

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Hope Creek Generating Station DOCKET NUMBER (2) 0 5 | 0 | 0 | 0 | 3 | 5 | 4 1 OF 0 1 6

TITLE (4) Failure of the Liquid and Gaseous Radwaste Discharge Monitors to Pass Functional Tests - Design and Procedure Deficiencies

EVENT DATE (6)			LER NUMBER (8)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)												
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)										
0	1	0	6	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0
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THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

OPERATING MODE (9) 1	20.402(b)	20.406(a)	90.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 1,0,0	20.406(a)(1)(i)	90.36(a)(1)	90.73(a)(2)(v)	73.71(c)
	20.406(a)(1)(ii)	90.36(a)(2)	90.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 306A)
	20.406(a)(1)(iii)	X 90.73(a)(2)(i)	90.73(a)(2)(vii)(A)	
	20.406(a)(1)(iv)	90.73(a)(2)(ii)	90.73(a)(2)(vii)(B)	
	20.406(a)(1)(v)	90.73(a)(2)(iii)	90.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: A. M. Ervin, Lead Engineer - Technical TELEPHONE NUMBER: 61 0 | 9 | 3 | 3 | 9 | - | 5 | 2 | 3 | 9

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO X

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On January 6, 1988 at 1600 hours the Plant was in OPERATIONAL CONDITION 1 (Power Operation) at 100% power generating 1066 MWe and functional testing of the Liquid Radwaste Discharge Monitor was in progress. During the test, the valves which isolate the liquid radwaste discharge line to the cooling tower blowdown line did not close when a radwaste monitor downscale failure was simulated and the instrumentation channel was declared inoperable. The root cause of this occurrence was that the logic for the valves which isolate the liquid radwaste discharge line to the cooling tower blowdown line was not designed to close the valves on radwaste monitor downscale failure. This design capability was added to the valve isolation logic.

On January 28, 1988 at 0825 hours the plant was in OPERATIONAL CONDITION 1 (Power Operation) at 100% power generating 1106 MWe. During the implementation of corrective actions from the January 6, 1987 event, investigation uncovered surveillance procedures for the North and South Plant Vents and FRVS gaseous radiation monitors which did not verify control room annunciation when a downscale monitor failure was simulated. The gaseous monitor downscale surveillances were deemed to have never been performed and the North Plant Vent, South Plant Vent and FRVS were declared inoperable. The gaseous monitor procedures were revised to add the verification of control room annunciation.

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TEXT (if more space is required, use additional NRC Form 388A's) (17)

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor (BWR/4)
Process Radiation Monitoring (EIIIS Designator:IL)

IDENTIFICATION OF OCCURRENCES

Failure of the Liquid and Gaseous Radwaste Discharge Monitors to Pass Functional Tests - Design and Procedure Deficiencies

Event Dates: January 6, 1988 and January 28, 1988
Event Times 1600 Hours and 0825 Hours
This LER was initiated by Incident Report Nos. 88-003 and 88-011

CONDITIONS PRIOR TO OCCURRENCES

The Plant was in OPERATIONAL CONDITION 1 (Power Operation) at 100% power generating 1066-1106 MWe at the time of each event.

DESCRIPTION OF OCCURRENCES

On January 6, 1988 at 1600 hours, during Technical Specification functional testing of the Liquid Radwaste Discharge Monitor, the valves which isolate the liquid radwaste discharge line to the cooling tower blowdown line did not close when the radwaste signal cable was disconnected to simulate a radwaste monitor downscale failure. The procedural step could not be successfully completed and the instrumentation channel was declared inoperable. With less than the required number of radioactive liquid effluent monitoring channels operable, the Action Statement of Technical Specification 3.3.7.10 was entered. Since this design deficiency alone could have prevented the automatic control of a radioactive release, a four-hour report was made in accordance with 10CFR50.72(b)(2)(iii).

On January 28, 1988 at 0825 hours, during the implementation of corrective actions from the January 6, 1987 event, investigation uncovered surveillance procedures for the North Plant Vent, South Plant Vent and FRVS gaseous radiation monitors which did not verify the control room annunciation when the radwaste signal cable was disconnected to simulate a radwaste monitor downscale failure. Since this annunciation capability had never been verified by the procedures, the surveillances were deemed to have never been performed, the action statement of Technical Specification 3.3.7.11 was entered and the North Plant Vent, South Plant Vent and FRVS were declared inoperable.

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TEXT (if more space is required, use additional NRC Form 3054's) (17)

APPARENT CAUSE OF OCCURRENCES

The root cause of the first event is a design deficiency in that the logic for the valves which isolate the liquid radwaste discharge line to the cooling tower blowdown line was not designed to close the valves on radwaste monitor downscale failure.

The root cause of the second event is a procedural deficiency in that the procedures did not contain instructions to verify control room annunciation after the detector signal cable was disconnected.

A contributing cause to both occurrences is presumed to be the failure of a Station Qualified Reviewer (SQR) to verify that the functional test procedures for the Liquid and Gaseous Radwaste Discharge Monitors met the Technical Specification requirements.

ANALYSIS OF OCCURRENCES

January 6, 1988 Event

The initial surveillance testing of the Radiation Monitoring System (RMS) was begun in March 1986 shortly after the completion of the Preoperational Test Program. Revision 0 of the functional test procedure for the Liquid Radwaste Discharge Monitor contained a step to test valve isolation on a radwaste monitor downscale failure. The test requirement was deleted when it was determined that the valve isolation logic did not have this capability and Section 11.5.2.2.5 of the Hope Creek FSAR did not specify it. The draft Technical Specifications under review at that time included the valve isolation test requirement. When the Technical Specifications were issued with the Operating License, the valve isolation test requirement had not been deleted. It is presumed that the Station Qualified Reviewer (SQR) who verified the procedure revision which deleted the valve isolation test erred in not thoroughly reviewing the Technical Specifications.

The capability to automatically isolate the the liquid radwaste discharge to the cooling tower blowdown in the event of a monitor downscale failure was not a part of the original system design. This feature was added as a consequence of the investigation of this event. During the period of non-compliance with the Technical Specifications, liquid radwaste discharge batches were sampled prior to dilution and release, thereby preventing any release exceeding the limits of 10CFR20, 10CFR50 Appendix I or 10CFR100. For this reason the health and safety of the public were not compromised by this event.

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TEXT (if more space is required, use additional NRC Form 366A (17))

ANALYSIS OF OCCURRENCES (CONTINUED)

January 28, 1988 Event

During the Startup Test Program, the control room annunciation capability of the gaseous radwaste monitors for the North and South Plant Vents and the FRVS was verified by disconnecting the monitor to simulate downscale failure and observing the annunciator. Due to oversight, this verification was not included in the surveillance procedures which were used for all subsequent surveillance testing until it was added as a result of the first event. Only the 10:1 panel OPERATE light was observed to extinguish when downscale failure was simulated.

The capability of the monitors to annunciate in the control room on downscale failure was verified during startup testing. All alarm logic for the gaseous monitors consists of coded firmware and no design modifications to this firmware have been made since the completion of startup testing. This demonstrates that the monitor logic remained operable from startup to the time of the second event. The channel failure and downscale failure conditions share the same functional logic and annunciator window. If this control room annunciation function is procedurally verified on channel failure, a downscale failure would also have resulted in the same control room annunciator indication. Therefore since the monitor logic was always operable and the surveillance testing of the channel failure annunciation function was successful, it is concluded that the control room annunciation would occur on simulation of monitor downscale failure and retest satisfactory. For this reason the health and safety of the public were not compromised by the second event.

Previous Similar Occurrences

LER 87-025-00 (June 11, 1987) describes a violation of Technical Specifications which resulted from an inadequate review of the draft Technical Specifications during a Chemistry procedure preparation. The procedure did not provide for sampling required by the Technical Specifications. Corrective actions included a review of all Chemistry procedures and administrative programs against the current Technical Specifications to ensure consistency between procedures and Technical Specification surveillance requirements. Administrative programs controlling Technical Specification changes were also reviewed to ensure that adequate direction is provided with regard to the identification of Technical Specification changes to affected departments.

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TEXT (if more space is required, use additional NRC Form 308A's) (17)

ANALYSIS OF OCCURRENCES (CONTINUED)

LER 87-026-00 (June 15, 1987) describes a violation of Technical Specifications which resulted from a lack of thermal overload bypass circuitry for several Motor Operated Valves (MOVs) as required by the Technical Specifications. These deficiencies were caused by inadequate design review and implementation during the final draft phase of Technical Specification preparation. All Technical Specification changes which applied to I&C and Maintenance department were reviewed, however no additional conflicts between Technical Specifications and surveillance procedures were identified. All station departments were directed to review tabular style Technical Specifications against current surveillance procedures to ensure consistency. The Design Change process was also reviewed to identify any appropriate corrective actions.

This report is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(i).

CORRECTIVE ACTIONS

1. The design change to add the capability to automatically isolate the liquid radwaste discharge line to the cooling tower blowdown line on a Liquid Radwaste Discharge Monitor downscale failure to the isolation valve isolation logic was field-completed on January 13, 1988.
2. The gaseous radwaste monitor surveillance procedures have been revised to add the verification of control room annunciation on the simulation of a downscale monitor failure.
3. The SQR who erred in verifying the functional test procedure revision is no longer employed at Hope Creek. He was dedicated to the review of RMS procedures. For this reason, procedure re-verification was limited to the RMS procedures. All RMS procedures (a total of 89) have been re-verified to ensure that all Technical Specification requirements are addressed. No further discrepancies between the current Technical Specifications and the RMS surveillance procedures were found.
4. This LER will be reviewed with all currently designated SQRs and they will be cautioned to thoroughly review all procedure changes against the current Technical Specifications as well as the applicable design documents.

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TEXT (if more space is required, use additional NRC Form 388A's) (17)

CORRECTIVE ACTIONS (CONTINUED)

- 5 This LER will be reviewed for incorporation into the SQR training program.
6. The Independent Safety Evaluation Group will perform an independent assessment of the Technical Specification surveillance requirements and procedure compliance.

Sincerely,

S. LaBruna / Jan
S. LaBruna
General Manager -
Hope Creek Operations

AME:

SORC Mtg. 88-017



Public Service Electric and Gas Company P.O. Box L Hancocks Bridge, New Jersey 08038
Hope Creek Operations

February 5, 1988

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

Dear Sir:

HOPE CREEK GENERATING STATION
DOCKET NO. 50-354
UNIT NO. 1
LICENSEE EVENT REPORT 88-001-00

This Licensee Event Report is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(i).

Sincerely,

S. LaBruna / jar

S. LaBruna
General Manager -
Hope Creek Operations

AME:

Attachment
SORC Mtg. 88-017

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