

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-267/84-20

License: DPR-34

Docket: 50-267

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

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

Inspection At: Platteville, Colorado

Inspection Conducted: July 31, 1984

Inspector: Blaine Murray 8/29/84
Blaine Murray, Chief, Facilities Radiological
Protection Section Date

Approved: R. E. Hall 8/29/84
R. Hall, Chief, Emergency Preparedness and
Radiological Protection Branch Date

R. E. Ireland 8/29/84
R. E. Ireland, Chief, Special Projects and
Engineering Section Date

Inspection Summary

Inspection Conducted July 31, 1984 (Report 50-267/84-20)

Areas Inspected: Special, unannounced inspection of the circumstances regarding a liquid release from the reactor building sump on July 20, 1984, which exceeded regulatory limits. The inspection involved 8 inspector-hours onsite by one NRC inspector.

Results: Within the area inspected, three violations were identified (effluent release to unrestricted areas, paragraph 3; effluent monitoring instrumentation, paragraph 4; and notifications, paragraph 5).

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DETAILS

1. Personnel Contacted

PSCO

- *L. M. McBride, Station Manager
- F. J. Borst, Radiation Protection Manager
- *V. J. McGaffic, Radiochemistry Supervisor
- D. D. Miller, Radiochemist
- F. J. Novachek, Technical Services Supervisor
- *T. E. Schieiger, Health Physics Supervisor
- *L. W. Singleton, Superintendent, Quality Assurance Operations

Other Personnel

- *G. L. Plumlee, NRC Senior Resident Inspector

*Denotes those present during the exit interview on July 31, 1984.

2. Scope of Inspection

The licensee notified the NRC Headquarters Duty Officer at 1615 hours (MST) on July 26, 1984, that liquid releases from the reactor building sump on July 20, 1984, had exceeded Technical Specification (TS) limits by a factor of 2.24 for gross beta activity. The purpose of this inspection was to review: (1) the radioactive material involved in the release, (2) effluent monitoring instrumentation, and (3) reporting requirements.

3. Radioactive Releases

The NRC inspector reviewed information regarding the characteristics and origin of the radioactive material involved in the July 20, 1984, release. The licensee stated that the first indication of high activity occurred on the afternoon of July 20, 1984, when the tritium analytical results for the reactor building sump sample collected the same day at 02:44 hours showed tritium concentrations of about 22 percent of the TS limits. Tritium concentrations would normally be expected to be less than 1 percent of TS limits. Gamma analytical results completed earlier on the same sample were normal and well below TS limits.

The licensee's TS allows automatic discharge from the reactor building sump providing: (1) the continuous sampler is in operation, or (2) if the continuous sampler is inoperable, automatic discharge from the sump is permitted provided daily samples are taken from the sump and analyses made as soon as practical. Gamma analyses are performed the same morning the

sample is collected. Other analyses such as tritium and gross alpha-beta are usually completed the same day the sample is collected, but could be delayed several days depending on other scheduled work activities. It was noted that for releases from the batch liquid waste holdup tanks, the TS require that all analyses must be completed prior to the start of each release.

Based on the high tritium levels in the July 20, 1984, sample, the licensee stated that a decision had been made to terminate releases from the reactor building sump at 1540 hours Friday July 20, 1984, pending further investigation of the elevated tritium activity. Arrangements were made to have a radiochemist work Saturday, July 21, 1984, in order to analyze the sample collected at 0200 hours on July 21, 1984. A complete analysis (gamma, tritium, gross alpha-beta) was performed and the results indicated that activity in the sump had decreased and were below TS limits. The sump was returned to automatic discharge mode on July 21, 1984.

The gross alpha-beta analyses for the sample collected on July 20, 1984, were not completed until Tuesday afternoon, July 24, 1984. After reviewing the gross alpha-beta results, certain licensee personnel became aware that TS limits had been exceeded in the releases made July 20, 1984. The licensee's TS states that the maximum instantaneous release rate of radioactive liquid effluents from the site shall not exceed the values specified in 10 CFR Part 20, Appendix B. The licensee's analytical results indicated that total concentrations in unrestricted areas exceeded regulatory limits by a factor of 2.47 between 0200 hours July 19, 1984, and 1540 hours, July 20, 1984. Exceeding liquid effluent TS limits is considered a violation of TS ELCO 8.1.2.a (50-267/8420-01).

The NRC inspector also reviewed other sample results for the period January 1, 1984, through July 27, 1984. Except for the July 20, 1984, sample, all results were within TS limits.

The NRC inspector investigated the possible origin of the high activity found in the July 20, 1984, sample. The licensee stated that maintenance work was performed on the regeneration compressor on July 19 and 20, 1984. Part of this maintenance involved draining the containment tank which contained about 10 gallons of highly contaminated water. The contaminated water was drained onto the floor and exited the regeneration compressor room via the floor drain. The licensee stated that it was assumed that water from the floor drain was piped directly to the liquid waste holdup tanks. However, dye tracing studies conducted on July 27, 1984, revealed that the waste water was actually piped to the reactor building sump.

The licensee stated that plant maintenance activities have increased significantly during the past year and this trend is expected to continue in future years. In view of this information, the NRC inspector reviewed

the status of other plant drains. The licensee stated that it would be difficult to verify the plant drain system because some drains had been deleted from plant drawings. During the exit interview on July 31, 1984, the licensee stated they would conduct a walkdown of the plant drain system to verify which drains lead to the reactor building sump. This is considered an open item (50-267/8420-04) pending completion of the walkdown review.

4. Effluent Monitoring Instrumentation

The NRC inspector reviewed the requirements for effluent monitoring instrumentation intended to terminate discharges. TS ELCO 8.1.3.d states: "All liquid effluent releases from the reactor building sump shall be continuously monitored by two activity monitors and their associated recorder. Equipment shall be operable to automatically terminate the release on high specific activity or low cooling water blowdown flow."

The licensee records indicated that the liquid waste monitors did not alarm or terminate the release which exceeded TS limits on July 20, 1984. This is considered a violation against TS ELCO 8.1.3.d. (50-267/8420-02).

5. Notifications

The NRC inspector reviewed the notification requirements associated with the July 20, 1984, releases. 10 CFR Part 50.72 requires that each nuclear power reactor licensee shall notify the NRC Operations Center within 4 hours of any event of liquid effluents release that exceeds two times the combined maximum permissible concentrations for all radionuclides except tritium and dissolved noble gases, when averaged over a time period of 1 hour.

The NRC inspector determined in discussions with licensee personnel and a review of records that certain licensee individuals were aware on the afternoon of July 24, 1984, that TS limits had been exceeded for unknown beta activity. The licensee's analytical results indicated that the July 20, 1984, release exceeded TS limits for unknown beta activity by a factor of about 2.24. However, it was not until the afternoon of July 26, 1984, that the licensee classified the July 20, 1984, release as an unusual event and notification procedures were initiated. Failure to make timely notification is considered a violation against 10 CFR Part 50.72. (50-267/8420-03).

6. Exit Interview

The NRC inspector meet with the individuals identified in paragraph 1 at the conclusion of the inspection on July 31, 1984. The NRC inspector discussed the scope and findings of the inspection. The licensee committed to conducting a review of plant drain piping to identify those drains which lead to the reactor building sump.