

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-267/89-14

Operating License: DPR-34

Docket: 50-267

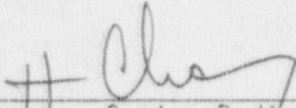
Licensee: Public Service Company of Colorado (PSC)
P.O. Box 840
Denver, Colorado 80201

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

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

Inspection Conducted: July 10-14, 1989

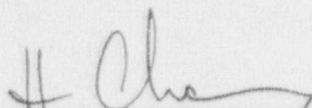
Inspector:



H. D. Chaney, Senior Radiation Specialist
Facilities Radiological Protection Section

8/14/89
Date

Approved:


for R. E. Baer, Chief, Facilities Radiological
Protection Section

8/15/89
Date

Inspection Summary

Inspection Conducted July 10-14, 1989 (Report 50-267/89-14)

Areas Inspected: Routine, unannounced inspection of the licensee's radiation protection (RP) program.

Results: Within the areas inspected, one violation (several examples of failure to comply with byproduct transfer requirements of 10 CFR Part 30, see paragraph 4.i) was identified. Two licensee identified Technical Specification (TS) violations including administrative reports were identified that will be considered non-cited violations, see paragraph 4.a.

The licensee's RP program has received significant management attention since the last SALP period report. The licensee has expediently applied the appropriate technical resources to resolving nearly all of the outstanding NRC concerns and issues. The licensee has also embarked on a major self-improvement program for the RP program and has entered into a contract with a health physics consulting firm for providing technical assistance in improving the technical and performance aspects of the FSV RP program. The licensee's quality

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assurance (QA) program is still maintained at a high level of excellence. Technical expertise of audit teams has been significantly improved by use of contracted health physics technical specialists for the performance based auditing of all RF program areas. Audit reports are still comprehensive and the performance type findings have significantly improved. Senior licensee managers are actively involved in monitoring and assessing plant performance and program activities.

DETAILS

1. Persons Contacted

PSC

W. L. Alderman, Radiochemist
*M. E. Deniston, Operations Superintendent
V. H. Frahm, Senior Radiochemist
*J. M. Gramling, Supervisor of Nuclear Licensing
*J. P. Hak, Maintenance Supervisor
*M. H. Holmes, Nuclear Licensing Manager
L. Hutchins, Staff Health Physicist
*D. D. Miller, Radiochemistry Supervisor
M. P. McDonald, Nuclear Training Instructor
P. F. Moore, QA Supervisor
*F. J. Novachek, Nuclear Support Manager
E. J. O'Donoghue, Senior Health Physics Technician
M. Raymond, Technical Training Supervisor, Acting
T. E. Schleiger, Chemistry and RP Superintendent
*L. D. Scott, QA Services Manager
D. G. Seymour, QA Engineer
*S. S. Sherrow, Staff Health Physicist
C. Stolley, Nuclear Staff Training Supervisor
L. R. Sutton, QA Auditing Supervisor
*P. F. Tomlinson, QA Manager
W. Woodard, Acting RP Supervisor
N. Zerr, QA Engineer

Others

*R. E. Farrell, NRC Senior Resident Inspector

*Denotes those individuals present during the exit interview on July 14, 1989.

The inspector also interviewed several other licensee employees including reactor operators, RP personnel, and clerks.

2. Followup on Previous Inspection Findings

(Closed) Open Item (267/8221-04): High Range Noble Gas Effluent Monitors, NUREG-0737, Item I.F.1.1 - This item concerned the upgrading of gaseous effluent release pathway (stack) monitors and was previously discussed in NRC Inspection Reports 50-267/87-24 and 50-267/88-17. In a letter (P-89026) dated January 20, 1989, the licensee requested relief from commitments made to the NRC to modify the reactor plant exhaust stack radiation monitoring system to resolve this item. The NRC Project Manager (K. L. Heitner) in a letter (PSC No. G-89137) dated April 19, 1989,

approved the licensee's request for relief from the above discussed commitment.

(Closed) Violation (267/8420-02): Liquid Effluent Monitoring Instrumentation - This item concerned the licensee's commitment to install a continuous reactor building sump liquid release pathway monitor that would provide monitoring for radionuclides that predominantly decay by beta radiation. The licensee committed to providing quarterly progress reports on the development of the monitoring system. The licensee's most recent progress report (Final, October 22, 1987) indicates that the development of beta monitor (beta scintillation cell) had encountered severe difficulties due to the foreign material contamination within the sump and its deleterious effect on the monitor's scintillation crystals (calcium fluoride). The licensee has abandoned further effort in developing a sump monitoring system and has petitioned the NRC (Project Manager, K. Heitner) for relief from their commitment to develop such a system. The licensee has requested permission to continue to utilize the batch release manual sampling of sump liquified effluents as has been used since the violation had occurred in 1984. The NRC Project Manager (K. L. Heitner) in a letter dated August 11, 1988, approved the licensee's request to abandon development of an in-line beta monitoring system for the sump and continue to utilize the batch sampling and analysis method for sump contents prior to release and every 24 hours during the release.

(Closed) Violation (267/8817-02): Failure to Implement a Proper Respiratory Protection Program - This item was previously discussed in NRC Inspection Report 50-267/88-17, and involved the licensee's failure to implement appropriate training and procedures to allow personnel to use respiratory protection equipment in accordance with the provision of 10 CFR Part 20.103. The inspector reviewed the licensee's implementation of the corrective actions committed to in PSC letter (P-88370) to the NRC dated November 4, 1988. The inspector verified the implementation of the corrective actions (retaining of instructors, training lesson plan and implementing procedures upgrading, and coordination/integration of PSC corporate and site respiratory protection programs). The licensee's corrective actions appear to be satisfactory to prevent a future recurrence of this violation. The licensee's respiratory protection program now satisfies the requirements of 10 CFR Part 20.103 and credit for protection factors associated with respiratory protection equipment use can be utilized.

(Closed) Violation (267/8817-03): Posting of Radiation Areas - This item was previously discussed in NRC Inspection Report 50-267/88-17, and involved the licensee's failure to properly post radiation areas with regard to personnel working more than 40 hours during a week. The inspector reviewed the licensee's implementation of the corrective actions committed to in PSC letter (P-88370) to the NRC dated November 4, 1988. The inspector verified the implementation of the corrective actions (PSC evaluation Memorandum PPS-88-2564, dated August 10, 1988, revisions of Radiation Area Posting Procedure HPP-125, Issue 1). Confirmatory dose rate measurements at several posted radiation areas were made. The

licensee's corrective actions appear to be satisfactory to prevent a future recurrence of this violation.

(Closed) Violation (267/8817-04): Failure to Fit Test Respirators - This item was previously discussed in NRC Inspection Report 50-267/88-17, and involved the licensee's failure to ensure that personnel followed procedures and performed a sealing fit test of respiratory protection equipment prior to entering airborne radioactivity areas. The inspector reviewed the licensee's implementation of the corrective actions committed to in PSC letter (P-88370) to the NRC dated November 4, 1988. The inspector verified the implementation of the corrective actions (retaining and added emphasis on performance of acceptable fit tests by users). The licensee's corrective actions appear to be satisfactory to prevent a future recurrence of this violation.

(Closed) Open Item (267/8817-05): Hot Particle Exposure Assessment Methodology - This item was previously discussed in NRC Inspection Report 50-267/88-17 and involved the licensee's methods for assessing personnel skin exposure due to hot particles of radioactivity. The licensee was provided with the NRC approved VARSKIN computer code during the referenced inspection. The licensee is evaluating and developing a hot particle control and exposure assessment program to support plant defueling and decommissioning due to start following the June 1990 plant shutdown. This item will be closed and the issue of skin exposure assessment methodology will be tracked via Open Item 267/8817-07 which is scheduled for completion in December 1989.

(Closed) Open Item (267/8817-06): Industrial Respiratory Protection Program - This item was previously discussed in NRC Inspection Report 50-267/88-17 and involved the inadequate reference of industrial respiratory protection (PSC corporate program) in FSV site training and implementing procedures (Administrative Procedure P-10). Training lesson plans and student handouts have been revised to adequately address industrial respiratory protection aspects, and responsibilities of corporate and site persons responsible for implementation of the industrial respiratory protection program.

(Closed) Open Item (267/8817-08): Defining Units Used for Fixed Radioactive Contamination - This item was previously discussed in NRC Inspection Report 50-267/88-17 and involved the licensee's referencing in RP Procedures HPP-21 and 26 that contamination results could be identified in units of counts-per-minute (cpm). The licensee revised Procedures HPP-21 and 26 to clarify the use of cpm and conversion to standard units of radioactivity, as referenced in 10 CFR Part 20.5.

(Closed) Open Item (267/8817-09): Release of Potentially Radioactive Materials for Unrestricted Use - This item was previously discussed in NRC Inspection Report 50-267/88-17 and involved the licensee's radiological survey and release program for material removed from radiologically controlled areas and the guidance contained in NRC Inspection and Enforcement Information Notice No. 85-92. The licensee's release limits

were considered unacceptably high. The licensee revised Procedure HPP-26 and provided release limits that were in agreement with NRC guidance.

(Closed) Open Item (267/8817-10): Location of Contaminated Material Receptacles - This item was previously discussed in NRC Inspection Report 50-267/88-17 and involved discrepancies between the proper location of disposal receptacles for contaminated clothing and waste at the exits from controlled surface contamination areas (CSCAs), and what is taught in radiation worker training classes and instructions found in RP Procedure HPP-125. The licensee revised Procedure HPP-125 to agree with the instructions given in radiation worker training (GET-3) (i.e., receptacles shall be on the inside of CSCAs.) The inspector viewed receptacles during inspections of work areas and determined that training, procedures, and actual implementation were in agreement on receptacle location.

3. Open Items Identified During This Inspection

An open item is a matter that requires further review and evaluation by the inspector. Open Items are used to document, track, and ensure adequate followup on matters of concern to the inspector. The following open item was identified:

<u>Open Item</u>	<u>Title</u>	<u>See Paragraph</u>
267/8817-05	Airborne Radioactivity Analysis Form Errors	4.g

4. Occupational Exposure, Shipping, and Transportation (83750)

a. Audits and Appraisals (83750, 83522, and 83722)

The inspector examined selected audit and surveillances of the licensee's health physics group activities and RP program implementation procedures. The following 1989 audits and surveillances were examined:

Audits

TRQL 89-01, "Training and Qualification," February 1989
HPHY 89-01, "Radiation Protection Program," March 1989
ENPR 89-01, "Environmental Protection Program," June 1989

Surveillances

QAMP-RAP-05-88-1, "Irregularity Reports," December 1988
QAMP-RAP-15-88-2, "Unplanned Gaseous and Liquid Releases," August 1988
QAMP-RAP-15-88-3, "RP ALARA Practices," September 1988

QAMP-RAP-15-88-4, "Gaseous and Liquid Effluent Release Followup,"
December 1988

QAMP-RAP-05-89-1, "Radioactive Material Shipping," February 1989

QAMP-RAP-10-89-1, "Respiratory Protection," February 1989

QAMP-RAP-14-89-1, "RP Instrument Calibration and Documentation,"
January 1989

QAMP-RAP-15-89-2, "ALARA Reviews of Procedure Deviation Report,"
January 1989

QAMP-RAP-15-89-3, "Health Physics Document Reviews (HPP-77),"
April 1989

The licensee's audits and surveillances are of exceptional detail and comprehensiveness. Only infrequent and minor procedural violations (including administrative TS items that involved two separate findings of missing information required to be in the semi-annual effluent reports, TS 7.5.1.e) were identified in the audits and surveillances reviewed. Since the apparent violations were self-identified, a Notice of Violation is not being issued because the licensee satisfied the criteria of 10 CFR 2, Appendix C, Section V.G.1. Effective corrective action to audit and surveillance findings were being expediently provided by the health physics group. The health physics group has embarked on a self assessment and improvement program, and has hired technical specialists to perform reviews, evaluations, and propose solutions to problems identified.

Audit plans, checklists, and schedules appear to be adequate for the RP program.

No violations or deviations were identified.

b. Changes (83750, 83522, 83722, and 83527)

The licensee's organization and staffing of the RP group was inspected to determine agreement with commitments in the Updated Final Safety Analysis Report (UFSAR) Sections 11 and 12; and compliance with the requirements of TS 7.1, 7.3, 7.4, and 7.5; and the recommendations of NUREGs-0731 and 0761.

The inspector examined licensee facilities, interviewed personnel, and reviewed revised procedures (nearly all RP program procedures had been review, revised, and reissued during the first part of 1989). The inspector examined the qualifications and experience level of a new staff health physicist (previously assigned to the Training Department and a former health physics technician) and the acting technical training supervisor (responsible for health physics technician, radiochemistry, technical advisor, and water chemistry

training). The inspector determined that procedure and personnel changes were acceptable.

The licensee's turnover rate for health physics group personnel was reviewed. This was an NRC concern addressed in the last SALP cycle report (50-267/87-35). The licensee is currently filling health physics technician positions with contractor personnel to maintain proper staffing. The inspector and licensee representatives discussed the last two health physics technician losses (one left to improve his job security, and one was terminated for cause). The licensee is keeping employees informed, as well as possible, as to developments in future plant closure and staffing needs. The licensee has put in place a program to help improve employee (all) retention that provides economic and future job placement assistance incentives to stay with PSC until their services are no longer needed.

The licensee had improved (esthetically and environmentally) office type work space for all health physics technicians.

No violations or deviations were identified.

c. Planning and Preparation (83750 and 83728)

The inspector reviewed the licensee's proposed decommissioning plan, specifically the operations to be undertaken following plant shutdown on or about June 30, 1990, involving off loading of the reactor core and subsequent shipment to the Department of Energy storage facility in Idaho. The licensee has started refurbishment of the fuel handling machine to ensure that it will provide suitable reliability during the lengthy fuel removal project.

The health physics group is procuring new laboratory type beta and alpha radiation counting equipment and an improved portable radiation monitoring instrument calibration device (cesium-137 type).

No violations or deviations were identified.

d. Training and Qualification (83750 and 83723)

The licensee's radiological training and the radiation protection personnel qualification programs were inspected to determine agreement with commitments in Section 12 of the UFSAR; and compliance with the requirements of TS 7.1, and 10 CFR Part 19.12; and the recommendations of NRC Regulatory Guides (RGs) 8.13, 8.27, and 8.29; Industry Standard ANSI 18.1-1971; and NUREGs-0041 and 0761.

The inspector reviewed the licensee's radiological training programs for permanent plant employees, visitors, and contractors. Lesson plans had been supplemented and or revised to provide added emphasis on NRC and Occupational Health and Safety Administration (OSHA)

requirements for the qualification and use of respiratory protection equipment. The last two personnel hired as health physics technicians were contractors and had previously completed FSV health physics technician qualifications and were being provided updated training.

The inspector reviewed the qualifications and experiences of the health physics staff and supervisors and found them to meet the requirements of TS 7.1 and 7.3, and ANSI 18.1-1971 due to a combination of experience and specialized training.

No violations or deviations were identified.

e. External Exposure Control and Personal Dosimetry (83750)

The licensee's external radiation exposure control program was reviewed for agreement with the commitments in Section 11 of the UFSAR; and compliance with the requirements contained in TS 7.4.d, 10 CFR Parts 19.12, 19.13, 20.101, 20.102, 20.104, 20.105, 20.202, 20.203, 20.205, 20.206, 20.405, 20.407, 20.408, and 20.409; and the recommendations of NRC Inspection and Enforcement Information Notices (IEINs) 86-23 and 87-39, and also the recommendations contained in NRC RGs 8.8, 8.13, 8.14, and 8.28, and those of Industry Standard ANSI N13.11-1983.

The inspector reviewed personnel exposure records, records storage facilities, exposure control procedures, dosimetry processing procedures, dosimetry quality control methods, and data processing, and verified that the licensee's supplier of personnel dosimetry services was currently accredited in accordance with the requirements of 10 CFR Part 20.202(c).

No violations or deviations were identified.

f. Internal Exposure Control and Assessment (83750, 83525, and 83725)

The licensee's internal radiation exposure control program was reviewed for agreement with the commitments in Section 11 of the UFSAR; and compliance with the requirements contained in TS 7.4.d; 10 CFR Parts 19.13, 20.103, 20.108, 20.203, 20.206, 20.401, and 20.405; and the recommendations of NRC RGs 8.8, 8.13, 8.15, 8.20, 8.26, and 8.28; NUREG-0041; and Industry Standards ANSI 13.1-1969, and N343-1978.

The inspector reviewed the licensee's implementing procedures, management policies governing use of RP equipment, programs and activities involving routine and emergency aspects of the internal dosimetry, air sampling and analysis, and posting of airborne radioactivity areas.

Licensee lesson plans and conduct of training were examined by the inspector and found to be much improved over that found during the previous inspection of this area.

The licensee's whole body counting procedures and practices involving a select number of previous employees were reviewed for compliance with 10 CFR 19 and 20 requirements.

No violations or deviations were identified.

g. Control of Radioactive Materials (RAM) and Contamination, Surveys, and Monitoring (83750, 83526, and 83726)

The licensee's programs for the control of RAM and contamination, radiological surveys, and monitoring were reviewed for agreement with the commitments in Section 11 of the UFSAR; and compliance with the requirements of TS 7.4; 10 CFR Parts 19.12, 20.4, 20.5, 20.201, 20.203, 20.205, 20.207, 20.301, 20.401, and 20.402; and the recommendations of IEINs 85-92 and 86-43.

The inspector toured FSV facilities; conducted independent gamma radiation dose rate measurements; reviewed ongoing work operations within the reactor building and turbine building; reviewed Radiation Work Permits; reviewed radiation, airborne, and surface contamination surveys (routine and work related); reviewed response checking of instruments; and reviewed the updating of plant radiological information maps. The licensee's analysis equipment provides for beta and alpha radioactivity analysis and the evaluation of air samples for iodine and other fission products.

During the review of 1989 surveys (30), it was noted that the computerized printout of airborne radioactivity sample analysis does not provide sufficient information to allow the reviewer (health physics supervisor) to verify the results. This is due to the lack of information on the form concerning counting instrument efficiency, background counts, and background counting time. The health physics supervisor acknowledged the shortcomings of the analysis printout and committed to revising the form to include the necessary information so the form could stand alone as an official document. This is considered an open item pending licensee correction of the air sample analysis form. (267/8917-02)

The inspector also brought to the attention of the RP supervisor errors on surveys that had been through the review process.

The inspector examined the licensee's RAM storage facilities (fully enclosed van type trailers) for posting, material labeling, and security. All drums observed were properly labeled.

No violations or deviations were identified.

h. Maintaining Occupational Exposure ALARA (83750 and 83728)

The licensee's ALARA program was reviewed to determine agreement with the commitments in Section 11.2 of the UFSAR; the requirements of 10 CFR Part 20.1(c); and the recommendations of RGs 8.8, 8.10, and 8.27.

The inspector reviewed the licensee's ALARA plan (HPP-925). The licensee's ALARA plan has all the attributes of a good exposure reduction program. The plant health physicist is designated as the station ALARA coordinator.

FSV's exposure expenditures for 1987 and 1988 were 1.24 and 0.720 person-rem, respectively. FSV was not operating for approximately 10 months of 1987 and nearly all of 1988. The licensee's 1989 ALARA goals for various radiological performance aspects are as follows:

Collective Radiation Exposure

Goal: 2.0 person-rem
Current: 1.45 person-rem

Low Level Solid Radwaste Generated

Goal: 42.6 cubic meters
Current: 5.0 cubic meters

Skin and Clothing Contaminations

Goal: 24 or fewer
Current: 8 skin contaminations

Positive Whole Body Counts

Goal: 0 (zero)
Current: 0 (due to FSV operations)

No violations or deviations were identified.

i. Shipping of Low-Level Waste for Disposal and Transportation (83750)

The inspector examined licensee records and interviewed personnel to determine compliance with DOT and NRC requirements contained in 10 CFR Parts 20.205, 20.311, 61.55, 61.56, and 71; and 49 CFR Part 173, Subpart 1, as they relate to the transportation of RAMs and waste.

The inspector examined the licensee's progress on investigating the unauthorized modification of one or more NRC certified spent fuel shipping casks (Package Identifications USA/6346/B()F OR

USA/6347/AF). The licensee had established a multiple discipline task force (see FSV Corrective Action Request 89-007 and Memorandum NFS-89-0322, dated June 22, 1989) to evaluate the problem and formulate appropriate corrective actions to return the casks to certification status. This item was previously discussed in NRC Inspection Report 50-267/89-13.

During the review of eight shipments during the first part of 1989, it was noted that the licensee did not have, on file, a copy of the transferee's NRC or Agreement State License for four of the seven radioactive material shipments.

Section 1.I of the FSV Facility Operating License states, in part, that "The receipt, possession, and use of byproduct . . . materials as authorized by this license will be in accordance with the Commission's regulations in 10 CFR Parts 30, 40" Paragraph (c) of 10 CFR Part 30.41, "Transfer of Byproduct Material," states, in part, that "Before transferring special nuclear material to a . . . licensee of an Agreement State . . . the licensee transferring the material shall verify that the transferee's license authorizes receipt of the type, form, and quantity of special nuclear material to be transferred." Paragraph (d) identifies five different physical methods of verifying that the transferee's license authorizes such possession. Only in emergency shipments/transfers is the transferer authorized to use oral verification by the transferee as to license conditions.

The licensee was noted to have, on file, current copies of burial site licenses and a transferee's license that had expired in 1987 but was under timely review by the NRC Region I offices. The failure to have, on hand, copies of transferees' licenses is an apparent violation of 10 CFR Part 30.41. (267/8914-01)

The licensee admitted that the failure to have licenses in files was an oversight by the responsible party and that verbal verifications were generally made. The licensee immediately revised the procedure checklist to indicate that only copies of the licenses of transferees would be suitable verification of allowable materials. Current material licenses for the four shipments missing were obtained prior to the inspector's exit meeting.

Due to the expeditious, comprehensive, and effective manner in which the licensee corrected this administrative violation, it will not be necessary for the licensee to respond, in writing, to this violation. This violation is identified for documenting purposes.

5. Exit Interview

The inspector met with the resident inspector and licensee representatives denoted in paragraph 1 on July 14, 1989, and summarized the scope and findings of the inspection as presented in this report. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspector during the inspection.