



Public Service

Public Service  
Company of Colorado

16805 WCR 19 1/2, Platteville, Colorado 80651

February 11, 1992  
Fort St. Vrain  
Unit No. 1  
P-92062

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Docket No. 50-267

SUBJECT: Inaccuracies Discovered Within Turbine Building  
Sump Flow Instrumentation

Gentlemen:

Public Service Company of Colorado (PSC) recently discovered inaccuracies associated with the instrumentation used to determine the volume of liquid effluent discharged from the turbine building sump to the unrestricted area. This may have resulted in inaccuracies in PSC's effluent release reports, including the amount of radionuclides released to the environment.

The specific instrument in question is the turbine building sump flow integrator which is part of flow recorder FR-75379. The integrator reading is used in determining the liquid volume discharged from the sump over a given time period. The sump discharge volume is used in combination with sump grab sample analysis results in calculating the total activity released offsite from the turbine building sump.

Historically, the turbine building sump has contained only very low concentrations of tritium. The total activity released from the turbine building sump is reported semi-annually to the NRC and monthly to the Colorado Department of Health.

The inconsistent operation of the integrator makes it difficult to quantify just how much more (or less) liquid effluent was released from the turbine building sump than was indicated by the integrator. To be conservative, PSC assumes the integrator indicated less liquid discharged from the sump than what had

ADOCK 1/0

actually been released. Since the total activity released from the sump is directly proportional to the volume of effluent discharged, the turbine building sump total activity values reported in past Semi-annual Radioactive Effluent Release Reports and monthly Colorado Department of Health reports may have been low.

Turbine building sump sample analysis data for 1989 through 1991 shows the average concentration of tritium in the sump during this time was approximately 0.3% of the limits established in 10 CFR 20. During the time period from 1989 through 1991, approximately 26 million gallons of liquid effluent were released from the turbine building sump. Using the average turbine building sump tritium concentration as determined through sampling (i.e., 9900 pCi/l), this corresponds to approximately 0.9 total curies of tritium released from the turbine building sump from 1989 through 1991, an average of approximately 0.3 curies per year.

Considering the low amount of tritium typically found in the sump in combination with the expected range of inaccuracies associated with the sump integrator, it is concluded that the concentrations released from the turbine building sump to the unrestricted area remained only a small fraction of the limits established in 10 CFR 20. The FSV Radiological Environmental Monitoring Program supports this conclusion in that no unexpected levels of tritium have been identified in the surrounding environment.

PSC feels confident that the historical data of 1989, 1990, and 1991 provides a good representation of the sump tritium concentrations over the period of time the integrator inaccuracies may have existed. Therefore, PSC has no plans to extend the review of historical sump tritium sample data to years prior to 1989.

PSC expects the turbine building sump to be free of tritium following the completion of reactor defueling. This is based on plans to isolate the condensate system from all potential sources of activity after all fuel is removed from the reactor. The completion of reactor defueling is currently scheduled for the August 1992 time frame.

A design modification would be required to permanently correct the integrator problems. Based on the short duration that the turbine building sump is expected to be an activity release path, it is difficult to justify the efforts that would be required to correct the integrator problem. Instead, PSC will utilize the measured turbine building sump pump discharge volumes in combination with the pump run timers to determine the liquid effluent volume

P-92062  
Page 3  
February 11, 1992

discharged from the turbine building sump. This method of calculating sump discharge volume is accurate and was used in determining the total activity released from the turbine building sump that will be reported in the Semi-annual Radioactive Effluent Release Report for July to December 1991. PSC will continue to use this method in reporting the total activity values released from the turbine building sump in future correspondence.

If you have any questions regarding this matter, please contact Mr. M. H. Holmes at (303) 620-1701.

Sincerely,

*John V. Ruzel for D.W. Warembourg*

D.W. Warembourg  
Manager, Nuclear Operations

DWW/CFH/lmg

P-92062  
Page 4  
February 11, 1992

cc: Regional Administrator, Region IV

Mr. J. B. Baird  
Senior Resident Inspector  
Fort St. Vrain

Dottie Sherman, ANI Library  
American Nuclear Insurers  
The Exchange, Suite 245  
270 Farmington Avenue  
Farmington, CT

Mr. Robert Quillin, Director  
Radiation Control Division  
Colorado Department of Health  
4210 E. 11th Ave.  
Denver, CO 80220

Mr. Milt Lammering, Chief  
Regional Representative, Radiation Program  
U. S. Environmental Protection Agency  
Region VIII  
999 18th Street, Suite 500  
Denver, CO 80202-2405

Dr. James E. Johnson  
Department of Radiation Biology  
MRB Building  
Colorado State University  
Fort Collins, CO 80523

Mr. Richard Gamewell  
Colorado Department of Health  
4210 E. 11th Ave.  
Denver, CO 80220