NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Indian Point, Unit 3	0 5 0 0 0 2 8 6	1 OF 0 2

TITLE (4)

FUEL ASSEMBLY IN INCORRECT LOCATION IN SPENT FUEL PIT

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)
												0 5 0 0 0
0 6	2 7	8 7	8 7	—	0 0 8	—	0 0	0 7	2 7	8 7		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
	N	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	0 0 0	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)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 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	TELEPHONE NUMBER
	AREA CODE
Floyd Gumble, Nuclear Reactor Engineer	9 1 4 6 8 1 - 6 7 2 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	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE)				
X	NO				

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

On June 27, 1987, during a refueling outage, unirradiated Fuel Assembly U50 was found to have been inadvertently loaded into Spent Fuel Pit (SFP) location S-21 instead of SFP location R-21. The presence of this high-enriched (3.6 weight percent) U-235 in the wrong location disrupted the "checkerboard" pattern required by Technical Specifications for highly-enriched (i.e., greater than 3.5 weight percent) assemblies in the SFP. Worst-case analyses performed prior to this event had showed that there was no risk of inadvertently creating a criticality in the SFP for this type of event. Analyses performed subsequent to this event, specifically addressing the mislocation of an assembly enriched to 3.6 weight percent, confirmed a neutron multiplication factor of less than 0.90. In order to prevent its recurrence, SFP loading procedures will be changed to minimize the risk of misloading the SFP by loading low-enriched assemblies first in intervening locations whenever possible. Assembly U50 was retrieved from SFP location S-21, identified, and inserted into the core. No similar event has been reported to date.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

The plant was in the cold shutdown condition during a refueling outage, with the Reactor Vessel head removed, the reactor cavity fully flooded and core reload operations in progress.

On June 27, 1987, unirradiated Fuel Assembly U50 was found to have been inadvertantly loaded into Spent Fuel Pit (SFP) location S-21 instead of location R-21. Fuel Assembly U50 was verified to be in location S-21, retrieved and transferred to its proper location in the core, in accordance with plant procedures.

The Indian Point 3 Technical Specifications (TS) classifies reactor fuel in one of three categories, based on initial enrichment and present burn-up. Technical Specification 3.8.C.7 requires all Category 2 assemblies to be stored in a "checkerboard" fashion in the SFP (a checkerboarded assembly is one surrounded on all four sides by either empty fuel cells, Category 1 fuel or non-fuel materials).

Assembly U50, having an enrichment of 3.6 weight percent (w/o)U-235, was classified as Category 2. Refueling procedure SOP-RP-1 directed it and the other new assemblies of this enrichment to be placed in the SFP in checkerboard fashion, interspersed with empty fuel cells. Due to an error by the fuel handling crew, this checkerboard pattern was broken when assembly U50 was placed into SFP location S-21 instead of R-21.

The purpose of checkerboarding is to keep the SFP neutron multiplication factor (k-effective) below 0.95. This scheme is valid for fuel with enrichments as high as 4.3 w/o U-235. Prior to the promulgation of this specification, analyses had been performed to account for a worst-case SFP loading error; specifically, for an infinite array of fuel assemblies enriched to 4.3 w/o the multiplication factor would have been approximately 0.97, which is still below criticality. Analyses performed subsequent to this event, specifically addressing the mislocation of an assembly enriched to 3.6 w/o, confirmed a neutron multiplication factor of less than 0.90.

In order to prevent repetition of this event, SFP loading procedures will be changed to minimize the risk of misloading the SFP by first loading low-enriched assemblies in intervening locations whenever possible.

No similar events have been reported to date.

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

July 27, 1987
IP3-87-043Z
IP3-JJA-182H

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

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

Dear Sir:

The attached Licensee Event Report LER 87-008-00 is hereby submitted in accordance with the requirements of 10CFR50.73. This event is of the type defined in Paragraph 50.73 (a) (2) (i).

Very truly yours,

William A. Josiger
Resident Manager
Indian Point 3 Nuclear Power Plant

JJA:sn:LER3:08
Attachment

cc: Mr. William Russell
Regional Administrator
Region 1
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
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LER-87-008-00

bcc: IP3 Resident Inspectors' Office
J. P. Bayne, WPO
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