

Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
914-736-8000



**New York Power
Authority**

January 8, 1993
IP3-NRC-92-104

Docket No. 50-286
License No. DPR-64

Document Control Desk
Mail Station PI-137
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

The attached Licensee Event Report LER 92-019-00 is hereby submitted in accordance with the requirements of 10CFR50.73. This event is of the type defined in the requirements per 10CFR50.73(a)(2)(i)(B).

Very truly yours,

A handwritten signature in cursive script, appearing to read 'W. Josiger'.

William A. Josiger
Resident Manager
Indian Point Three Nuclear Power Plant

waj/jm/rj
Attachment

cc: Mr. Thomas T. Martin
Regional Administrator
Region 1
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

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LICENSEE EVENT REPORT (LER)

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TITLE (4)
Inadequate Recirculation For Effluent Release Sampling

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
1	1	3 9 2	9 2	0 1 9	0 0	0 1 0 8	9 2				0 5 0 0 0

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)									
POWER LEVEL (10) 1 1 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)						
	20.405(a)(1)(ii)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)						
	20.405(a)(1)(iii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	20.405(a)(1)(iii)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(A)							
	20.405(a)(1)(iv)	50.73(a)(2)(iii)	50.73(a)(2)(viii)(B)							
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)

NAME Joseph Macchiarulo, OERG Engineer	TELEPHONE NUMBER
	AREA CODE: 9 1 4 7 3 6 1 8 0 4 1 6

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

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On November 13, 1992, with the reactor at 100 percent power, a Quality Assurance engineer discovered that a radioactive pre-release sample of number 32 Monitor Tank on May 2, 1992, did not satisfy the minimum recirculation time required in the Off Site Dose Calculation Manual. The calculation resulted in recirculation of approximately 1.2 tank volume rather than the required two tank volumes. An evaluation of all monitor tank waste permit calculations for the 1992 calendar year revealed thirty-two additional recirculation time discrepancies. These releases were made after recirculating 1.3 tank volumes in lieu of the minimum 2 tank volume requirement. The May 2 discrepancy was caused by inattention to detail during a recirculation end time calculation. The remainder were due to a failure to properly update the Liquid Waste Release Permit operating procedure following a plant modification. Corrective actions will include using a conservative recirculation time in lieu of a calculation, computerizing the recirculation end time calculations, and re-emphasizing expectations for accurate calculations to the Control Room Senior Reactor Operators. Investigation revealed that monitor tank influent and effluent radioactivity levels were stable during all of the releases in question. Environmental radioactivity release limits were not exceeded at any time.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

INVESTIGATION OF THE EVENT

On November 13, 1992, with the reactor at 100 percent power, a Quality Assurance (QA) engineer performing an audit of Radiological and Environmental Technical Specifications (RETS) discovered that the radioactive pre-release sampling process of number 32 Monitor Tank on May 2, 1992, was not in compliance with the Off Site Dose Calculation Manual (ODCM). The ODCM requires that the monitor tanks be recirculated two tank volumes prior to sampling. Control Room Senior Reactor Operators calculate the minimum monitor tank recirculation time prior to sampling to ensure that the sample results are representative of the tank contents prior to release.

On May 2, 1992, the Senior Reactor Operator (SRO) performing the recirculation calculation for waste permit number 2903 properly calculated a recirculation time of 2.5 hours. When the SRO added 2.5 hours to the current time of 0955, he mistakenly determined that the end time was 1125 instead of 1225. Approximately 1.2 tank volumes was recirculated.

On November 13, 1992, the Chemistry Department initiated an evaluation of all monitor tank waste permit calculations for the 1992 calendar year. Additional miscalculations were discovered, but these did not result in Technical Specification violations. The Operations department responded by notifying each SRO of their errors and requiring them to provide a written response explaining how they will prevent future errors.

On December 3, 1992, the investigation identified a procedural error that created additional discrepancies with the minimum recirculation requirement. On July 3, 1992, a radiation monitoring system upgrade (Modification 90-3-292-RMS) was completed that resulted in a reduced flow rate in the recirculation portion of the Liquid Waste System. Subsequent testing revealed that the flow rate in the monitor tank recirculation piping had changed from 150 gpm to 100 gpm. (The flow rate is determined using the pump discharge pressure and the pump characteristic curve.)

Due to an oversight by a Chemistry Department engineer in closing out the modification, the operating procedure that specifies the recirculation calculation (SOP-WDS-14) was not updated to reflect the new flow rate until September 3, 1992. (Using 150 gpm versus 100 gpm in the calculations resulted in recirculating only 1.3

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tank volumes.) The error in updating the procedure resulted in thirty-two additional monitor tank waste permit samples that were performed prior to recirculating two tank volumes.

The event was determined to be reportable on December 3, 1992 based upon Appendix B technical specification 3.3.1.B which requires liquid effluent radioactivity analysis to be in accordance with the methodology of the ODCM. ODCM section 2.1.5 requires the contents to be recirculated a minimum of two tank volumes prior to sampling. Following a staff review, reportability was determined when the staff concluded that a violation of ODCM methodology was a violation of Technical Specifications.

CAUSE OF THE EVENT

The insufficient recirculation time on May 2, 1992 (waste release permit number 2903) was caused by inattention to detail on the part of the Control Room Senior Reactor Operator who calculated the recirculation end time.

Thirty-two instances of insufficient recirculation time were caused by a failure to update the recirculation end time calculation in the Liquid Waste Release Permit operating procedure. The failure to update the procedure was caused by inattention to detail by a Chemistry Department engineer when closing out modification 90-3-292-RMS. This occurred during a period of high activity at the end of an outage prior to plant startup.

CORRECTIVE ACTIONS

To address the above stated causes, the following corrective actions have been developed:

- 1) The Off Site Dose Calculation Manual has been revised to provide the option of using a four hour recirculation time in lieu of a calculated end time. This four hour time period exceeds the minimum time for recirculating two tank volumes with maximum tank capacity at 100 gpm.
- 2) The Chemistry Department is in the process of computerizing the waste permit recirculation end time calculations to prevent mathematical errors. This project will be completed by the end of January 1993.

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- 3) Management sent letters to all Control Room Senior Reactor Operators in response to waste permit miscalculations. The letters explained the potential for calculation errors and the sensitivity of these calculations. The letters required the operators to provide a written response explaining the nature of their errors and how they would prevent recurrence. Additionally, letters were placed in each of their personnel files documenting the occurrences.
- 4) The inattention to detail by the Chemistry engineer was the result of a heavy workload at the end of an outage prior to plant startup. This problem was recognized and several actions have been taken to better distribute the workload. These actions include the addition of two new Chemistry Planner positions in the Chemistry Group.
- 5) An evaluation of the potential composite error from the calculations will be included in the upcoming Reg Guide 1.21 report.

ANALYSIS OF THE EVENT

This event is reportable under 10CFR50.73 (a) (2) (i) (B): the licensee shall report "any operation or condition prohibited by the plant's technical specifications." Indian Point 3 Radiological and Environmental Technical Specification 3.3.1.B requires that liquid effluent radioactivity analysis be "in accordance with the methodology and parameters in the ODCM." ODCM section 2.1.5 requires that "prior to discharge, the radioactive waste tank contents will be recirculated for a minimum of two tank volumes."

SAFETY SIGNIFICANCE

This event did not affect the public health and safety.

A review of radioactive waste treatment effluent sample data has revealed that no significant change in monitor tank influent radioactivity levels occurred during the time in question. Additionally, the monitor tank effluent radiation monitor (R-18) readings were stable during the releases in question, indicating that no significant deviation from sample concentrations occurred during release to the environment. (R-18 isolates liquid effluent releases upon high activity.) Environmental radioactive release limits were not exceeded or approached at any time.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

SECURING FROM THE EVENT

The Liquid Waste Release Permit procedure is currently up to date. A thorough review of all 1992 liquid waste release permits has been completed, and all Control Room Senior Reactor Operators are aware of the importance and sensitivity of waste permit recirculation end time calculations. Indian Point 3 has had no prior Licensee Event Reports similar to this event.