APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-267/86-02 License: DPR-34

Docket: 50-267

Licensee: Public Service Company of Colorado (PSC)

Facility Name: Fort St. Vrain Nuclear Generating Station (FSV)

Inspection At: FSV Site, Weld County, Platteville, Colorado

Inspection Conducted: January 6-10, 1986

Inspector: Blaine Murray 3/14/86
for R. E. Baer, Radiation Specialist, Facilities Radiological Protection Section Date

Approved: Blaine Murray 3/14/86
Blaine Murray, Chief, Facilities Radiological Protection Section Date

Inspection Summary

Inspection Conducted January 6-10, 1986 (Report 50-267/86-02)

Areas Inspected: Routine, unannounced inspection of the licensee's Radiation Protection Program including: organization and management controls, training and qualifications, external exposure control, internal exposure control, control of radioactive material and contamination, facilities and equipment, maintaining exposures ALARA, and audits. The inspection involved 37 inspector-hours onsite by one NRC inspector.

Results: Within the areas inspected, one violation was identified (see paragraph 7).

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DETAILS

1. Persons Contacted - PSC

*J. W. Gahm, Manager Nuclear Production
*F. J. Borst, Support Services Manager
*W. A. Craine, Maintenance
*R. L. Craun, Nuclear Site Engineering Manager
*D. W. Evans, Operations Superintendent
*M. J. Ferris, Quality Assurance (QA) Operations Manager
*C. H. Fuller, Nuclear Production Station Manager
*J. Gramling, Nuclear Licensing Supervisor
*M. H. Holmes, Nuclear Licensing Manager
R. O. Hooper, Training Supervisor
L. Hutchins, Health Physics (HP) Technician
V. J. McGaffic, Radiochemistry Supervisor
*F. J. Novachek, Technical/Administrative Services Manager
*T. E. Schleiger, Health Physics Supervisor
*L. W. Singleton, QA Manager
H. Wiedrich, Training Instructor
S. R. Willford, Training Superintendent

Other Personnel

*R. E. Farrell, NRC Senior Resident Inspector
*M. E. Skow, NRC Region IV Inspector

The NRC inspector also interviewed several other licensee employees including operations, health physics, and administrative personnel.

*Denotes those present during the exit interview on January 10, 1986.

2. Inspector Observations

The following are observations the NRC inspector discussed with the licensee during the exit interview on January 10, 1986. These observations are neither violations nor unresolved items. These items were recommended for licensee consideration for program improvement, but they have no specific regulatory requirement. The licensee indicated that the items would be reviewed:

a. Stop Work Authority - Health Physics Technicians do not have stop work authority. See paragraph 3 for additional details.

b. Skin Dose Procedure - There is no procedure for the determination of skin dose from skin contamination. See paragraph 3 for additional details.

c. Airborne Radioactivity Records - Airborne radioactivity measurements are being recorded as background. See paragraph 6 for additional details.

d. ALARA Program Weakness - The ALARA program appears weak in the areas of worker awareness and involvement, and goals and objectives. See paragraph 9 for additional details.

e. QA Audit Checklist - QA audit checklists did not include Technical Specifications, regulatory requirements of 10 CFR Parts 19 and 20, Inspection and Enforcement (I&E) Bulletins, and licensee commitments. See paragraph 10 for additional details.

f. Auditor Training - QA auditors were not included in specialized vendor/PSC training courses. See paragraph 10 for additional details.

3. Organization and Management Controls

The NRC inspector reviewed the licensee's radiation protection organization for changes made since the previous radiation protection inspection to determine compliance with the Updated Safety Analysis Report (USAR) Sections 11.2 and 12.1 commitments, Technical Specification (TS) Sections 7.1.1 and 7.4.d requirements, and the recommendations of ANSI standard N18.7-1972.

The licensee had made no organizational changes since the previous radiation protection inspection. The NRC inspector noted that all authorized positions were filled. The licensee had experienced a turnover rate of approximately 30 percent at the technician level during the last year. The licensee has supplemented its radiation protection workforce with four contractor technicians. The NRC inspector reviewed Procedures APM P-3, "Radioactive/Contaminated Waste/Area Control" Issue 10, May 1, 1985, which addresses stop work authority. The NRC inspector noted that senior HP technicians do not have stop work authority; this authority is vested with the station shift supervisor. The NRC inspector discussed with licensee representatives that the necessity for quick action on part of the technicians to prevent serious radiological consequences could be impaired if it was necessary to notify the shift supervisor and have him make the decision to stop a work evolution. The licensee stated that the procedure would be reviewed.

The NRC inspector reviewed the procedures listed in Attachment 1 which had been issued or changed since the previous radiation protection inspection. The NRC inspector noted that the licensee did not have a procedure which addressed the radiological skin dose resulting from skin contamination. The licensee stated that a procedure addressing radiological dose determination from skin contamination was being developed.

No violations or deviations were identified.

4. Training and Qualifications

The NRC inspector reviewed the licensee's training program for compliance with TS 7.1.2 and 7.1.3, and 10 CFR Part 19.12 requirements, and the recommendations of Regulatory Guides (RG) 8.13, 8.27, and 8.29 and ANSI Standard N18.1-1971.

The NRC inspector reviewed training programs and on-the-job training records for selected individuals, personnel training evaluations and held discussions with training staff personnel.

The licensee had developed a training program which includes three levels of training. General Employee Training (GET) Category I is provided to all personnel who need unescorted access to the protected area, Category II, for individuals requiring access to the Reactor Building, and Category III for individuals whose work assignment may be in radiologically controlled areas.

The NRC inspector reviewed the GET Category I and II training program by participation. These training programs provide for a level consistent with the requirements of 10 CFR Part 19.12 and recommended in RG 8.13, 8.27 and 8.29. The NRC inspector also reviewed the training records for selected employee and contractor personnel. The records reviewed verified that personnel were receiving training commensurate to their work access requirements.

The NRC inspector noted that Category III training for radiation workers included a practical factors session. The NRC inspector reviewed selected training records for station employees including health physics, operations, and maintenance personnel. The NRC inspector noted that individuals had received initial training and retraining at the prescribed intervals.

The licensee had revised the training requirements to correspond with the new radiological badging practice discussed in paragraph 5 of this report. The Category III, HP Qualified, training is now routinely offered to select individuals whose duties frequently require access to HP controlled/Radiation Work Permit (RWP) areas. Other individuals will receive this training on an as-required basis. The as-required training will include job specific training.

The licensee's training program for health physics personnel is described in Procedure SUSMAP-1, "Health Physics, Radiochemistry and Chemistry Experience, Qualification, and Training Requirements," and Procedure TPAM-HP, "Health Physics and Radiochemistry Training Program," which contains the checklists that are completed as various aspects or job functions are demonstrated. The NRC inspector reviewed training and qualification records for all station Health Physics (HP) technicians. The NRC inspector noted that training was being accomplished in a timely manner. The NRC inspector also noted that the licensee required contractor HP technicians to meet the same level of training as station personnel.

No violations or deviations were identified.

5. External Occupational Exposure Control

The NRC inspector reviewed the licensee's external exposure control and personnel dosimetry program for compliance with the requirements of 10 CFR Parts 20.101(a), 20.101(b), 20.102, 20.202(a), 20.104(a), and 20.401(a), and the recommendations of RG 8.2, 8.3, 8.4, 8.7, 8.14, and 8.28.

The NRC inspector reviewed selected licensee exposure history records for all personnel, employee or contractor, who received radiation exposures greater than 400 mrem in a calendar quarter. The highest recorded whole body exposure in a calendar quarter was noted to be less than 1200 mrem. All individuals had the required prior dose determination and Form NRC-4's as required by 10 CFR Part 20.102.

The NRC inspector reviewed the personnel dosimetry program initiated on January 5, 1986, and described in interoffice memo PPC-85-6268, Health Physics Qualification and Personnel Dosimetry Requirements, December 11, 1985, against the requirements of 10 CFR Part 20.202(a). The NRC inspector determined that the program would satisfy the above requirement providing that all personnel who are likely to receive exposure greater than 300 mrem in a calendar quarter are issued proper personnel dosimetry devices.

The NRC inspector verified that the required reports and notifications to comply with 10 CFR Parts 19.13, 20.403, 20.405, 20.408, and 50.72(2) had been prepared in a timely manner.

No violations or deviations were identified.

6. Internal Exposure Control and Assessment

The NRC inspector reviewed the licensee's internal exposure control and assessment program to determine compliance with 10 CFR Part 20.103 and the recommendations of RG's 8.7, 8.8, 8.9, 8.15, and 8.26 and NUREG-0041.

The NRC inspector reviewed procedures, representative records for the airborne radioactivity sampling program, maximum permissible concentration hourly logs, and whole body counter operational checks, and interviewed personnel to determine the effectiveness of the program. The NRC inspector determined that the licensee's respiratory protection program and associated maintenance, cleaning, and supporting air sampling program appeared adequate and met the requirements of 10 CFR Part 20.103.

The NRC inspector discussed with licensee representatives the need for recording airborne radioactivity measurements as a specified value. The NRC inspector noted that the results of airborne sample were being recorded as "background." The NRC inspector noted to the licensee that when there appears to be no detectable radioactivity above the counting instruments natural background count rate, the minimum detectable activity (MDA) value should be recorded. The licensee stated he would inform the HP technicians to record MDA values.

The NRC inspector discussed with licensee representatives the status of the whole body counting system. The licensee stated they were in the process of upgrading the software program to ABACOS II which should provide more accurate determinations at the higher organ burden concentrations. The NRC inspector noted that the licensee had participated in the Battelle Pacific Northwest Laboratories intercomparison for whole body counting. The licensee had completed the thyroid counting intercomparison and had good agreement with the known values of Iodine-131. The licensee was expecting to receive a lung sample with other samples for body diagnostic and body scan.

No violations or deviations were identified.

7. Control of Radioactive Materials and Contamination, Surveys, and Monitoring

The NRC inspector reviewed the implementation of the licensee's program for control of radioactive materials and contamination, surveys, and monitoring for compliance with TS 7.4 and 10 CFR Parts 20.105, 20.201, 20.203 and 20.401.

The NRC inspector reviewed selected radiation work permits, radiation and contamination surveys and incident reports for the period January 1, 1985 through January 8, 1986. The NRC inspector noted that on April 16, 1985, the licensee had transported four control rod drive (CRD) end bells and four orifice drive housing parts to the Lenox Corporation, Denver, Colorado, for maintenance and reworking which included drilling and lathe work. These parts were under the direct control of licensee radiation protection personnel and contamination surveys were performed by the licensee at the conclusion of the rework.

The licensee stated that all scrap material generated during drilling and lathe work was recovered from the offsite facility at the conclusion of work and returned to the licensee's facility.

The eight CRD parts varied from less than 0.2 mrad per hour to 8.0 mrad per hour. The total radioactive content for all eight parts were calculated to contain 348 microcuries of a mixture of Cobalt-60, Manganese-54, and Cesium-137.

The NRC inspector discussed with licensee representatives that the conditions contained in the facility operating license did not allow for radioactive material to be taken away from the facility. The NRC inspector discussed with Mr. F. J. Borst on January 16 and 21, 1986, that removing radioactive material to a location not designated in the facility license, DPR-34, was considered a violation of 10 CFR Part 30.34c. (267/8602-01)

8. Facilities and Equipment

The NRC inspector reviewed the licensee's facilities and equipment for routine and emergency operations including equipment for compliance with USAR and Radiological Emergency Response Plan.

The licensee had not made any changes to its radiation protection facilities and equipment since the previous radiation protection program inspection.

The NRC inspector inspected the licensee's emergency equipment lockers in the personnel control center and technical support center (TSC) for the appropriate supplies and equipment as required by FSV station procedures. The NRC inspector noted the locker seal at the TSC had been broken, but a review of the equipment present in the locker corresponded to the checklist requirements. The licensee resealed the locker after the inventory.

No violations or deviations were identified.

9. Maintaining Occupational Exposures ALARA

The NRC inspector determined that the FSV ALARA program was the same as described in NRC Inspection Report 50-267/84-24. The NRC inspector reviewed all Health Physics incident reports written during calendar year 1985 which included incidents of personnel contamination, procedural infractions, and irregular health physics practices. The NRC inspector observed that the worker awareness to maintaining radiation exposure ALARA appeared to be weak. The low exposure levels and low radiation dose rates associated with a high temperature gas cooled reactor could bring about a feeling of complacencies, when in fact the ALARA program should strive to reduce exposures even lower. The licensee stated that the inspector's observations would be reviewed.

No violations or deviations were identified.

10. Audits

The NRC inspector reviewed licensee audits conducted on radiation protection activities during the period June 1984 through January 1, 1986.

The licensee had conducted two audits since the previous radiation protection inspection. The QA department and Nuclear Facility Safety Committee each performed one audit. Audit NFSC-1-84-01, "Offsite Dose Calculation Manual and Process Control Program" was conducted during the period June 18 through August 20, 1984, and QAA-602-85-01, "Health Physics and Radiochemistry" was conducted during the period March 22 through May 2, 1985. All corrective action requests issued as a result of these audits had been resolved in a timely manner.

The NRC inspector noted that, while these audits were to be performed to assure compliance with regulatory and procedural requirements, the checklist accompanying the audits did not include applicable regulatory requirements. The NRC inspector discussed with licensee representatives the status of audit checklist and the need to expand these checklists. Some of the areas which were not addressed in the checklist included ALARA program, reports, and dosimetry. The licensee stated they had identified that audit checklist needed to be expanded and had drafted new audit requirements. The NRC inspector also discussed qualifications of auditors. It was noted that while personnel performing the audits included some individuals with radiation protection experience some audit team members had little or none. The NRC inspector discussed the need to allow auditors to attend specialized courses which PSC either provides for HP personnel or PSC has a vendor supply. The licensee stated they would consider this observation.

No violations or deviations were identified.

11. Exit Interview

The NRC inspector met with licensee representatives and the NRC resident inspector denoted in paragraph 1 at the conclusion of the inspection on January 10, 1986. The NRC summarized the scope and findings and observations noted in paragraph 2 of this report.

Attachment 1

Procedures Reviewed:

SUSMAP-1, "Health Physics, Radiochemistry and Chemistry Experience, Qualification, and Training Requirements," Issue 11. November 5, 1985

SUSMAP-2, "Offsite Dose Calculation Manual", Issue 11, December 2, 1985

SUSMAP-6, "Environmental Qualification Construction (Field) Work", Issue 1, October 14, 1985

HPP-1, "Routine Survey Intervals and Survey Documentation", Issue 8, November 5, 1985

HPP-2, "Bioassay Program" Issue 14, December 9, 1985

HPP-10, "Area and Equipment Decontamination" Issue 4, December 9, 1985

HPP-20, "Calibration of Radiation Detection Instruments", Issue 17, December 26, 1985

HPP-21, "Surface Radioactive Contamination Survey", Issue 6, August 14, 1985

HPP-26, "Radioactive Material Control and Handling", Issue 14, November 1, 1985

HPP-30, "Shipment of Radioactive Materials", Issue 4, November 1, 1985

HPP-33, "Fast Gas and Iodine Sampling", Issue 9, November 13, 1985

HPP-44, "Radioactive Material Spill", Issue 4, October 15, 1985

HPP-53, "RT-7325 and RT-73437 Emergency Filter and Cartridge Removal", Issue 4, December 20, 1985

HPP-60, "Reactor Building Sump (T-7202) Effluent Sampling", Issue 7, November 13, 1985

HPP-63, "Quantitative Respirato· Fit Testing", Issue 6, November 13, 1985

HPP-66, "Operation of Portable Survey Instrumentation", Issue 7, November 5, 1985

HPP-70, "Health Physics Routines", Issue 1, October 1, 1985