



FORT ST. VRAIN NUCLEAR GENERATING STATION  
PUBLIC SERVICE COMPANY OF COLORADO

AOP-H-2  
Issue 57  
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MRC1

TITLE: ABNORMAL RADIOACTIVE GAS RELEASE FROM PLANT

RESPONSIBLE FOR	<i>H. E. Johnston</i>			
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(H-2)  
ABNORMAL RADIOACTIVE GAS RELEASE FROM PLANT  
SYMPTOM-ACTION MATRIX

ACTIONS	SYMPTOMS			
	1.1 Reactor Building Ventilation Exhaust Noble Gas Activity High IRIS-7324-1, II-03A, 3-6, IRIS-7324-2, II-03A, 1-7	1.2 Reactor Building Ventilation Exhaust Part- iculate/Iodine Activity High, IRIS-73437-1, IRIS-73437-2, II-01C, 2-1	1.3 Activity Monitors High IRIS-6314-1 & IRIS-6314-2, II-01C, 5-3	1.4 Any Release in Excess of Limits Set forth On The Authorization Form For The Release Of Radiological Wastes
OPERATOR ACTION				
2.1 Ensure that flow to the gas waste blowers has been diverted to the gas waste vacuum tank.	XX	XX	XX	
2.2 Ensure FV-6351 closed.	XX	XX		XX
2.3 Evacuate reactor building and sound radiological alarm.	XX	XX		
2.4 Direct operator to attempt to isolate/remedy the radiation source.	XX	XX	XX	XX
2.5 Swap suction of breathing air compressors.	XX	XX		
2.6 Ensure CAS reports personnel accountability. Initiate search, if necessary.	XX	XX		



ABNORMAL RADIOACTIVE GAS RELEASE FROM PLANT

DISCUSSION OF SYMPTOMS

SYMPTOMS

- 1.1 Reactor Building Ventilation Exhaust Noble Gas Activity High. RIS-7324-1 I-03A, 3-6. RIS-7324-2 I-03A, 1-7.

This is the primary indication of concentrations of mixed noble gas releases. All gas exhausted from the Reactor Building passes through the ventilation system and past the exhaust vent monitor.

- 1.2 Reactor Building Ventilation Exhaust Particulate/Iodine Activity High. RIS-73437-1, RIS-73437-2, I-01C, 2-1.

This is the primary indication of concentrations of I-131 releases. All gas exhausted from the Reactor Building passes through the ventilation system and past the exhaust vent monitor.

- 1.3 Activity Monitors High RIS-6314-1 & -2, I-01C, 5-3.

These activity monitors detect concentrations of mixed noble gases at the discharge of the gas waste blowers. Upon detection of activity at the discharge of the gas waste blowers, diversion valves in the gas waste blower suction line will divert the flow to the gas waste vacuum tank. This action is necessary to control the release of radioactive gas to the environment.

- 1.4 Any Release In Excess Of Limits Set Forth On The Authorization Form For The Release Of Radioactive Wastes.

Each planned discharge of radioactive material must be specifically approved and documented on an authorization form (see Administrative Procedure P-3). The authorization may set specific limits on quantities and/or radiation levels. The discharge should be terminated if any of the stipulations of the authorization form are not met.



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## DISCUSSION OF OPERATOR ACTION

### OPERATOR ACTION

- 2.1 Ensure that flow to the gas waste blowers has been diverted to the gas waste vacuum tank.

When a Stack Monitor or a Gas Waste Blower Monitor trips, the suction of the Gas Waste Blowers is automatically diverted to the Vacuum Tank because the inputs to the Blowers have a potential for containing radioactive gases. The operator serves as back up to the automatic action.

- 2.2 Ensure FV-6351 closed.

FV-6351 is used only for making authorized gas waste releases from the Gas Waste Surge Tanks. In the event of a Stack Monitor trip, FV-6351 should trip closed automatically to prevent compounding the release. The operator acts as a backup in this case. If a release is inadvertently being made in excess of the limits set forth on the authorization form for a gas waste release, the operator must manually terminate the release.

- 2.3 Evacuate reactor building and sound radiological alarm.

In keeping with the concept of maintaining personnel exposure as low as reasonably achievable, personnel should evacuate the Reactor Building and personnel entering the Reactor Building to perform corrective or lifesaving action should don protective devices (Anti-C's, Scott Air Pack, etc.) prior to re-entry.



2.4 Direct operator to attempt to isolate/remedy radiation source.

If the activity is coming from one of the plant systems, prompt operator action can greatly reduce the extent of the problem. The following systems were identified as the most likely and extensive sources of potential leakage; however they are not the only possibilities. The operator's knowledge of plant systems, conditions, and his ingenuity in spotting indications of unusual conditions are important factors in troubleshooting the situation and isolating the source of activity. Experience has shown the buffer helium system to be a possible source of High Activity.

- a) Check System 63, Radioactive Gas Waste.
- b) Check System 23, Helium Purification.
- c) Check System 11, PCRV Auxiliary Piping.
- d) Check System 13, Fuel Handling Purge.
- e) Check System 14, Fuel Storage Facility.
- f) Check System 21, Helium Circulator Auxiliaries.

2.5 Swap suction of breathing air compressors.

In the event of possible radioactive contamination of breathing air system, swap suction to TSC per SOP 45-03.

2.6 Ensure CAS reports personnel accountability. Initiate search, if necessary.

This will insure that all personnel are safe and accounted for or whether a search for missing persons needs to be started.