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

August 13, 1999

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

SUBJECT: NRC INSPECTION REPORT 50-482/99-11

Dear Mr. Maynard:

This refers to the inspection conducted on July 12-16, 1999, at the Wolf Creek Generating Station facility. The purpose of the inspection was to review the radiological environmental monitoring program, the meteorological monitoring program, and the results of your investigation of the May 25, 1999, personnel contamination event. The enclosed report presents the results of this inspection.

Based on the results of this inspection, the NRC has determined that three Severity Level IV violations of NRC requirements occurred. These violations are being treated as Non-Cited Violations (NCVs), consistent with Appendix C of the Enforcement Policy. These NCVs are described in the subject inspection report. If you contest the violation or severity level of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011, the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Wolf Creek Generating Station facility.

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

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

Sincerely,

Original signed by
Gail M. Good, Chief
Plant Support Branch
Division of Reactor Safety

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

Enclosures:
NRC Inspection Report No.
50-482/99-11

cc w/enclosures:
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, D.C. 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
Burlington, Kansas 66839-1798

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

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

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-482
License No.:	NPF-42
Report No.:	50-482/99-11
Licensee:	Wolf Creek Nuclear Operating Corporation
Facility:	Wolf Creek Generating Station
Location:	1550 Oxen Lane, NE Burlington, Kansas
Dates:	July 12-16, 1999
Inspector:	Larry Ricketson, P.E., Senior Radiation Specialist Plant Support Branch
Approved By:	Gail M. Good, Chief Plant Support Branch Division of Reactor Safety
Attachment:	Supplemental Information

EXECUTIVE SUMMARY

Wolf Creek Generating Station
NRC Inspection Report No. 50-482/99-11

The inspection reviewed the radiological environmental monitoring program, the meteorological monitoring program, and the results of the licensee's investigation of the May 25, 1999, personnel contamination event.

Maintenance

- With the exception of the temperature channels, the meteorological instrumentation was correctly calibrated and maintained (Section M1.1).

- The failure to restore temperature measuring instrumentation to operable status within seven days was a violation of Technical Specification 6.8.1. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Performance Improvement Request 99-2474 (Section M1.1).

- The performance improvement request process was implemented poorly with respect to a meteorological instrumentation problem. (Section M7).

Plant Support

- The licensee's radiological environmental monitoring program was correctly implemented. The radiological environmental monitoring program results were properly documented in an annual report (Section R1.1).

- Based on incorrect internal dose calculations, the licensee reported a suspected overexposure to the NRC. During the subsequent review of the event, the licensee determined no regulatory dose limit had been exceeded. However, the licensee identified weaknesses in radiological surveys, radiation worker practices, work planning, communications, radiation work permits, and procedural guidance for dose calculations (Section R1.1).

- The licensee identified a violation involving a failure to make surveys in accordance with 10 CFR 20.1501(a). Radiation protection personnel failed to evaluate airborne radioactivity concentrations in a work area. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Performance Improvement Request 99-2319 (Section R1.2).

- The licensee identified two examples of a violation involving a worker that failed to follow radiation protection procedural guidance in accordance with Technical Specification 6.8.1. A radiation worker failed to follow radiation work permit protective clothing requirements and failed to frisk properly for radioactive contamination after leaving a high contamination area. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. This

violation is in the licensee's corrective action program as Performance Improvement Requests 99-2319 and 99-2437 (Section R1.2).

Report Details

II. Maintenance

M1 Conduct of Maintenance

M1.1 Meteorological Monitoring Instruments

a. Inspection Scope (84750)

The inspector met with the cognizant system engineer and instruments and controls technician and discussed meteorological instrument operability and meteorological data recovery.

b. Observations and Findings

Technical Specification 6.8.1 requires that written procedures be established, implemented, and maintained covering the activities recommended in Appendix A, of Regulatory Guide 1.33, Revision 2, February 1978. Section 7.h of Appendix A includes procedures for meteorological monitoring. Procedure 26A-002, "*Implementation and Revision of Technical Specification Bases, Technical Requirements Manual and Pressure and Temperature Limits Report*," Revision 1, Section 6.1.2, states, "The contents of the Technical Requirements Manual are requirements on Wolf Creek Generating Station and its operation and shall be implemented as prescribed in the Technical Requirements Manual." Technical Requirements Manual Section 16.3.1.3 (3.3.3.4) states that the meteorological monitoring instrumentation channels in Table 16.3-3 shall be operable at all times. Table 16.3-3 includes a channel that provides the air temperature difference between the 10-meter and 60-meter elevations of the meteorological monitoring tower. The limiting condition for operations requires that, with one or more required meteorological monitoring channels inoperable, the licensee restore the instrument(s) to operable status within seven days. The operability of the meteorological instrumentation ensures that sufficient meteorological data is available for estimating potential radiation doses to the public, as a result of routine or accidental release of radioactive materials to the atmosphere.

Through personnel interviews and performance improvement request reviews, the inspector determined that the temperature monitoring circuitry was out of service from April 19 to June 24, 1999. The failure to restore temperature measuring instrumentation to operable status within seven days was a violation of Technical Specification 6.8.1. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Performance Improvement Request 99-2474 (50-482/9911-01).

The latest annual effluent report stated that 1998 data recovery was 88.7 percent. The licensee's goal for data recovery was 90 percent. Licensee representatives explained that the 1998 data recovery result was below 90 percent because the result was calculated on the availability of data produced by all meteorological instruments, not just

the Technical Requirements Manual instrumentation. However, licensee representatives acknowledged that, because of the problems with the temperature circuitry, data recovery in 1999 will not reach 90 percent. Because 90 percent data recovery was only a goal, no regulatory issues were identified related to meteorological data recovery.

Calibration records confirmed that the licensee calibrated meteorological instrument channels listed in the Technical Requirements Manual, Table 16.3-4, semiannually as required. Acceptance criteria were equal to or were more stringent than recommended in Regulatory Guide 1.23.

c. Conclusions

With the exception of the temperature channels, the meteorological instrumentation was correctly calibrated and maintained.

The failure to restore temperature measuring instrumentation to operable status within seven days was a violation of Technical Specification 6.8.1. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Performance Improvement Request 99-2474.

M7 Quality Assurance in Maintenance Activities

a. Inspection Scope (84750)

The inspector reviewed performance improvement requests involving meteorological instrumentation.

b. Observations and Findings

Through interviews with licensing representatives, the inspector determined that the meteorological instrumentation was not included in the licensee's 10 CFR Part 50, Appendix B, corrective action program. Nevertheless, Performance Improvement Request 99-1562 was initiated to address the inability to restore all meteorological instruments to operable status in seven days. The inspector noted that the performance improvement request was vaguely worded. It stated, "This work order has not been completed in the required time limit because of weather conditions."

The inspector noted that the initiator of Performance Improvement Request 99-1562 did not meet the expectations of Procedure AP 28A-001, "Performance Improvement Request, " Revision 14, Section 6.1.4, because the initiator did not provide the "consequences or potential consequences" associated with the identified issue. For example, the initiator did not provide a regulatory context for the issue by indicating that operable instrumentation was required by Technical Requirement Manual Section 16.3.1.3. According to the procedural expectations, if the initiator did not have this information, the initiator should have discussed the issue with a knowledgeable individual. Performance Improvement Request 99-1562 was closed on May 12, 1999,

before the meteorological instruments were repaired on June 24, 1999. The performance improvement request was closed, in part, because its significance was not apparent, according to the supervisor who closed it.

Because the performance improvement request was closed before the condition was corrected, the inspector concluded that the performance improvement process was ineffective, in this example. Because the licensee's meteorological instrumentation is not addressed by the licensee's 10 CFR Part 50, Appendix B, corrective action program, this example is not a regulatory issue. However, the ineffective implementation of the performance improvement request process was a contributing cause of the violation involving meteorological instrumentation.

c. Conclusions

The performance improvement request process was implemented poorly with respect to a meteorological instrumentation problem.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Radiological Environmental Monitoring Program

a. Inspection Scope (84750)

The inspector compared the licensee's Offsite Dose Calculation Manual with the Radiological Assessment Branch Technical Position on Environmental Monitoring, Revision 1, November 1979, and reviewed the following items:

- Environmental sampling log
- 1998 Annual Radiological Environmental Operating Report
- Offsite Dose Calculation Manual changes
- Environmental airborne radioactivity sample collection
- Sample station maintenance and equipment operability
- Sample preparation for shipment
- Interlaboratory comparison results

b. Observations and Findings

The licensee's Radiological Environmental Monitoring Program was implemented through Procedure AP 07B-004, "Offsite Dose Calculation Manual (Radiological Environmental Monitoring Program)," Revision 0. The program agreed closely with the example of an acceptable program outlined in the branch technical position. Licensee representatives discussed the bases for minor differences. The inspector concluded that the difference was based on practical considerations and did not negatively impact the effectiveness of the program. The 1998 Offsite Dose Calculation Manual changes were identified as required by Technical Specification 6.14. The inspector discussed the bases for the changes with licensee representatives and identified no problems.

The inspector reviewed the licensee's environmental sampling log and confirmed that sample collection was conducted in accordance with the program requirements listed in Table 5.1 of Procedure AP 07B-004.

The inspector observed the collection and preparation for shipment of airborne particulate and radioiodine samples. The environmental monitoring technician followed the guidance of Procedure AI 07B-014, "Collection, Preparation, and Shipment of Airborne Particulate and Radioiodine Samples," Revision 1. Sampling stations were maintained, and the sampling equipment was operable and within the calibration interval established by Procedure AI 07B-016, "Radiological Environmental Monitoring Equipment Control and Calibration," Revision 2. The licensee had a sufficient supply of replacement air sampling equipment.

The licensee sent environmental samples to a vendor laboratory for analysis. The vendor laboratory participated in an interlaboratory comparison program. The Radiological environmental monitoring program results and the interlaboratory comparison results were reported in the Annual Radiological Environmental Operating Report, as required. Thermoluminescent dosimeters were processed by another nuclear power facility. The licensee maintained documentation verifying that the other nuclear power facility's dosimetry program was accredited by the National Voluntary Laboratory Accreditation Program and that the other facility participated in an interlaboratory comparison program.

The inspector reviewed the 1998 Annual Radiological Environmental Operating Report and confirmed sampling results did not exceed reporting levels. The radiological environmental monitoring results supported the radiological effluent release program results.

c. Conclusions

The licensee's Radiological environmental monitoring program was correctly implemented. An acceptable program was established. Changes to the program did not reduce its effectiveness. Sample collection was conducted according to the established program. Sample analyses and environmental dosimetry processing were performed by acceptably qualified laboratories. The radiological environmental monitoring program results were properly documented in an annual report.

R1.2 Radiation Protection

a. Inspection Scope (92904)

On June 25, 1999, the licensee notified the NRC of an event that resulted in a calculated internal dose of 14.5 rems. The event involved the intake of radioactive material by a decontamination worker in a highly contaminated area. The licensee established an incident investigation team to investigate the event and identify the cause. On June 26, 1999, the licensee identified that the initial dose calculations were incorrect and revised its dose estimate to less than 5 millirems. The inspector reviewed the draft findings of the incident investigation team.

b. Observations and Findings

The incident investigation team reviewed the event and identified violations and program weaknesses in several areas. The areas included: radiological surveys, radiation worker practices, work planning, communications, radiation work permits, and procedural guidance. No weaknesses were identified in general employee training or health physics training.

Radiological Surveys

No air samples were taken during the decontamination activities. No real time airborne radioactivity monitors were used, either. Therefore, the ongoing radiological hazards associated with airborne radioactivity could not be evaluated. There was no record of an evaluation performed before the work started.

10 CFR 20.1501(a) requires each licensee to make or cause to be made, surveys that may be necessary for the licensee to comply with the regulations in 10 CFR Part 20 and are reasonable under the circumstances to evaluate the extent of radiation levels, concentration or quantities of radioactive material, and the potential radiological hazards that could be present. 10 CFR 20.1003 defines a survey as a means of evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation.

The failure to make surveys that may have been necessary to ensure that the licensee complied with regulations such as 10 CFR 20.1201, “Occupational Dose Limits for Adults,” is a violation of 10 CFR 20.1501(a). This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. This violation is in the licensee’s corrective action program as Performance Improvement Request 99-2319 (50-482/9911-02).

Radiation Worker Practices

Radiation Work Permit 990002 was the governing radiation work permit during decontamination activities. This radiation work permit required a cloth hood and face shield to be donned before performing work activities in a highly contaminated area. The decontamination worker donned only a skull cap with no cloth hood. Also, the worker failed to don a face shield while working in a highly contaminated area.

Technical Specification 6.8.1 requires, in part, that written procedures be written, implemented, and maintained covering the applicable procedures in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 7.e of Appendix A lists radiation protection procedures for access control and radiation work permits. Procedure AP 25B-100, “Radiation Worker Guidelines,“ Revision 9, stated that individuals shall comply with radiation work permit requirements.

The failure of the worker to comply with the radiation work permit requirements is a violation of Procedure AP 25B-100 and Technical Specification 6.8.1. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C

of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Performance Improvement Request 99-2319 (50-482/9911-03).

Procedure AP 25B-100, "Radiation Worker Guidelines," also stated in Step 6.6.6: "Upon exiting a highly contaminated area or a potential hot particle area, an individual is required to perform a whole-body frisk at the nearest frisking station." The decontamination worker frisked only the hands and feet. The failure of the radiation worker to perform a whole-body frisk is a second example of a violation of Procedure AP 25B-100 and Technical Specification 6.8.1. This example is in the licensee's corrective action program as Performance Improvement Request 99-2437.

Work Planning

Radiation protection personnel were not aware of the decontamination work until the day of the event. Decontamination activities were not scheduled on the plant work schedule. The job was assigned the day before the incident occurred. Therefore, there was no pre-job planning. No regulatory issues were identified; however, this item is in the licensee's corrective action program as Performance Improvement Request 99-2439.

Communications

Through personnel interviews, the incident investigation team determined that a senior radiation protection technician was not clearly assigned the job coverage responsibilities by the radiation protection shift desk technician. The lack of clear job assignment resulted in the lack of a pre-job survey, air sample, and intermittent job coverage. The incident investigation team concluded that inadequate communication was a significant contributing factor to this event. No regulatory issues were identified; however, this item is in the licensee's corrective action program as Performance Improvement Request 99-2319.

Radiation Work Permits

The applicable radiation work permit did not meet procedural expectations. Procedure RPP 02-105, "Radiation Work Permit," Revision 14, Sections 9.1.2 and 9.1.3 provided guidelines for assigning tasks to either general or specific radiation work permits. One example of a specific radiation work permit task was one which involved "access/work in a highly contaminated area." This event involved a worker cleaning a highly contaminated area. However, the work was controlled by a general radiation work permit (990002). In addition, radiation worker training (GT 12 452 01) indicated that a specific radiation work permit was required for entering a highly contaminated area. No regulatory issues were identified; however, this item is in the licensee's corrective action program as Performance Improvement Request 99-2434.

Procedural Guidance

The internal dose calculation and/or the whole-body counter operation procedural guidance were/was not detailed enough to ensure that the individual performing the whole-body counts started with the correct radioactive material intake activity. As a

result, an incorrect value was selected and the internal dose was greatly overestimated. No regulatory issues were identified; however, this item is in the licensee's corrective action program as Performance Improvement Requests 99-2351 and 99-2325.

c. Conclusions

Based on incorrect internal dose calculations, the licensee reported a suspected overexposure to the NRC. During the subsequent review of the event, the licensee determined no regulatory limits had been exceeded. However, the licensee identified weaknesses in radiological surveys, radiation worker practices, work planning, communications, radiation work permits, and procedural guidance for dose calculations.

The licensee identified a violation involving a failure to make surveys, in accordance with 10 CFR 20.1501(a). This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Performance Improvement Request 99-2319.

The licensee identified two examples of a violation involving a worker that failed to follow radiation protection procedural guidance in accordance with Technical Specification 6.8.1. A radiation worker failed to follow radiation work permit protective clothing requirements and failed to frisk properly for radioactive contamination after leaving a high contamination area. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Performance Improvement Requests 99-2319 and 99-2437.

R7 Quality Assurance in Radiological Protection and Chemistry Activities

The 1999 quality assurance audit team included technical specialists from other nuclear power facilities. The audit scope was broad enough to provide an overview of program performance. The findings indicated that the reviews were of sufficient depth to identify potential problems. The audit team documented its findings through use of performance improvement requests. The audit team concluded that the radiological environmental monitoring program was implemented well. No vendor audits were performed since the previous inspection of this area.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at an exit meeting on July 16, 1999. The licensee acknowledged the findings presented. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

M. Blow, Manager, Chemistry/Radiation Protection
R. Butz, Engineer, System Engineering
R. Hammond, Supervisor, Health Physics
J. Johnson, Manager, Resources Protection
A. Mah, Senior Engineer, Corrective Action
B. McKinney, Vice President Plant Operations/Plant Manager
C. Reekie, Engineering Specialist III, Licensing
T. Rice, Technician III, Environmental Management
R. Robinson, Assistant Superintendent, Instrumentation and Electrical Maintenance
R. Stumbaugh, Health Physics Supervisor
D. Williamson, Supervisor, Environmental/Fire Protection
C. Warren, Vice President and Chief Operating Officer

NRC

F. Brush, Senior Resident Inspector

INSPECTION PROCEDURES USED

84750	Radioactive Waste Treatment, and Effluent and Environmental Monitoring

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-482/9911-01	NCV	Meteorological instrument channel was inoperable more than seven days (Section M1.1)
50-482/9911-02	NCV	Failure to make surveys of airborne radioactivity (Section R1.2)
50-482/9911-03	NCV	Failure to follow radiation protection procedures (Section R1.2)

Closed

50-482/9911-01	NCV	Meteorological instrument channel was inoperable more than seven days (Section M1.1)
50-482/9911-02	NCV	Failure to make surveys of airborne radioactivity (Section R1.2)
50-482/9911-03	NCV	Failure to follow radiation protection procedures (Section R1.2)

Discussed

None

Documents Reviewed

1998 Annual Radiological Environmental Operating Report

WCNOC QE Audit K-510, Environmental Management (March 1 through June 25, 1999)

Draft Incident Investigation Report (IIT #99-001) on June 25, 1999, Personnel Contamination Event

Performance Improvement Reports as listed in the details of this report

Procedures

AI 07B-014	Collection, Preparation, and Shipment of Airborne Particulate and Radioiodine Samples, Revision 1
AI 07B-016	Radiological Environmental Monitoring Equipment Control and Calibration, Revision 2
AI 07B-017	Calibration and Maintenance of Air Sampler Pumps, Revision 0
AP 07B-004	Offsite Dose Calculation Manual (Radiological Environmental Monitoring Program), Revision 0
AP 25B-100	Radiation Worker Guidelines, Revision 9
AP 25B-300	RWP Program, Revision 8
AP 28A-001	Performance Improvement Request, Revision 14
RPP 02-105	RWP, Revision 14
RPP 02-210	Radiation Survey Methods, Revision 16
RPP 03-210	Internal Exposure Calculations and Evaluations, Revision 5