APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-482/88-01 Operating License: NPF-42

Docket: 50-482

Licensee: Wolf Creek Nuclear Operating Corporation (WCNOC)
Post Office Box 411
Burlington, Kansas 66839

Facility Name: Wolf Creek Generating Station (WCGS)

Inspection At: WCGS, Coffey County, Burlington, Kansas

Inspection Conducted: January 4 through February 14, 1988

Inspector: R E Farrell for 3-9-88
B. L. Bartlett, Senior Resident Reactor Inspector Date

Approved: R E Farrell 3-9-88
R. E. Farrell, Acting Chief, Reactor Project Section A Date

Inspection Summary

Inspection Conducted January 4 through February 14, 1988 (Report 50-482/88-01)

Areas Inspected: Routine, unannounced inspection including onsite event followup, engineered safety features system walkdown, operational safety verification, monthly maintenance observation, monthly surveillance observation, Part 21 followup, allegation followup, physical security verification, and radiological protection.

Results: Within the nine areas inspected, one violation (failure to comply with the licensee's temporary modification procedure, paragraph 3) was identified.

DETAILS

1. Persons Contacted

Principal Licensee Personnel

*B. D. Withers, President and CEO
*R. M. Grant, Vice President, Quality
J. A. Bailey, Vice President, Engineering & Technical Services
*F. T. Rhodes, Vice President, Operations
*G. D. Boyer, Plant Manager
*O. L. Maynard, Manager, Licensing
C. M. Estes, Superintendent of Operations
*M. D. Rich, Superintendent of Maintenance
*M. G. Williams, Superintendent of Regulatory, Quality, and Administrative Services
C. E. Parry, QA Manager, WCGS
A. A. Freitag, Manager, Nuclear Plant Engineering (NPE), WCGS
K. Peterson, Licensing
*G. Pendergrass, Licensing
*W. M. Lindsay, Supervisor, Quality Systems
*C. J. Hoch, QA Technologist
*C. G. Patrick, Manager, Quality Evaluations
*J. M. Pippin, Manager, NPE
*A. B. Clason, Supervisor, Maintenance Engineering
*R. D. Flannigan, Supervisor, Compliance Engineering
*M. R. Bove, Senior Maintenance Engineer
*R. H. Belote, Manager, Nuclear Safety Engineering

The NRC inspector also contacted other members of the licensee's staff during the inspection period to discuss identified issues.

*Denotes those personnel in attendance at the exit meeting held on February 12, 1988.

2. Engineered Safety Features (ESF) System Walkdown (71710)

The NRC inspector verified the operability of an ESF system by walking down selected accessible portions of the system. The NRC inspector verified valves and electrical circuit breakers were in the required position, power was available, and valves were locked, where required. The NRC inspector also inspected system components for damage or other conditions that could degrade system performance.

The ESF system walked down during this inspection period and the documents utilized by the NRC inspectors during the walkdown are listed below:

System	Documents
Residual Heat Removal (RHR) (EJ)	M-12 EJ01(Q), Revision 1, "Piping and Instrumentation Diagram Residual Heat Removal"
	Checklist CKL EJ-120, Revision 8, "RHR Normal System Lineup"
	SYS EJ-120, Revision 9, "Startup of a Residual Heat Removal Train"
	SYS EJ-320, Revision 7, "Placing RHR System In Safety Injection Standby Conditions"
	SYS EJ-321, Revision 9, "Shutdown of a Residual Heat Removal Train"
	STS EJ-100A, Revision 2, "RHR System Inservice Pump A Test"
	STS EJ-100B, Revision 2, "RHR System Inservice Pump B Test"
	STS EJ-201, Revision 5, "RHR System Inservice Valve Test"
	STS EJ-202, Revision 1, "RHR System Inservice Valve Test"
	STS EJ-205, Revision 3, "RHR System Inservice Valve Test"
	STS EJ-206, Revision 5, "RHR System Inservice Valve Test"

NRC inspector observations are discussed below:

- On January 20, 1988, at approximately 4:30 a.m. (CST), the NRC inspector was performing a walkdown of the RHR system in the "A" RHR heat exchanger room when an air supply isolation valve to Valve EJ HCV-606 was observed in the closed position. The NRC inspector informed the control room. The shift supervisor (SS) and auxiliary building watch went to the valve to investigate. The SS informed the NRC inspector that the valve handle was loose and would not move the valve. Pressure indicators for EJ HCV-606 matched those on a nearby valve showing the air supply valve was actually open. The SS informed the NRC inspector that a corrective work request would be written.

° On February 1, 1988, at approximately 2:30 p.m. (CST), the NRC inspector was performing a walkdown of the RHR system inside containment when test flanges were observed hanging by electrical cable tie wraps from four RHR system valves. Two test flanges were observed hanging from each valve. The valves involved were EJ V-172, 174, 175, and 178. The shift supervisor (SS) was informed and he had an operator remove the test flanges. The SS also initiated Wolf Creek Event Report 88-05 which requested a seismic analysis from nuclear plant engineering for the additional loading of the test flanges. An engineering evaluation for permanent test flanges was also requested These test flanges were not included in the original design of the RHR system piping. Therefore, the attachment and/or use of the test flanges is a temporary modification or "change" to the system. The licensee's procedure for plant changes ADM-01-022, Revision 13, "Authorization of Changes, Tests, and Experiments," requires that changes be reviewed for a reduction in safety margin. This review is required to be documented by completing the Wolf Creek safety evaluation checklist. The attachment of these test flanges did not receive a review as required by ADM-01-022. This failure to perform a safety evaluation as required prior to making a plant change was identified by the NRC inspector as an apparent violation. (482/8801-01)

3. Onsite Event Followup (92700)

The NRC inspector performed onsite followup of nonemergency events that occurred during this report period. The NRC inspector reviewed control room logs and discussed the events with cognizant personnel. The NRC inspector verified the licensee had responded to the events in accordance with procedures and had notified the NRC and other agencies as required in a timely fashion. The events that occurred during this report period are listed in the table below. The NRC inspector will review the LERs for these events and will report any findings in a subsequent NRC inspection report.

Date	Event*	Plant Status	Cause
12/18/87	Lost Source	N/A	Unknown
01/20/88	FBVIS/CRVIS	Mode 1 (95 percent)	Spike on GG RT-27
01/24/88	CPIS/CRVIS	Mode 5	Spike on GT RE-323

*Event:

FBVIS - Fuel building ventilation isolation system
CRVIS - Control room ventilation isolation
CPIS - Containment purge isolation

Selected NRC inspector observations for each event are discussed below:

- On December 18, 1987, the licensee informed the resident inspectors of a lost radioactive source. The source was discovered missing during a routine inventory. The source was 400 microcurie strontium-90/ yttrium-90. The loss of the source was discussed in NRC Inspection Report 50-482/87-33 and was documented in Licensee Event Report 87-056, Revision 0, dated January 15, 1988. The licensee searched the Health Physics (HP) calibration laboratory unsuccessfully. The licensee determined that the source was not in its proper location in October 1987 and that HP management was not informed. By using an identical source, HP Personnel determined that the exit portal monitors would have detected the lost source if someone inadvertently carried it out of the plant. The licensee conducted a comprehensive survey of areas inside and outside of the facility, but the source was not located. The licensee plans to keep a lookout for the source and it is believed that should the source turn up that it will be detected by the normal plant radiological controls program.

- On January 21, 1988, the licensee determined that the outer reactor vessel O-ring had failed and with the inner O-ring having previously failed, a reactor shutdown was initiated in accordance with commitments made to the NRC. The outage lasted approximately 21 days with the unit returning to criticality on February 12, 1988. During the outage three events occurred which warranted increased Region IV attention. These events consisted of a tygon tube level transient, component cooling water (CCW) water hammer, and airborne contamination of containment. These events are discussed further in NRC Inspection Reports 50-482/88-03, -04, and -06.

- Licensee Event Report (LER) 87-058, Revision 0, was issued on January 22, 1988. This LER discusses a Technical Specification violation due to a failure to install proper electrical splices to the containment high-range radiation monitors. The cause of this failure was an error in the electrical termination list. This error apparently was generated when a vendor manual was improperly interpreted. The licensee immediately installed the correct splice and reviewed design documents for any similar errors. None were found.

4. Operational Safety Verification (71707)

The NRC inspector verified that the facility is being operated safely and in conformance with regulatory requirements by direct observation of licensee facilities, tours of the facility, interviews and discussions with licensee personnel, independent verification of safety system status and limiting conditions for operations, and reviewing facility records. The NRC inspector, by observation of randomly selected activities and interview of personnel, verified that physical security, radiation protection, and fire protection activities were controlled.

By observing accessible components for correct valve position and electrical breaker position, and by observing control room indication, the NRC inspector confirmed the operability of selected portions of

safety-related systems. The NRC inspector also visually inspected safety components for leakage, physical damage, and other impairments that could prevent them from performing their design functions.

5. Monthly Maintenance Observation (62703)

The NRC inspector observed maintenance activities performed on safety-related systems and components to verify that these activities were conducted in accordance with approved procedures, Technical Specifications, and applicable industry codes and standards. The following elements were considered by the NRC inspector during the observation and/or review of the maintenance activities:

- LCOs were met and, where applicable, redundant components were operable.
- Activities complied with adequate administrative controls.
- Where required, adequate, approved, and up-to-date procedures were used.
- Craftsmen were qualified to accomplish the designated task and technical expertise (i.e., engineering, health physics, operations) was made available when appropriate.
- Replacement parts and materials being used were properly certified.
- Required radiological controls were implemented.
- Fire prevention controls were implemented where appropriate.
- Required alignments and surveillances to verify post maintenance operability were performed.
- Quality control hold points and/or checklists were used when appropriate and quality control personnel observed designated work activities.

Selected portions of the maintenance activities accomplished on the work requests (WR) listed below were observed and related documentation reviewed by the NRC inspector.

Number	Activity
WR 00348-88	Implement electrical portion of PMR 02255 - low air pressure supply alarm
WR 00731-88	AL HV138/Essential service water to turbine driven auxiliary feedwater Pump B - valve broken

WR 60006-88	Reactor vessel head removal/installation
WR 60007-88	Reactor vessel head O-Ring replacement
WR 90002-88	Perform bench test on EJ V-084 residual heat removal heat exchanger component cooling water outlet relief valve

No violations or deviations were identified.

6. Monthly Surveillance Observation (61726)

The NRC inspector observed selected portions of the performance of surveillance testing and/or reviewed completed surveillance test procedures to verify that surveillance activities were performed in accordance with TS requirements and administrative procedures. The NRC inspector considered the following elements while inspecting surveillance activities:

- Testing was being accomplished by qualified personnel in accordance with an approved procedure.
- The surveillance procedure conformed to TS requirements.
- Required test instrumentation was calibrated.
- Technical Specification limiting conditions for operation (LCO) were satisfied.
- Test data was accurate and complete. Where appropriate, the NRC inspector performed independent calculations of selected test data to verify their accuracy.
- The performance of the surveillance procedure conformed to applicable administrative procedures.
- The surveillance was performed within the required frequency and the test results met the required limits.

Surveillances witnessed and/or reviewed by the NRC inspector are listed below:

- STS EP-206, Revision 3, 'Accumulator Safety Injection System Inservice Valve Test," performed on February 2, 1988
- STS GP-007, Revision 7, "CTMT Penetration Isolation Verification," performed on February 3, 1988
- STS GT-002, Revision 3, "CTMT Shutdown Purge Supply/Exhaust Isolation Valves and Blank Flange Verification," performed on February 8, 1988

- STS IC-204, Revision 4, "Analog Channel Operation Test 7300 Process Instrumentation Protection Set IV (Yellow)," performed on January 22, 1988

- STS NB-005, Revision 5, "Breaker Alignment Verification," performed on February 7, 1988

- STS RE-002, Revision 6, "Determination of Estimated Critical Position," performed on February 11, 1988

- STS RE-004, Revision 7, "Shutdown Margin Determination," performed January 24 and February 8, 1988

A selected NRC inspector observation is discussed below:

On February 11, 1988, the NRC inspector performed a manual estimated critical position (ECP) using the licensee's Procedure STS RE-002 and compared it to the computer generated ECP. The results compared satisfactorily within expected error margins.

No violations or deviations were identified.

7. Part 21 Followup (92700)

a. The NRC inspector, by review of documents and discussions with licensee personnel, verified that the 10 CFR Part 21 reports discussed below had been reviewed and appropriately acted on by the licensee.

(Closed) P21-1986-86-02: Pipe Support Tolerance and Installation Procedures - The licensee determined that during construction, Daniel International identified a similar concern in Corrective Action Report CAR 1-G-0033. The licensee performed a review of the corrective action for CAR 1-G-0033 and determined that supports received the review and backfit of any modified acceptance criteria. This information was documented in WCGS Technical Information Review and Evaluation (ITIP) No. 00357.

(Closed) P21-1986-86-03: Defective Emergency Head Lever Supplied For Auxiliary Feed Pump - The licensee determined through conversations with the vendor that the subject parts do not pertain to WCGS's model turbine. This information is documented in WCGS ITIP No. 00306 and 00358.

(Closed) P21-1987-87-07: Defective Penetration/Conduit Fire Seals - The licensee's engineering review and discussions with the vendor determined that the test results did not apply to Wolf Creek. The test results met all of the acceptance Criteria (IEEE 634-1978) and licensing commitments.

(Closed) P21-1987-87-25: Insulation Resistance Of Rockbestos Coaxial Cable Used In High Range Radiation Monitor Is Too Low For Proper

Operation Of the Monitors - The licensee's engineering review determined that WCGS post-accident containment temperature, profile, and length of cable inside containment made this Part 21 not applicable to WCGS. This information was documented in WCGS ITIP No. 00362.

(Closed) P21-1987-87-28: Improper Seating Of AGASTAT GP Series Relays - The licensee determined that this Part 21 was not applicable to Wolf Creek as they use units which have screw terminals instead of the plug in type. This information was documented in WCGS ITIP No. 00364.

(Closed) P21-1987-87-36: Limit Switch Rotors Are Warped and Do Not Make Contact With Fingers - The licensee's review determined that if this condition existed at WCGS that it would be found during testing being performed under IE Bulletin 85-03. No warpage problems were identified during the testing. Maintenance was notified of this Part 21 to alert them to the problem. This information was documented in WCGS ITIP No. 00390.

(Closed) P21-1987-87-65: Inner Bearing Race Missing On DG Air Start Motors - The licensee's review determined that this was not applicable to WCGS as they use direct air injection to the cylinder for starting instead of using air start motors. This information was documented in WCGS ITIP No. 00450.

b. The NRC inspector provided copies of the 10 CFR Part 21 reports listed below to the licensee for review and action, if required.

P21-1987-87-74: Limitorque SMB00 Motor Operator-Motor Lead Wires Found With Abrasion Damage To the Insulation

P21-1987-87-76: HFA Auxiliary Relays-Latch Equipment Was Less Than the Recommended Minimum

P21-1987-87-80: Containment Hydrogen Analyzer Systems-Design Deficiency May Cause a Loss of Calibration Gas

P21-1987-87-81: Three Nonconformances to Eastern Testing and Inspection Procedures Regarding NDE Documentation Were Identified

P21-1987-87-82: Westinghouse W2 Cell Switch-Possible Failure Mechanism

P21-1987-87-83: Saturable Core Transformers-Inadequate Insulation Between Windings

P21-1987-87-84: Failure of Fastners May Cause the Valve Operator to be Unable to be Opened

No violations or deviations were identified.

8. Allegation Followup (92701)

(Closed) Allegation 4-87-A-0095: Teflon Tape - This allegation concerned a maintenance supervisor giving instructions to use teflon tape on a drain line to one of the condensate pumps. The licensee was informed of this prior to the NRC becoming aware of the allegation. The allegation has no safety significance as the use of teflon tape on secondary systems is acceptable; however, the licensee has prohibited the use of any teflon tape on site. In response to this and other information, the licensee terminated the supervisor responsible. This allegation is closed.

No violations or deviations were identified.

9. Physical Security Verification (71881)

The NRC inspector verified that the facility physical security plan is being followed by direct observation of licensee facilities and security personnel.

The NRC inspector by observation of randomly selected activities verified that search equipment is operable, that the protected area barriers and vital area barriers are well maintained, that access control procedures are followed and that appropriate compensatory measures are followed when equipment is inoperable.

No violations or deviations were identified.

10. Radiological Protection (71709)

By performing the following activities, the NRC inspector verified that radiologically related activities were controlled in accordance with the licensee's procedures and regulatory requirements:

- Reviewed documents such as active radiation work permits and the health physics shift turnover log.
- Observed personnel activities in the radiologically controlled area (RCA) such as:
  - Use of the required dosimetry equipment,
  - "Frisking out" of the RCA,
  - Wearing of appropriate anti-contamination clothing where required.
- Inspected postings of radiation and contaminated areas.
- Discussed activities with radiation workers and health physics supervisors.

No violations or deviations were identified.

11. Exit Meeting (30703)

The NRC inspector met with licensee personnel to discuss the scope and findings of this inspection on February 12, 1988.