**Public Service Company of Colorado**

16805 ROAD 19½
PLATTEVILLE, COLORADO 80651



May 27, 1981
Fort St. Vrain
Unit No. 1
P-81155

Mr. Karl V. Seyfrit, Director
Nuclear Regulatory Commission
Region IV
Office of Inspection and Enforcement
611 Ryan Plaza Drive
Suite 1000
Arlington, Texas 76012

Reference: Facility Operating License
No. DPR-34

Docket No. 50-267

Dear Mr. Seyfrit:

Enclosed please find a copy of Reportable Occurrence Report No. 50-267/81-036, Preliminary, submitted per the requirements of Technical Specification AC 7.5.2(a)2.

Also, please find enclosed one copy of the Licensee Event Report for Reportable Occurrence Report No. 50-267/81-036.

Very truly yours,

D. Warembourg
Don Warembourg
Manager, Nuclear Production

DW/cls

Enclosure

cc: Director, MIPC

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FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO
16805 WELD COUNTY ROAD 19 1/2
PLATTEVILLE, COLORADO 80651

REPORT NO. 50-267/81-036/01-T-0

Preliminary

IDENTIFICATION OF OCCURRENCE:

On Thursday, May 14, 1981, at 1300 hours, it was determined that the concentration of tritium in an unrestricted area following liquid waste release number 460, which was made on May 12, 1981, exceeded the limit specified in LCO 4.8.2(a). At the time of the occurrence, the reactor plant was operating at 70% thermal power and approximately 230 MW electrical.

This event is reportable per Fort St. Vrain Technical Specification AC 7.5.2(a)2.

CONDITIONS PRIOR TO OCCURRENCE:

The conditions prior to occurrence or at the time of reportability determination have no bearing on this report.

DESCRIPTION OF OCCURRENCE:

Upon analysis by plant personnel of samples taken during radioactive liquid waste release number 460, it was determined that the concentration of tritium in an unrestricted area exceeded the limit specified in LCO 4.8.2(a).

Refer to Figure 1. Effluents from the Reactor Building sump ( (A) ) and the liquid waste system ( (B) ) are discharged to a common line ( (C) ) leading to the Goosequill Ditch ( (D) ). Circulating water blowdown ( (E) ) is admitted for dilution purposes prior to the effluent reaching the Goosequill Ditch. Radiation monitors RIS-6212 and RIS-6213 ( (1) and (2) ) in the common discharge line alarm at preset values on high activity in effluent discharged from either the Reactor Building sump or the liquid waste system and provide a signal to trip the liquid waste transfer pumps ( (3) ), close HV-6212 ( (4) ), and if the release is from the Reactor Building sump, close HV-7204-2 ( (5) ), thus terminating the release.

Circulating water blowdown (dilution) flow is monitored by flow switch FSL-4101 ( (6) ), which at a preset value of low blowdown flow

provides a signal to close HV-6212 ( (4) ) and trip the liquid waste transfer pumps ( (3) ) and Reactor Building sump pumps ( (7) ) ( [a] ). In order to avoid a holdup of radioactive liquid waste in the oil separator ( (8) ) in the discharge line common to the Reactor Building sump and liquid waste system, normally open V-62247 ( (9) ) is closed and normally closed V-62248 ( (10) ) is opened prior to initiating a liquid waste release. These two valves are returned to their normal positions upon completion of a liquid waste release.

Liquid waste release number 460 was initiated at 1235 hours on May 12, 1981, and terminated at 1545 hours on May 12, 1981. The recommended release rate was 9.0 gpm, with a recommended circulating water blowdown (dilution) rate of 2,000 gpm. A subsequent analysis indicated an average release rate of 9.2 gpm and an average circulating water blowdown (dilution) rate of 2496 gpm.

In order to track liquid waste concentrations in the unrestricted area during the course of liquid waste release number 460, Health Physics Department personnel collected samples on an hourly basis throughout the release. Subsequent analyses indicated the following results:

| Sample Date, Time | Sample Number | $^{3}H$ Concentration, uCi/ml |
|---|---|---|
| 5-12-81, 1300 | RC 18349 | 3.55E-3* |
| 5-12-81, 1400 | RC 18370 | 2.36E-3 |
| 5-12-81, 1500 | RC 18371 | 2.38E-3 |

*Result in excess of LCO 4.8.2(a) $^{3}H$ limiting concentration in an unrestricted area (3.00E-3 uCi/ml).

It should be noted that the sample indicating a concentration of tritium exceeding the limit of LCO 4.8.2(a) was taken from the Goosequill Ditch, considered to be in an unrestricted area, although located on Public Service Company of Colorado property. The Goosequill Ditch flows into a 25 acre farm pond, also on Company property. The overflow of this farm pond drains into the South Platte River. The additional dilution provided by the pond ensures that the concentration of water entering the South Platte River is within the limits of LCO 4.8.2(a).

APPARENT CAUSE
OF OCCURRENCE:

The design of the Fort St. Vrain liquid waste discharge system is inadequate to preclude problems of this nature from arising.

ANALYSIS OF
OCCURRENCE:

Radiochemical analysis of the liquid waste monitoring tank contents prior to liquid waste release number 460 indicated a tritium concentration of 5.66E-1 µCi/ml. Based on the recommended release rate and dilution, the calculated tritium concentration in the unrestricted area would be 2.55E-3 µCi/ml. Based on the average release rate and dilution, the calculated tritium concentration in the unrestricted area would be 2.07E-3 µCi/ml. The results of samples taken at 1400 and 1500 hours on May 12, 1981, during liquid waste release number 460 show good agreement with the calculated concentrations. The result of the sample taken at 1300 hours on May 12, 1981, was approximately one and one half times larger than the calculated concentrations.

An analysis of the main cooling tower makeup and blowdown flow recorder (FR 4101) subsequent to the occurrence indicated that blowdown flow was interrupted at approximately 1255 hours on May 12, 1981, for approximately one to two minutes. Similar analysis of the liquid waste blowdown flow recorder (FR 6215) confirmed that the automatic control system responded properly by tripping the liquid waste transfer pump and closing HV-6212. The transfer pump was manually restarted by Operations personnel approximately eight to ten minutes after tripping, and the release was completed without further incident.

Although the automatic control actions worked properly, the approximately 150 to 200 gallons of liquid waste downstream of HV-6212 continued to be released upon loss of circulating water blowdown (dilution). The lack of sufficient dilution flow during this release period resulted in a tritium concentration in an unrestricted area in excess of the limit of LCO 4.8.2(a).

CORRECTIVE
ACTION:

1. Operations personnel are investigating the cause of the circulating water blowdown (dilution) flow interruption.

2. Plant Management is investigating the possibility of installing another automatic valve at the location where the liquid waste discharge line meets the circulating water blowdown line, designed to isolate the dead leg until conditions are acceptable for release to the unrestricted area.

Final resolution will be included in a future supplemental report.

FAILURE DATA/SIMILAR
REPORTED OCCURRENCES:

None

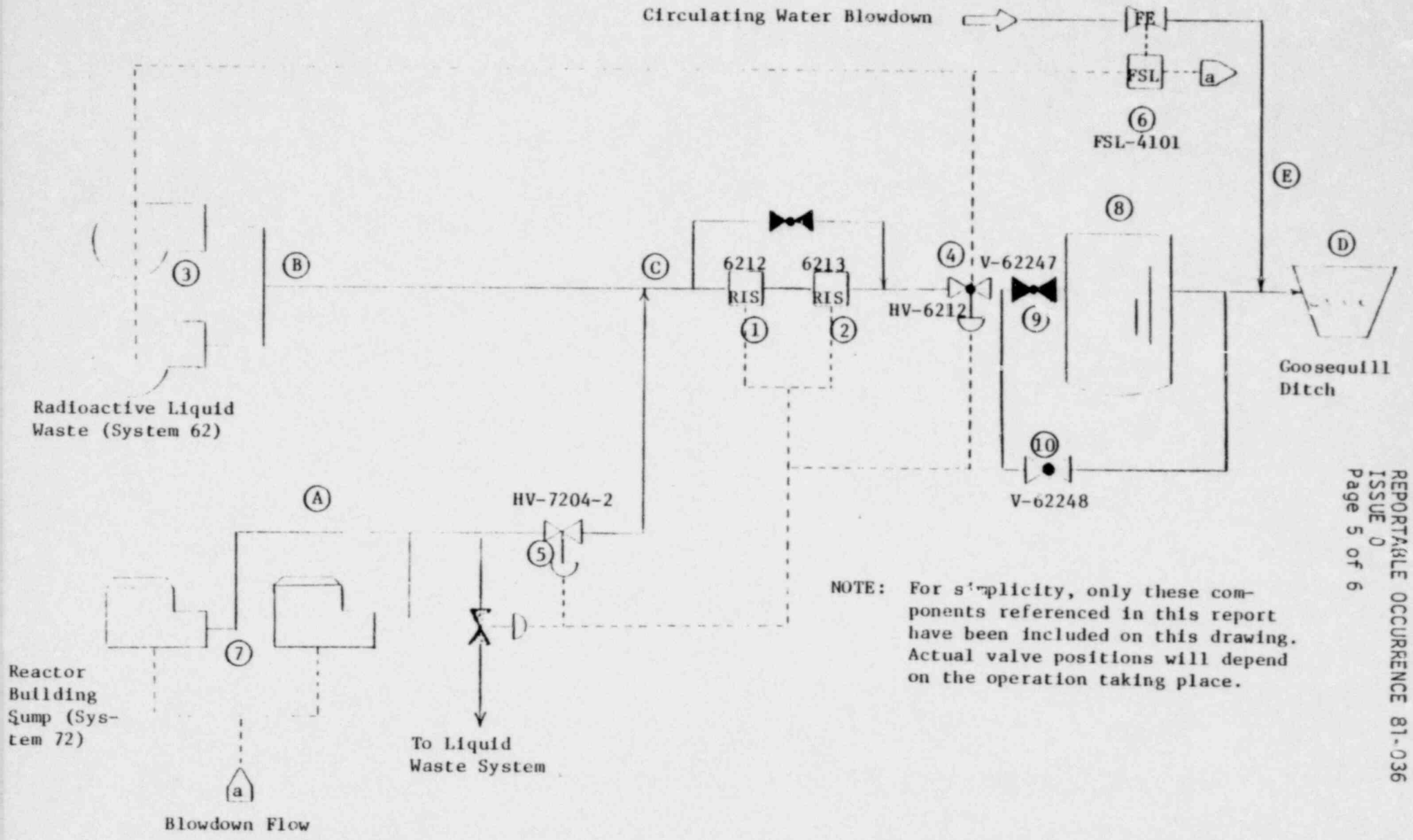
PROGRAMMATIC IMPACT:

None

CODE IMPACT:

None

FIGURE 1




NOTE: For simplicity, only these components referenced in this report have been included on this drawing. Actual valve positions will depend on the operation taking place.

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