



Commonwealth Edison
 Zion Generating Station
 Shiloh Blvd. & Lake Michigan
 Zion, Illinois 60099
 Telephone 708 / 748-2084

DCR

October 4, 1990

U. S. Nuclear Regulatory Commission
 Document Control Desk
 Washington, DC 20555

Dear Sir:

The enclosed Licensee Event Report number 90-011-00, Docket Nos. 50-295/DPR-39 and 50-304/DPR-48 from Zion Generating Station is being transmitted to you as a Voluntary Licensee Event Report.

Very truly yours,

T. P. Joyce

T. P. Joyce
 Station Manager
 Zion Generating Station

TPJ/es

Enclosure: Licensee Event Report

cc: NRC Region III Administrator
 NRC Resident Inspector
 INPO Record Center
 CECO Distribution List

C-238

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 PDR ADOCK 050C0295
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IE-22

1/1

October 4, 1990

To: T. P. Joyce

Subject: On-Site Review of Licensee Event Report No. 90-011-00,
Docket Nos. 50-295 (Unit 1) and 50-304 (Unit 2).

We have reviewed the attached Licensee Event Report on Uncontrolled Reactor Head Vent and recommend its submittal to the NRC. The open items are being tracked by commitments #295-180-90-04501 and #295-180-90-04502.

Prepared by: Paul Geddes Disciplines required: A,B,D
Paul Geddes

Station Review: Greg Kassner
Health Physics

Paul F. Cantrell ^{A.B.E.G.} William A. C... ^{A.S.G.} N/A
Tech Staff Supervisor Operating Engineer Asst. Superintendent

I concur and approve: T. P. Joyce
T. P. Joyce
Station Manager
Zion Station

Attachment

cc: Operating Department
Maintenance Departments
Training Supervisor
Technical Staff Supervisor
Reg. Assur. Supervisor (2)
NPRDS Coordinator
QC Supervisor
Nuclear Licensing Administrator
N Representative
Nuclear Safety Manager
Quality Assurance Manager
Regulatory Assurance Superintendent
Nuclear Station Managers(5)
INPO Record Center
VP PWR Operations
Master File

DEVIATION REPORT

DVR NO. 22 - 1 - 90 - 045
 STA UNIT YEAR NO.

Form Rev 2.0

PART 1 TITLE OF DEVIATION		OCCURRED	
Uncontrolled Reactor Head/Per Vent Release		4-10-90	0115
SYSTEM AFFECTED		DATE	TIME
RV	PLANT STATUS AT TIME OF EVENT	N/A	TESTING
MODE 5	POWER(%) 0	WORK REQUEST NO.	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

DESCRIPTION OF EVENT

The reactor head was vented on 4-10-90 at 0115 while 1RT-PR09A was inoperable. The reactor head was vented again on 4-11-90 at 0355 while 1RT-PR09A and RT-PR09C were inoperable. By procedure (SOI-9, ZCP-304, Zion Technical Specifications) this was acceptable since 1RIA-PR40 channels 1 and 5 were operable and 1RT-PR09B was operable. It was realized on 4-11-90 at 1800 that these releases were actually monitored (via vent stack rad monitors) but were not able to be secured automatically (controlled) as required. The tygon vent rig routes the head release directly to the purge exhaust. 1RI-PR40 draws its sample from 617' elevation in containment at a different location and would not have detected or controlled either Rx head release. The 1RT-PR09A, B, C monitors are the only monitors that would detect (control) a head vent.

POTENTIALLY SIGNIFICANT EVENT PER NSD DIRECTIVE A-07 YES NO

10CFR50.72 NRC RED PHONE	<input type="checkbox"/> 1 HOUR	4-11-90	Keith Dryer	
NOTIFICATION MADE	<input checked="" type="checkbox"/> 4 HOUR	2/36	Benson Binggeli	4-11-90
		TIME	RESPONSIBLE SUPERVISOR	DATE

PART 2 | OPERATING ENGINEER'S COMMENTS

NON REPORTABLE EVENT

30 DAY REPORTABLE/10CFR

5 DAY REPORT PER 10CFR21

ANNUAL/SPECIAL REPORT REQUIRED

A.I.R. # _____

L.E.R. #90-011

NOTIFICATION	Resident Inspector	4/16/90	
	REGION III	DATE	TIME
	Nuclear Stations		
	Duty Officer	4/16/90	
	NSD	DATE	TIME

CECO CORPORATE NOTIFICATION MADE IF ABOVE NOTIFICATION IS PER 10CFR21

TELECOPY _____

CECO CORPORATE OFFICER _____ DATE _____ TIME _____

PRELIMINARY REPORT COMPLETED AND REVIEWED Bill Demo 4-14-90

OPERATING ENGINEER Paul [Signature] DATE

INVESTIGATION REPORT & RESOLUTION ACCEPTED BY STATION REVIEW Sieg Kassner Paul [Signature] ABEG

RESOLUTION APPROVED AND AUTHORIZED FOR DISTRIBUTION [Signature] 10/3/90

STATION MANAGER [Signature] DATE

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Zion Unit 1 Docket Number (2) 0 1 5 1 0 1 0 1 0 2 9 1 5 Page (3) 1 of 0 3

Title (4) Uncontrolled Reactor Head Vent Release

Event Date (5) 0 1 4 1 10 9 0 9 1 0 LER Number (6) 0 1 1 1 1 0 0 0 0 1 0 0 1 0 0 4 9 1 0 Report Date (7) Other Facilities Involved (8) Zion Unit 2 0 1 5 1 0 1 0 1 0 3 1 0 1 4

OPERATING MODE (9) 5 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11) 20.402(b) 20.405(c) 50.73(a)(2)(iv) 73.71(b) 20.405(a)(1)(i) 50.36(c)(1) 50.73(a)(2)(v) 73.71(c) 20.405(a)(1)(ii) 50.36(c)(2) 50.73(a)(2)(vii) X Other (Specify in Abstract below and in Text) 20.405(a)(1)(iii) 50.73(a)(2)(i) 50.73(a)(2)(viii)(A) 20.405(a)(1)(iv) 50.73(a)(2)(ii) 50.73(a)(2)(viii)(B) 20.405(a)(1)(v) 50.73(a)(2)(iii) 50.73(a)(2)(x)

LICENSEE CONTACT FOR THIS LER (12) Name Paul Geddes LER Coordinator ext. 2487 TELEPHONE NUMBER 7 0 8 7 4 6 1 - 1 2 1 0 1 8 1 4

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
				N					

SUPPLEMENTAL REPORT EXPECTED (14) Expected Submission Date (15) X | NO

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

On 4/10/90, while a reactor head vent was in progress, it was realized that if any channel of the Containment Purge monitor 1(2)R-PR09 was inoperable, then a reactor vessel head vent was an uncontrolled release, because the head vent rig bypasses the Containment Atmosphere monitor 1(2)R-PR40 sample point. The release is still monitored, as the Ventilation Stack radiation monitors are downstream of 1(2)R-PR09, but the Stack monitors have no control function. This report is being submitted as a voluntary LER.

The root cause of this event is a failure to realize the routing of the tygon vent rig bypassed the 1(2)R-PR40 monitor sample point. This was due in part to modifications to the radiation monitoring system and changes in Technical Specifications after use of the head vent rig had become standard practice.

The head noble gases are sampled and the activity is quantified prior to release. At no time were any dose rate limits exceeded. There was therefore no safety significance to this event.

The corrective actions for this event are to impose stricter procedural controls on the actions required for head vent releases.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev 2.0

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				Page (3)		
		Year	Sequential Number	Revision Number				
Zion Unit 1	0 5 0 0 0 2 9 5	9 0	- 0 1 1 1	- 0 0	0 2	OF	0 3	

TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

A. CONDITION PRIOR TO EVENT

MODE 5 - Cold Shutdown RX Power 0 RCS [AB] Temperature/ Pressure -0- °F/ -0- psig

B. DESCRIPTION OF EVENT

There was no equipment out of service prior to this event that contributed to the severity of the event.

A reactor head vent is an operation that is performed during maintenance, when it is desired to remove gases from the reactor that may be trapped in the head region of the vessel. It is done concurrent with a normal Containment Purge, and at the time of the event, the same procedure requirements applied to a Containment Purge and to a head vent. This operation is performed when draining the Reactor Coolant System, to reduce hydrogen concentration and remove fission product gases. It should be noted that this is done only after a regular degas has been performed, which will remove most of the fission product gases. The procedure (Maintenance Instruction) directs operators to use a head vent rig, which is a tygon tubing arrangement that routes the gases from the head vent valves to the exhaust ducting of the Containment Purge System. This is an operation that has been conducted at Zion Station every refueling outage since the first refueling outage on Unit 1.

During a normal Containment Purge, Technical Specifications and procedures require that either 1(2)R-PR09 or 1(2)R-PR40 be operable. 1(2)R-PR09 is a three channel radiation monitor that samples the Containment Purge exhaust ducting. 1(2)R-PR09 channels A, B, and C are capable of tripping shut the Containment Purge Valves. 1(2)R-PR40 is a System Particulate Iodine and Noble Gas (SPING) monitor that samples the containment atmosphere at the 617' level. Only 1(2)R-PR40 channels 1 and 5 are capable of tripping shut the Purge valves. Channel 3, the Iodine channel, is not capable of tripping the Purge valves. These monitors are considered redundant by the Technical Specifications. However, because the Iodine channel of the SPING cannot shut the Containment Purge Valves, the procedure requires that the 1(2)R-PR09B channel be operable at all times during a Containment Purge.

On 4/10/90, while a reactor head vent was in progress, it was realized that if any channel of the 1(2)R-PR09 monitor was inoperable, then the head vent was an uncontrolled release, because the head vent rig bypasses the 1(2)R-PR40 sample point. This means that there would be no automatic closure of the Containment Purge Valves if the head vent activity were to exceed the monitor setpoint. The release was still monitored, by the downstream Ventilation Stack radiation monitors which were operable. However, the Stack monitors have no control function. It should be noted that the 1(2)R-PR40 was installed in the early 1980's timeframe, and the Radiological Effluent Technical Specifications (RETS) were implemented in September of 1986. So the current situation has evolved over many years. It should also be noted that the head vent is not referenced in Technical Specifications, and thus this report is being submitted as a voluntary LER.

During the investigation of this event, it was discovered that a Unit 2 Containment Purge had been performed on 4/9-10 with 2R-PR09B inoperable. This is a procedural violation, but not a Technical Specification violation. Although this channel was Out of Service, (it was Out of Service for meter repair) it had not been deenergized. This condition does not affect the operability of 2R-PR40, or the operability of the Containment Purge Valves.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev 2.0

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			Page (3)		
		Year	Sequential Number	Revision Number			
Zion Unit 1	0 5 0 0 0 2 9 5	9 0	- 0 1 1	- 0 0	0 3	OF	0 3

TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

C. APPARENT CAUSE OF EVENT

The root cause of this event is a failure to realize that the routing of the tygon vent rig bypassed the 1(2)R-PR40 monitor sample point. This was due in part to the addition of the 1(2)R-PR 40 monitors and changes in Technical Specifications which allowed the use of 1(2)R-PR40 as a backup to 1(2)R-PR09, after use of the head vent rig had become standard practice. This resulted in a procedural deficiency that permitted head vent releases with the same requirements as a Containment Purge and consequently less than conservative monitoring requirements for the head vent. This was not a problem when use of the vent rig was instituted, because the 1(2)R-PR40 monitors had not yet been installed. Prior to the RETS change, 1(2)R-PR09 was always required to be operable whenever a Containment Purge and head vent was in progress.

D. SAFETY ANALYSIS OF EVENT

The reactor vessel head noble gases are sampled and activity quantified prior to release. The release values for this event are 0.4 Curies noble gas, and 8.4E-10 Curies Particulate and Iodine. At no time were any dose rate limits exceeded. Therefore there was no safety significance to this event.

E. CORRECTIVE ACTIONS

The corrective actions for this event are to impose stricter procedural controls on the actions required for head vent releases. Anticipated actions are as follows:

1. Revise SOI-9 to include instructions for head vent releases. This will require 1(2)PR-09 to be operable whenever a head vent is performed. (295-180-90-04501)
2. Revise ZCP-305 concerning the head vent release form to include requirements for 1(2)PR-09 to be operable. (295-180-90-04502)

F. PREVIOUS EVENTS

None

G. COMPONENT FAILURE DATA

None