



**NUCLEAR REACTOR LABORATORY**  
AN INTERDEPARTMENTAL CENTER OF  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY



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J. A. BERNARD, JR.  
Director of Reactor Operations

4 November 1994

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

Subject: Response to Request Dated 11/03/94 for Additional Information Regarding  
Request for Adjustment of Facility Operating License No. R-37 for the  
Massachusetts Institute of Technology Research Reactor (MITR); Docket  
No. 50-20.

Gentlemen:

On 03/31/94, the Massachusetts Institute of Technology submitted a request that Facility Operating License No. R-37 be extended to April 24, 2001. On 08/31/94, the U.S. Nuclear Regulatory Commission requested additional information concerning that proposed license extension. That material was submitted on 09/29/94. On 11/03/94, the U.S. Nuclear Regulatory Commission requested an additional item of information. Enclosed is our response.

Sincerely,

John A. Bernard, Ph.D.  
Director of Reactor Operations  
MIT Research Reactor

JAB/CRM

cc: USNRC - Project Manager,  
NRR/ONDD

USNRC - Region I - Project Scientist,  
Effluents Radiation Protection Section (ERPS)  
FRSSB/DRSS

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Summaries of Sections F and H of the MITR Annual Reports (1985-1994)  
to USNRC

F. ENVIRONMENTAL SURVEYS

FY	Average (mrem)
1994	0.4
1993	0.5
1992	0.2
1991	0.1
1990	0.1
1989	0.2
1988	2
1987	1.2
1986	1.8
1985	2.2

H. RADIOACTIVE EFFLUENTS

TABLE H-1 (summary)

ARGON-41 STACK RELEASES

	Ar-41 Discharged (Ci)	Average Concentration ( $\mu\text{Ci/ml}$ )
Totals (1 July 93 - 31 Dec. 93)	275.79	$0.16 \times 10^{-8}$
MPC (Table II, Column I)		$4 \times 10^{-8}$
% MPC		4.1%
Totals (1 Jan. 94 - 30 June 94)	398.72	$0.22 \times 10^{-8}$
EC (Table II, Column I)		$1 \times 10^{-8}$
% EC		21.7%
Totals (FY 1993)	923.3	$0.24 \times 10^{-8}$
MPC (Table II, Column I)		$4 \times 10^{-8}$
% MPC		6.0%

TABLE H-1 (summary)  
ARGON-41 STACK RELEASES

(cont.)

Totals (FY 1992)	728.1	$0.20 \times 10^{-8}$
MPC (Table II, Column I)		$4 \times 10^{-8}$
% MPC		4.9%

Totals (FY 1991)	684.4	$0.18 \times 10^{-8}$
MPC (Table II, Column I)		$4 \times 10^{-8}$
% MPC		4.4%

Totals (FY 1990)	542.6	$0.14 \times 10^{-8}$
MPC (Table II, Column I)		$4 \times 10^{-8}$
% MPC		3.5%

Totals (FY 1989)	1529	$0.39 \times 10^{-8}$
MPC (Table II, Column I)		$4 \times 10^{-8}$
% MPC		9.8%

Totals (FY 1988)	2627	$0.67 \times 10^{-8}$
MPC (Table II, Column I)		$4 \times 10^{-8}$
% MPC		17%

Totals (FY 1987)	4223	$1.20 \times 10^{-8}$
MPC (Table II, Column I)		$4 \times 10^{-8}$
% MPC		30%

Totals (FY 1986)	3797	$1.05 \times 10^{-8}$
MPC (Table II, Column I)		$4 \times 10^{-8}$
% MPC		26%

Totals (FY 1985)	4076	$1.04 \times 10^{-8}$
MPC (Table II, Column I)		$4 \times 10^{-8}$
% MPC		26%

TABLE H-2 (summary)

SUMMARY OF MITR-II RADIOACTIVE SOLID WASTE SHIPMENTS

FY	Volume (ft <sup>3</sup> )	Activity (Ci)
1994*	457.5	0.925
1993*	210.0	0.218
1992	127.5	0.0114
1991	116.5	0.125
1990	192.6	0.035
1989	135.0	0.053
1988	60.5	0.0034
1987	112.5	0.082
1986	75.0	0.097
1985	120.0	0.067

\* FY 93/94 waste volume increases were as a result of LLRW Policy Act and subsequent site closures.

TABLE H-3 (summary)

LIQUID EFFLUENT DISCHARGES

FY	Total Activity (Ci)
1994	25.56E-3
1993	7.74E-3
1992	36.32E-3
1991	121.70E-3
1990	80.51E-3
1989	110.05E-3
1988	72.34E-3
1987	98.32E-3
1986	288.60E-3
1985	99.10E-3