

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-482/91-04

Operating License: NPF-42

Docket: 50-482

Licensee: Wolf Creek Nuclear Operating Corporation (WCNOC)
P.O. Box 411
Burlington, Kansas 66839

Facility Name: Wolf Creek Generating Station (WCGS)

Inspection At: WCGS Site, Burlington, Coffey County, Kansas

Inspection Conducted: January 14-18, 1991

Inspectors:

Ronald E. Baer
R. E. Baer, Senior Reactor Health Physicist
Radiological Protection and Emergency
Preparedness Section

2-5-91
Date

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Specialist, Radiological Protection and
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2-5-91
Date

Approved:

Blaire Murray
B. Murray, Chief, Radiological Protection and
Emergency Preparedness Section

2/5/91
Date

Inspection Summary

Inspection Conducted January 14-18, 1991 (Report 50-482/91-04)

Areas Inspected: Routine, announced inspection of the licensee's radiation protection program including organization and management controls, training and qualifications, and maintaining personnel exposures as low as reasonably achievable (ALARA).

Results: Within the areas inspected, no NRC identified violations or deviations were identified. One licensee identified violation was reviewed (paragraph 2).

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Several new staff positions were approved for the health physics (HP) group. The staffing level is adequate to handle routine radiation protection activities. Turnover within the HP group was low. Heavy reliance was not placed on contractors during routine operations. Quality assurance (QA) audits and surveillances appeared to be comprehensive and have become more performance-based with the use of auditors with HP backgrounds.

The radiation protection training programs were adequate. HP personnel were determined to be well trained and qualified. The number of training department instructors assigned to provide radiation protection training was perceived by the licensee staff to be marginal. Instructors were found to be well qualified. The licensee took an active role in the professional development of its HP technicians.

The licensee has experienced low person-rem exposures. Although the program effectiveness is satisfactory some implementation weaknesses were noted in that the ALARA staff does not track or trend all station radiological conditions. It was noted that implementation of ALARA improvements was slow and there appears to be limited visibility and encouragement provided by management to support the ALARA improvement program.

DETAILS

1. Persons Contacted

WCNOC

- *B. D. Withers, President
- *R. S. Benedict, Manager, Quality Control
- *G. D. Boyer, Plant Manager
- *S. C. Burkdoll, Supervising Instructor, HP
- *H. K. Chernoff, Supervisor Licensing
- T. A. Conley, Supervisor, HP Support
- *C. W. Fowler, Manager, Instrument Controls
- *E. C. Holman, Supervisor, HP Operations
- *W. M. Linsey, Manager, QA
- *C. M. Medenciy, Supervisor, Radwaste
- *T. G. Moreau, Supervising Instructor
- *T. S. Morrill, Manager, Radiation Protection
- *W. B. Norton, Manager, Technical Support
- *C. K. Parks, Supervisor, Corporate Training
- R. Skiles, Instructor
- *C. Swartzendruber, Manager, Radiological Services
- *C. L. Taylor, Supervisor, ALARA
- *J. Weeks, Manager, Operations
- *S. G. Wideman, Senior Engineering Specialist
- *M. G. Williams, Manager, Plant Support

NRC

- L. Gundrum, Resident Inspector
- *M. E. Skow, Senior Resident Inspector

The inspectors also interviewed other licensee employees during the course of the inspection.

*Denotes those present during the exit meeting on January 18, 1991.

2. Followup on Previous Inspection Findings

(Closed) Unresolved Item (482/9035-06): Unlocked High Radiation Area Door - This item was previously discussed in NRC Inspection Report 50-482/90-35 and involved the failure to lock the door to an area (recycle holdup tanks) in which the radiation levels were in excess of 1000 millirems per hour. The licensee identified this item as a violation of Technical Specification (TS) 6.12, which requires that the entrances to such areas be locked to prevent unauthorized access. The licensee conducted an investigation, documented the findings on Radiological Occurrence Report (ROR) 90-46, and implemented corrective actions. Normally, in cases such as this, the NRC would consider a violation for failure to comply with the TS. However, in order to encourage the self

identification and correction of problems, and because the occurrence did not result in significant additional radiation exposures to personnel, NRC has decided to exercise its discretion, in accordance with 10 CFR Part 2, Appendix C, Section V.G.1, and not cite the violation.

(Open) Open Item (482/9030-01): Plant Modification Request (PMR) System Update of Updated Safety Analysis Report (USAR) - This item was previously discussed in NRC Inspection Report 50-482/90-30 and involved the inclusion of the waste water treatment system in the USAR update and the review of the process for submitting information to the Office of Nuclear Reactor Regulation (NRR) and updating the USAR. The licensee had reviewed the PMR and their methodology for submitting information to NRR to update the USAR. Procedure NPES.90-01, "Improvements to USAR Change Request Process," Revision 0, August 31, 1990, was developed to formalize the process. The submittal package which includes the waste water treatment system USAR Change Request 90-168 had been approved by the licensee and is scheduled to be included in the March 1991 submittal. This item will remain open pending submittal of the March 1991 USAR update.

(Closed) Open Item (482/9030-02): Generic Letter 89-01 License Amendment - This item was previously discussed in NRC Inspection Report 50-482/90-30 and involved Effluent Radiation Monitor HF-RE-95 and a commitment to submit a response to Generic Letter 89-01 to NRR prior to September 1, 1990. The licensee made a submittal to NRR entitled "Revision of Radiological and Environmental Technical Specifications in Accordance with Generic Letter 89-01" on August 24, 1990.

(Closed) Open Item (482/9030-03): Process Monitor Calibrations - This item was previously discussed in NRC Inspection Report 50-482/90-30 and involved the calibration of process radiation monitors with a traceable radioactive source over the full range of detectability for the instrument. The licensee had implemented a calibration program for the process radiation monitors as described in Programmatic Deficiency Report (PDR) OP 90-148.

(Closed) Open Item (482/9030-04): High Activity Alarm Administrative Controls - This item was previously discussed in NRC Inspection Report 50-482/90-30 and involved Radiation Monitor HF-RE-95 which would allow liquid effluents with a concentration of radioactivity greater than the alarm setting to be released to the waste water treatment system before the isolation valve located downstream of the monitor closed. The licensee revised Procedure ADM-04-023, "Radioactive Releases," Revision 17, dated December 19, 1990, Section 6.3.1.1 to include effluents to the waste water treatment system and require a grab sample of the effluent stream when an alarm and an isolation valve closure occur.

3. Licensee Event Report (LER) Followup

LER 90-017

LER 90-017 was issued after a portion of the contents of Waste Gas Decay Tank No. 3 was inadvertently released prior to samples being taken to verify that 18 limits would not be exceeded. The root cause was found to be an inadequate procedure for the waste gas system startup and shutdown.

The inspectors verified that the licensee had completed the corrective actions as listed in the LER. The actions taken were:

- o Procedure SYS HA-200, "Waste Gas System Startup and Shutdown," was changed to add instructions which ensure that drain traps are filled with water prior to startup of the waste gas system.
- o A memo was sent to all radwaste operators concerning the particular event and discussing practices to be followed when maintenance was performed on reach rods incorporated into the waste gas system.

This LER is considered to be closed.

4. Organization and Management Controls (83750)

The inspectors reviewed the licensee's organization, staffing, and management controls to determine compliance with TSs 6.2 and 6.5.2.8 and agreement with the commitments contained in Chapters 12.5 and 13.1 of the USAR.

The licensee's HP group continues to be a part of the Technical Support Department. In addition to the radiological protection manager, there were HP supervisors for operations, radwaste, support, and ALARA, and two health physicists. During a previous inspection (50-482/89-20), inspectors noted the lack of full-time on-site technical personnel to aid HP operations and radwaste supervisors. Since that time, the two health physicist positions were added. One of the duties of the health physicists is to provide technical support.

The HP group was supported by an off-site group, the Radiological Safety Section (RSS), which is part of the WCNOG Nuclear Services Division. The support is one of shared work responsibilities rather than oversight with the RSS handling the environmental monitoring and radwaste compact activities.

Four new technician positions were approved for the HP group in 1990, raising the number of technicians to 28, and 52 for the entire group. The inspectors reviewed the turnover rate and noted that during the last year the group had lost six people; three remained within the company. Three technical positions were vacant at the time of inspection. The licensee does not place a heavy reliance on contract technicians during normal plant operations.

The inspectors reviewed position descriptions for radiation protection manager, HP supervisor, health physicist, HP technician (I, II, and III), technician (I, II, and III), lead deconner (I, II, and III), and deconner (I, II, and III). The descriptions appeared to be sufficiently detailed with duties listed.

The inspectors interviewed personnel in other plant departments such as operations and maintenance and determined that the HP group maintains good working relationships with other groups.

The licensee commenced a procedure rewrite project in 1990 to refine existing radiation protection procedures. The project began in May and was a cooperative effort involving site and corporate personnel as well as consultants and contract personnel. The inspectors discussed the progress of the project with licensee representatives and determined that 162 procedures had been reviewed or revised with 10 more to be completed. Thus far, 48 revised procedures had received final approval with 76 awaiting review by the plant safety review committee. The others were at various earlier stages. Licensee representatives estimated that the project was 75 to 85 percent complete and felt the new procedures would be, for the most part, easier to follow having taken into account human factors engineering. All procedures were expected to be revised by mid-February.

The inspectors reviewed selected QA audits and surveillances and determined that they were of adequate scope and depth. The inspectors noted that the last audit of HP included a technical expert from another site. The inspectors discussed the audit and surveillance programs with QA management who pointed out that QA had recently hired an individual with HP experience to aid the QA department in future, performance-based audits of HP.

QA conducted preaudit and postaudit meetings with the group being audited, and completion dates for corrective actions were set at the latter meeting. The licensee's corrective actions and verifications appeared to be timely with extensions being requested only occasionally.

The inspectors determined that QA had implemented an adequate surveillance program in the HP area. The inspectors reviewed 29 completed surveillances and found that the licensee had established a good program.

The licensee had no procedural requirement addressing the inspection of the radiological controlled area (RCA) by the HP manager or supervisors; however, the HP operations supervisor stated that, on his own initiative, he reviewed the area approximately once a week. The inspector noted that no records were kept of these reviews.

The inspector reviewed selected examples of RORs. The RORs were used as a management tool to track root cause investigations, corrective action verifications and trends for such events as procedural noncompliance, and personnel contaminations. The ROR program appeared to be functioning properly.

No violations or deviations were identified.

5. Training and Qualifications (83750)

The inspectors reviewed the licensee's training and qualifications program to determine compliance with the requirements in Sections 6.3 and 6.4 of the TS and 10 CFR 19.12; agreement with commitments in Chapter 13 of the USAR; and the recommendations of Regulatory Guide (RG) 8.8, 8.10, 8.13, 8.27, and 8.29; and Industry Standard ANSI/ANS 3.1-1978.

The inspectors observed classes of general employee, radiation worker, and respiratory protection training. The inspectors noted that the instructors appeared knowledgeable of the subject matter, and the course material covered appropriate regulations, industry standards, and RGs. The inspectors noted, however, that no mention was made of the ongoing ALARA suggestion program which solicits ideas from individuals on ways to reduce radiation exposure. One and one-half instructors are dedicated to the above training programs.

The licensee maintains an accredited HP technician training program. Two and one-half instructors are devoted to this portion of the training program. Copies of HP technicians' resumes and "experience evaluation sheets" (Procedure RRP 01-115) are maintained on microfilm in the training department. Selected records were reviewed by the inspectors, who determined that the individuals selected met the required qualifications.

The inspectors interviewed the HP group training coordinator who stated that since being assigned as HP support supervisor in May 1990, he has been unable to devote as much of his time to the HP training program as previously. He stated further that he anticipates the addition of a technician to assist with training needs as soon as the procedure rewrite is complete.

There were 13 individuals in the HP group who had been registered by the National Registry of Radiation Protection Technologists (NRRPT), including five supervisory personnel and eight technicians. Other groups having NRRPT registered individuals were: training - two, QA - one, and the corporate office - one. The licensee encouraged such professional development by sponsoring a vendor supplied course designed to prepare individuals for the registration examination.

The inspectors interviewed supervisors and instructors in the training department responsible for implementing the radiation protection training program. Although there exists the opinion that the portion of the

training department involved with radiation protection training was only marginally staffed, no one stated that they did not have adequate time to prepare for assigned training sessions. Additionally, individuals indicated that they were not spending as much time in the plant as they would like in order to maintain first-hand knowledge of current radiation protection activities and procedures. During the inspection no program weaknesses were identified which indicated that the licensee's radiation protection training program was understaffed.

The inspectors determined the instructors' reference library included appropriate NRC regulations, information notices, RGs, and bulletins. The licensee also maintains an adequate inventory of industry standards. The instructors stated that they have requested some International Council on Radiation Protection (ICRP) publications which are helpful reference material for certain HP courses.

The inspectors reviewed the training program for radiation protection professional and supervisory personnel. The professional and supervisory technical training was addressed in Section 6.1.3 of Procedure KGP-1851. Training within the individual's field of expertise was referenced as, "Professional Enhancement Training," which was, according to the procedure, at the discretion of the division manager. The procedure also provides for training in such topics as: pressurized water reactor theory and systems; WCNOG organization and policies; nuclear regulations, codes, and standards; supervisory skills; and ALARA.

The inspectors discussed with various supervisors the training they had received during the previous year and reviewed copies of trip reports filed by the individuals. The inspectors noted that they had attended professional technical meetings or completed temporary assignments at other plants and, therefore, determined that the licensee was providing adequate continuing technical training.

No violations or deviations were identified.

6. Maintaining Occupational Exposure ALARA (83750)

The inspectors reviewed the licensee's ALARA program to determine compliance with the requirements of TS 6.8.1 and 10 CFR Part 20.1(c); agreement with commitments in Chapters 12.1 and 12.5 of the USAR; and the recommendations of RGs 8.8, 8.10, and 8.27; and Information Notices 83-59, 84-61, 86-23, 86-44, 86-107, and 87-39.

The licensee had assigned a full-time ALARA coordinator and one junior grade health physics technician to the station ALARA organization. The ALARA organization also receives considerable support from the Site ALARA Working Group (SAWG) which was previously designated as the ALARA Planning Group. The SAWG includes representatives from the on-site groups such as operations, maintenance, radiation protection, and engineering. The SAWG meets each week to discuss ALARA activities. An inspector observed a SAWG

meeting and noted that the group approached their ALARA responsibilities in an enthusiastic manner and made a positive contribution to the ALARA program.

The licensee's ALARA program, based on the results of person-rem radiation exposures would be classified as a very good performer. The radiation exposure history is depicted below:

5-YEAR EXPOSURE HISTORY (in Person Rem)

	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Wolf Creek	143	134	297	14	182
National Pressurized Water Reactor	390	371	336	292	Not Available
Average					

During 1990, the licensee had a total of 182 person-rem of which 172 was expended during the refueling outage, 0.065 during a forced outage, and the remaining 9.4 person-rem for plant operations. The 1990 goal was 254 person-rem.

Although the ALARA improvement form was available at several locations around this facility, it appears to receive limited visibility and use. During 1989, there were five improvement forms submitted and in 1990 only one improvement form submitted. The inspectors found limited incentive or encouragement from management to use the ALARA improvement form.

In general the licensee has been slow to initiate or complete ALARA improvements. ALARA improvement recommendations submitted in 1985, such as the excessive dose rates at the auxiliary building sample panel were not completed until 1990, and that the decontamination spray booth ventilation submitted in 1986 was not completed until 1989, the installation of bioshield gates identified in 1986 was completed in 1990, and excessive exposure during snubber inspection identified in 1986 was still open. The slow implementation of ALARA improvement items indicate limited management commitment to the ALARA program.

During Refueling Outage V, scheduled for September 1991, the licensee plans to make some modifications which should further reduce future outage exposures such as the elimination of the resistance temperature device (RTD) bypasses loop manifold. WCGS ALARA personnel had visited the Callaway Plant and reviewed their modification to the RTD system to enable WCGS to accomplish the job with low person-rem exposures. The licensee had also made arrangements to have a vendor provide a mockup of this system for training purposes prior to the outage. The RTD modification could involve 75 person-rem to complete. The licensee stated that this modification should result in a large exposure savings over the life of the plant.

The inspectors noted that the ALARA coordinator and technician do not visit work sites and review ongoing high person-rem evolutions to verify that these jobs are going as planned or determine if work practices could be improved and reduce exposures.

The inspectors also noted that the licensee does not track hot spots or drip bags used to confine radioactive system leakage. These issues are dealt with individually such as when a hot spot interferes with a work location, the licensee makes arrangements to flush the system. In contrast, the licensee uses current survey data for all ALARA and radiation work permit reviews and has designated a reference survey point which is used to trend the radiation field in the survey area.

The operational HP group reviews such matters as personnel contamination events and their cause, the existence of high-radiation areas, contaminated areas, and locked high-radiation areas. However, the ALARA group does not track or trend these matters in order to gain an overall perspective of radiation protection activities.

No violations or deviations were identified.

7. Exit Meeting

The inspector met with the senior resident inspector and the licensee's representatives denoted in paragraph 1 at the conclusion of the inspection on January 18, 1991, and summarized the scope and findings of the inspection as presented in his report. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspector during the inspection.