APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: STN 50-482/84-54 Construction Permit: CPPR-147

Docket: STN 50-482 Category: A2

Licensee: Kansas Gas and Electric Company (KG&E)
P. O. Box 208
Wichita, Kansas 67201

Facility Name: Wolf Creek Generating Station (WCGS)

Inspection At: WCGS Site in Coffey County, Kansas

Inspection Conducted: December 3-7, 1984

Inspector: Blaine Murray 1/23/85
H. D. Chaney, Radiation Specialist, Facilities Date
for Radiological Protection Section

Approved: Blaine Murray 1/23/85
B. Murray, Chief, Facilities Radiological Date
Protection Section

L. E. Martin 1/28/85
L. Martin, Chief, Project Section A Date
Reactor Project Branch 2

Inspection Summary

Inspection Conducted December 3-7, 1984 (Report STN 50-482/84-54)

Areas Inspected: Routine, announced inspection of the licensee's radiation protection (RP) program, TMI action items (NUREG 0737), and selected RP open items associated with emergency preparedness activities. The inspection involved 41 inspector-hours onsite and 4 inspector-hours in the regional office by one NRC inspector.

Results: Within the three areas inspected, no violations or deviations were identified.

DETAILS

1. Persons Contacted

KG&E

*F. Rhodes, Plant Manager
*G. Boyer, Superintendent Technical Support Services
M. Williams, Superintendent, Regulatory, Quality and Administration Service
*M. Nichols, Site Health Physicist
*O. Maynard, Licensing
*L. Breshears, Health Physics (HP) Supervisor
*R. Hoyt, Emergency Planning (EP) Administrator
*W. Lindsay, Supervisor, Quality Systems
*H. Nichols, HP Technician
T. Morrill, Supervisor, Chemistry
*R. Logsdon, Site Chemist
*C. Hoch, Quality Assurance Technician
A. Mah, Supervisor, Training Department
*K. Peterson, Licensing
B. Collin, Independent Safety Engineering Group
B. Freeman, Instrument and Controls (I&C) Technician
H. Davis, HP Supervisor
R. Stright, Licensing
L. Borders, Operations Shift Supervisor
*R. Wollum, I&C Coordinator
J. Ives, HP Supervisor

Others

D. Clayton, Consultant
*B. Guldemond, Resident Inspector, Wolf Creek
*H. Bundy, NRC Resident Inspector
W. Allen, Consultant
O. Lynch, NRC Radiological Assessment Branch (RAB)
J. Guimbellot, Consultant
P. O'Conner, NRC Project Manager, Licensing Branch 1 (LB1)

*Denotes those present at the exit interview.

The NRC inspectors also contacted other KG&E personnel including administrative (ADM), engineering, health physics, and operations personnel.

2. Licensee's Action on Previously Identified Open Items

(Closed) Open Item (482/8320-03): RP Training - The NRC's concerns regarding the program for, and conduct of, station radiation worker training, and the lack of an adequate administrative program for conduct and control of the HP technician training program were adequately resolved by the licensee. The licensee's radiation worker training program and conduct of training were reviewed and found satisfactory. The licensee had also qualified nine HP technicians to the requirements of WCGS HP procedure HPH 08-001, "HP Technician Qualification Program." The licensee expects to have two more HP technicians qualified by fuel load. These HP technicians plus the seven contracted technicians provide an adequate nucleus for shift assignment during reactor operations. During the inspection, the licensee had issued a revision to procedure ADM 03-007 that would ensure that HP technicians (permanent and contracted) assigned to responsible positions possess the necessary qualifications and experience as required by the proposed facility technical specifications. Procedure ADM 03-007 adequately incorporates the qualification and experience recommendations of nuclear industry standard ANSI/ANS 3.1-1978 and NRC Regulatory Guide (RG) 1.8 concerning personnel selection and training. The NRC inspector discussed with the licensee the NRC's position on the minimum qualifications expected of the WCGS radiation protection personnel referenced in the proposed facility (WCGS) technical specifications. Telephone discussions regarding HP personnel qualifications were also held with Messrs. Oliver Lynch (NRC/RAB) and Paul O'Conner, NRC Project Manager (LB1) for WCGS during this inspection. The licensee was informed that a radiation protection/HP technician (see NUREG-0731 and NUREG-0654 for references of unit staffing titles) qualified to ANSI/ANS 3.1-1978 would be the minimum condition acceptable for satisfying the proposed WCGS technical specification 6.2.2.c regarding an HP Group person being onsite at all times when there is fuel in the reactor.

The licensee's HP technician qualification program, training records, completed lesson tests, and lesson outlines for RP technicians were reviewed and found satisfactory. This item is considered closed.

(Closed) Open Item 482/8320-06): Respiratory Protection Program - The licensee had adequately resolved the NRC's remaining concerns in this area regarding availability of spare self-contained-breathing-apparatus (SCBA) air bottles, and procurement of SCBA air bottle filling equipment. The licensee had an onsite inventory of 61 complete SCBA kits (face mask, regulator, and one hour air bottle), with 6 dedicated SCBA kits in the control room. The licensee's stock of spare air bottles appears sufficient for operational and emergency response activities. The licensee had ordered 50 additional SCBA air bottles which will bring the licensee's inventory up to approximately 180 spare air bottles. The

licensee had purchased a four-stage breathing air compressor for filling of SCBA air bottles (2 at a time). This item is considered closed.

(Closed) Open Item (482/8320-12): RP Facilities - The licensee had adequately resolved the NRC's concerns regarding communication equipment for onsite and inplant emergency response teams, emergency kit inventory program (EPP-02-1.5), placement of whole body and extremity dosimetry in the operational support center (OSC) emergency kits, and backup radiochemical and analytical services. During the emergency response drill in November 1984, the licensee demonstrated that sufficient portable two-way radios were available for onsite and inplant response team use. The licensee will permanently establish portable-two-way radio staging locations following completion of facility construction and reactor plant startup test programs. WCGS procedure EPP 02-1.6 had been issued and specified the periodic check of all emergency preparedness communication equipment operability, including the annual check of all portable two-way radios used for emergency response activities. The licensee's use of the WCGS normal dosimetry office during emergencies for a source of whole body and extremity monitoring devices (thermoluminescent dosimeters) was demonstrated to be practical during recent emergency operations training drills. The licensee has in effect a mutual assistance agreement with the Callaway Nuclear plant (4 hours away by highway) that includes full HP and analytical support services. The licensee possesses two redundant and independent chemistry laboratories equipped with high resolution gamma spectrum analysis equipment (in the auxiliary and radioactive waste buildings) that should ensure availability of at least one laboratory during a reactor accident. In the event both of these laboratories should be lost during a reactor emergency, laboratory facilities, not stocked or equipped with analytical equipment, exist at the emergency operations facility (EOF) located at the offsite training center. The licensee had issued EPP 02-1.5, "Emergency Kit Inventory Procedure," and HP personnel were currently performing the required inventories. This item is considered closed.

(Closed) Open Item (482/8320-14): RP Program Audits and Reviews - The licensee resolved the NRC's concern regarding the shortcomings of WCGS's quality assurance (QA) department's initial audit (TE 57953-K005, dated August 6, 1984) of the WCGS RP program by conducting another QA audit. This new QA audit (TE 50140-K016, dated November 27, 1984) utilized the technical assistance of a person possessing experience in the field of health physics and appeared to adequately cover all aspects of the licensee's RP program as committed to in the final safety analysis report and relevant NRC and industry documents. This item is considered closed.

(Closed) Open Item (482/8320-15): Ventilation System Balancing Tests - The licensee had completed system flow balancing for the auxiliary building, radioactive waste building, control building, and turbine

building. Review of completed preoperational test procedures SU8-005, SU3-GL01, SU4-GH01, and SU4-GE01 indicated that system flow verification and balancing for the above noted systems had been successfully completed. This item is considered closed. Further tracking of WCGS ventilation system testing and alignment will be per Open Item 482/8323-07 which is associated with the licensee's radioactive waste program.

(Closed) Open Item (482/8406-01): NUREG 0737, Item II.B.3, Post Accident Sampling System (PASS) Capability - This open item will be closed out and continued tracking of remaining licensee actions will be under Open Item 482/8404-07 which is a portion of the NRC Region IV confirmatory measurements and radiochemistry program. Remaining actions associated with Open Item 482/8404-07 include demonstration of the ability to obtain and analyze inline and diluted grab samples of reactor coolant and containment atmosphere using the onsite PASS, establishing an agreement with an offsite laboratory for receipt and analysis of undiluted postaccident reactor coolant samples, and verifying the capability of the system to meet the analytical sensitivities of NUREG-0737 and RG 1.97 for chemical and radiochemical analysis. This system is required to be operational prior to plant exceeding five percent power.

(Closed) Open Item (482/8434-02): Meteorological Instrumentation - The licensee had resolved the NRC's concerns regarding the site meteorological equipment. The NRC inspector reviewed WCGS procedures and correspondence (EPP 01-7.3, Revision 2; STN-RD-001; Systems Operations procedure-Neosho Dispatcher; memorandum KTLNRC-84-003, dated December 7, 1984; and Memorandum of Understanding between KG&E and the National Weather Service Forecast Office at Topeka, Kansas, dated November 15, 1984), and observed equipment installation and operation. The licensee had installed a computer/display terminal in the control room for accessing the radiological release information system (RRIS) which provides reactor accident offsite dose assessment, real time or historical meteorological information, or accident assessment monitoring instrument readings. The licensee had completed initial training of reactor operators on RRIS use. The NRC inspector observed a randomly selected senior reactor operator demonstrate RRIS operation. Also the NRC inspector compared real time meteorological parameter readings of the analog recorders at the meteorological tower station and those presented by the RRIS computer in the control room. Other than the identification that an analog recorder had not been properly zeroed during the weekly strip chart changeout, no problem similar to that noted previously in NRC Inspection Report STN 50-482/84-34 concerning erroneous data transfer was observed. A licensee representative indicated that the problem concerning erroneous meteorological data transfer from the meteorological tower sensors to the RRIS had been traced to an improper resistor in a translator card within the data transfer unit. The current problem involving the improperly zeroed recorder (10 meter wind direction) was attributed to personnel error by the personnel changing out the strip chart recorder data rolls.

Actions were taken to initiate a work request for the I&C department to re-zero the recorder. It could not be determined during this inspection whether this was a recurring problem or just an isolated instance. The licensee's onsite meteorologist was informed of the occurrence. The remaining concerns regarding the reliability, precision, and unavailability of the RRIS for meteorological data acquisition (RG 1.23, Parts 1.5 and 7 to NUREG-0696, and Item II.A.2 of NUREG-0737) will be tracked by open item 458/8411-01 which initially initiated part of the concern.

The licensee had effected an agreement with a first order National Weather Service office as required by Supplement 1 to NUREG-0737. The licensee had also provided for the determination of an atmospheric stability classification of "G" in EPP 01 7.3, "Manual Dose Projection Determination." The RRIS also provides for a "G" stability classification. Also EPP 01 7.3 had been revised to indicate the preferred hierarchy of selection for differential temperature (ΔT) sensors, and establishing the 10 and 60 meter ΔT sensors as the primary sensors to use. This item is considered closed.

3. Previously Identified Open Items That Were Not Closed During This Inspection

a. Items That Could Impact on Fuel Loading

Open Item (482/8406-02): NUREG-0737, Item II.F.1-1, High Range Noble Gas Effluent Monitors - The licensee had not completed preoperational testing and calibration of the wide range gas monitoring systems (WRGMS) or the inplace radiation monitors used to monitor high range noble gas releases from the unit vent and other potential release paths; i.e., main steam line reliefs, radioactive waste building unit vent, and the auxiliary feedwater pump turbine exhaust. These monitors are required to be operational prior to fuel load per enclosure 2 to NUREG-0737. The licensee is currently seeking relief from the requirement from NRC Office of Nuclear Reactor Regulation (NRR). The NRC inspector reviewed the control room readouts for the steam release path monitors and verified that even though the digital readouts indicated release rates in units of millirem per hour, the control room operators were able to quickly establish the release rate in units of microcuries per sec by use of the RRIS computer terminal in the control room which appears to satisfy NUREG-0737 criteria regarding instrument readout. The licensee had reevaluated the heat tracing on the sample lines to the WRGMS and found that it was installed as designed and that heat generated by the tracing should be sufficient to prevent recondensing of liquids in the sample lines. The licensee had not developed release rate conversion/calibration factors for the steam line monitors as referenced in NRC Inspection Report STN 50-482/84-34. This item is considered open pending licensee actions to resolve the above noted concerns.

Open Item (482/8406-03): NUREG-0737, Item II.F.1-2, Sampling and Analysis of Plant Effluents - The licensee had resolved all of the NRC's concerns regarding this system, except for development of adequate procedures for system operation, sampling media changeout, and identification of special sample handling and transporting devices. The above items were previously discussed in NRC Inspection Report STN 50-482/84-34. The licensee had performed an evaluation of the heat tracing on the sample lines feeding both the sample conditioning/grab sample skid and the WRGMS and determined that the heat tracing was installed per design, and that system temperatures should prevent recondensation of liquids. This portion of the open item is considered closed. However, the licensee had not completed revising chemistry procedure CHM 01-007 to provide adequate RP guidance for the changeout, transfer, and analysis of gaseous effluent samples (particulate and iodine) during reactor accident conditions. Furthermore, the licensee had not completed operator training or preoperational testing of the system, which is an integral part of the WRGMS (see NUREG-0830, Safety Evaluation Report Related to the Operation of Callaway Plant," for a description of the system). The NRC inspector also informed the licensee of a potential problem identified by NRC Region III personnel involving the possible unacceptably high iodine sample losses postulated for the WRGMS system. These iodine sample losses were based on some empirical sample line (high range/small diameter sample line) loss calculations provided by NRC Region III for a similar system. The licensee was informed that further guidance would be provided by the Regional Office as soon as an NRC position on the problem is developed. This item remains open pending licensee actions to resolve the above noted concerns.

Open Item (482/8406-04): NUREG-0737, Item II.F.1-3, Containment High Range Radiation Monitor - This item was previously discussed in NRC Inspection Report 50-482/84-34. The licensee still had not completed the laboratory calibration and inplace calibrations of the two detectors as required by Table II.F.1-3 of NUREG-0737. The licensee is seeking relief from NRR on having the detectors fully operational and calibrated prior to fuel loading. These detectors are not required to be operational until the reactor is operating in mode 3 per the proposed WCGS Technical Specifications. This item is considered open pending further licensee/NRR actions.

Open Item (482/8434-03): Effluent and Process Monitors for Reactor Accident Assessment - The licensee uses many process and effluent radiation monitors for data input (EPP 01-2.1 and 01 7.1) during offsite dose assessment and in emergency decisionmaking processes. The NRC inspector determined that required effluent and process monitors for the fuel building, radioactive waste building, containment purge system, unit ventilation system, auxiliary building, and turbine building (including condenser air removal system) had not completed preoperational testing and/or turnover to

the licensee from the contractors/vendors. This item remains open pending licensee acceptance, calibration, and verification of operability of the noted systems used to support offsite dose calculations and emergency action decisionmaking processes. These monitors are also addressed in NRC Inspection Reports 50-482/83-23 and 84-10 and are being tracked as open items 482/8323-08 and 09.

b. Open Item That Does Not Impact On Fuel Load

Open Item (482/8434-04): Postaccident Sampling of Radioactive Liquid Waste (RLW) Systems - The licensee's equipment for normal RLW sampling is discussed in the FSAR (Chapter 11) and in NRC Inspection Report 50-482/84-34. The licensee was requested by the regional office to perform an evaluation of the RLW sampling systems ability (including evaluation of personnel exposure, radiological controls, maximum sample volumes, and special shielding and handling equipment, and counting facilities) to handle liquids with a source term equivalent to that experienced at Three Mile Island. This item should be completed within the first 6 months following full power operation. The licensee indicated that the evaluation would be completed as requested.

4. Exit Interview

The NRC inspector met with the licensee's representatives denoted in paragraph 1, and the NRC Region IV resident inspectors at the conclusion of the inspection on December 7, 1984. The NRC inspector discussed the scope and findings of the inspection. The NRC inspector noted that the licensee's basic radiation protection program appeared to be adequate to support reactor operations. The NRC inspector emphasized the need for the licensee to complete actions to resolve the remaining open items discussed in paragraph 3 that could impact on fuel load and/or reactor operations exceeding 5 percent power.