

LICENSEE EVENT REPORT

AO-S1-75-15

CONTROL BLOCK: 1 2 3 4 5 6

LEASE PRINT ALL REQUIRED INFORMATION

LICENSEE NAME

LICENSE NUMBER

LICENSE TYPE

EVENT TYPE

01 V A S P S 1
0 0 - 0 0 0 0 0 - 0 0
4 1 1 1 0
0 1

CATEGORY

REPORT TYPE

REPORT SOURCE

DOCKET NUMBER

EVENT DATE

REPORT DATE

01 CONT
 P 0
T
L
0 5 0 - 0 2 8 0
0 8 0 3 7 5

EVENT DESCRIPTION

02 During normal operation a leaking fitting on "B" Overhead Gas Compressor resulted in
03 the unplanned release of radioactive material from the site. Appropriate operational
04 procedures were followed to isolate the release. The leaking fitting has been re-
05 paired.
06

SYSTEM CODE

CAUSE CODE

COMPONENT CODE

PRIME COMPONENT SUPPLIER

COMPONENT MANUFACTURER

VIOLATION

07 M B
E
P I P E X X
A
Z 9 9 9
Y

CAUSE DESCRIPTION

08 A loose fitting on "B" Overhead Gas Compressor allowed airborne radioactive material
09 to leak into the Gas Stripper Room and thus off site via the Ventilation Vent System.
10

FACILITY STATUS

% POWER

OTHER STATUS

METHOD OF DISCOVERY

DISCOVERY DESCRIPTION

11 E
1 0 0
N/A
A
Ventilation Vent Monitor Alarm

FORM OF ACTIVITY RELEASED

CONTENT OF RELEASE

AMOUNT OF ACTIVITY

LOCATION OF RELEASE

12 M
M
28.5 Ci Total
Auxiliary Bldg. Vent to Atmosphere

PERSONNEL EXPOSURES

NUMBER

TYPE

DESCRIPTION

13 0 0 0
Z
N/A

PERSONNEL INJURIES

NUMBER

DESCRIPTION

14 0 0 0
N/A

OFFSITE CONSEQUENCES

15 N/A

LOSS OR DAMAGE TO FACILITY

TYPE DESCRIPTION

16 Z
N/A

PUBLICITY

17 N/A

ADDITIONAL FACTORS

18 See Attached

19

NAME: E. M. Sweeney, Jr. PHONE: (804) 357-3184

COMPLEMENTARY INFORMATION ON THE
RELEASE OF AIRBORNE RADIOACTIVE MATERIAL DUE TO
OVERHEAD GAS COMPRESSOR LEAK
ABNORMAL OCCURRENCE AO-S1-75-15

At approximately 1750 on August 3, 1975, an alarm was received on the ventilation vent gaseous and particulate radiation monitors (RI-VG-103,104). Approved operational procedures were carried out in an effort to terminate the release from the site and locate the source of radioactivity.

The source of radioactivity was located the following morning. A leaking fitting on the suction unloader to "B" overhead gas compressor was emitting airborne radioactive material to the gas stripper room. The exhaust from this room goes into the ventilation vent system and then off site. An inspection of the ventilation vent radiation monitor chart indicated that airborne particulate and gaseous activity were released from the site for fourteen hours as a result of the leak.

All radionuclides in the ventilation vent system during the leak were identified. However, the concentrations of only the particulate activities and iodine-¹³¹ were actually measured. The concentrations of the gases present were determined using the radiation monitor charts and the calibration data in the manufacturers instruction book. For conservatism, it was assumed that all of the Xenon present was Xe-¹³³. This yields a higher activity concentration than that if a mixture of Xe-¹³³ and Xe-¹³⁵ is assumed.

The activities present in the ventilation vent as a result of the leak were as follows:

<u>Radionuclide</u>	<u>Concentration</u> ($\frac{\mu\text{Ci}}{\text{cc}}$)
Xe ¹³³	2×10^{-5}
Xe ¹³⁵	Included as part of Xe ¹³³
I ¹³¹	4.9×10^{-11}

<u>Radionuclide</u>	<u>Concentration</u> ($\frac{\mu\text{Ci}}{\text{cc}}$)
I ¹³³	11.6×10^{-12}
Cs ¹³⁷	2.3×10^{-10}
Co ⁶⁰	3.8×10^{-11}
Rb ⁸⁸	1.9×10^{-9}

The release rates in Ci/sec for each of the above radionuclides were as follows:

<u>Radionuclide</u>	<u>Qi (Ci/sec)</u>
Xe ¹³³	56.6×10^{-5}
Xe ¹³⁵	Included as part of Xe ¹³³
I ¹³¹	138.8×10^{-11}
I ¹³³	$328. \times 10^{-12}$
Cs ¹³⁷	65.1×10^{-10}
Co ⁶⁰	107.6×10^{-11}
Rb ⁸⁸	53.8×10^{-9}

Technical Specification 3.11 requires that the controlled release rate of airborne particulate and gaseous activity be governed by the following relationship:

$$\sum \frac{Q_i}{\text{MPC}_i} \leq 2.0 \times 10^5 \frac{\text{m}^3}{\text{sec.}}$$

Qi is the release rate of any radionuclide i and MPC_i is the maximum permissible concentration of any radionuclide i from Appendix B, Table II of 10CFR20. MPC_i must be reduced by a factor of 700 for any halogen or particulate activity with a half life of greater than eight days. $\frac{Q_i}{\text{MPC}_i}$ for each radionuclide released as follows:

Radionuclide

$\frac{Q_i}{MPC_i}$ (m/sec)

Xe ¹³³	18.9×10^2
Xe ¹³⁵	Included as part of Xe ¹³³
I ¹³¹	99.1×10^2
I ¹³³	5.76×10^2
Cs ¹³⁷	88×10^2
Co ⁶⁰	25×10^2
Rb ⁸⁸	1.79

$$\sum \frac{Q_i}{MPC_i} = 2.3678 \times 10^4 \frac{m^3}{sec}$$

This represents 11.8% of the value specified in Technical Specification 3.11.B.1.

Several employees were exposed to higher than normal levels of airborne particulate activity in the auxiliary building during this occurrence. The radionuclides present in the auxiliary building and the highest measure concentrations were as follows:

<u>Radionuclide</u>	<u>Concentration ($\frac{\mu Ci}{cc}$)</u>
I ¹³¹	5.49×10^{-10}
Cs ¹³⁴	3.87×10^{-10}
Cs ¹³⁷	1.28×10^{-9}
Rb ⁸⁸	1.24×10^{-8}

No employee was exposed to concentrations of airborne particulate activity in excess of the levels specified in Appendix B, Table I to 10CFR20. No abnormal pocket dosimeter readings were recorded; therefore, whole body exposure to employees due to the presence of airborne gaseous activity is minimal.

It is concluded that this release was insignificant and did not affect the health or safety of the general public or station employees.

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

August 18, 1975

Mr. Norman C. Moseley, Director
Office of Inspection and Enforcement
United States Nuclear Regulatory Commission
Region II - Suite 310
230 Peachtree Street, Northwest
Atlanta, Georgia 30303

Serial No. 647
POGM/JTB:nlw

Docket No. 50-280
License No. DPR-32

Dear Mr. Moseley:

Pursuant to Surry Power Station Technical Specification 6.6.3.1, the Virginia Electric and Power Company hereby submits forty (40) copies of Abnormal Occurrence Report No. AO-SI-75-15.

The substance of this report has been reviewed by the Station Nuclear Safety and Operating Committee and will be placed on the agenda for the next meeting of the System Nuclear Safety and Operating Committee.

Very truly yours

G. H. Stallings

G. H. Stallings
Vice President-Power Supply
and Production Operations

Enclosures

40 copies of AO-SI-75-15

cc. Mr. R. E. Collier ✓

Mr. Bryce P. Schofield, Director
Bureau of Industrial Hygiene

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