

Indian Point 3  
Nuclear Power Plant  
P.O. Box 215  
Buchanan, New York 10511  
914 736.8001



**New York Power  
Authority**

John H. Garrity  
Resident Manager

July 01, 1993  
IPN-93-075

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

SUBJECT: Indian Point 3 Nuclear Power Plant  
Docket No. 50-286  
Licensee Event Report LER 93-021-00  
"Missed Reactor Coolant System Tritium  
Analysis Due to Personnel Error"

Dear Sir:

The attached Licensee Event Report, LER 93-021-00, 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). No new commitments are being made by this submittal.

Very truly yours,

A handwritten signature in cursive script that reads "John H. Garrity".

John H. Garrity  
Resident Manager  
Indian Point Three Nuclear Power Plant

JHG/DO/vjm

cc: Mr. Thomas T. Martin  
Regional Administrator  
Region 1  
U.S. Nuclear Regulatory Commission  
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King of Prussia, Pennsylvania 19406-1415

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U.S. NRC Resident Inspectors' Office  
Indian Point Unit 3

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Handwritten initials "JHG" and the date "7/1/93" written vertically.

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Indian Point Unit 3	DOCKET NUMBER (2) 05000286	PAGE (3) 1 OF 5
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TITLE (4)  
Missed Reactor Coolant System Tritium Analysis Due To Personnel Error

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 NAME	DOCKET NUMBER
06	03	93	93	-- 021 --	00	07	01	93	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9) N	POWER LEVEL (10) 000	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
		<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)					
		<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)					
		<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER					
		<input type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form A)					
		<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)						
		<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)						

**LICENSEE CONTACT FOR THIS LER (12)**

NAME Matthew Kerns, Senior Chemical Engineer	TELEPHONE NUMBER (Include Area Code) (914) 736-8452
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**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)**

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

On May 16, 1993, with the reactor in cold shutdown and the reactor coolant inventory at approximately 67 feet, a Senior Nuclear Chemistry Technician (SNCT) failed to sample the residual heat removal system for tritium activity weekly as required by Technical Specifications section 4.1.B and Table 4.1-2. The Chemistry Supervisors, who perform verification of sample collection and data review, failed to identify the missed sample and take appropriate corrective actions within the maximum time of ten days allowed between analyses. The cause of this event was cognitive personnel error. Contributing factors were inadequate communications and inadequate supervisory methods. The Authority has apprised the individuals involved in the event of their responsibilities and has improved supervisory oversight of tritium sample collection.

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DESCRIPTION OF EVENT

On May 15, 1993 at 2300 hours, with the reactor in cold shutdown and the reactor coolant system (AB) inventory at approximately 67 feet, a Senior Nuclear Chemistry Technician (SNCT) relieved the watch as watch chemist. The assigned duties included the Technical Specification required weekly reactor coolant or residual heat removal system (BP) tritium analysis. In addition to the routine assigned duties, the watch chemist was responsible for continued investigation of a chemistry transient in the spent fuel pool (ND). At 0146 hours on May 16, 1993, the SNCT obtained a sample from the residual heat removal system for routine chemical analyses. The SNCT failed to collect and prepare the required tritium sample aliquot for later analysis. Therefore, the SNCT did not record the collection of the sample on the sample assignment sheet nor in the watch chemist's log book. The day shift and evening shift watch chemists failed to identify the missing analysis during shift turnovers. A Chemistry Supervisor failed to identify the missed sample during the routine data review on May 17, 1993 and filed the incomplete data sheet. On May 21, 1993, the Radiochemistry Supervisor identified the missing residual heat removal system tritium sample upon review of the routine plant tritium analysis. The Radiochemistry Supervisor directed, through a chemistry night order, that a residual heat removal system tritium sample be obtained. This sample was collected at 0100 hours on May 22, 1993. The time between residual heat removal system tritium analyses was 13 days, exceeding the allowed maximum time between samples. On June 3, 1993, the Radiochemistry Supervisor discussed the missed tritium sample with the initial Chemistry Supervisor and identified the missed surveillance frequency.

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CAUSE OF EVENT

The causes of the event were determined to be cognitive personnel errors. Contributing factors were inadequate communications and inadequate supervisory methods. These factors were evidenced by the following:

- failure of Senior Nuclear Chemistry Technicians to identify and collect the missing sample after two shift turnovers, and
- failure of the initial Chemistry Supervisor to identify the missed sample.

The effectiveness of supervisory review of scheduled samples and results was found to be inadequate. This review was complicated by the lack of clear identification of the routine assigned tasks required for the existing plant operating mode. This resulted in incomplete data sheets being submitted for supervisory review.

The normal practice of collecting and archiving an aliquot of reactor coolant for subsequent analysis had been suspended. This practice had been for the purpose of chemistry transient evaluation or confirmatory analysis. This aliquot would be analyzed if a tritium analysis was improperly performed or if a tritium specific sample was not taken. This practice had been suspended as the result of improper supervisory control.

The Radiochemistry Supervisor failed to identify the missed sample as a violation of Technical Specifications. This resulted in a delay in identification of the event.

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**CORRECTIVE ACTIONS**

Upon discovery of the missed samples and inadequate supervisory review, the following actions were taken.

- The responsibility of watch chemists to ensure that all assigned tasks are completed at turnover was reemphasized through chemistry night orders.
- The practice of archiving reactor coolant samples was reestablished.
- A review of 1993 tritium analyses was performed. This review verified that no other samples were missed.
- The initial Senior Nuclear Chemistry Technician and Chemistry Supervisor were counselled on the event.

The following additional actions were taken.

- An evaluation of 1993 required chemistry analyses was performed to ensure that similar events had not occurred. This evaluation was completed on June 8, 1993. No additional missed Technical Specification required analyses were noted.
- A review of Technical Specification required analyses was performed to determine if sampling frequencies should be increased to ensure that a single missed sample would not result in exceeding the requirements of Table 4.1-2 of Technical Specifications. Where a missed sample would result in a Technical Specification noncompliance, the sampling frequency was increased.

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ANALYSIS OF EVENT

Technical Specification 4.1-B states:

"Sampling and equipment tests shall be conducted as specified in Table 4.1-2 and 4.1-3, respectively."

Technical Specification Table 4.1-2 states that reactor coolant shall be sampled for tritium activity weekly with the maximum time between samples being 10 days.

Contrary to this requirement, the reactor coolant (residual heat removal system) was not sampled within the required frequency. This event is reportable by an LER in accordance with 10CFR50.73 (a)(2)(i)(B) which requires reporting any operation or condition prohibited by the plant's Technical Specifications.

SAFETY SIGNIFICANCE

This event did not affect the health or safety of the public. The Final Safety and Analysis Report (FSAR) section 9.2 addresses control of reactor coolant tritium. The two major considerations with regard to tritium are potential personnel hazard during access to the vapor containment building (NH) when it is sealed from outside air ventilation, and potential public risk due to release of tritium to the environment. The FSAR further states that neither of these conditions is limiting for Indian Point 3. The residual heat removal system tritium activity analysis taken before and after the event did not indicate an abnormally high concentration. The routine effluent tritium analyses indicated releases well within limits specified in Technical Specification Appendix B, section 3.4.1.B and Table 3.4-1 (.003% quarterly limit). The primary coolant activity limiting condition for operation, Technical Specification section 3.1.D, does not specifically address tritium activity limits. This limiting condition for operation only applies to the dose equivalent iodine and the specific activity of the primary coolant when the reactor is critical or average reactor coolant temperature is greater than 500 degrees Fahrenheit. During this event the plant was in a cold shutdown condition.

Similar events have been reported in LERs 90-009-00, 91-009-01, 92-009-00, and 93-001-00.