

LICENSEE EVENT REPORT

CONTROL BLOCK:

1	2	3	4	5	6	7	8	9	0
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(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0	1	V	A	N	A	S	1	2	0	0	-	0	0	0	0	-	0	0	3	4	1	1	1	1	4		5
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7 8 9 14 15 25 26 30 57 CAT 58
LICENSEE CODE LICENSE NUMBER LICENSE TYPE

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0	1	L	6	0	5	0	0	0	3	3	8	7	0	9	2	5	7	9	8	1	0	0	9	7	9	9
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7 8 60 61 68 69 74 75 80
REPORT SOURCE DOCKET NUMBER EVENT DATE REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 | At 0614 a Safety Injection occurred due to a low pressurizer level coincident

0 3 | with low pressurizer pressure. This event is a 24 hour reportable occurrence as per

0 4 | req. guide 1.16 and as per T.S. 6.9.1.8.i. Following the event a radiation release

0 5 | occurred which was less than 0.05% of the instantaneous release rate per E.T.S.

0 6 | 2.2.3.a. Boundary radiation detectors showed only background radioactivity and

0 7 | therefore at no time was the health and safety of the general public affected.

0 8 |

7 8 9 80

0	9	S	F	11	E	12	B	13	V	A	L	T	E	X	14	H	15	B	16
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7 8 9 10 11 12 13 18 19 20
SYSTEM CODE CAUSE CODE CAUSE SUBCODE COMPONENT CODE COMP. SUBCODE VALVE SUBCODE

17	7	9	1	2	8	0	1	T	0
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21 22 23 24 26 27 28 29 30 31
LER/RO REPORT NUMBER EVENT YEAR SEQUENTIAL REPORT NO. OCCURRENCE CODE REPORT TYPE REVISION NO.

X	X	A	C	0	0	0	0	Y	N	A	C	6	3	5
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33 34 35 36 37 40 41 42 43 44 47
ACTION TAKEN FUTURE ACTION EFFECT ON PLANT SHUTDOWN METHOD HOURS ATTACHMENT SUBMITTED NRPD-4 FORM SUB. PRIME COMP. SUPPLIER COMPONENT MANUFACTURER

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 | The cause of the SI was steam dump valve TCV-1408G stuck open following a reactor

1 1 | trip, which depressurized the reactor coolant system. Corrective actions were to

1 2 | return the plant to stable conditions by the control room operators and later

1 3 | initiate a plant cooldown to the cold shutdown mode of operation.

1 4 |

7 8 9 80

1	5	X	28	0	7	8	29	Coastdown	A	31	Automatic Actuation
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7 8 9 10 12 13 44 45 46 80
FACILITY STATUS % POWER OTHER STATUS (30) METHOD OF DISCOVERY DISCOVERY DESCRIPTION (32)

1	6	G	33	N	34	7.5 Curies Total	35	Ventilation and Process Vents to Atm.
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7 8 9 10 11 44 45 80
ACTIVITY CONTENT RELEASED OF RELEASE AMOUNT OF ACTIVITY (35) LOCATION OF RELEASE (36)

1	7	0	0	0	37	Z	38	NA
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7 8 9 11 12 13 80
PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION (39)

1	8	0	0	0	40	NA
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7 8 9 11 12 80
PERSONNEL INJURIES NUMBER DESCRIPTION (41)

1	9	Z	42	NA
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7 8 9 10 80
LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION (43)

2	0	Y	44	Public News Release
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7 8 9 10 80
PUBLICITY ISSUED DESCRIPTION (45)

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NRC USE ONLY

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Description of Event:

At 0544 on 9/25/79 with reactor power at 78%, the fifth point heater drain cooler dump valve LCV-SD-182B began to cycle. This cycling was believed to be due to a tube rupture inside the 5B drain cooler. The leakage was more than the capability of the drain valves causing extraction steam condensate to back up into the 5th point heater to the turbine trip setpoint.

At 0609, a turbine trip occurred and resulted in a reactor trip. At this time the main steam dump valves opened to reduce RCS temperature to 547°F. When the RCS temperature decreased below the steam dump setpoint, steam dump valve TCV-140BG failed to close. The steam dump valve was then isolated by closing the main steam trip valves.

Excessive cooldown caused by the open steam dump valve resulted in an RCS depressurization and a resultant Pressurizer Lo Pressure signal. This signal, combined with the administratively tripped Pressurizer Lo Level signal, initiated a safety injection of the Emergency Core Cooling System. This event occurred at 0614.

The RCP's were immediately manually tripped as required. As a result of the safety injection and the termination of the cooldown, the RCS pressure began to increase. One of two SI charging pumps was secured at 0619. At 0620, the pressurizer power operated relief valve began to cycle and maintained pressure at 2335 psig until normal letdown and charging were established.

When normal letdown was established, the remaining charging pump was still drawing suction from the RWST. This resulted in an increasing level within the Volume Control Tank (VCT) such that the VCT level control valve (LCV-1115A) began to modulate to divert reactor coolant letdown to the Boron Recovery System via the gas stripper. The high flow to the stripper resulted in the inlet trip valve to the stripper closing due to high stripper level. At this time, LCV-1115A was fully diverted to the gas stripper; however, the inlet control valve to the stripper (TV-BR111A) was closed. The pressure in the letdown line increased to the low pressure letdown line relief valve (RV-1209) (setpoint of 200 psig. This valve discharged directly to the VCT. The VCT pressure increased to the VCT relief valve (RV-1257) setpoint of 75 psig. This valve discharged letdown water and gases directly to the High Level Liquid Waste Tank (HLLWT). The normal action at this point would be the release of noble gases from the HLLWT through a vent line and through the plant process vents. In a point in the vent line a flange had been disconnected and the noble gases were released into the auxiliary building. The gases were then vented through the plant charcoal and HEPA filters and out of the plant ventilation vents.

Had the flange not been disconnected, a release of noble gases to the auxiliary building may have occurred. The discharge rate of VCT reactor coolant to the HLLWT may have been too much to pass through the normal vent line, therefore the reactor coolant gases would have vented to the Low Level Liquid Waste Tanks and out into the auxiliary building via the Low Level Liquid Waste Tank overflow line.

1131 201

The following is submitted as additional information. The release was well within the Environmental Technical Specifications limit.

AUXILIARY BUILDING AIRBORNE ACTIVITIES
09/25/79

<u>TIME</u>	<u>ELEVATION</u>	<u>EXPLANATION</u>
0700	274'	100.96* Times MPC. Principle Nuclei involved were Xe 133 & 135 with some Kr 85 and Rb 88.
	259'	155.68* Times MPC. Principle Nuclei involved were Xe 133 & 135 with some Kr 85 and Rb 88.
0800	274'	1.12* Times MPC. Principle Nuclei involved were Xe 133 & 135 with traces of Rb 88.
0900	259'	6.01* Times MPC. Principle Nuclei involved were Xe 133 & 135 with traces of Rb 88.
1000	259'	0.68* Times MPC. Principle Nuclei involved were Xe 133 & 135 with traces of Rb 88.
1030	259'	Less than 0.1 times MPC. Principle Nuclei involved was Rb 88. All readings after 1030 were less than 0.1 times MPC.

*This value represents the total submersion hazard involved with the total of all Nuclei.

Perimeter TLD's were pulled and evaluated. No radiation exposures above background were observed in the 14 TLD's in the downwind direction on the perimeter fence.

Total Noble gas releases from ventilation vents A and B and the process vent amounted to 4.7E-02% of the release rate limit of noble gases.

During this event, several other events occurred which are contrary to Technical Specifications.

After the turbine trip, a turbine reheat valve failed to close which is contrary to T.S. 3.7.1.8. The action statement was entered and the turbine was isolated from the main steam supply.

When the main steam dump valve failed to close, an RCS cooldown of 110°F in 30 minutes occurred. This event is contrary to T.S. 3.4.9.1.b. The RCS temperature was restored to within the T.S. limits by closing the main steam trip valves.

1131 202

Upon receiving the SI signal, the control room bottled air system failed to initiate as required by T.S. 3.7.7.1. The Action Statement requirements were met by cooling down to the cold shutdown mode.

As a result of the safety injection, the Boron Injection Tank was left containing 2000 ppm borated water instead of 20,000 ppm borated water as required by T. S. 3.5.4.1 and the Emergency Condensate Tank was depleted less than 110,000 gallons by the Auxiliary Feedwater Pumps which is contrary to T.S. 3.7.1.3.

The appropriate Action Statements of these events were entered.

Although not reportable, a Hi Hi air particulate alarm in the Containment occurred. This is believed to be due to leakage by the #3 seals from the secured RCP's.

The ECCS actuation is reportable as per T.S. 3.5.2 which requires a 90 day report, Reg. Guide 1.16 requires a 24 hour notice and written follow up as per T.S. 6.9.1.8.f. This is the third ECCS actuation reportable as per T.S. 6.9.1.b.

This event is generic to Unit #2 since it uses the same type of steam dump valves.

Probable Consequences of Occurrences:

The purpose of the Emergency Core Cooling System is to ensure adequate cooling of the reactor in the event of a loss of coolant accident.

Since the ECCS actuated as required and at no time was the reactor in danger of being undercooled, the safe operation of the plant was not affected.

Also, since the radiation release was well within the limits of the Technical Specifications at no time was the health and safety of the general public affected.

Cause of Occurrence:

The cause of the initial reactor trip was a turbine trip due to a Hi Level in the 5B feedwater heater.

The resulting RCS cooldown of 110°F and depressurization was due to a steam dump valve failing to close. The reason for the valve failure is currently being investigated by Vepco, Westinghouse and Copes-Vulcan.

The cause of the Reheat Stop valve failing to close is unknown at this time and will be investigated by Vepco and Westinghouse during a turbine inspection.

The low level of the ECST and the underboration of the BIT are results of the safety injection. The safety injection pumps draw suction from the RWST and pump through the BIT leaving 2000 ppm borated water in the BIT. The ECST level was lowered by the Auxiliary feedwater pumps feeding water to the steam generators.

1131 203

The failure of the control room bottled air system was the result of an apparent pressure shock to the Bourdon tubes in the discharge of pressure controller of the system. This pressure shock deformed the tubes leaving them inoperable.

The release of radioactive noble gases was due to the automatic shutdown of the gas stripper and the continued letdown of the reactor coolant while the VCT was not supplying makeup to the reactor coolant system. The overfilling of the VCT occurred during the time operations personnel were regaining RCS pressure control while still maintaining the required high head safety injection flow to the RCS. The transition from the safety injection mode to the normal charging mode of operation was made in a slow and cautious manner so as not to overpressurize the RCS. This evolution resulted in overfilling the VCT and the resultant release of radioactive gases.

Immediate Corrective Actions:

Upon actuation of the automatic reactor trip, the operators performed the required immediate corrective actions of the emergency procedures. After the main steam dump valve failed in the open position, the operators attempted to isolate the valve by manually closing a steam dump isolation valve. It was determined that closing the large valve would consume too much time, therefore, the dump valve was isolated by closing the main steam trip valves.

After the automatic initiation of safety injection from low RCS pressure, the operators manually tripped the RCP's as required by procedures and began monitoring RCS parameters to ensure adequate core cooling.

At approximately 0619 the operators secured one of two High Head Safety injection pumps and at approximately 0627 began to establish normal letdown. After 20 minutes of cold leg injection, at approximately 0633, safety injection was secured. At this time a RCP and a feedwater pump were in operation and the plant was determined to be stable.

When a high level and pressure were noted in the VCT, operations personnel re-established the RCS letdown to the Boron Recovery System via the gas stripper. This alleviated the high pressure and level condition in the VCT and the relief valve closed ending the release of reactor coolant to the liquid waste tank. The disconnected flange in the HLLWT vent line was reconnected.

The operators refilled the ECST as required by the appropriate action statements and began to cooldown the plant to the cold shutdown mode by following normal procedures.

Following the 110°F cooldown of the RCS, Westinghouse was notified and they determined that there was no effect on the RCS fracture toughness properties.

Scheduled Corrective Actions:

During the current refueling outage, investigations into the failure of

the main steam dump valve and the turbine reheat stop valve will be conducted by Vepco, Westinghouse and Copes Vulcan.

An engineering review of the letdown divert to the boron recovery system will be performed to determine if any improvements may be implemented to the present system.

A design change will be incorporated into the control room bottled air system which will provide protection to the Bourdon tubes from over-pressurization.

A continued investigation into the effect of the transient on the plant is being performed by Vepco and Westinghouse.

Also, Vepco and Westinghouse are reviewing the problem of #3 seal leakoff from secured RCP's.

Actions Taken to Prevent Recurrence:

Corrective actions to the main steam dump valves and reheat stop valves will be performed when the results of the investigations are available.

An engineering review into the problem of high flow in the High Level Liquid Waste Tank vent line will be undertaken.

Any lessons learned from Vepco and Westinghouse reviews of the transient will be incorporated into Vepco procedures and will be forwarded to the Westinghouse Owners Group.

1131 205