



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-8064**

April 18, 2000

Otto L. Maynard, President and  
Chief Executive Officer  
Wolf Creek Nuclear Operating Corporation  
P.O. Box 411  
Burlington, Kansas 66839

SUBJECT: NRC INSPECTION REPORT NO. 50-482/00-02

Dear Mr. Maynard:

This refers to the inspection conducted on February 20 through April 1, 2000, at the Wolf Creek Generating Station facility. The enclosed report presents the results of this inspection.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

*/RA/*

William D. Johnson, Chief  
Project Branch B  
Division of Reactor Projects

Docket No.: 50-482  
License No.: NPF-42

Enclosure:  
NRC Inspection Report No.  
50-482/00-02

cc w/enclosure:  
Chief Operating Officer  
Wolf Creek Nuclear Operating Corp.  
P.O. Box 411  
Burlington, Kansas 66839

Jay Silberg, Esq.  
Shaw, Pittman, Potts & Trowbridge  
2300 N Street, NW  
Washington, DC 20037

Supervisor Licensing  
Wolf Creek Nuclear Operating Corp.  
P.O. Box 411  
Burlington, Kansas 66839

Chief Engineer  
Utilities Division  
Kansas Corporation Commission  
1500 SW Arrowhead Rd.  
Topeka, Kansas 66604-4027

Office of the Governor  
State of Kansas  
Topeka, Kansas 66612

Attorney General  
Judicial Center  
301 S.W. 10th  
2nd Floor  
Topeka, Kansas 66612-1597

County Clerk  
Coffey County Courthouse  
110 South 6th Street  
Burlington, Kansas 66839-1798

Vick L. Cooper, Chief  
Radiation Control Program, RCP  
Kansas Department of Health  
and Environment  
Bureau of Air and Radiation  
Forbes Field Building 283  
Topeka, Kansas 66620

Frank Moussa  
Division of Emergency Preparedness  
2800 SW Topeka Blvd  
Topeka, Kansas 66611-1287

bcc to DCD (IE01)

bcc electronic distribution from ADAMS by RIV:

- Regional Administrator (**EWM**)
- DRP Director (**KEB**)
- DRS Director (**ATH**)
- Senior Resident Inspector (**FLB2**)
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- Branch Chief, DRP/B (**WDJ**)
- Senior Project Engineer, DRP/B (**RAK1**)
- Branch Chief, DRP/TSS (**LAY**)
- RITS Coordinator (**NBH**)

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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket No.: 50-482  
License No.: NPF-42  
Report No.: 50-482/00-02  
Licensee: Wolf Creek Nuclear Operating Corporation  
Facility: Wolf Creek Generating Station  
Location: 1550 Oxen Lane, NE  
Burlington, Kansas  
Dates: February 20 through April 1, 2000  
Inspectors: F. L. Brush, Senior Resident Inspector  
R. A. Kopriva, Senior Project Engineer  
R. V. Azua, Project Engineer  
Approved By: W. D. Johnson, Chief, Project Branch B

ATTACHMENT: Supplemental Information

## EXECUTIVE SUMMARY

Wolf Creek Generating Station  
NRC Inspection Report No. 50-482/00-02

### Engineering

- The design and administrative controls established for the emergency core cooling systems were sufficient to preclude common mode failures as those previously experienced at the Wolf Creek nuclear plant and identified in Generic Letter 98-02, "Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigation Functions While in a Shutdown Condition."

## Report Details

### Summary of Plant Status

The plant operated at essentially 100 percent power the entire report period.

## I. Operations

### **O1 Conduct of Operations**

#### O1.1 General Comments (71707)

The inspectors conducted frequent reviews of ongoing plant operations. In general, the conduct of operations was professional and safety conscious. Plant status, operating problems, and work plans were appropriately addressed during daily turnover and plan-of-the-day meetings. Plant testing and maintenance requiring control room coordination were properly controlled. The inspectors observed several shift turnovers and noted no problems.

### **O2 Operational Status of Facilities and Equipment**

#### O2.1 Review of Equipment Tagout (71707)

The inspectors walked down tagout Clearance Order 00-0333-FC, an auxiliary feedwater pump turbine. The inspectors did not identify any discrepancies. The tagout was properly prepared and authorized. All tags were on the correct devices and the devices were in the position prescribed by the tags.

#### O2.2 Engineered Safety Feature System Walkdowns (71707)

The inspectors walked down accessible portions of the following engineered safety features and vital systems:

- Emergency Diesel Generators A and B
- Auxiliary Feedwater Trains A, B, and T

Equipment operability, material condition, and housekeeping were acceptable.

## II. Maintenance

### **M1 Conduct of Maintenance**

#### M1.1 General Comments - Maintenance

##### a. Inspection Scope (62707)

The inspectors observed or reviewed portions of the following work activities:

- Work Order 99 - 213393-006, "Replace a Portion of Essential Service Water Piping"

- Work Order 99-214360-000, "Component Cooling Water Pump A Inspection"
- Work Order 00-215493-000, "Component Cooling Water Pump A Oil Change"
- Work Order 99-210597-000, "As-Found and As-Left Votes Testing of Component Cooling Water to Postaccident Sampling System Sample Coolers Supply Isolation Valve EGHV0072"

b. Observations and Findings

All work observed was performed with the work packages present and in active use. The inspectors frequently observed supervisors and system engineers monitoring job progress, and quality control personnel were present when required.

M1.2 General Comments - Surveillance

a. Inspection Scope (61726)

The inspectors observed or reviewed all or portions of the following test activities:

- Test Procedure STS PE-167, "Local Leak Rate Test Valve Lineup for Penetration 67"
- Test Procedure STS KJ-005B, "Manual/Auto Start, Synchronization, and Loading of Emergency Diesel Generator NE02"

b. Observations and Findings

The surveillance testing was conducted satisfactorily in accordance with the licensee's approved programs and the Technical Specifications.

**M2 Maintenance and Material Condition of Facilities and Equipment**

M2.1 Review of Material Condition During Plant Tours

a. Inspection Scope (62707)

The inspectors performed routine plant tours to evaluate plant material condition.

b. Observations and Findings

The inspectors observed water leaks on various components. The licensee had previously identified the leaks and scheduled them for repair. The licensee also identified a new leak in the reactor building on a steam generator blowdown system valve. The licensee effected a temporary repair and planned to replace the valve during the fall 2000 refueling outage.

c. Conclusions

The inspectors concluded that the licensee was properly addressing material condition issues.

**III. Engineering**

**E8 Miscellaneous Engineering Issues (92903)**

**E8.1 Temporary Instruction (TI) 2515/142, "Draindown During Shutdown and Common Mode Failure (NRC Generic Letter 98-02)"**

a. Inspection Scope (TI 2515/142)

The inspectors performed TI 2515/142 to determine if surveillance, maintenance, modification, and operational activities allowed during shutdown could potentially drain the reactor coolant system and void the suction of high pressure safety injection, low pressure safety injection, and containment spray systems. These issues were reported to the industry by NRC Generic Letter 98-02, "Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigation Functions While in a Shutdown Condition." The inspectors reviewed the licensee's response to Generic Letter 98-02, interviewed licensee personnel, and reviewed pertinent piping and instrument drawings.

b. Observations and Findings

As requested by Generic Letter 98-02, the licensee conducted an assessment to determine the susceptibility of the emergency core cooling systems to common mode failure as a result of reactor coolant system draindown while in a hot shutdown condition. The objective was to determine if any activities could potentially lead to diverting the reactor coolant system to the refueling water storage tank, resulting in a draindown of the reactor coolant system concurrent with voiding in the suction header for the emergency core cooling system pumps.

Wolf Creek nuclear plant design does include a common suction header for residual heat removal and emergency core cooling system pump suction lines, which contributed to the draindown event described in NRC Generic Letter 98-02. This design feature makes their systems susceptible to common-cause failure, similar to the draindown event of September 17, 1994.

The inspector verified that the licensee had effectively implemented administrative controls, configuration management, and operating procedures to preclude an inadvertent draindown event as described in the generic letter. The licensee established Incident Investigation Team 94-04 to perform a root cause evaluation and provide recommended corrective actions. Procedure changes completed include:

- All mention of Valve BN8717, residual heat removal pump to the reactor water storage tank, was removed from System Operating Procedures SYS EJ-120, Revision 25, "Startup of a Residual Heat Removal Train," and SYS EJ-121, Revision 6, "Residual Heat Removal Train Startup In Cooldown Mode."
- Procedure OFN BB-031, Revision 2, "Shutdown Loss Of Coolant Accident," was issued, which requires immediate tripping of reactor coolant pumps for a rapid depressurization event and to enhance the reactor coolant pump tripping criteria.

Maintenance was required on Check Valves EP-8818C and BB-8948C, which had caused the residual heat removal system to be diluted. The valves were lapped during the subsequent outage. The valve maintenance had previously been placed on the outage schedule and was not the result of the incident investigation team findings.

The licensee reviewed the event and identified some human factor contributors, which led to the initiation of the event. To preclude future concerns of inadvertent draindowns, the licensee placed a placard on Valve BN8717 to require the nuclear station operator to check with the control room to verify that Valves EJ HV-8716A and -B are in the appropriate position before opening Valve BN-8717. Also, a unique lock has been placed on Valve BN-8717 and Administrative Procedure 02-102 requires the approval of either the Vice President Plant Operations or the Operations Manager before opening the valve. The inspector verified that these items were completed.

The inspector verified that the licensee had identified and reviewed any training, either enhancements or deficiencies, pertinent to the event. The operations manager had briefed all operating crews immediately after the event occurred. Management's expectations were clearly delineated at the briefings. Also, operations placed the Incident Investigation Team 94-04 report in operations required reading. Training was provided to the licensed operators, both in initial and requalification training, and to the nonlicensed operators. The training included the potential consequences of this type of event, classroom discussions, a Mode 4 loss-of-coolant accident on the simulator, and the importance of consulting all applicable procedures after an event.

c. Conclusion

The design and administrative controls established for the emergency core cooling systems were sufficient to preclude common mode failure as those previously experienced at the Wolf Creek nuclear plant and identified in Generic Letter 98-02, "Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigation Functions While in a Shutdown Condition."

E8.2 (Closed) Inspection Followup Item 50-482/9804-06: control room door leaktightness. The inspectors reviewed the inspection followup item and determined that no further action is required. This item is closed.

#### **IV. Plant Support**

##### **R1 Radiological Protection and Chemistry Controls**

###### **R1.1 General Comments (71750)**

The inspectors observed health physics personnel, including supervisors, routinely touring the radiologically controlled areas. Licensee personnel working in radiologically controlled areas exhibited good radiation worker practices.

Contaminated areas and high radiation areas were properly posted. Area surveys posted outside rooms in the auxiliary building were current. The inspectors checked a sample of doors, required to be locked for the purpose of radiation protection, and found no problems.

#### **V. Management Meetings**

##### **X1 Exit Meeting Summary**

The exit meeting was conducted on March 31, 2000. The licensee did not express a position on any of the findings in the report.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

M. J. Angus, Manager, Licensing and Corrective Action  
J. W. Johnson, Manager, Resource Protection  
O. L. Maynard, President and Chief Executive Officer  
B. T. McKinney, Vice President Plant Operations and Plant Manager  
R. Muench, Vice President Engineering  
S. R. Koenig, Manager, Performance Improvement and Assessment  
C. C. Warren, Vice President Operations Support

INSPECTION PROCEDURES USED

IP 37551	Onsite Engineering
IP 61726	Surveillance Observations
IP 62707	Maintenance Observations
IP 71707	Plant Operations
IP 71750	Plant Support Activities
IP 92700	Onsite Follow-Up of Written Reports of Nonroutine Events at Power Reactor Facilities
IP 92901	Followup - Operations
IP 92902	Followup - Maintenance
IP 92903	Followup - Engineering
IP 92904	Followup - Plant Support

ITEM CLOSED

Closed

50-482/9804-06      IFI      Control room door leaktightness (Section E8.2)