the atmosphere filtration system filters. All radioactivity released to the containment is assumed to be released to the environment at ground level over a two hour period.

The technical analysis performed by WCNOG demonstrates that the consequent doses at the exclusion area and low population zone boundaries are well within the limits of 10 CFR 100. Therefore, the proposed license amendment is in compliance with GDC 16, 56, 61, and 64 as well as Regulatory Guide 1.25, NUREG/CR-5009, and the criteria contained in NUREG-0800, Section 15.7.4.

In conclusion, based on the considerations discussed above, 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 inimical to the common defense and security or to the health and safety of the public.

7.0 NO SIGNIFICANT HAZARDS DETERMINATION

WCNOC has evaluated whether or not a significant hazards consideration is involved with the proposed changes by focusing on the three standards set forth in 10 CFR 50.92(c) as discussed below:

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

Response: No

The proposed changes will allow the equipment hatch to be open during CORE ALTERATIONS and movement of irradiated fuel assemblies inside containment. The status of the equipment hatch during refueling operations has no effect on the probability of the occurrence of any accident previously evaluated. The proposed revision 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 inside containment with an open equipment hatch are bounded by the current analysis described in the USAR and the probability of an accident is not affected by the status of the equipment hatch, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No

The proposed changes do not create any new failure modes for any system or component, nor do they adversely affect plant operation. No new equipment will be added and no new limiting single failures will be created. The plant will continue to be operated within the envelope of the existing safety analysis.

Therefore, the proposed changes do not create a new or different kind of accident from any accident previously evaluated.

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

Response: No

The previously determined radiological dose consequences for a fuel handling accident inside containment with the air lock doors open remain bounding for the proposed changes. These previously determined dose consequences were determined to be well within the limits of 10 CFR 100 and they meet the acceptance criteria of SRP section 15.7.4 and GDC 19.

Therefore, the proposed changes do not involve a significant reduction in the margin of safety.

Based on the above evaluations, WCNOG concludes that the activities associated with the above described changes present no significant hazards consideration under the standards set forth in 10 CFR 50.92 and accordingly, a finding by the NRC of no significant hazards consideration is justified.

8.0 ENVIRONMENTAL CONSIDERATION

WCNOG has determined that the proposed amendment would change requirements with respect to the installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. WCNOG has evaluated the proposed change and has determined that the change does not involve (i) a significant hazards consideration, (ii) a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. As discussed above, the proposed changes do not involve a significant hazards consideration and the analysis demonstrates that the consequences from a fuel handling accident inside containment are well within the 10 CFR 100 limits. The implementation of administrative controls precludes a significant increase in occupational radiation exposure. Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed change is not required.

9.0 PRECEDENTS

There are precedents for allowing the equipment hatch to be open during CORE ALTERATIONS and/or during movement of irradiated fuel assemblies within containment. The Southern Nuclear Operating Company operating licenses for the Vogtle Generating Electric Plant Units 1 and 2, have been amended to allow the equipment hatch to be open during CORE ALTERATIONS and/or during movement of irradiated fuel assemblies within containment. These amendments, Nos. 115 and 93, were issued on September 11, 2000.

10.0 REFERENCES

- 10.1. NRC letter dated February 28, 1996, "Wolf Creek Generating Station - Amendment No. 95 to Facility Operating License No. NPF-42 (TAC No. M94113)."
- 10.2. NRC letter dated July 11, 1997, "Wolf Creek Generating Station - Amendment No. 107 to Facility Operating License No. NPF-42 (TAC No. M98508)."
- 10.3. NRC letter dated September 12, 2000, "Wolf Creek Generating Station - Issuance of Amendment RE: Use of Administrative Controls for Open Containment Penetrations During Refueling (TAC No. MA9293)."
- 10.4. NUMARC 93-01, Revision 3, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," July 2000.

10.5 USAR Section 15.7.4, "Fuel Handling Accidents."

10.6 NUREG-0800, Standard Review Plan, Section 15.7.4, Rev. 1, July 1981.

10.7 USAR Section 9.1.4.2.3.1, "Fuel Handling System Operations."

ATTACHMENT III
MARKUP OF TECHNICAL SPECIFICATION PAGES

3.9 REFUELING OPERATIONS

3.9.4 Containment Penetrations

LCO 3.9.4

The containment penetrations shall be in the following status:

, or if open, capable of being closed

- a. The equipment hatch closed and held in place by four bolts;
- b. One door in the emergency air lock closed and one door in the personnel air lock capable of being closed; and

-----NOTE-----

An emergency personnel escape air lock temporary closure device is an acceptable replacement for an emergency air lock door.

- c. Each penetration providing direct access from the containment 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 Containment Purge Isolation valve.

-----NOTE-----


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

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> A.2 Suspend movement of irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.4.1 Verify each required containment penetration is in the required status.	7 days
SR 3.9.4.2  Verify each required containment purge isolation valve actuates to the isolation position on an actual or simulated actuation signal.	18 months

SR 3.9.4.2

----- NOTE -----
 Only required for an open equipment hatch.

Verify the capability to install the equipment hatch.

7 days

ATTACHMENT IV
RETYPE TECHNICAL SPECIFICATION PAGES

3.9 REFUELING OPERATIONS

3.9.4 Containment Penetrations

LCO 3.9.4 The containment penetrations shall be in the following status:

- a. The equipment hatch closed and held in place by four bolts, or if open, capable of being closed;
- b. One door in the emergency air lock closed and one door in the personnel air lock capable of being closed; and

-----NOTE-----
An emergency personnel escape air lock temporary closure device is an acceptable replacement for an emergency air lock door.

- c. Each penetration providing direct access from the containment 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 Containment Purge Isolation valve.

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

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> A.2 Suspend movement of irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.4.1 Verify each required containment penetration is in the required status.	7 days
SR 3.9.4.2 -----NOTE----- Only required for an open equipment hatch. ----- Verify the capability to install the equipment hatch.	7 days
SR 3.9.4.3 Verify each required containment purge isolation valve actuates to the isolation position on an actual or simulated actuation signal.	18 months

ATTACHMENT V
PROPOSED BASES CHANGES (for information only)

B 3.9 REFUELING OPERATIONS

B 3.9.4 Containment Penetrations

BASES

BACKGROUND

During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, a release of fission product radioactivity within containment will be restricted from escaping to the environment when the LCO requirements are met. In MODES 1, 2, 3, and 4, this is accomplished by maintaining containment OPERABLE as described in LCO 3.6.1, "Containment." In MODE 6, the potential for containment pressurization as a result of an accident is not likely; therefore, requirements to isolate the containment from the outside atmosphere can be less stringent. The LCO requirements are referred to as "containment penetration closure" rather than "containment OPERABILITY." Containment penetration closure means that all potential escape paths are closed or capable of being closed. Since there is no potential for containment pressurization, the 10 CFR 50, Appendix J leakage criteria and tests are not required.

The containment serves to contain fission product radioactivity that may be released from the reactor core following an accident, such that offsite radiation exposures are maintained well within the requirements of 10 CFR 100. Additionally, the containment provides radiation shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The containment equipment hatch, which is part of the containment pressure boundary, provides a means for moving large equipment and components into and out of containment. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the equipment hatch must be held in place by at least four bolts. Good engineering practice dictates that the bolts required by this LCO be approximately equally spaced.

If closed,

Alternatively, the equipment hatch can be open provided it can be installed with a minimum of four bolts holding it in place.

The containment air locks, which are also part of the containment pressure boundary, provide a means for personnel access during MODES 1, 2, 3, and 4 unit operation in accordance with LCO 3.6.2, "Containment Air Locks." Each air lock has a door at both ends. The doors are normally interlocked to prevent simultaneous opening when containment OPERABILITY is required. During periods of unit shutdown when containment penetration closure is not required, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment

BASES

APPLICABLE SAFETY ANALYSES During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the most severe radiological consequences result from a fuel handling accident. The fuel handling accident is a postulated event that involves damage to irradiated fuel (Ref. 2). Fuel handling accident, analyzed in Reference 2, assumes dropping a single irradiated fuel assembly. The requirements of LCO 3.9.7, "Refueling Pool Water Level," and the minimum decay time of 100 hours prior to CORE ALTERATIONS ensure that the release of fission product radioactivity, subsequent to a fuel handling accident, results in doses that are well within the guideline values specified in 10 CFR 100. Standard Review Plan, Section 15.7.4, Rev. 1 (Ref. 3), defines "well within" 10 CFR 100 to be 25% or less of the 10 CFR 100 values. The acceptance limits for offsite radiation exposure will be 25% of 10 CFR 100 values.

Containment penetrations satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

This LCO limits the consequences of a fuel handling accident in containment by limiting the potential escape paths for fission product radioactivity released within containment. The LCO requires any penetration providing direct access from the containment atmosphere to the outside atmosphere to be closed except for the OPERABLE containment purge penetrations ~~and the personnel air lock~~. For the OPERABLE containment purge penetrations, this LCO ensures that each penetration is isolable by the Containment Purge Isolation System to ensure that releases through the valves are terminated, such that radiological doses are within the acceptance limit.

One door in the emergency air lock must be closed and one door in the personnel air lock must be capable of being closed. Both containment personnel air lock doors may be open during movement of irradiated fuel or CORE ALTERATIONS, provided an air lock door is capable of being closed and the water level in the refueling pool is maintained as required. Administrative controls ensure that 1) appropriate personnel are aware of the open status of the containment during movement of irradiated fuel or CORE ALTERATIONS, 2) specified individuals are designated and readily available to close the air lock following an evacuation that would occur in the event of a fuel handling accident, and 3) any obstructions (e.g., cables and hoses) that would prevent rapid closure of an open air lock can be quickly removed (Ref. 4). LCO 3.9.4.b is modified by a Note allowing an emergency escape air lock temporary closure device to be an acceptable replacement for an emergency air lock door.

the personnel air lock, and the equipment hatch, which must be capable of being closed

INSERT 1

INSERT 1

The equipment hatch may be open during movement of irradiated fuel or CORE ALTERATIONS provided the hatch is capable of being closed and the water level in the refueling pool is maintained as required. Administrative controls ensure that 1) appropriate personnel are aware of the open status of the containment during movement of irradiated fuel or CORE ALTERATIONS, 2) specified individuals are designated and readily available to close the equipment hatch following an evacuation that would occur in the event of a fuel handling accident, and 3) any obstructions (e.g., cables and hoses) that would prevent rapid closure of the equipment hatch can be quickly removed.

BASES

**SURVEILLANCE
REQUIREMENTS**

SR 3.9.4.1 (continued)

required to meet the SR during the time the penetrations are open.

The Surveillance is performed every 7 days during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment. The Surveillance interval is selected to be commensurate with the normal duration of time to complete fuel handling operations. A surveillance before the start of refueling operations will provide sufficient surveillance verification during the applicable period for this LCO. As such, this Surveillance ensures that a postulated fuel handling accident that releases fission product radioactivity within the containment will not result in a release of fission product radioactivity to the outside atmosphere.

INSERT 2 →

SR 3.9.4.2 ③

This Surveillance demonstrates that each containment purge isolation valve actuates to its isolation position on manual initiation or on an actual or simulated high radiation signal. The 18 month Frequency maintains consistency with other similar ESFAS instrumentation and valve testing requirements. In LCO 3.3.6, the Containment Purge Isolation instrumentation requires a CHANNEL CHECK every 12 hours and a COT every 92 days to ensure the channel OPERABILITY during refueling operations. Every 18 months a CHANNEL CALIBRATION is performed. SR 3.6.3.5 demonstrates that the isolation time of each valve is in accordance with the Inservice Testing Program requirements. These Surveillances will ensure that the valves are capable of closing after a postulated fuel handling accident to limit a release of fission product radioactivity from the containment.

INSERT 2

SR 3.4.9.2

This Surveillance demonstrates that the necessary hardware, tools, and equipment are available to install the equipment hatch. The equipment hatch is provided with a set of hardware, tools, and equipment for moving the hatch from its storage location and installing it in the opening. The required set of hardware, tools, and equipment shall be inspected to ensure that they can perform the required functions.

The Surveillance is performed every 7 days during CORE ALTERATIONS or movement of irradiated fuel assemblies within the containment. The Surveillance interval is selected to be commensurate with the normal duration of time to complete the fuel handling operations. The Surveillance is modified by a Note which only requires that the Surveillance be met for an open equipment hatch. If the equipment hatch is installed in its opening, the availability of the means to install the hatch is not required. The 7 day Frequency is adequate considering that the hardware, tools, and equipment are dedicated to the equipment hatch and not used for any other function.

BASES

- REFERENCES
1. Amendment No. 74 to Wolf Creek Generating Station Operating License NPF-42, dated July 7, 1994.
 2. USAR, Section 15.7.4.
 3. NUREG-0800, Section 15.7.4, Rev. 1, July 1981.
 4. Amendment No. 95 to Wolf Creek Generating Station Operating License NPF-42, dated February 28, 1996.
 5. Amendment No. 107 to Wolf Creek Generating Station Operating License NPF-42, dated July 11, 1997.
-
-

LIST OF COMMITMENTS

The following table identifies those actions committed to by Wolf Creek Nuclear Operating Corporation (WCNOC) in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments. Please direct questions regarding these commitments to Mr. Tony Harris, Manager Regulatory Affairs at Wolf Creek Generating Station, (620) 364-4038.

COMMITMENT	Due Date/Event
The amendment for allowing the equipment hatch to be open during CORE ALTERATIONS and/or during movement of irradiated fuel assemblies will be implemented prior to Refueling Outage 13.	Prior to Refueling Outage 13
Administrative controls consisting of written procedures will be established prior to the implementation of the proposed change. These procedural controls would require: 1) appropriate personnel are aware of the open status of the containment during movement of irradiated fuel or CORE ALTERATIONS, 2) specified individuals are designated and readily available to close the equipment hatch following an evacuation that would occur in the event of a fuel handling accident, and 3) any obstructions (e.g., cables and hoses) that would prevent rapid closure of an open equipment hatch can be quickly removed.	Prior to Refueling Outage 13