

**LICENSEE EVENT REPORT (LER)**

Fort St. Vrain, Unit No. 1

FACILITY NAME (1) Liquid Waste Release Exceeded MPC For Unidentified Beta	DOCKET NUMBER (2) 0 5 0 0 0 1 2 6 7	PAGE (3) OF 0 1 5
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TITLE (4)

EVENT DATE (6)			LER NUMBER (8)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (9)			
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME			DOCKET NUMBER(S)
0	7	26	8	4	0	0	2	27	N/A			0 5 0 0 0
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OPERATING MODE (8) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)								73.71(b)
POWER LEVEL (10) 0 1 0 1 0	20.402(b)	20.408(a)	88.73(a)(2)(iv)		73.71(c)				
	20.408(a)(1)(i)	88.38(a)(1)	X 88.73(a)(2)(vi)						
	20.408(a)(1)(ii)	88.38(a)(2)	88.73(a)(2)(vii)		OTHER (Specify in Abstract below and in Text, NRC Form 388A)				
	20.408(a)(1)(iii)	X 88.73(a)(2)(i)	88.73(a)(2)(viii)(A)						
	20.408(a)(1)(iv)	88.73(a)(2)(ii)	88.73(a)(2)(viii)(B)						
	20.408(a)(1)(v)	88.73(a)(2)(iii)	88.73(a)(2)(ix)						

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER
NAME Jim Eggebrotten, Technical Services Engineering Supervisor		AREA CODE 3 1 0 3
		7 8 5 - 2 1 2 1 4

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO					

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

| On July 26, 1984, an analysis was performed on the sample taken on July 20, 1984, from the Reactor Building Sump. The analysis of this sump sample indicated that the concentration of unknown beta emitters was above the maximum permissible concentration (MPC) limit.

| An aliquot of the July 20, 1984, Reactor Building Sump sample was sent to an outside laboratory to determine the identity of the unidentified beta emitters. The analysis of this outside laboratory showed that the concentration of Sulfur-35 was below the MPC for that nuclide, and that no other beta emitters were identified in the sample. Public Service Company has refined their calculation method, and will now be able to accurately determine the concentration of the unknown beta emitters without sending the sample to an outside agency.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104  
EXPIRES: 8/31/85

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		84	009	011	012	OF 015

TEXT (If more space is required, use additional NRC Form 366A's) (17)

EVENT DESCRIPTION:

On Thursday, July 19, 1984, at approximately 0200 hours, with the reactor shutdown and depressurized for internal maintenance, the daily sample was taken from the Reactor Building Sump (T-7202). Surveillance ESR-8.1.3a-W, "Reactor Building Sump Sampling and Analysis", requires samples be taken from the reactor building sump daily if the continuous sampler is inoperable. The sample is analyzed for gross alpha activity, gross beta activity, principle gamma emitters, Iodine-131, tritium, and dissolved and entrained gases (gamma emitters). The final results of the analysis are generally available two to four days following the date of the sample.

On Friday, July 20, 1984, at 0244 hours, the daily sample was taken, and the day shift initial analysis indicated an abnormal level (but below MPC) of tritium. The Radiochemistry Supervisor informed the Shift Supervisor that the releases from the Reactor Building Sump should be terminated until the tritium levels were investigated. The switches for the Reactor Building Sump Pumps (P-7201 and P-7201S) were placed in the "pull to lock" position at 1600 hours on July 20, 1984. On Saturday, July 21, 1984, a direct Reactor Building Sump sample was taken at 0830 hours and analyses indicated that tritium, gamma, and gross beta activities were below MPC; the Shift Supervisor was informed and the Reactor Building Sump Pumps were placed back in service at 1055 hours.

On Thursday, July 26, 1984, the sample results from July 20, 1984, were evaluated using existing methodology and it was determined that the concentration of unknown beta emitters was 2.24 times the MPC (for unknown radionuclides) at the time the sample was taken on July 20, 1984, at 0244 hours. It was concluded that sometime between approximately 0200 hours on July 19, 1984, and 0244 hours of July 20, 1984, a liquid release into the Reactor Building Sump occurred from an unknown origin that increased the radionuclide concentration in the sump. The Reactor Building Sump Pumps were not placed in the "pull-to-lock" position until 1600 hours on July 20, 1984. A decision was made that this occurrence constituted an Unusual Event, and State and Nuclear Regulatory Commission authorities were notified on July 26, 1984.

ANALYSIS OF EVENT:

Initial radiochemical analysis of the sample taken July 20, from the Reactor Building Sump, indicated a beta concentration of  $4.79\text{E}-05$   $\mu\text{Ci/ml}$ . Based on the release rate of eight gallons per minute and the average cooling tower blowdown of 1632 gallons per minute, the calculated unknown beta concentration released would be  $6.72\text{E}-08$   $\mu\text{Ci/ml}$ . The MPC for unidentified gross beta is  $3.0\text{E}-8$   $\mu\text{Ci/ml}$ , resulting in a concentration 2.24 times the MPC for unidentified beta.

Two aliquots of the July 20, 1984, sump sample were immediately sent to an outside laboratory for a detailed analysis in order to determine the identity of the unidentified beta emitters. Through discussions with this outside laboratory, Public Service Company determined on August 21, 1984, that the method used to calculate the ratio of Sulfur-35 to gross beta activity was incorrect.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Initially, Public Service Company calculated the amount of Sulfur-35 present in the sample to be 71%. Using the corrected calculations, the amount of Sulfur-35 present in the sample was calculated to be approximately 95%. This percentage is supported by the outside laboratory performing the detailed analysis on the sample.

Using the above analysis results, it is concluded that all of the gross beta activity can be accounted for as Sulfur-35, and no MPC's were exceeded.

CAUSE DESCRIPTION:

Other

On July 19, 1984, at 1405 hours the helium purification system regeneration compressor was removed from service to repair a seal leak. Contaminated water was released, as expected, when the compressor was disassembled. Any water released goes into the floor drains of the regeneration pit, which was believed to drain to the Liquid Waste Sump (T-6201). During an investigation into the source of the unidentified beta emitters, dye was released into the drain and found in the Reactor Building Sump instead of the Liquid Waste Sump.

CORRECTIVE ACTION:

On July 26, 1984, after it was determined a release could have occurred that was in excess of the MPC for unidentified beta emitters, the Reactor Building Sump Pump switches were placed in the "pull-to-lock" position while an investigation into the origin of the unidentified beta emitters took place.

After the source of the unidentified beta emitters was discovered to be the floor drains in the area of the regeneration compressor, the drains were plugged with inflatable plugs. In an effort to preclude a recurrence of this event, the floor drains from the regeneration pit will be rerouted from the Reactor Building Sump to the Liquid Waste Sump.

There has been a Technical Specification change submitted to clarify that the activity monitors referenced in ELCO 8.1.2, ESR 3.1.2, and ELCO 8.1.3 are gamma activity monitors (P-84445, dated December 31, 1984).

Public Service Company and the Nuclear Regulatory Commission conducted evaluations of continuous process beta monitors to prevent an occurrence of this type from happening again. Both Public Service Company and the Nuclear Regulatory Commission have concluded that there is no instrumentation currently available for monitoring beta activity in liquid waste effluent.

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

| There is currently a project underway to map all the drains in the Reactor Building from their origin to their termination. The known sources of beta emitters throughout the Reactor Building will be identified, and compared with the drain map to ensure that all known sources of beta emitters go directly to the Liquid Waste System.

No further corrective action is anticipated or required.

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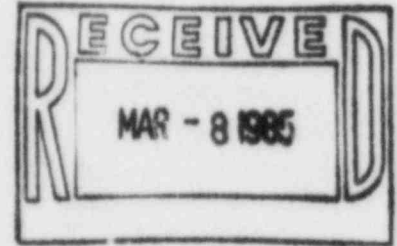
Public Service Company <sup>of</sup> Colorado

16805 WCR 19 1/2, Platteville, Colorado 80651

February 27, 1985  
Fort St. Vrain  
Unit #1  
P-85064

Regional Administrator  
Region IV  
U.S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 1000  
Arlington, TX 76011

Attn: Mr. E. H. Johnson



Docket No. 50-267

REFERENCE: Facility Operating  
License No. DPR-34

SUBJECT: Licensee Event  
Report 84-009,  
Issue 1

Dear Mr. Johnson:

Enclosed please find a copy of Licensee Event Report No. 50-267/84-009, Revised Final, submitted per the requirements of 10 CFR 50.73(a)(2)(i) and 10 CFR 50.73(a)(2)(v).

Sincerely,

J. W. Gahm  
Manager, Nuclear Production

Enclosure

cc: Director, MIPC

JWG/djm

85-02

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