GPU Nuclear

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June 19, 1985

TMI Program Office
Attn: Dr. W. D. Travers
Deputy Program Director
US Nuclear Regulatory Commission
c/o Three Mile Island Nuclear Station
Middletown, PA 17057

Dear Dr. Travers:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Groundwater Monitoring

The following is a periodic report of the results of the groundwater monitoring program which is conducted to detect the leakage of radioactive water to the groundwater in the vicinty of TMI-2.

GROUNDWATER MONITORING

The following groundwater monitoring data is attached:

1. Individual computer graphs (Figure 1) of tritium concentrations for monitoring stations, observation stations, and the East Dike Catch Basin (EDCB) up to and including March 5, 1985. Observation station OS-15 provided no data during the sampling period due to a low water level in the station.

2. Individual computer graphs (Figure 2) of the water levels within the monitoring stations.

3. A graph (Figure 3) indicating the gamma scan data from monitoring station MS-2 sample analyses up to and including March 5, 1985.

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4. A composite drawing which depicts all monitoring locations with a corresponding graph of the tritium concentrations reported for each station.

5. A table of tritium concentrations from weekly sampling of stations OS-17, OS-16, and MS-2 for the month of April 1985.

Tritium concentrations in most of the stations remained fairly constant. However, a slight increase in the tritium concentrations occurred in stations OS-17, OS-16, and MS-2 over the sampling period. The cause of the increase was traced to a leaking valve (DH-V134A) located on a common line from the Borated Water Storage Tank (BWST) and the Sodium Hydroxide Tank. A Unit Work Instruction (UWI), No. 4220-3212-85-E777, has been submitted to the Maintenance Department to correct the problem and is currently in the planning stage. Weekly sampling of stations OS-17, OS-16, and MS-2 indicate that the tritium concentrations remained fairly constant during the month of April 1985. The weekly sampling will be continued until the above noted problem is resolved. Table 1 lists the results of the weekly sampling for the month of April. The leak posed no significant threat to the health and safety of the public or site personnel.

Gamma results for the January 7, 1985, samples were all LLD. February 11, 1985, gamma results show only naturally-occurring K-40 present in MS-2 (73.5 ± 33.9 pCi/l), OS-13B (83.9 ± 33.7 pCi/l), OS-16 (73.2 ± 31.7 pCi/l) and OS-17 (67.4 ± 33.5 pCi/l). March 5, 1985, gamma results show only naturally-occurring K-40 in samples from MS-2 (200 ± 51 pCi/l), MS-4 (156 ± 53 pCi/l), MS-5 (69.5 ± 34.9 pCi/l), and OS-13B (74.1 ± 23.5 pCi/l). All other radionuclide concentrations were reported as LLD for each of the above sampling dates.

Sr-89 and Sr-90 results for first quarter of 1985 were LLD for all samples.

Based on the data collected and analyzed to date, no significant radiological safety or health concerns exist relative to the groundwater in the vicinity of TMI-2 at this time.

Sincerely,

Thomas J. Demmitt

for F. R. Standerfer
Vice President/Director, TMI-2

FRS/CJD/eml

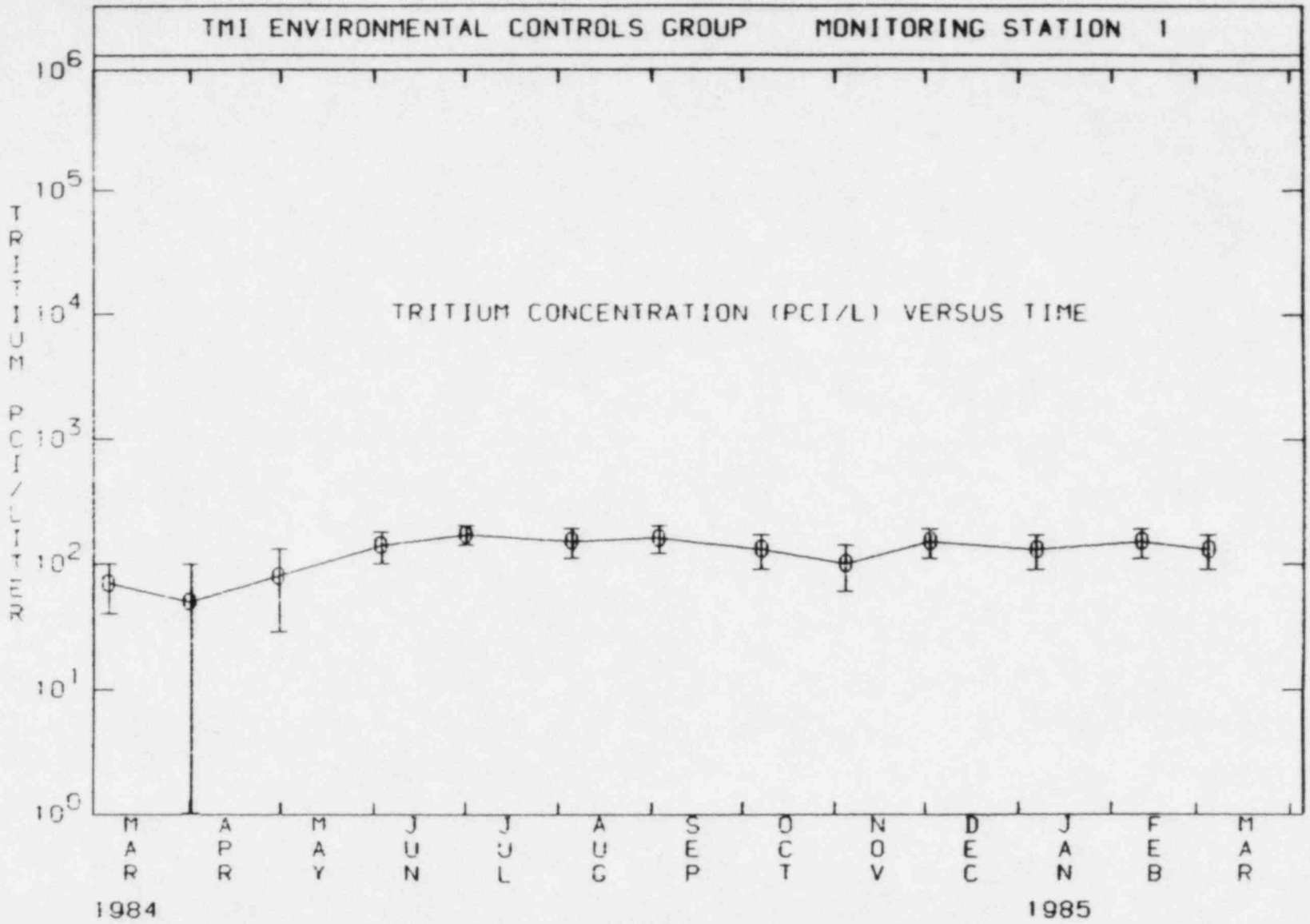
Attachments

cc: Program Director - TMI Program Office, Dr. B. J. Snyder

ATTACHMENT
(4410-85-L-0134)

LIST OF ATTACHMENTS

Figure 1	Graphs of Tritium Concentrations of Monitoring Stations and East Dike Catch Basin (EDCB) Samples Versus Time (15 pages)
Figure 2	Graphs of Water Levels in Monitoring Stations Versus Time (15 pages)
Figure 3	Gamma Scan Results for Monitoring Station MS-2 Versus Time (5 pages)
Drawing 1	Groundwater Tritium Concentrations at Site Liquid Monitoring Systems
Table 1	Tritium Concentration from Weekly Sampling of Monitoring Stations OS-17, OS-16, and MS-2 for the Month of April 1985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TRITIUM PCI/L
10^6
10^5
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10^3
10^2
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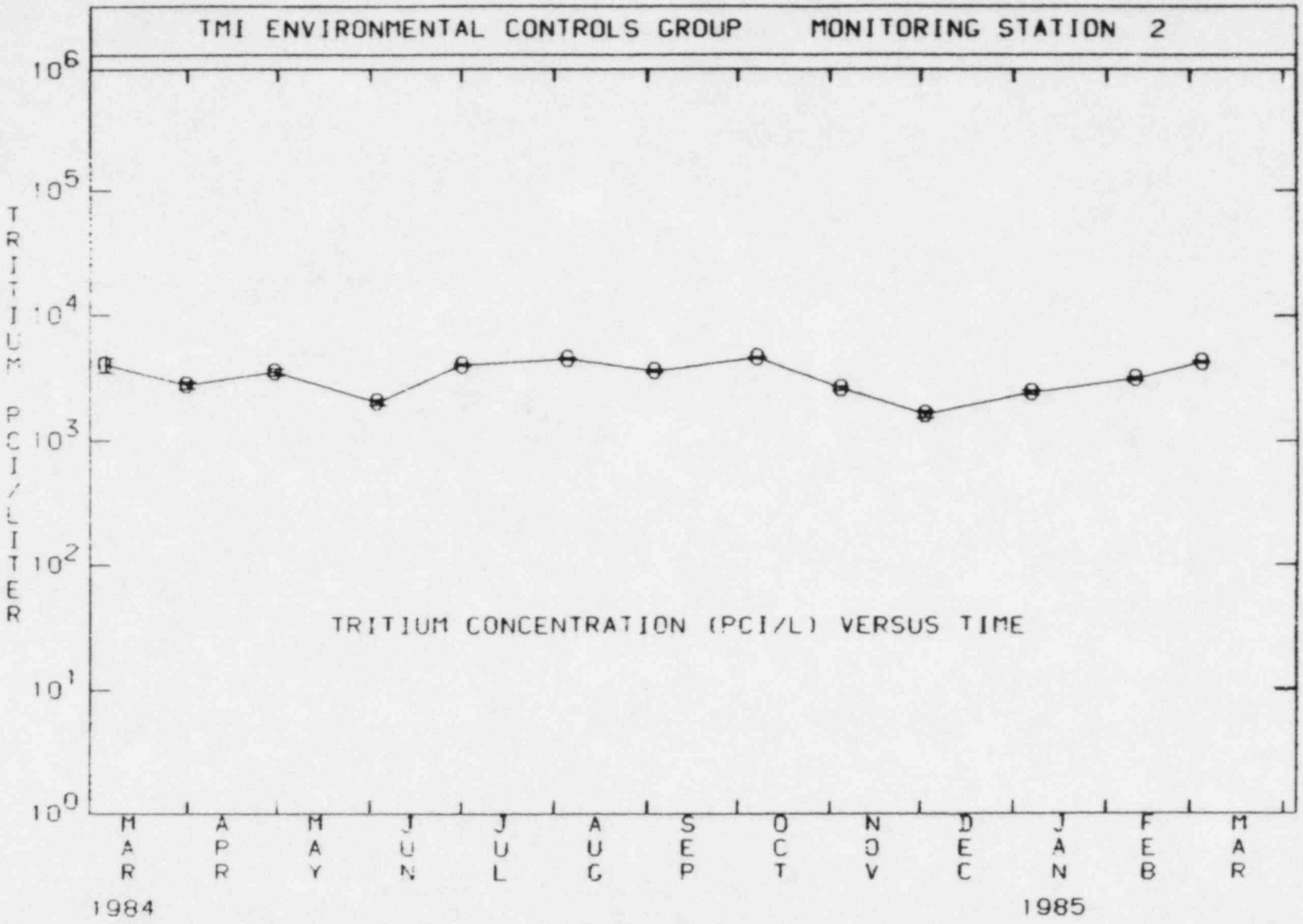
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TRITIUM PCI/LITER
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10^2
10^1
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TRITIUM CONCENTRATION (PCI/L) VERSUS TIME
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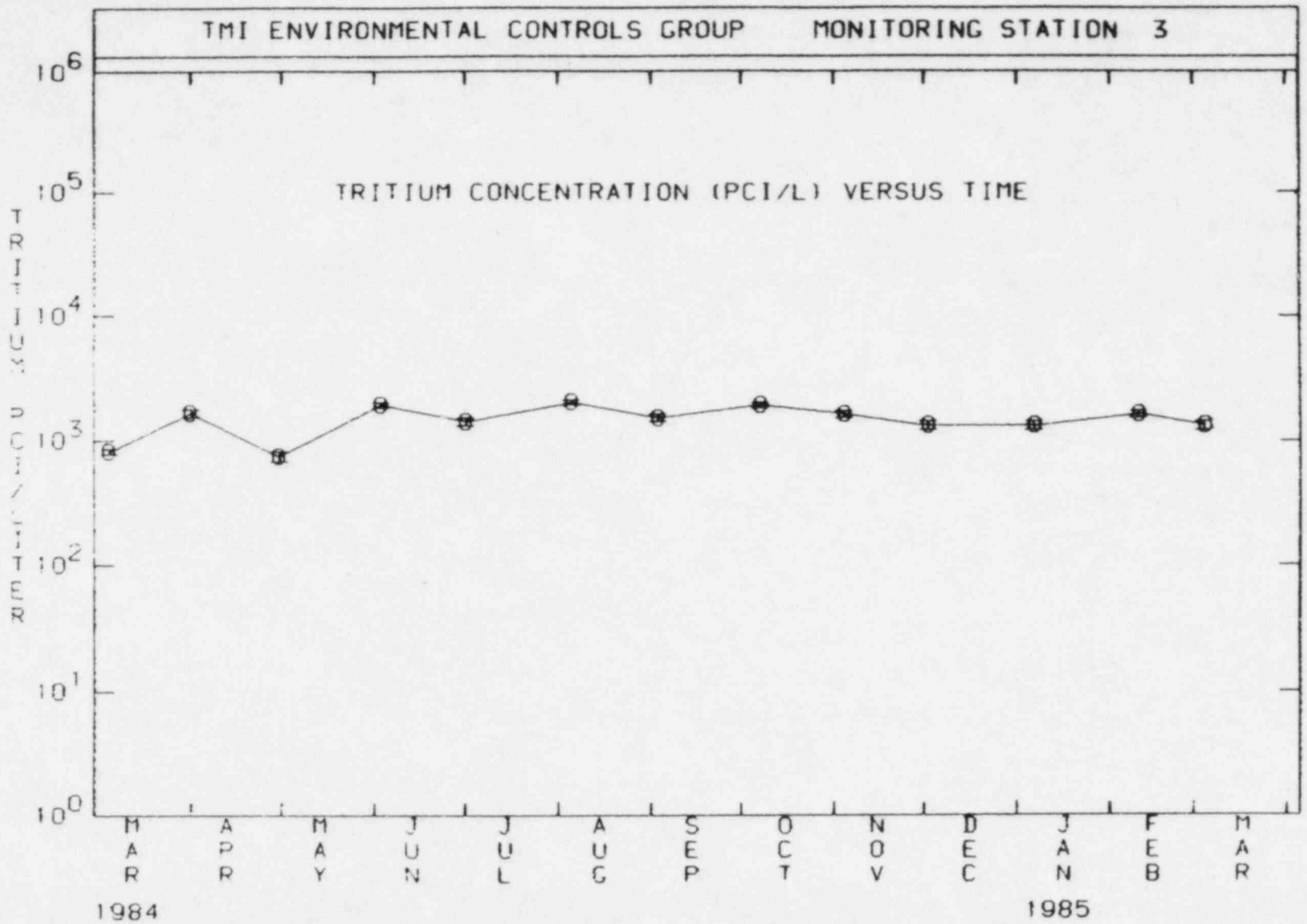
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TRITIUM (PCI/L)
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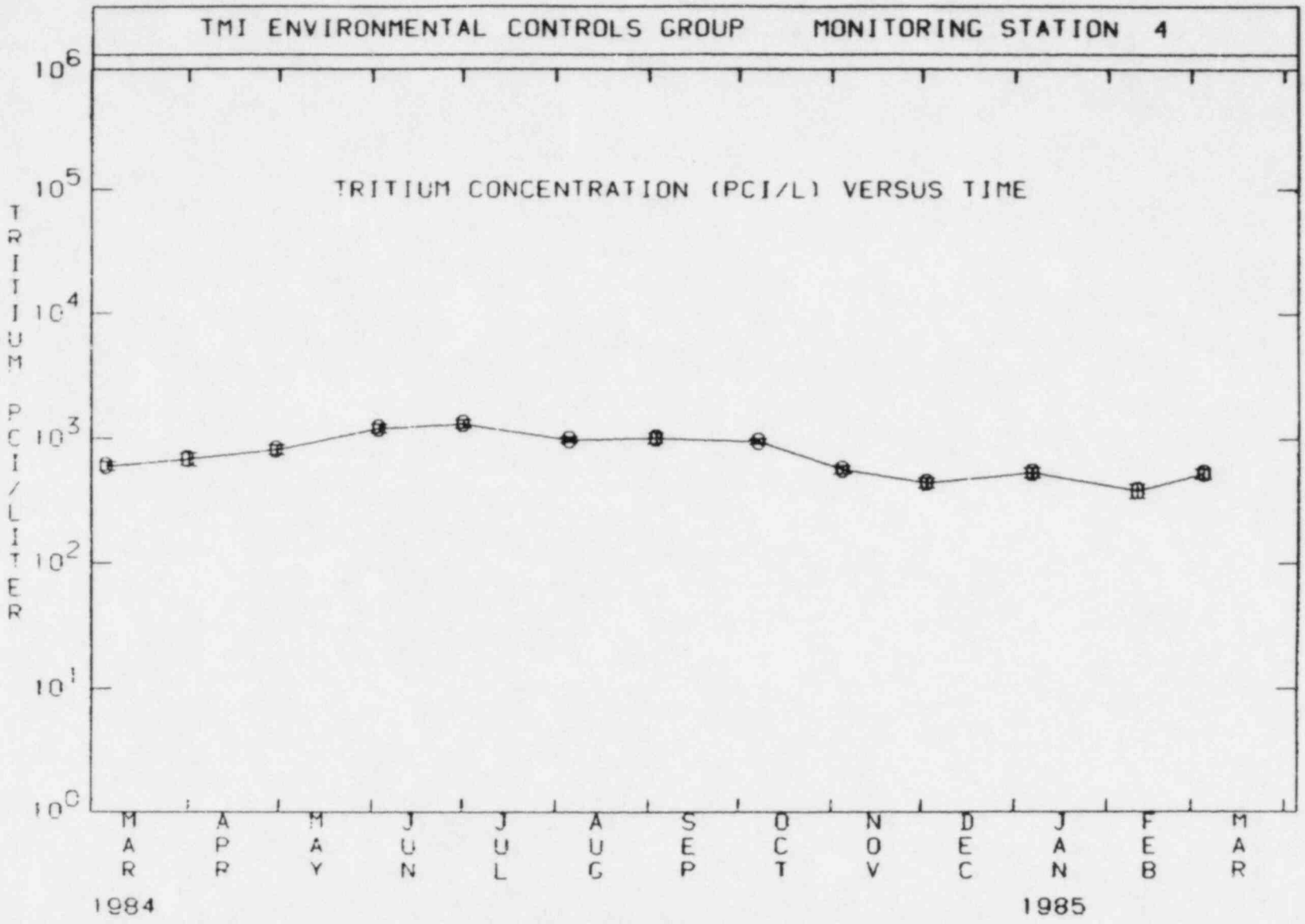
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TRITIUM PCI/LITER
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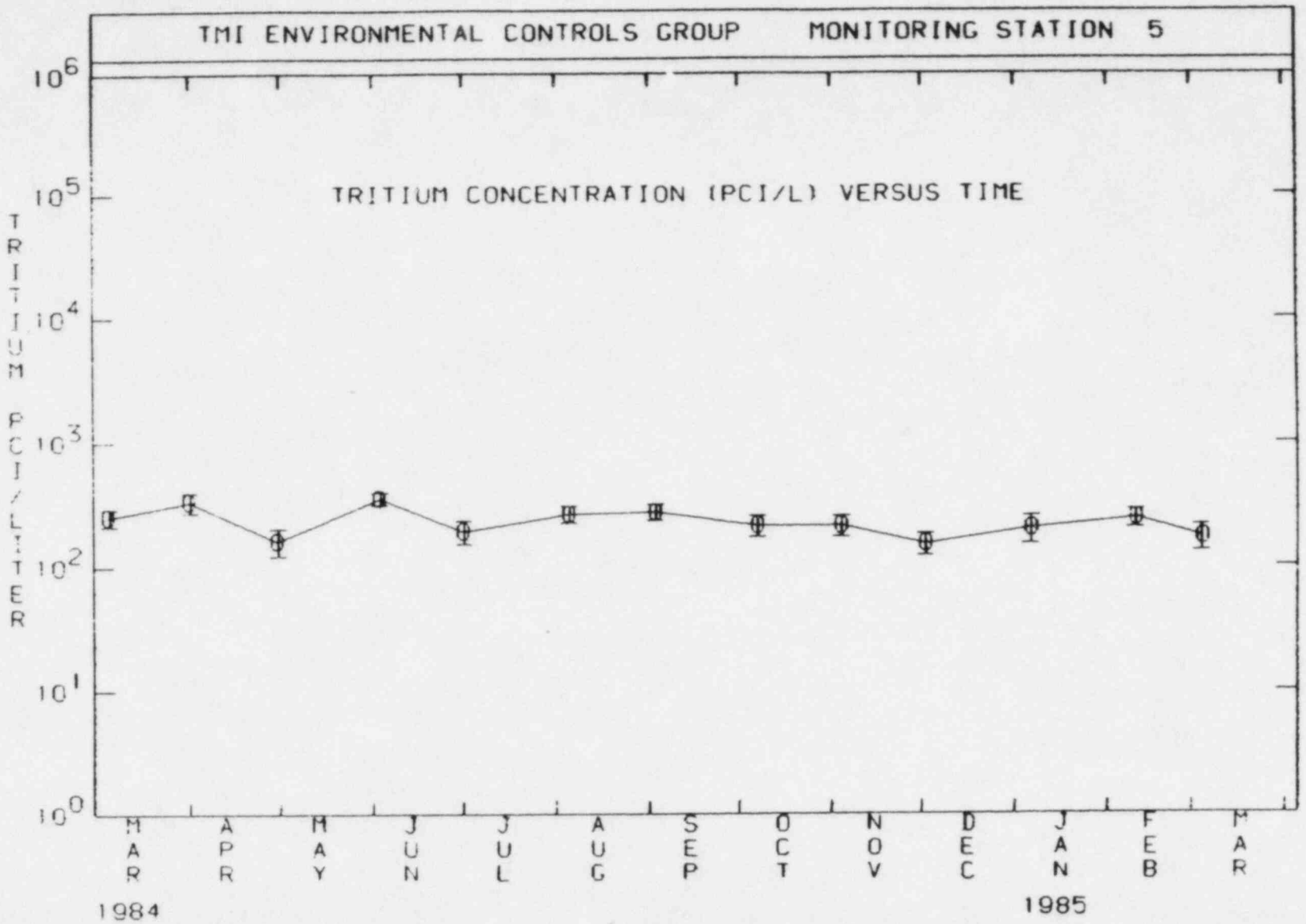
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TRITIUM PCI/LITER
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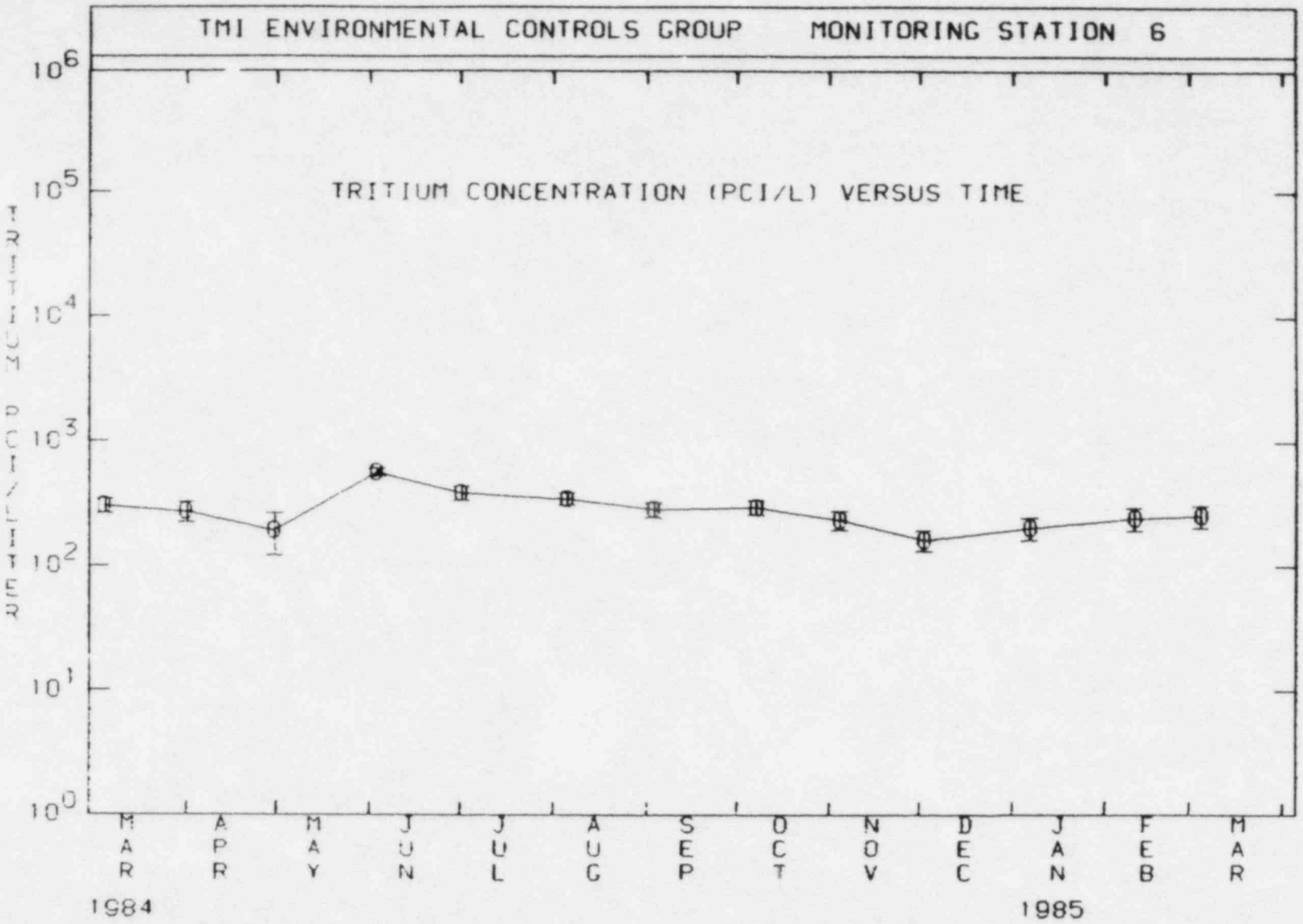
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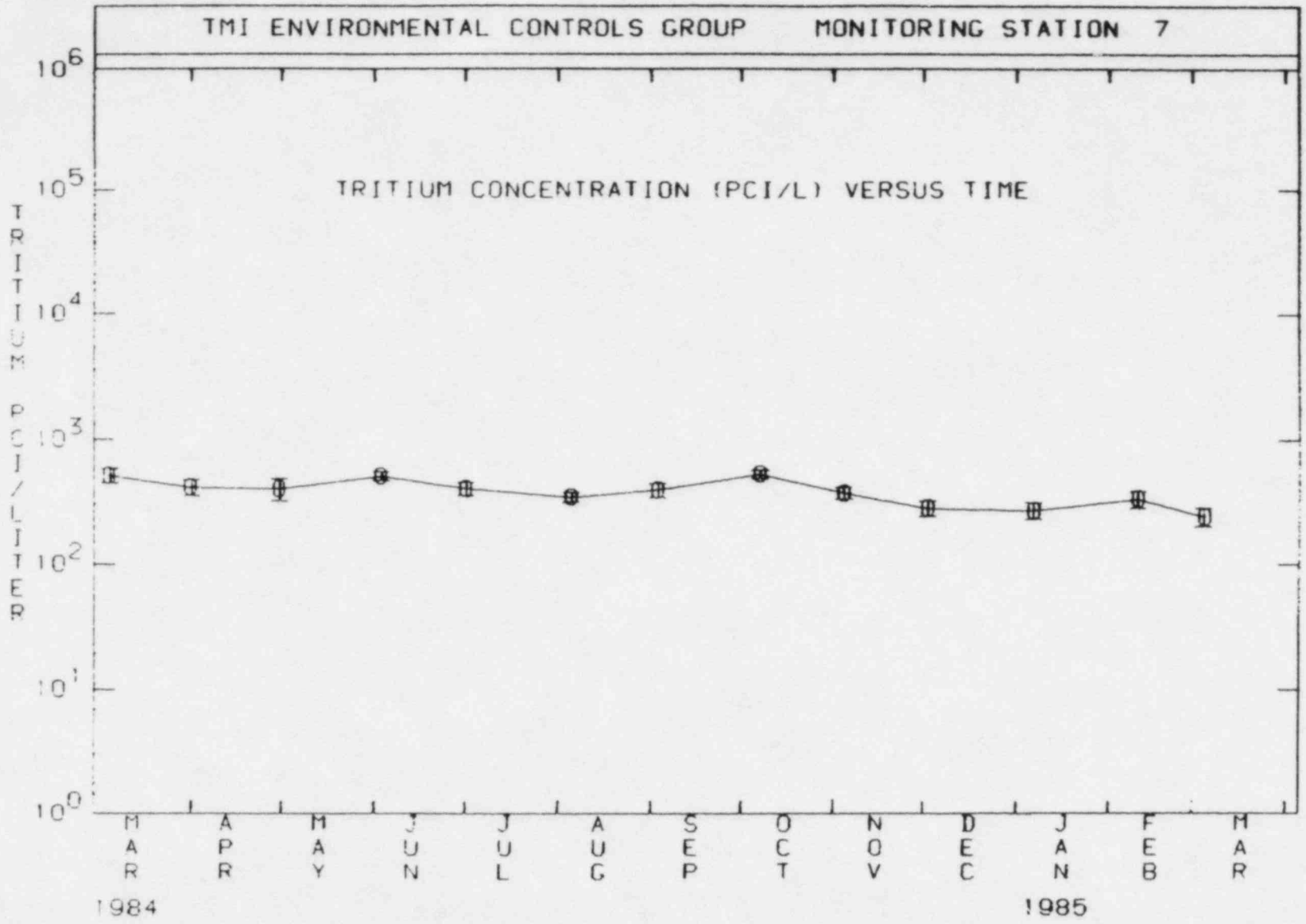
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TRITIUM PCI/LITER
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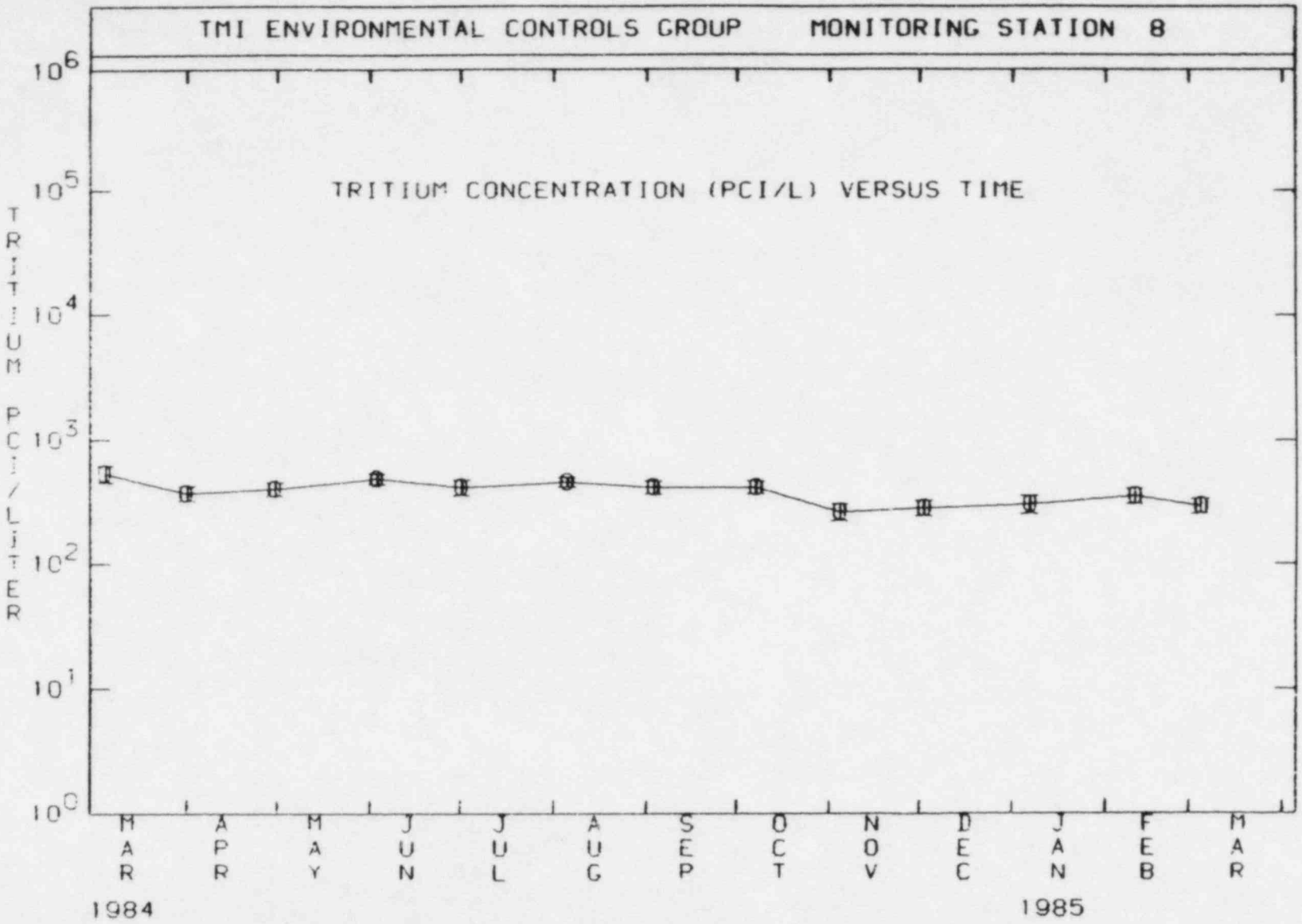
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TRITIUM PCI/LITER
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10^4
10^3
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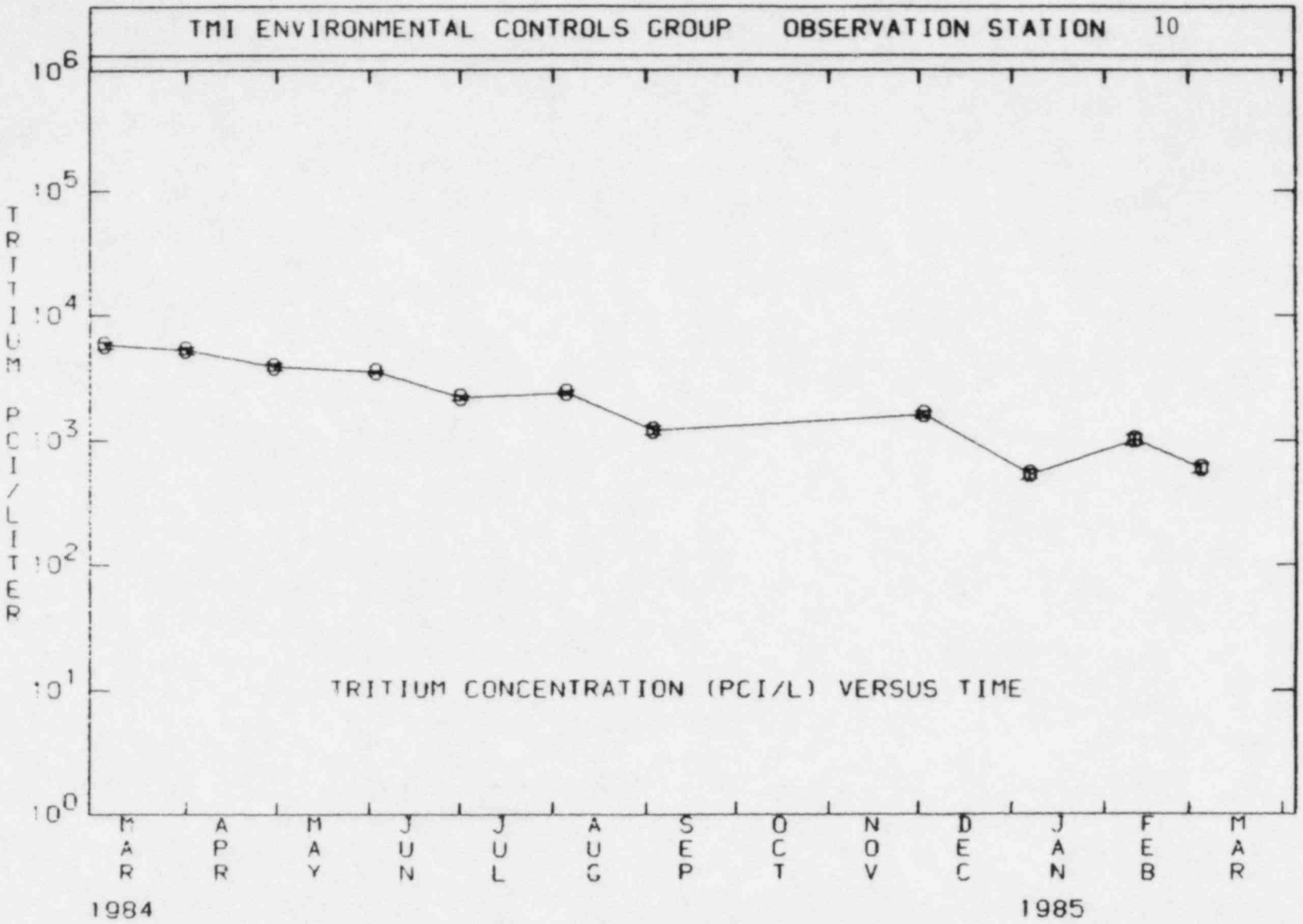
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10^0
TRITIUM CONCENTRATION (PCI/L) VERSUS TIME
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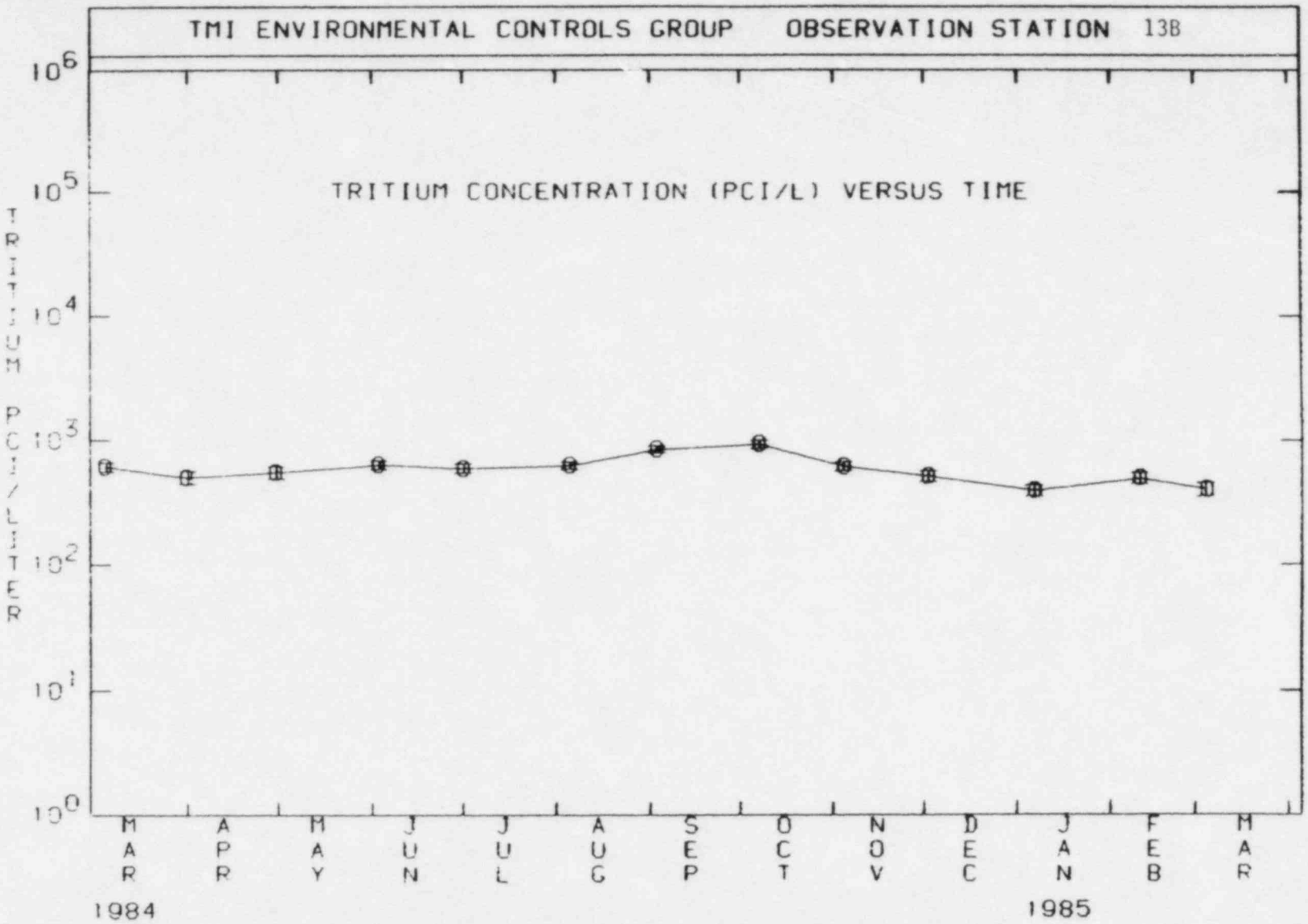
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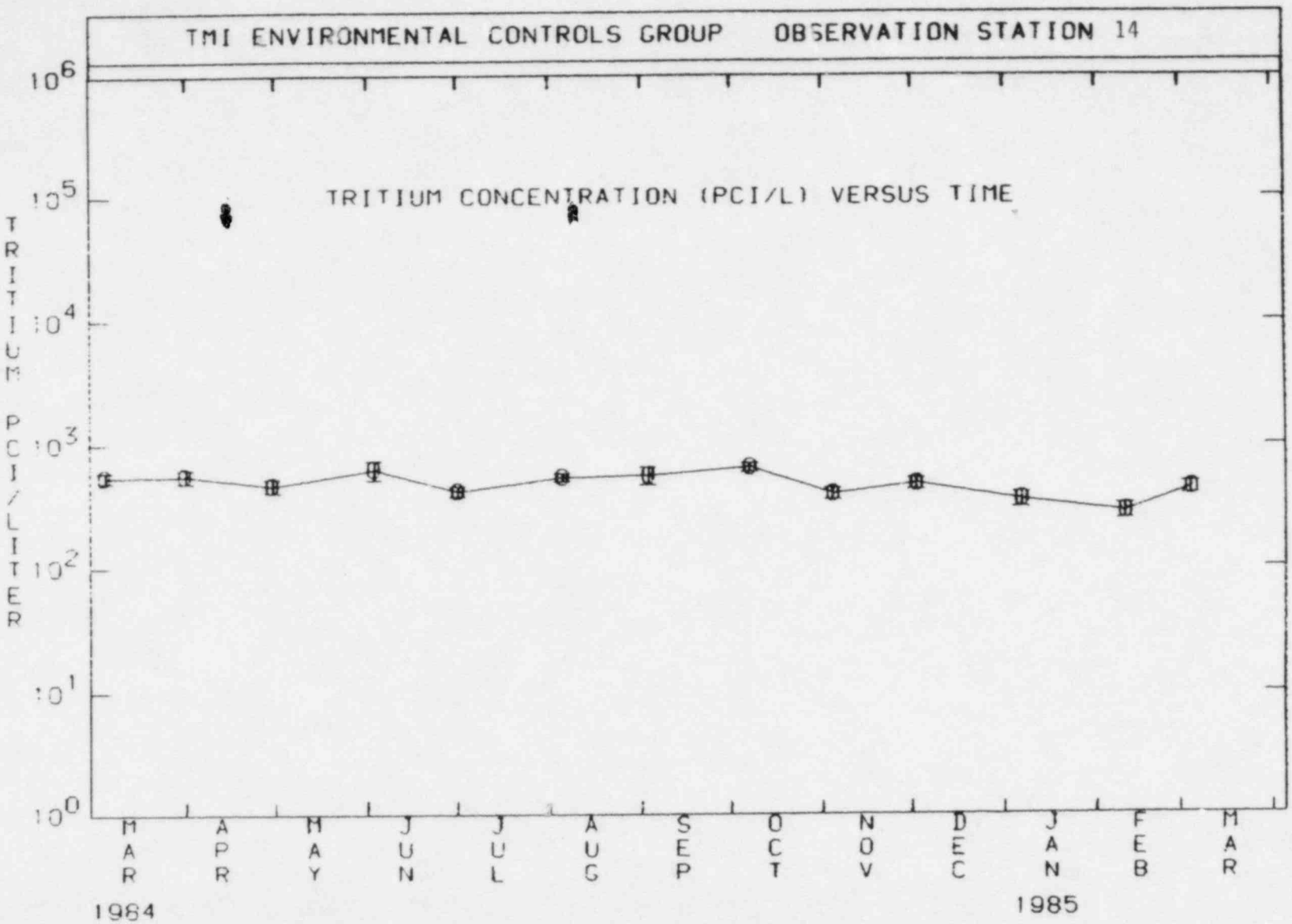
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TRITIUM PCI/LITER
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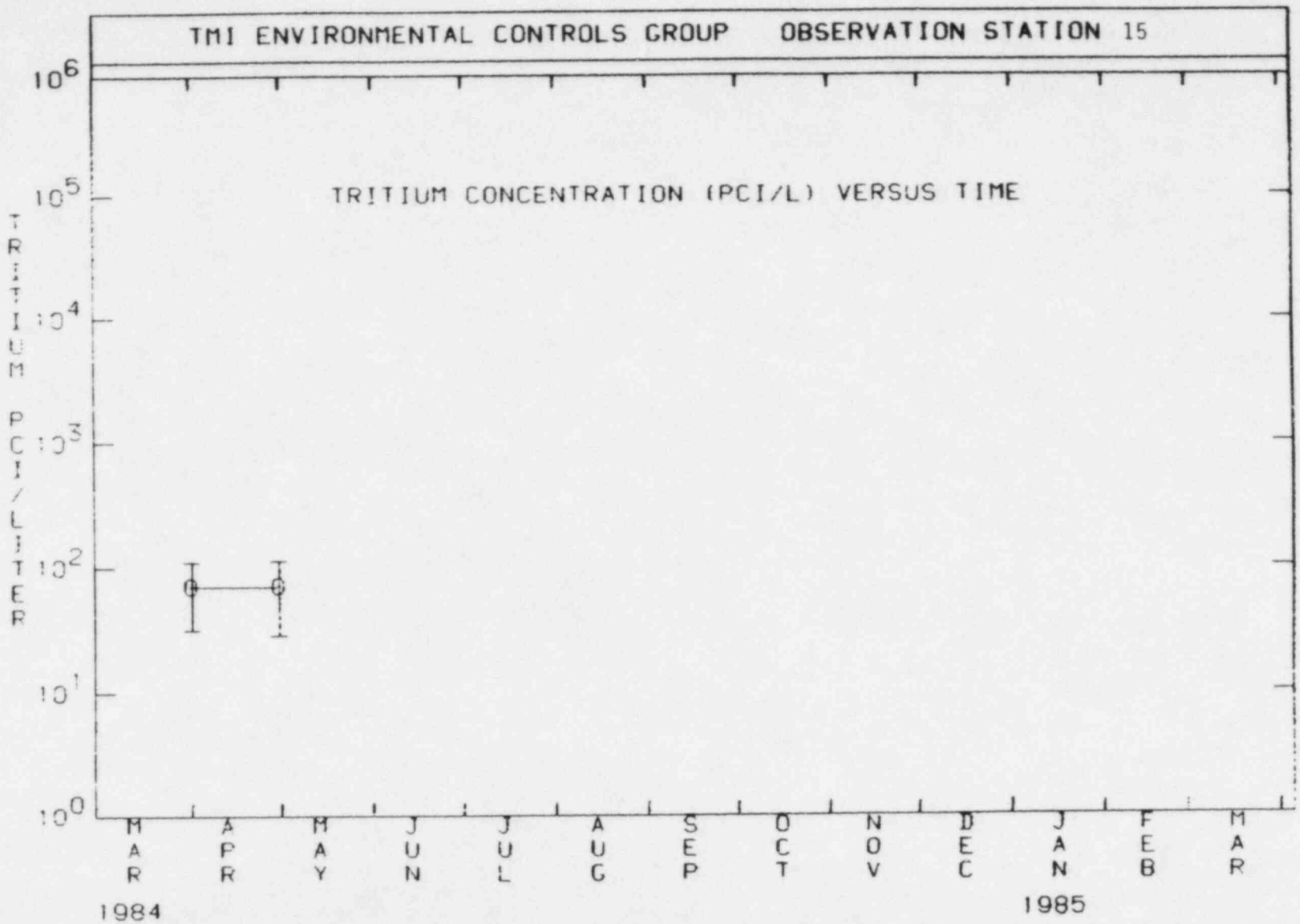
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TRITIUM PCI/LITER
10^6
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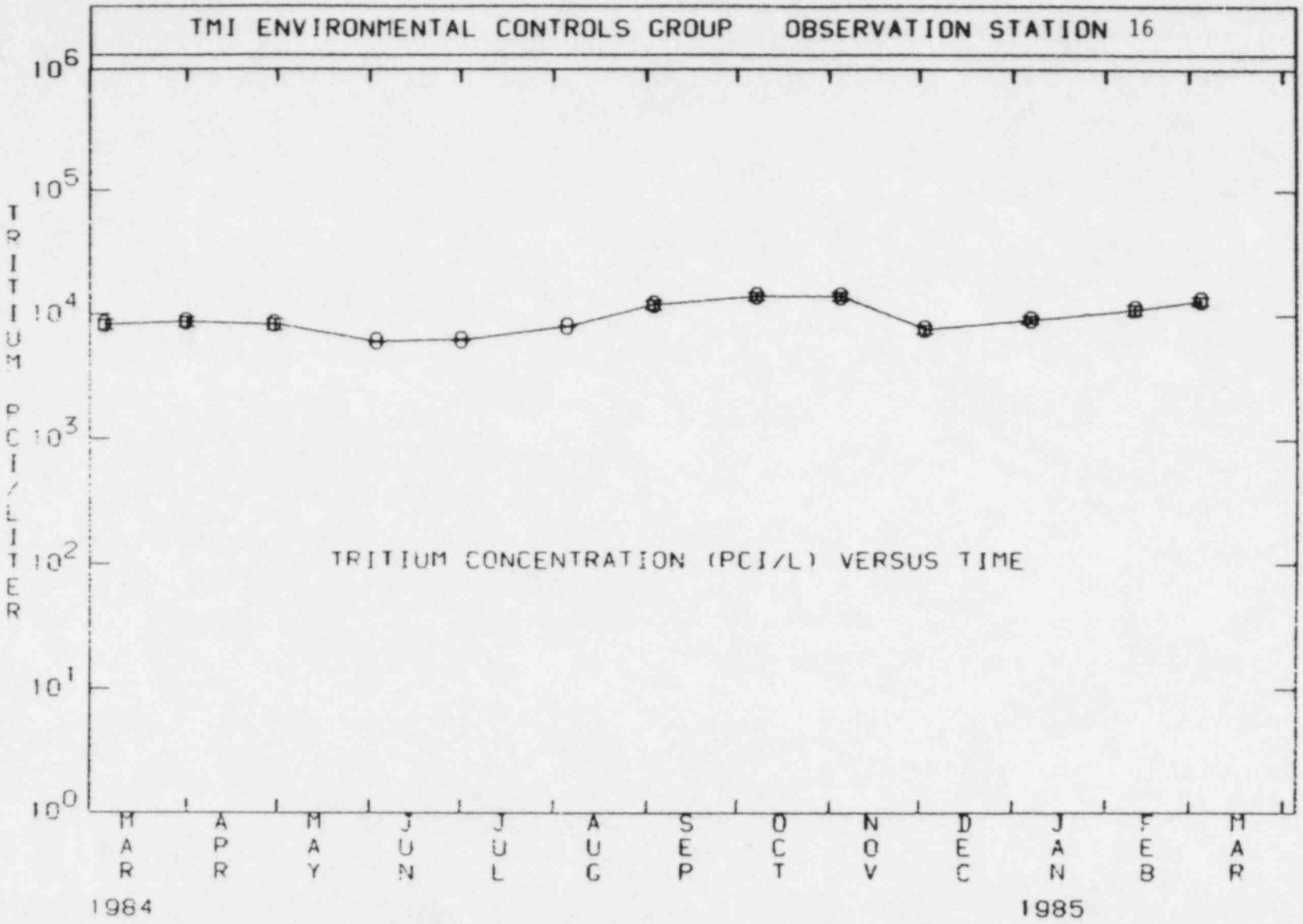
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TRITIUM CONCENTRATION (PCI/L) VERSUS TIME
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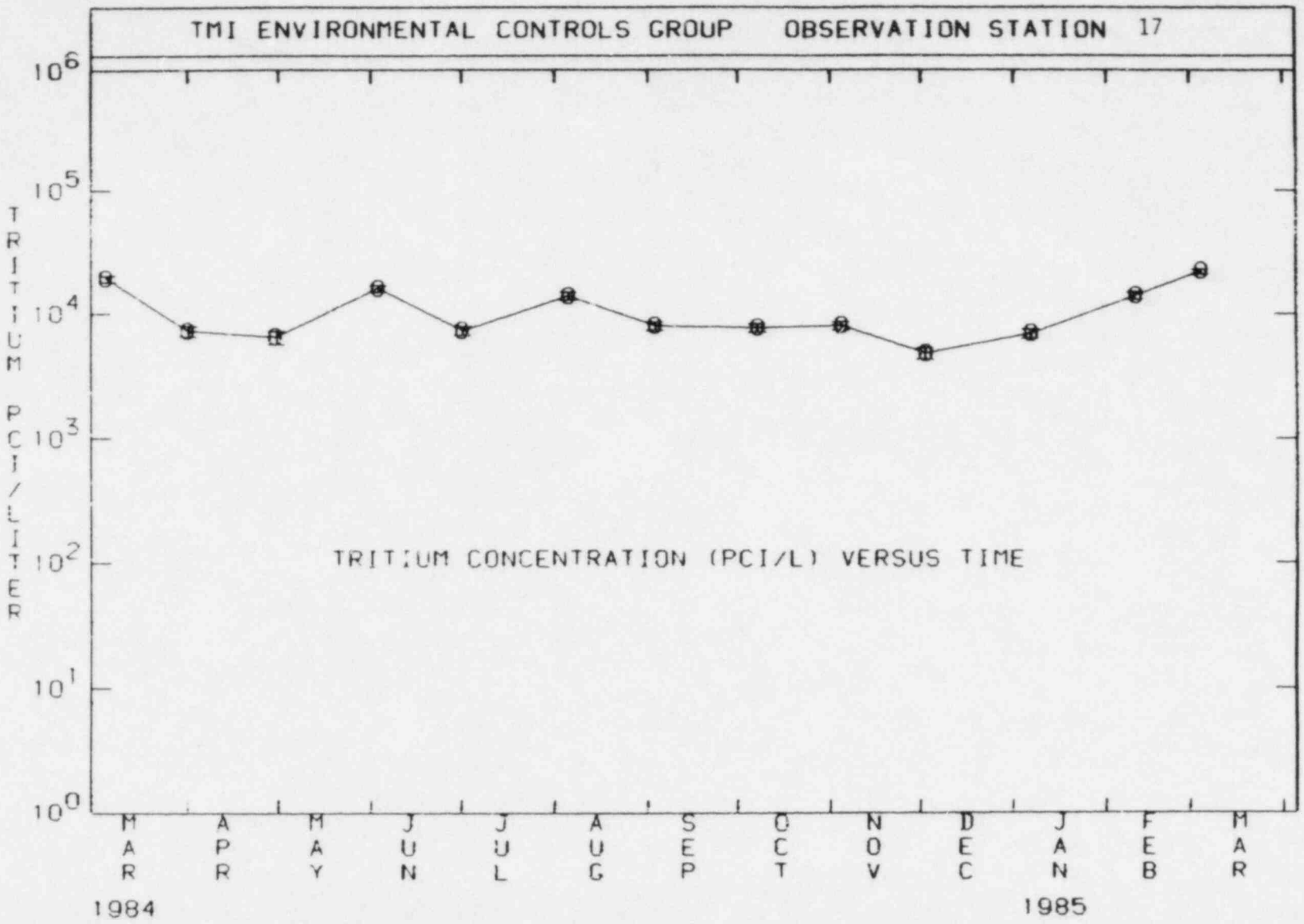
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TRITIUM PCI/LITER
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TRITIUM CONCENTRATION (PCI/L) VERSUS TIME
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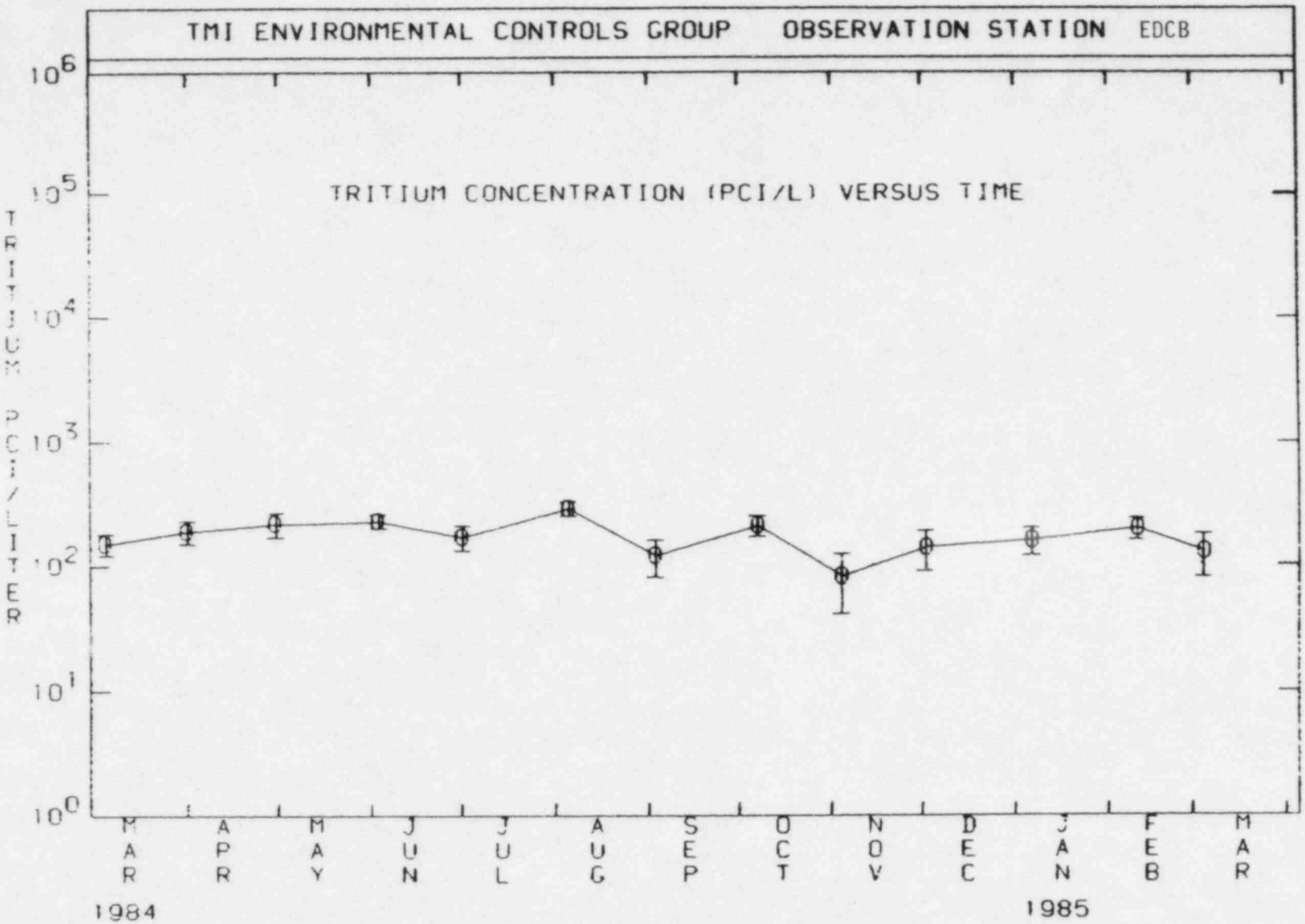
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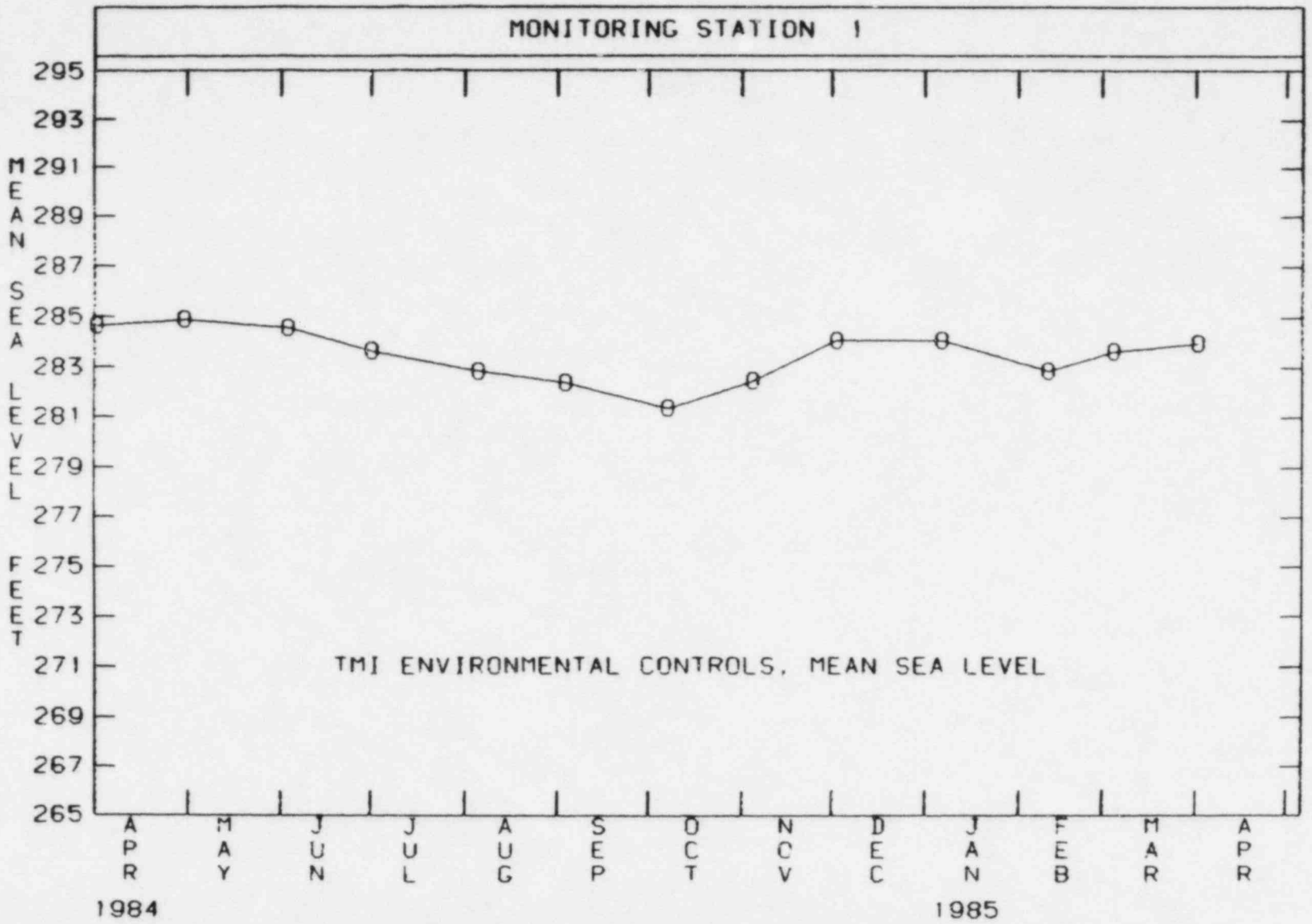
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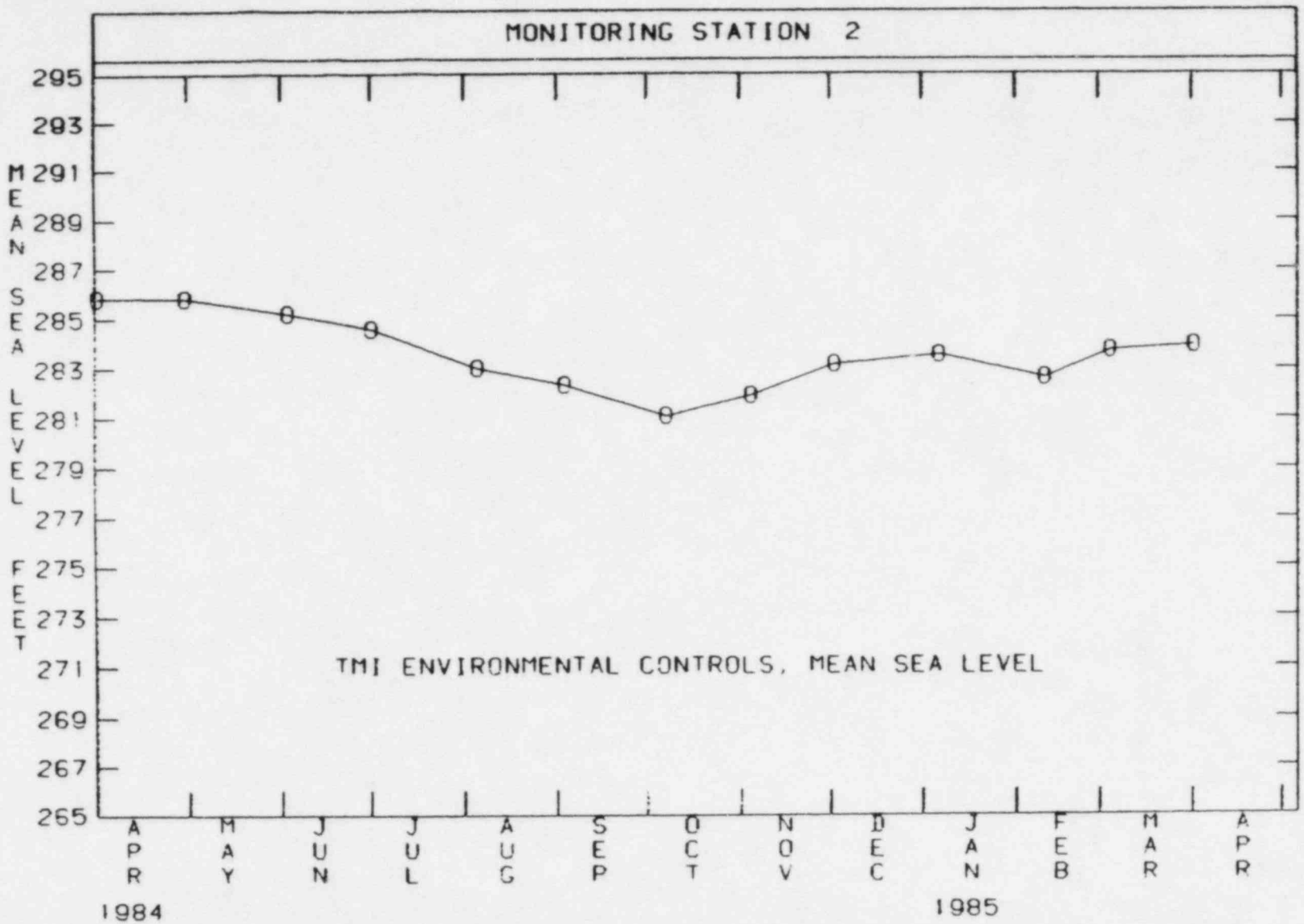
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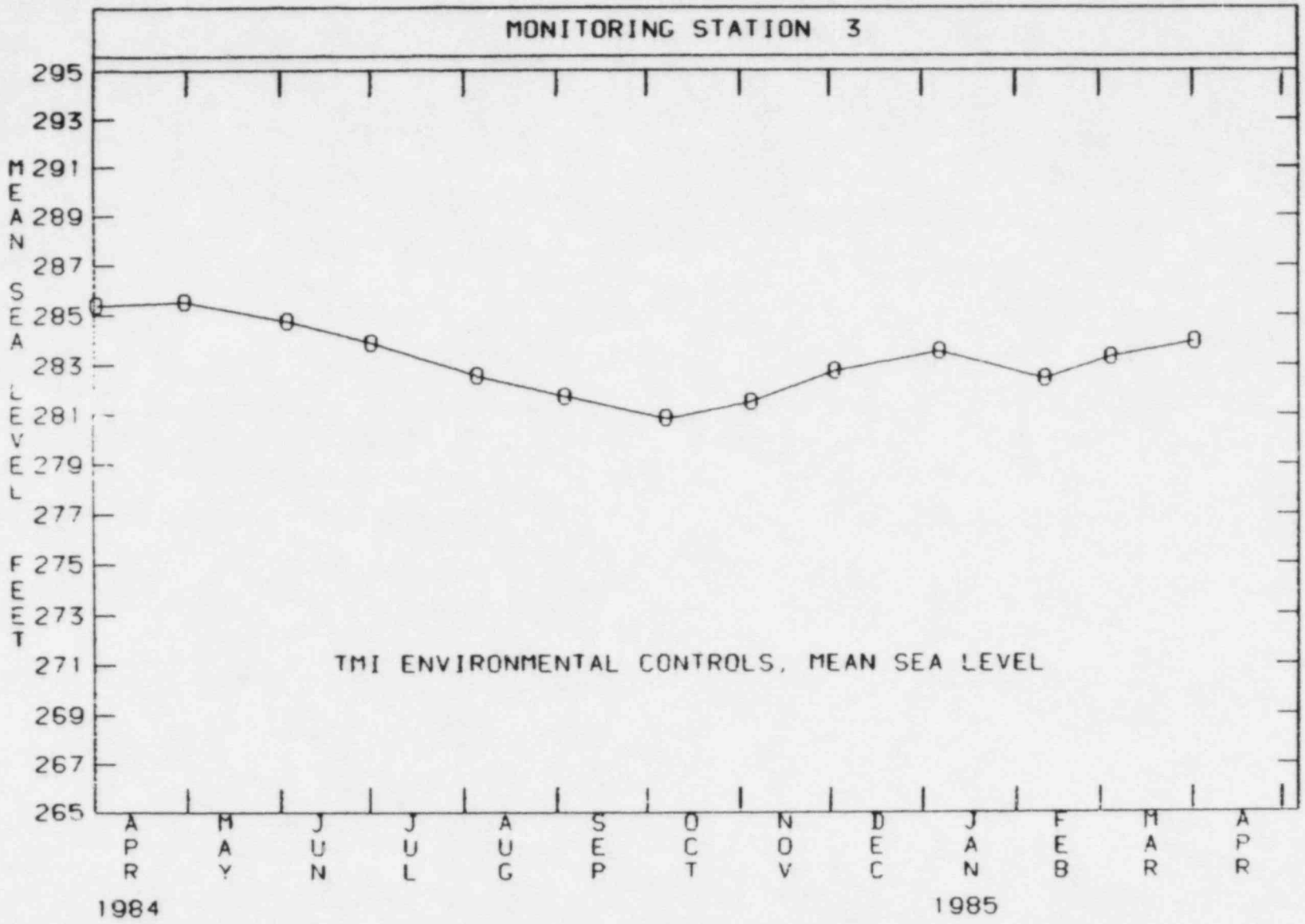
TMI ENVIRONMENTAL CONTROLS, MEAN SEA LEVEL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TMI ENVIRONMENTAL CONTROLS, MEAN SEA LEVEL
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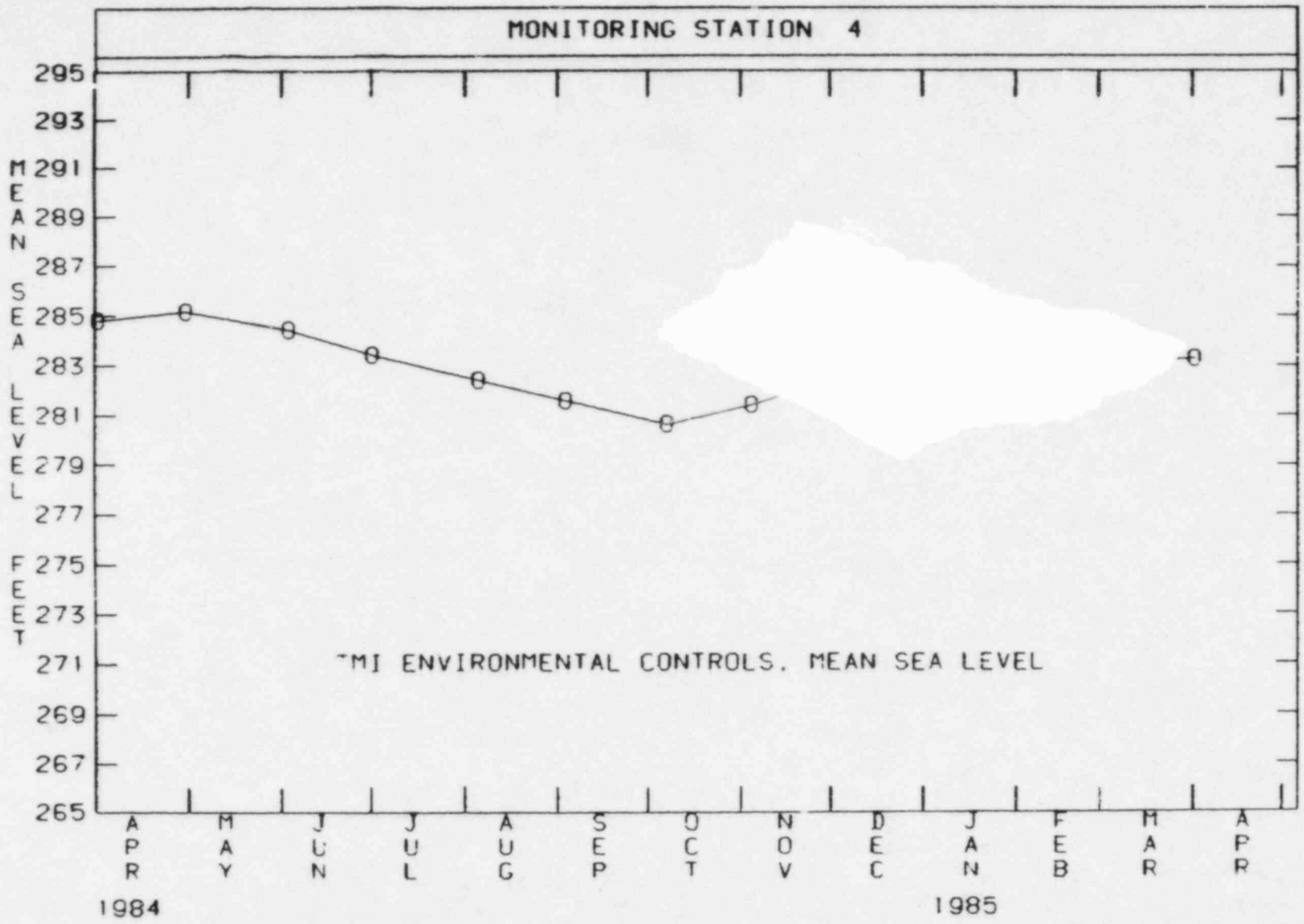
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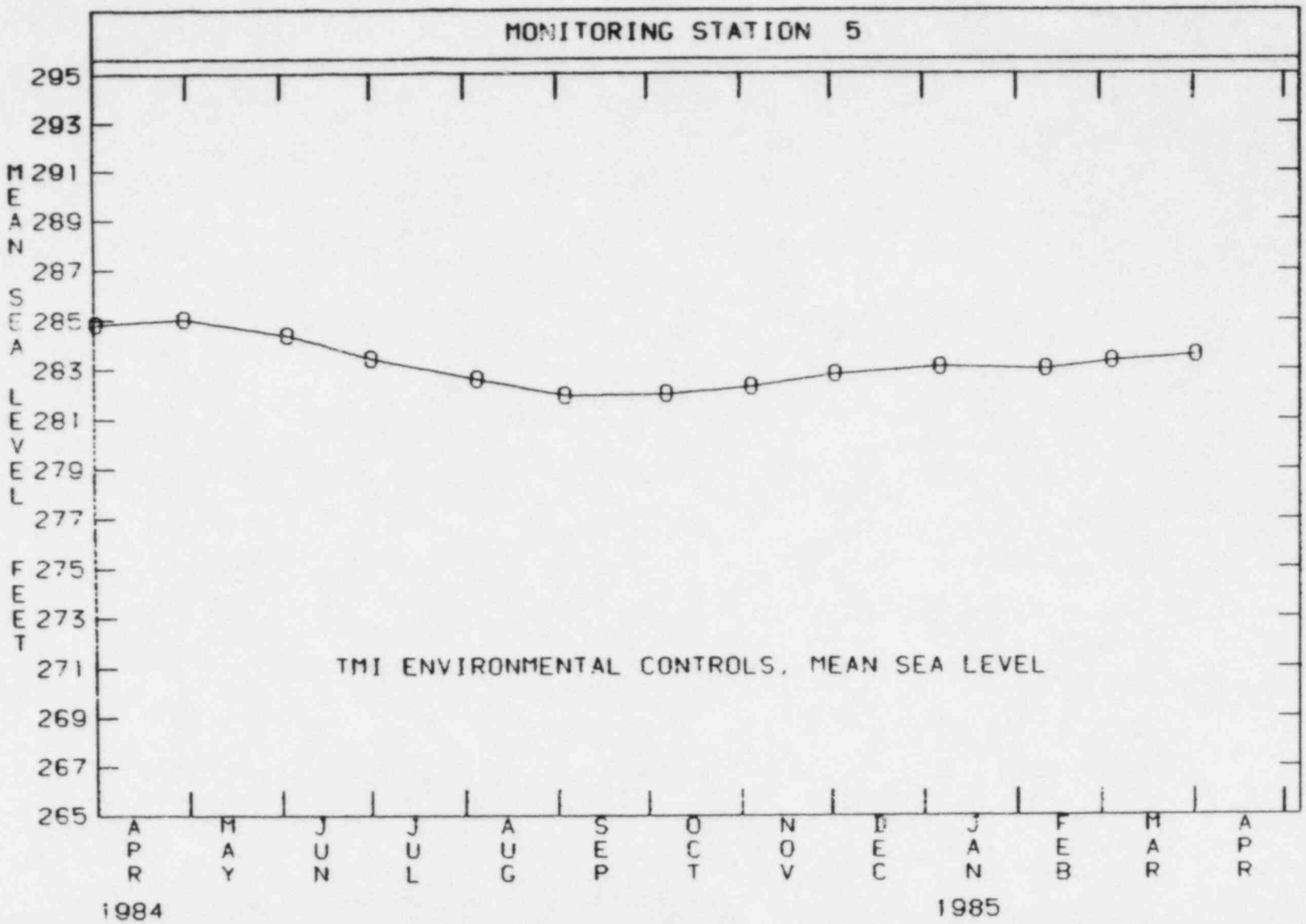
TMI ENVIRONMENTAL CONTROLS. MEAN SEA LEVEL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TMI ENVIRONMENTAL CONTROLS, MEAN SEA LEVEL
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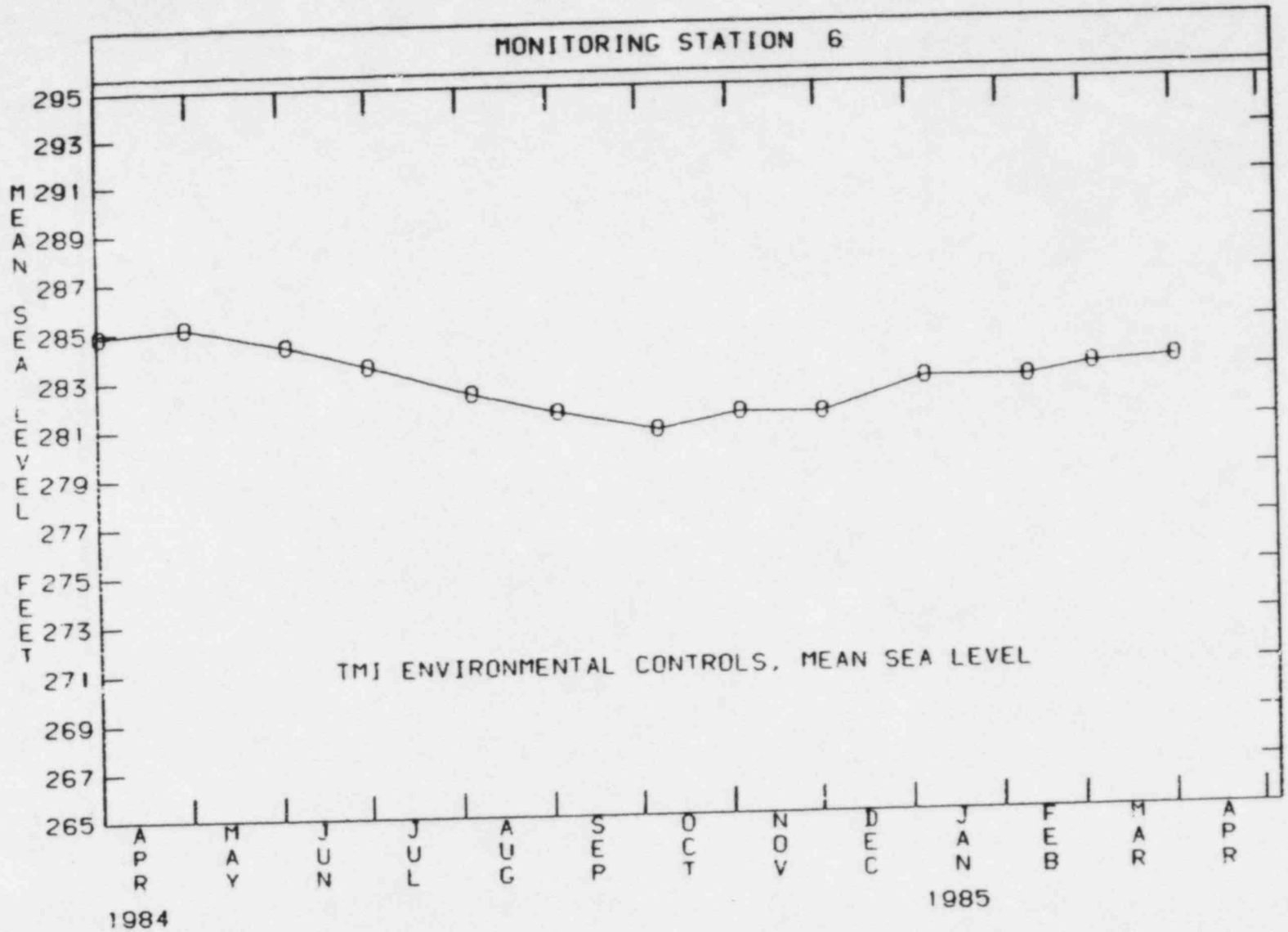
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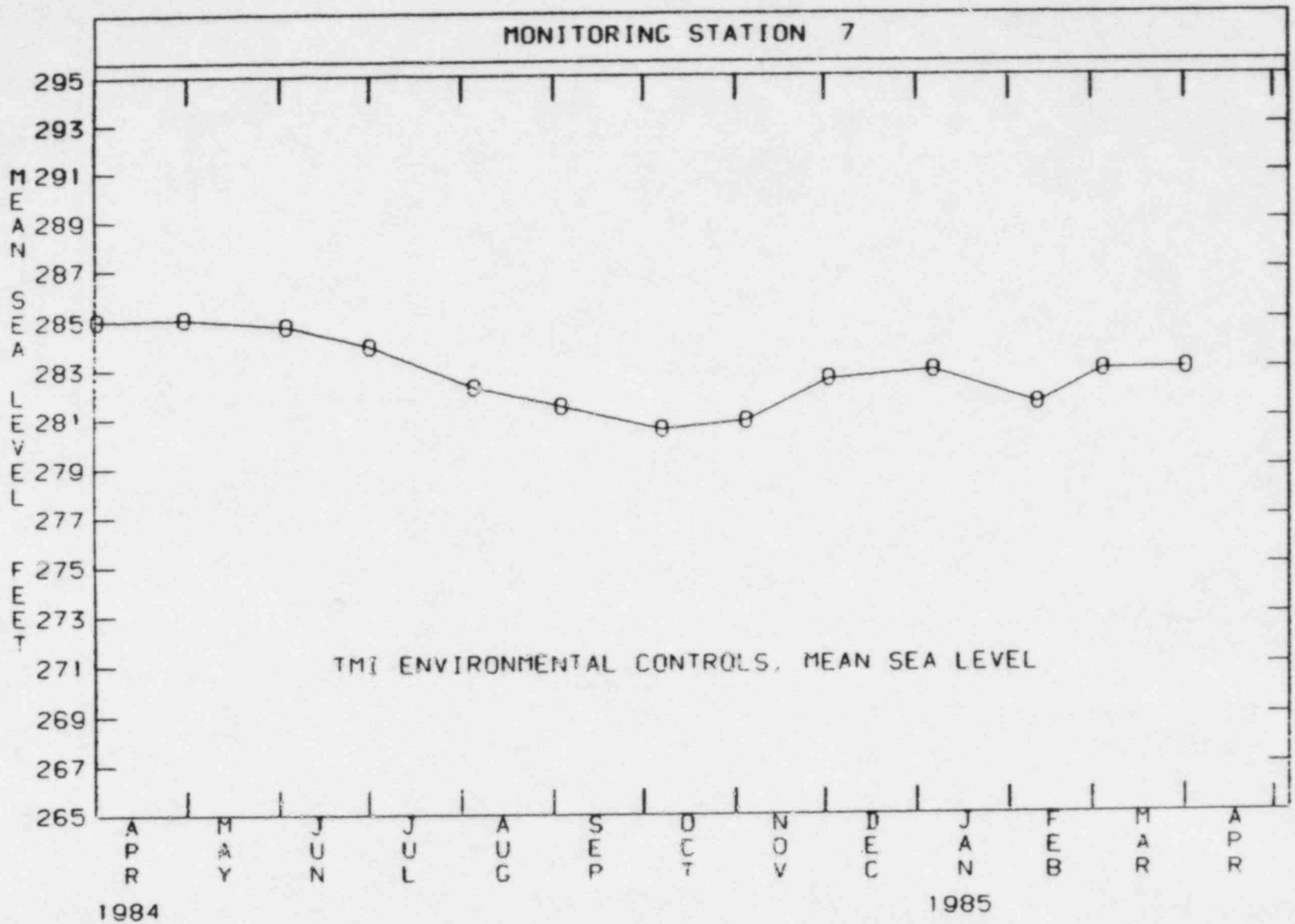
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TMI ENVIRONMENTAL CONTROLS, MEAN SEA LEVEL
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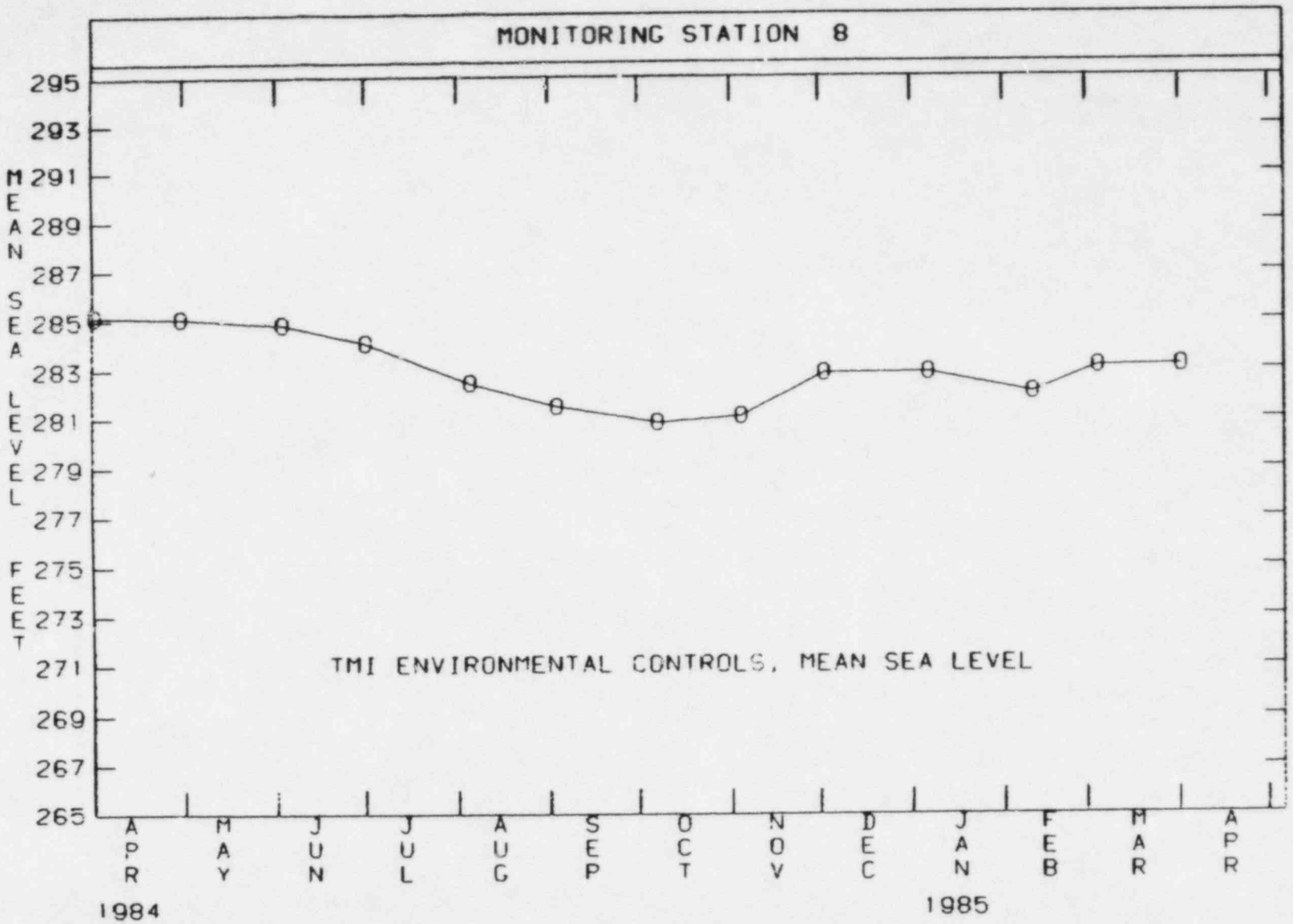
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TMI ENVIRONMENTAL CONTROLS, MEAN SEA LEVEL
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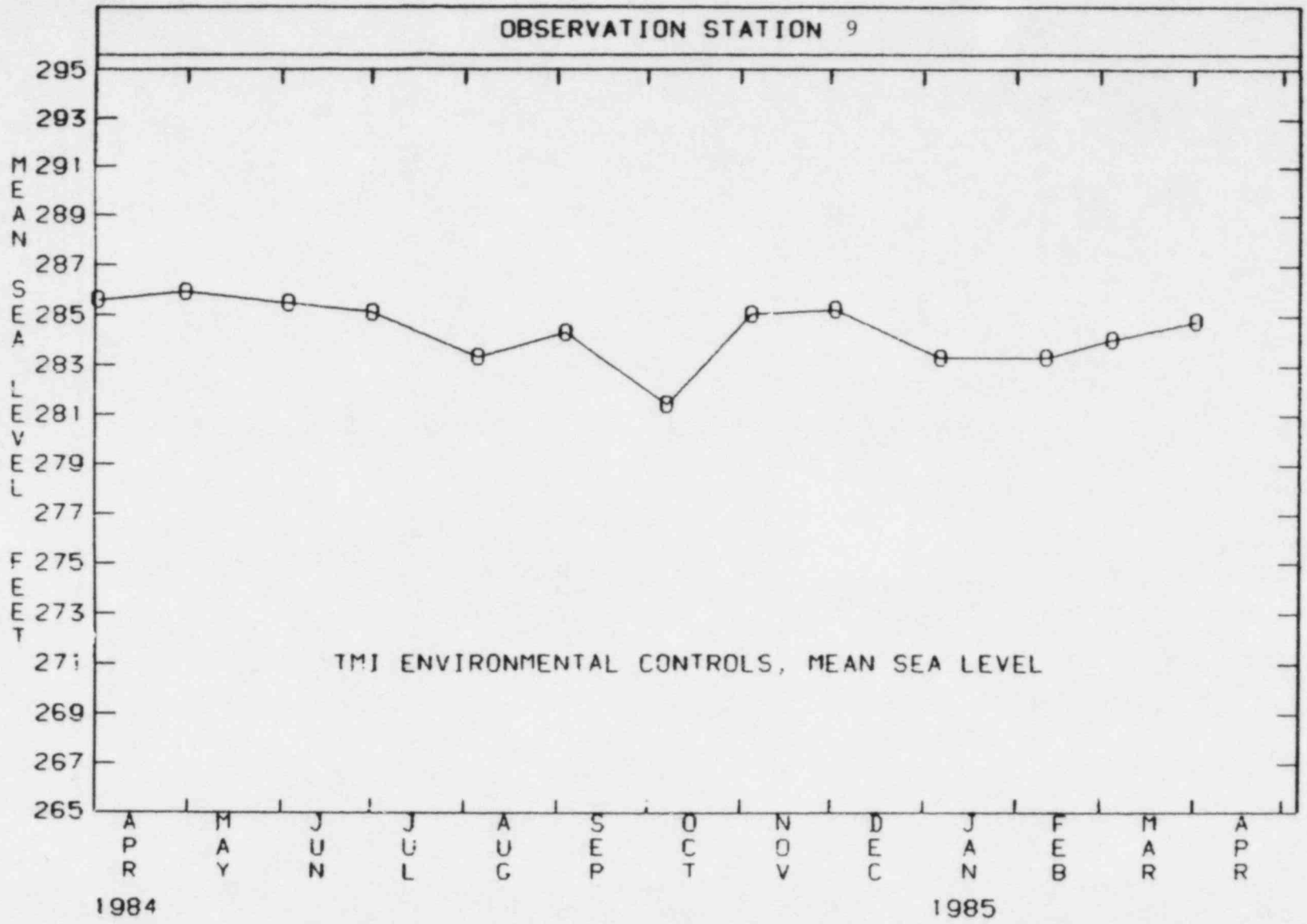
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TMI ENVIRONMENTAL CONTROLS, MEAN SEA LEVEL
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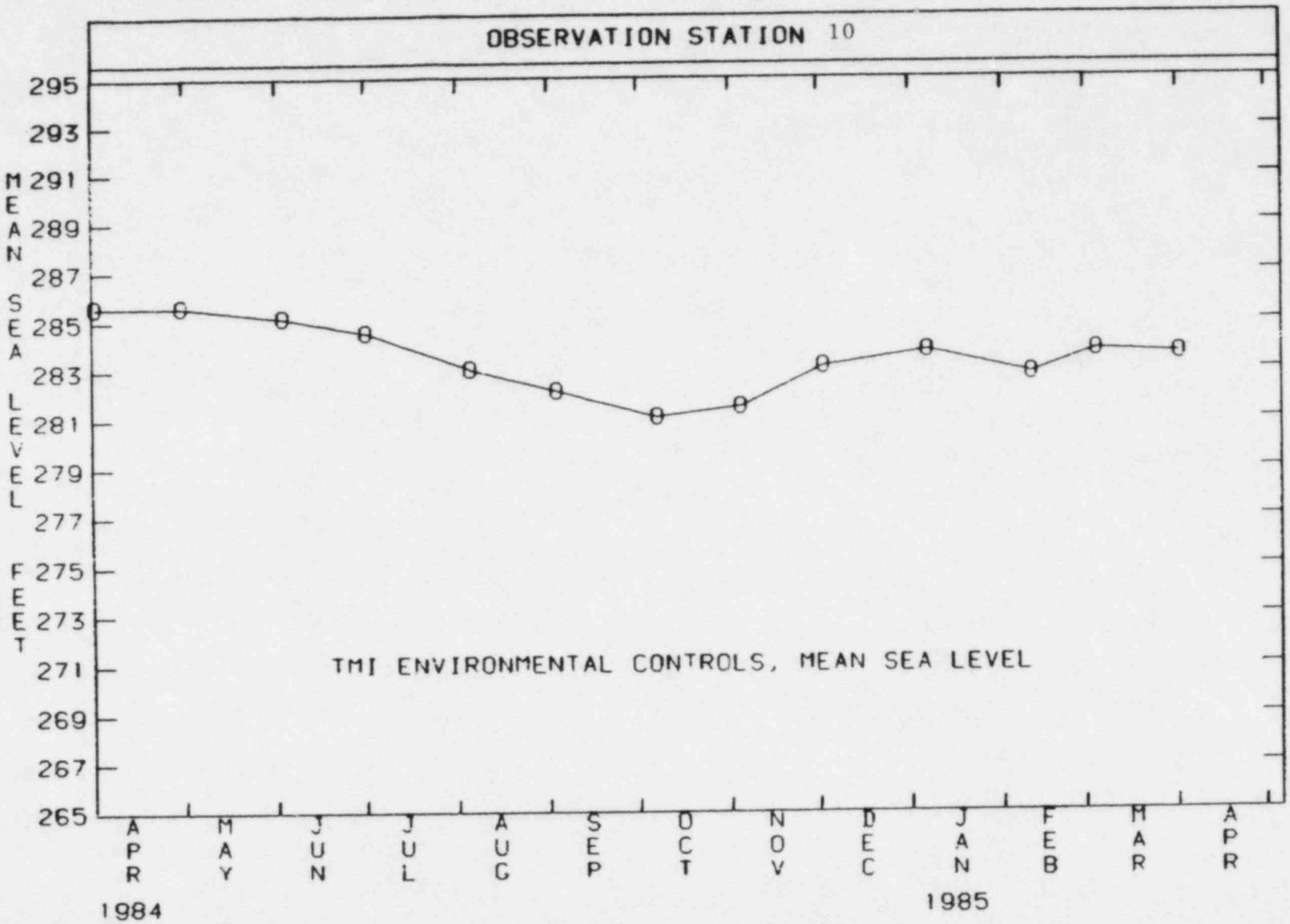
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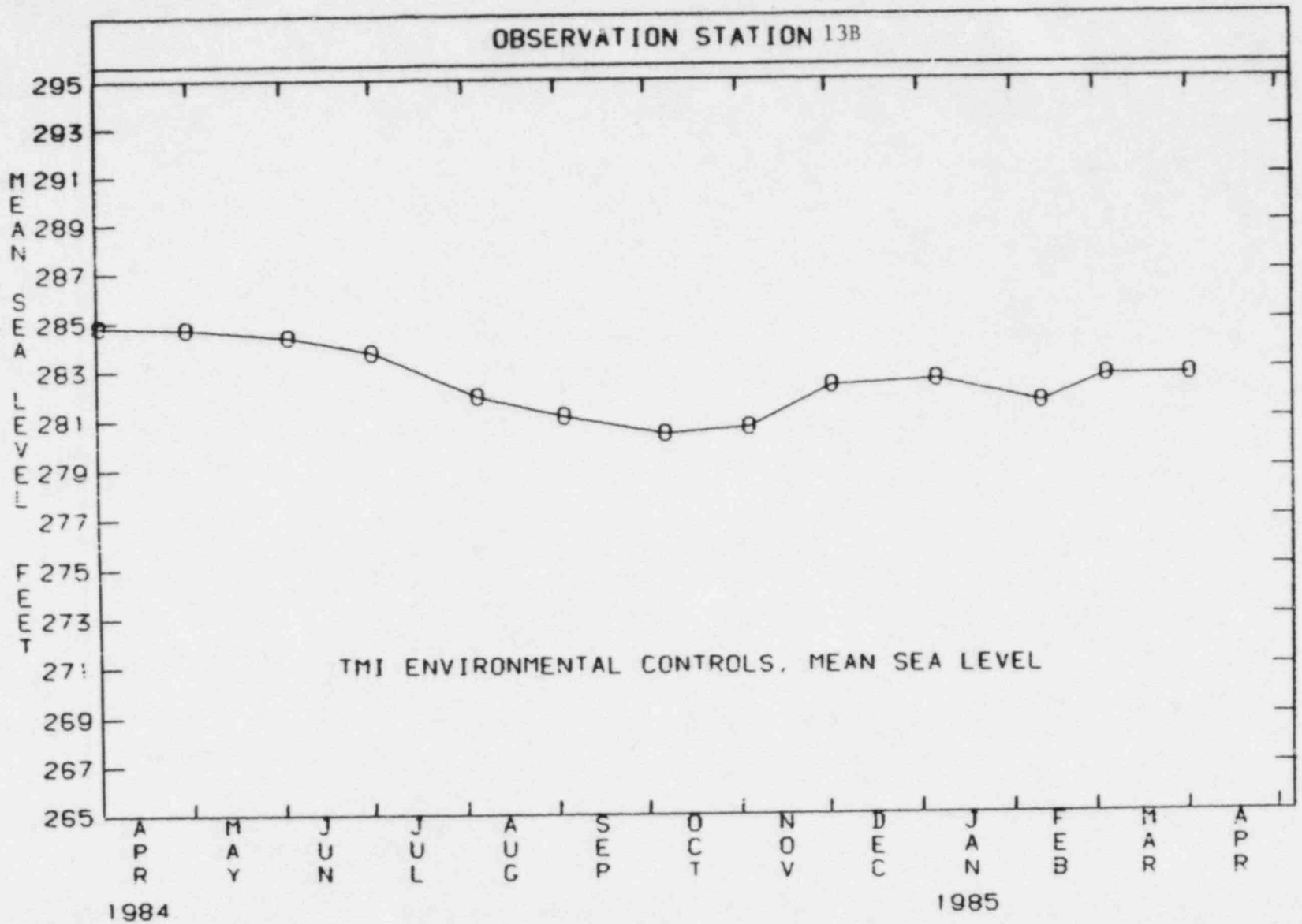
TMI ENVIRONMENTAL CONTROLS, MEAN SEA LEVEL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TMI ENVIRONMENTAL CONTROLS, MEAN SEA LEVEL
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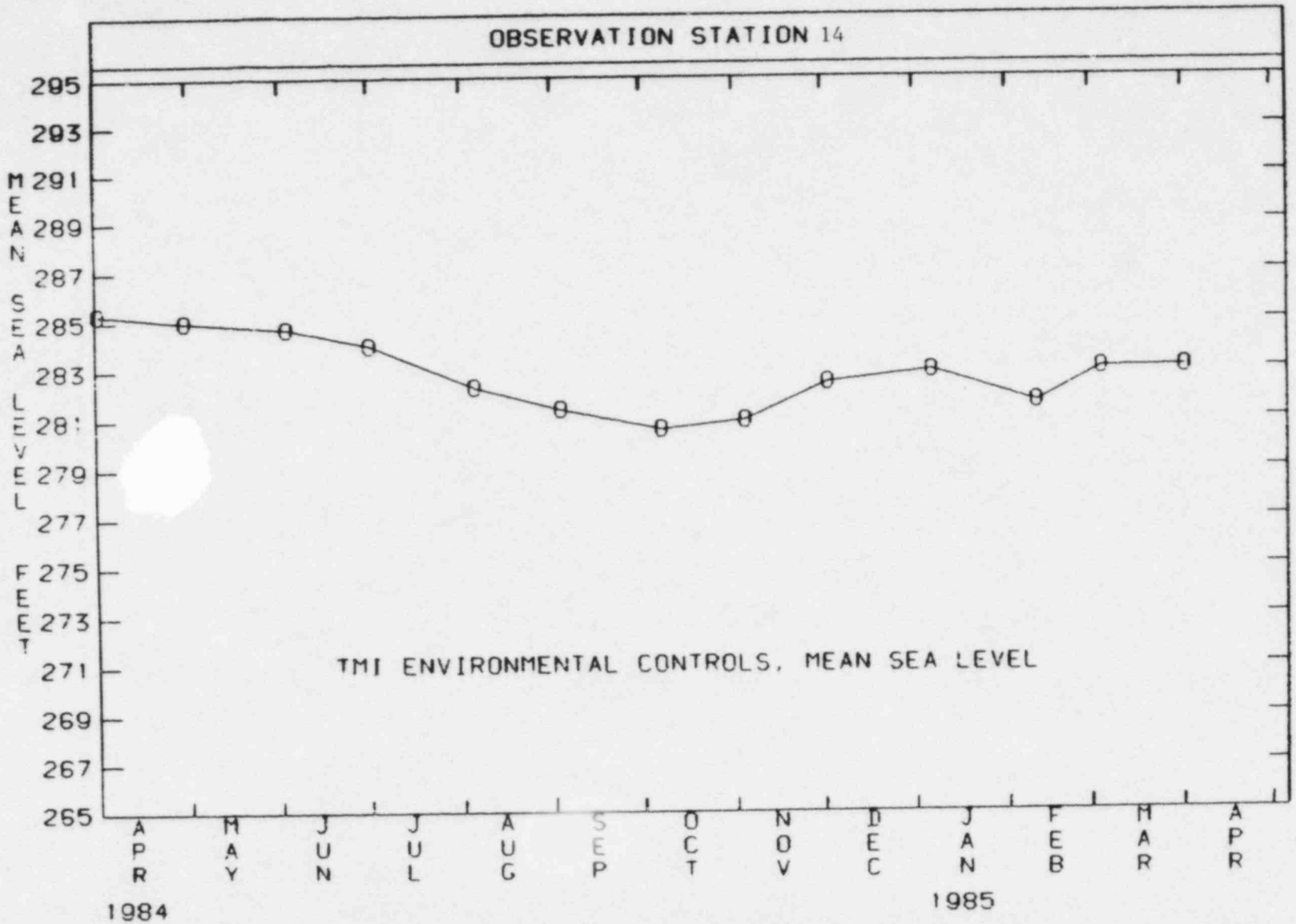
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TMI ENVIRONMENTAL CONTROLS, MEAN SEA LEVEL
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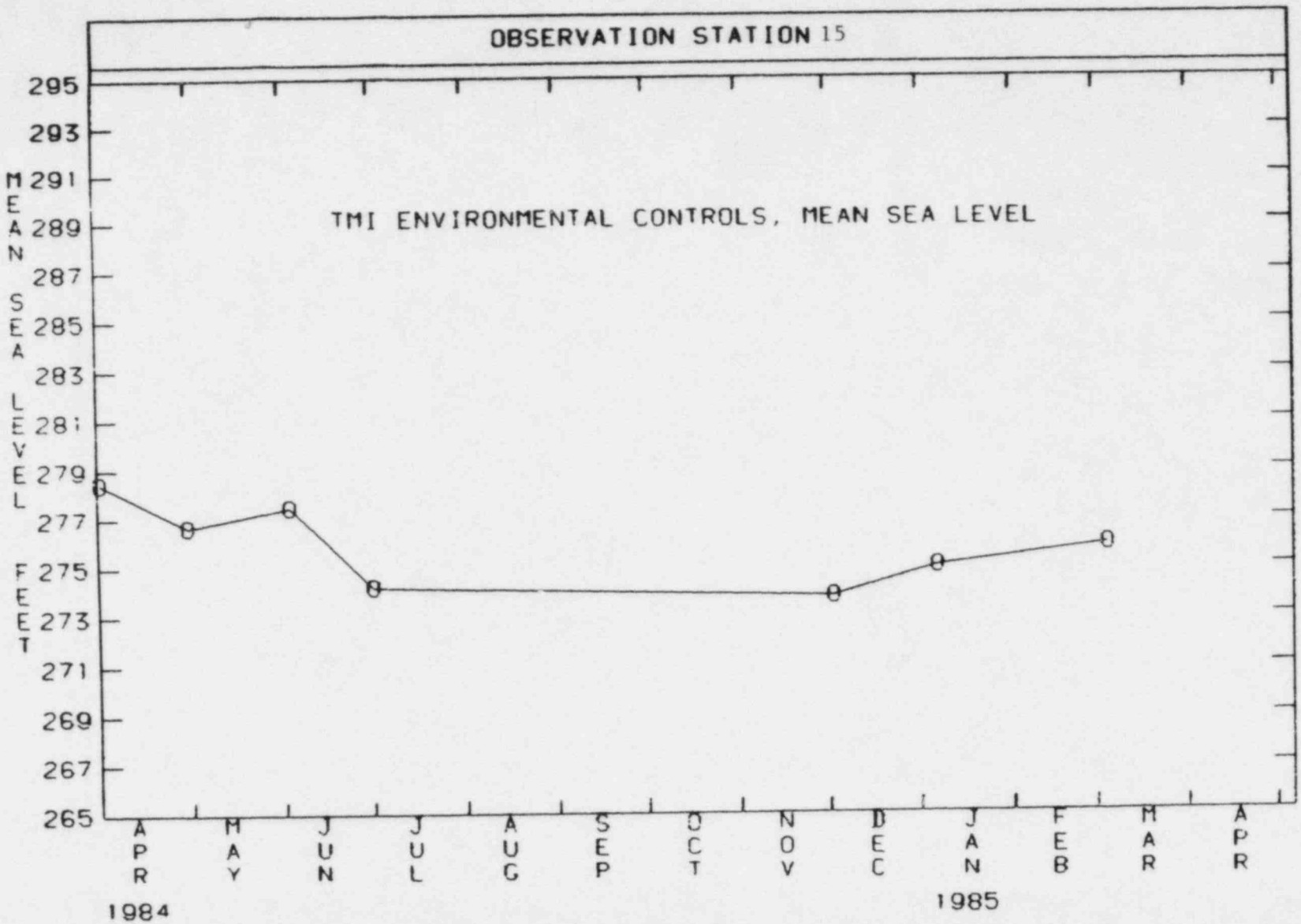
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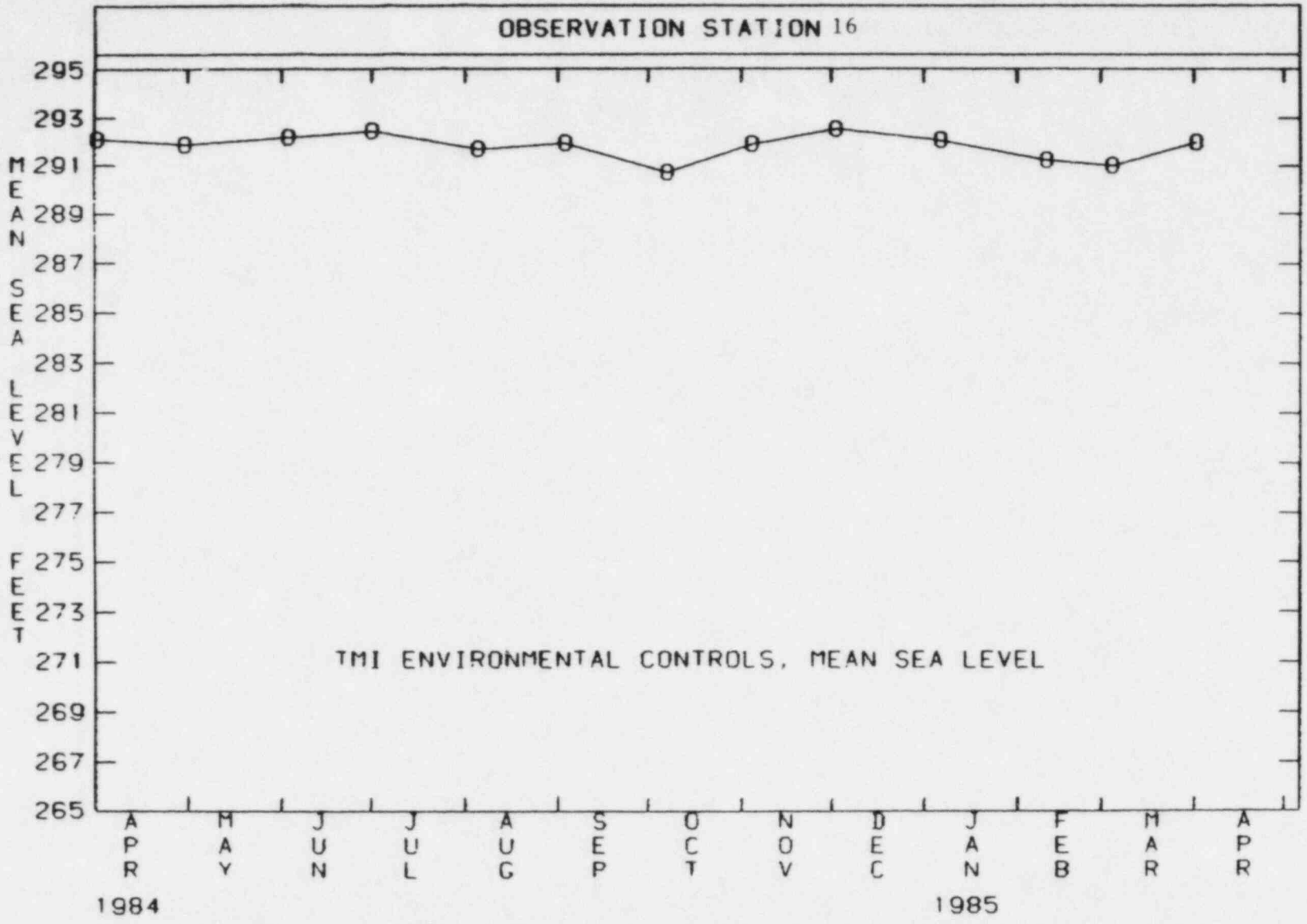
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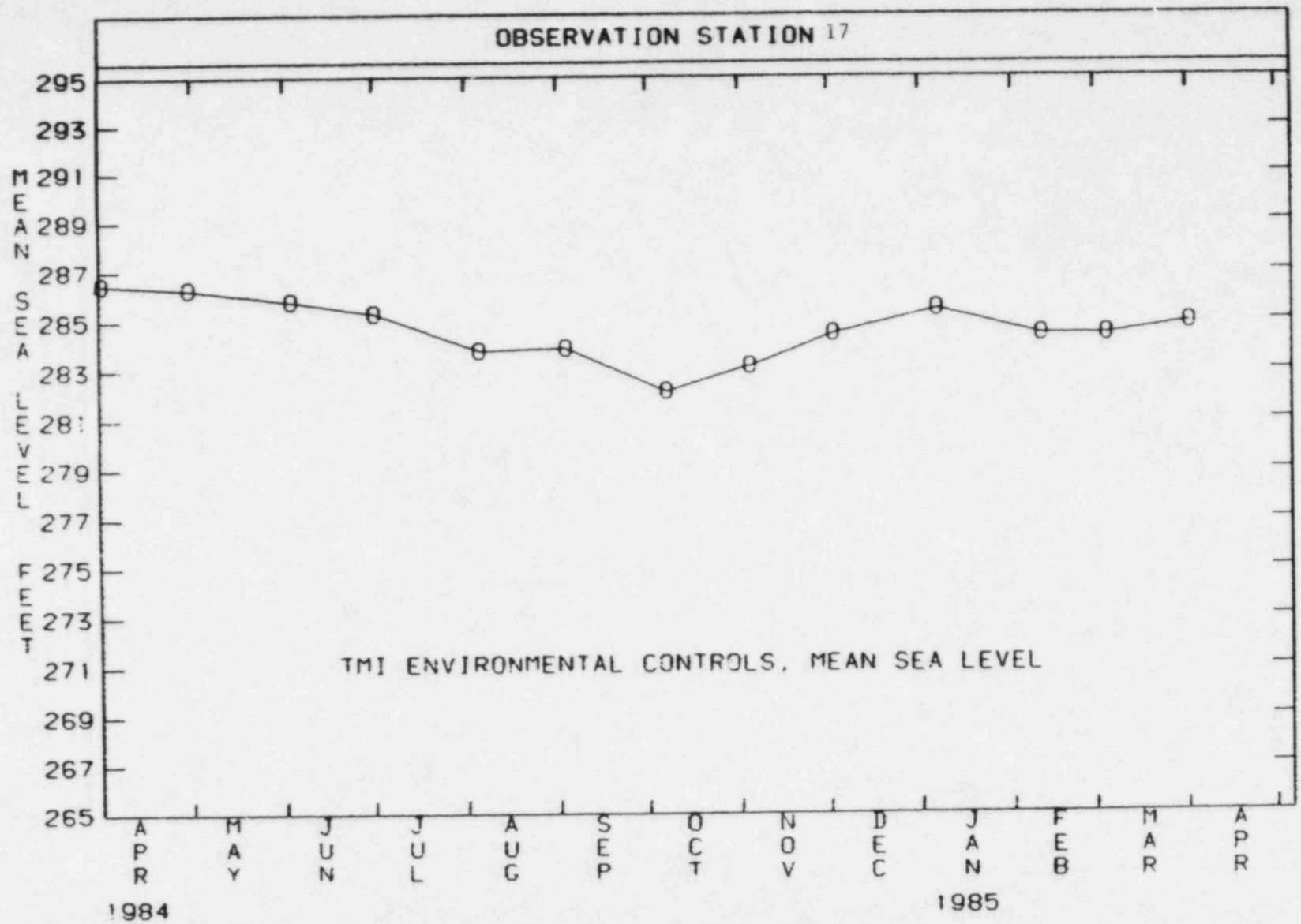
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TMI ENVIRONMENTAL CONTROLS, MEAN SEA LEVEL
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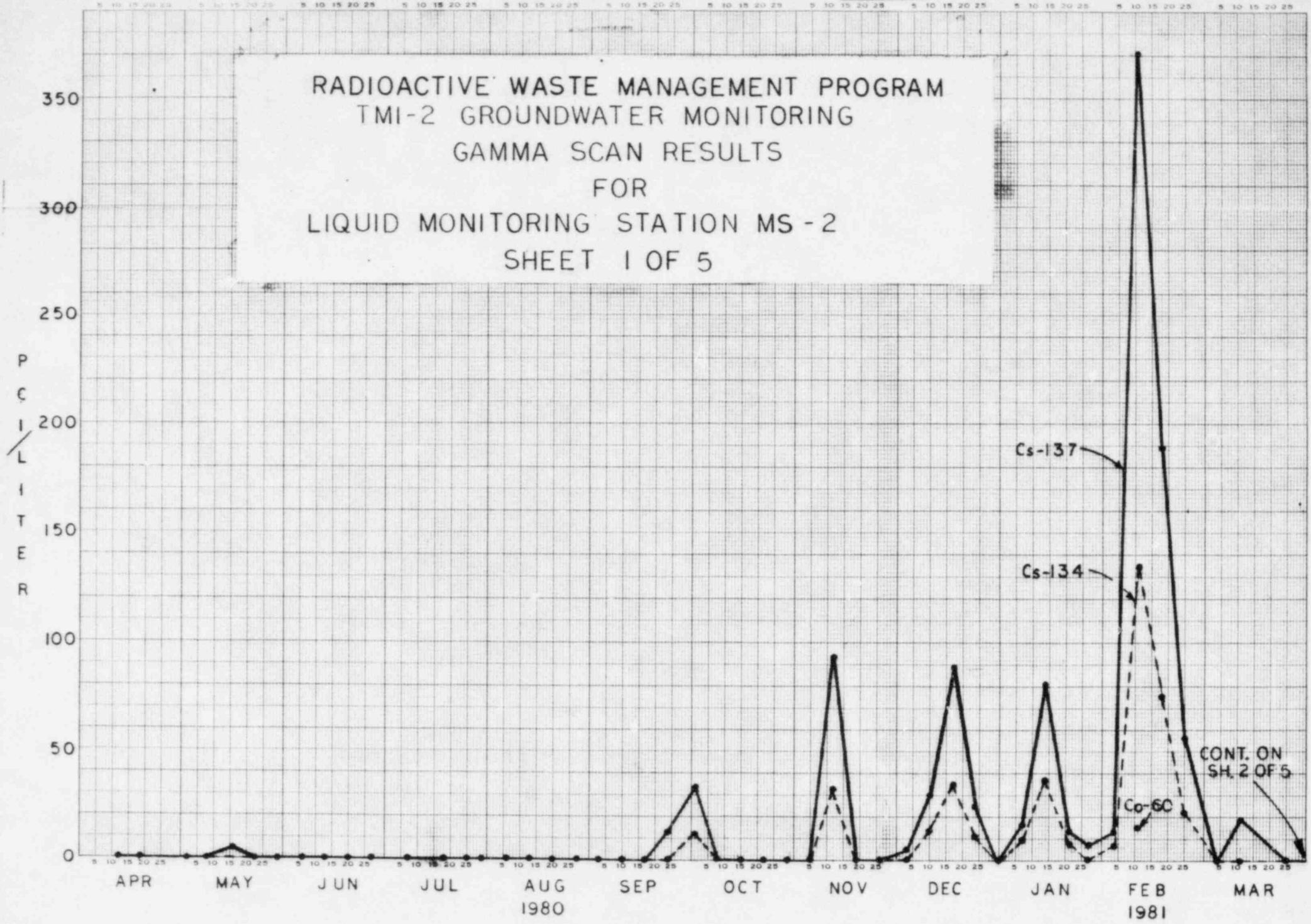
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GAMMA SCAN RESULTS
FOR
LIQUID MONITORING STATION MS-2
SHEET 1 OF 5
PCI/LITER
350
300
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150
100
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Cs-137
Cs-134
Co-60
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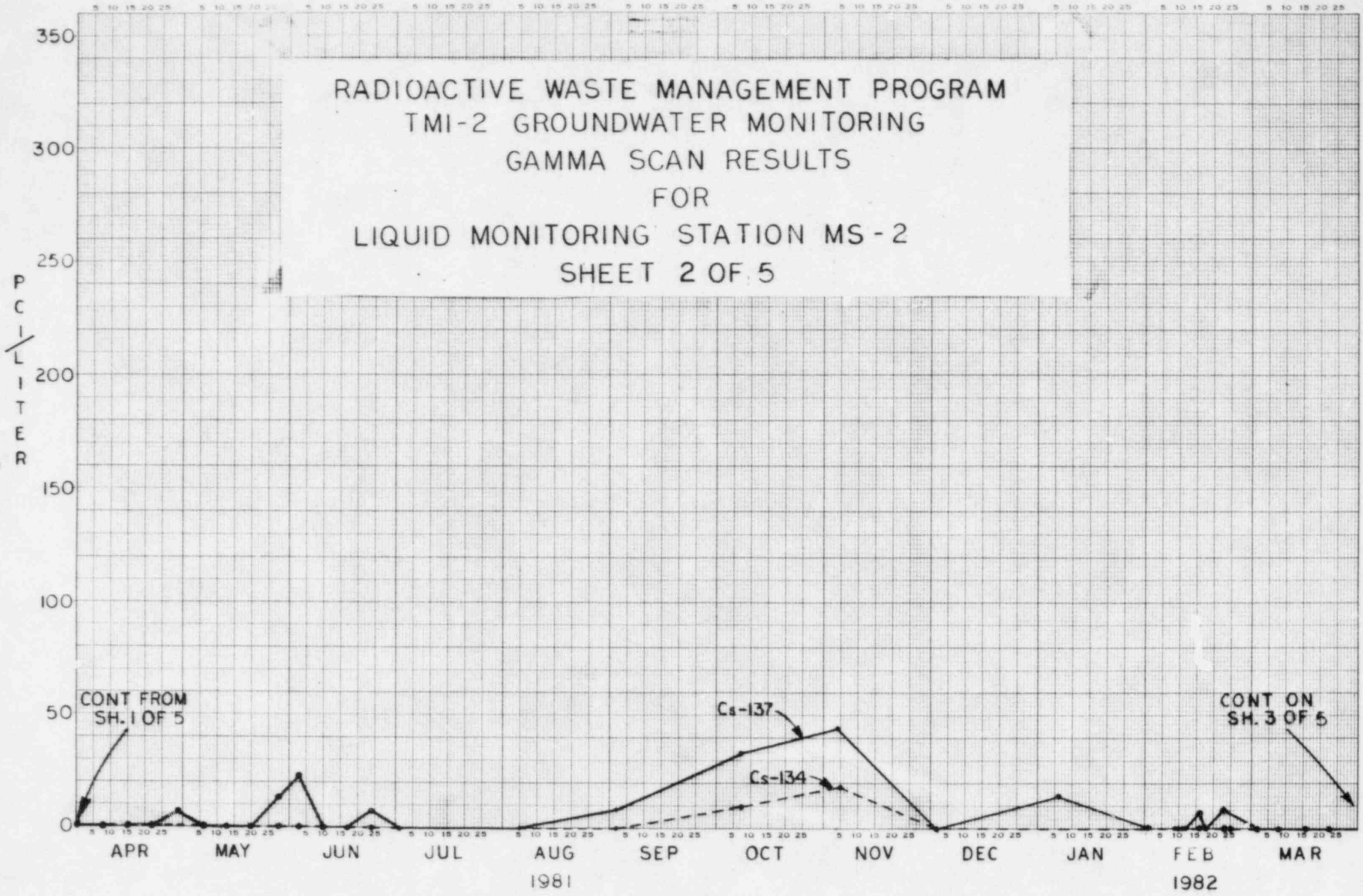
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PCI/LITER
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CONT FROM SH. 1 OF 5
Cs-137
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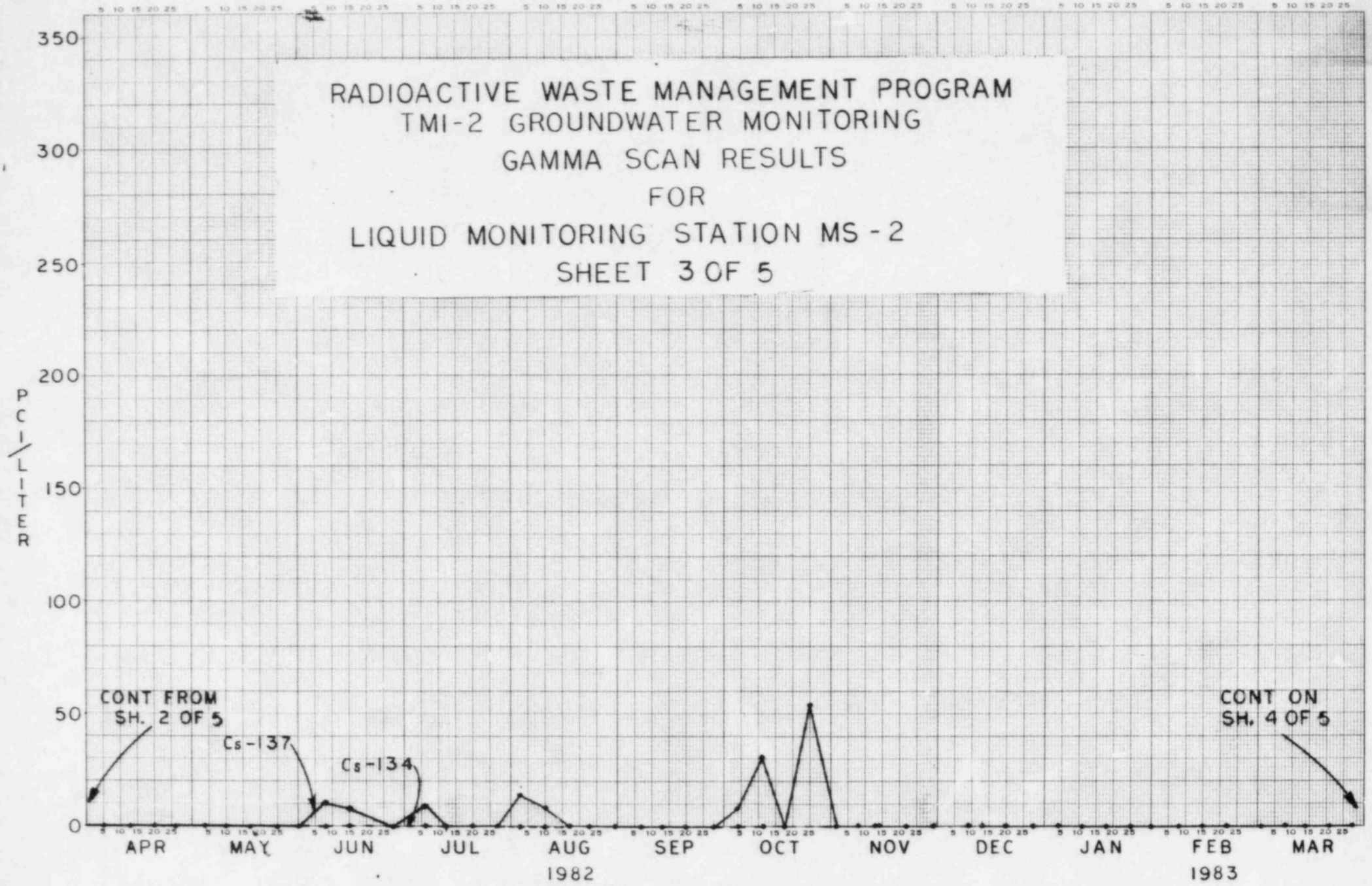
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350
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PCI/LITER
CONT FROM SH. 2 OF 5
Cs-137
Cs-134
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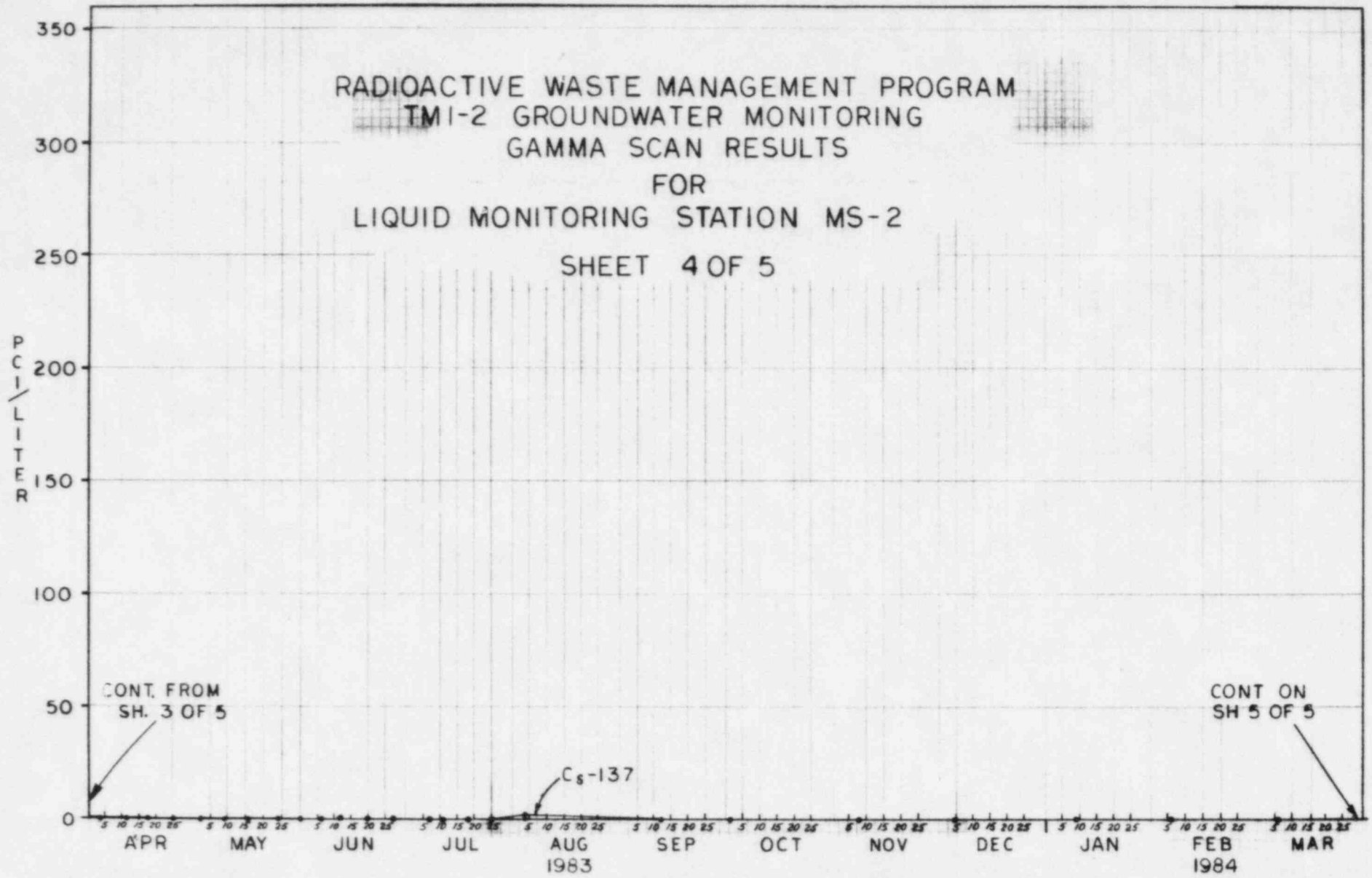
RADIOACTIVE WASTE MANAGEMENT PROGRAM
TMI-2 GROUNDWATER MONITORING
GAMMA SCAN RESULTS
FOR
LIQUID MONITORING STATION MS-2
SHEET 4 OF 5
PCI/LITER
350
300
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CONT. FROM SH. 3 OF 5
Cs-137
CONT ON SH 5 OF 5
APR
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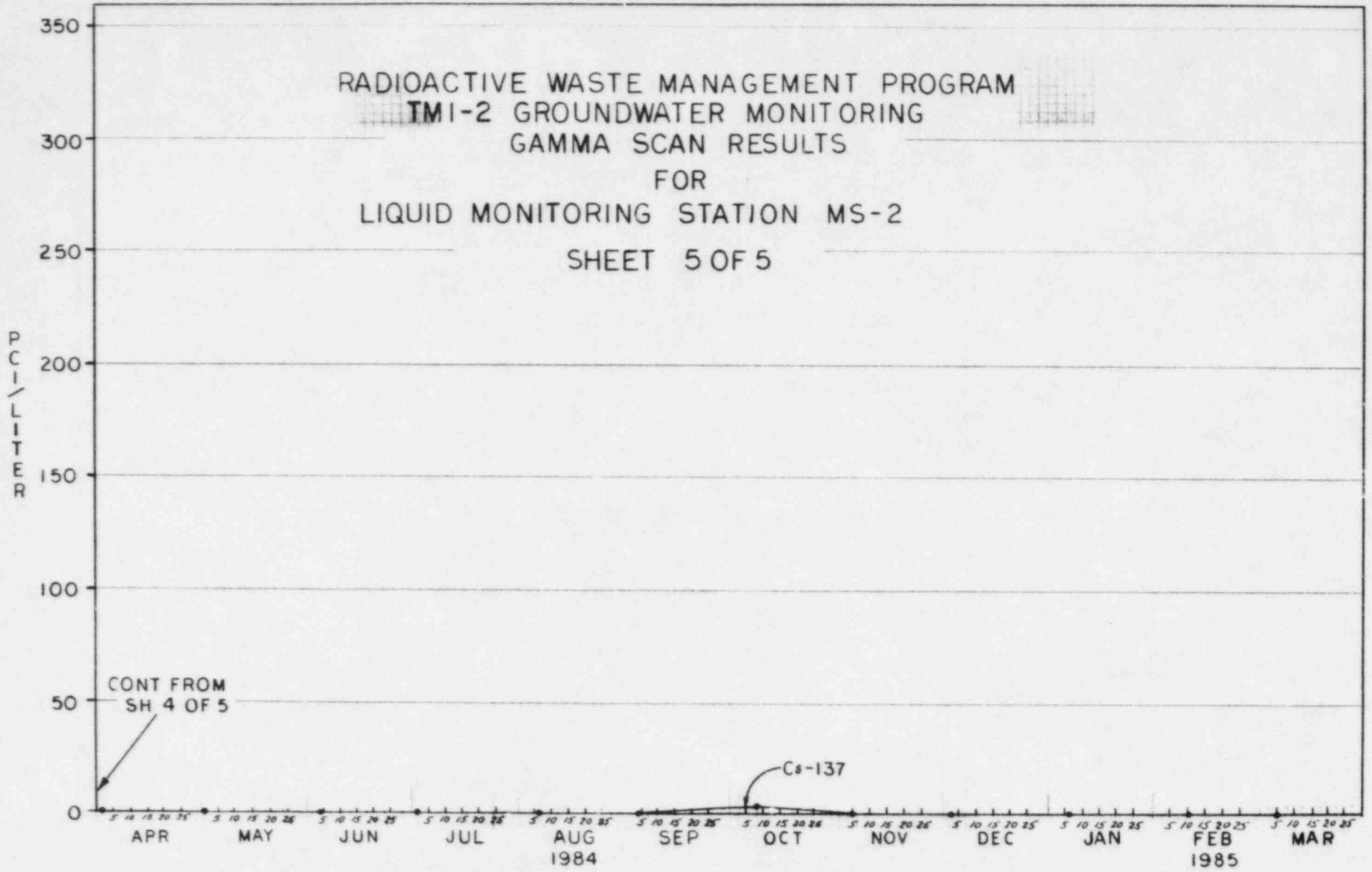
RADIOACTIVE WASTE MANAGEMENT PROGRAM
TMI-2 GROUNDWATER MONITORING
GAMMA SCAN RESULTS
FOR
LIQUID MONITORING STATION MS-2
SHEET 5 OF 5
PCI/LITER
350
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CONT FROM SH 4 OF 5
Cs-137
APR
MAY
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1984
SEP
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JAN
FEB
1985
MAR

TABLE 1

Tritium Concentrations (pCi/l)*

	Station		
Date of Sample	MS-2	OS-16	OS-17
04/02/85	<4100	+	19000 ± 2500[1] 22000 ± 2800[2]
04/09/85	**	**	26000 ± 2900
04/15/85	<5300[Δ]	<13000[Δ]	20000 ± 3300
04/23/85	<4400	14000 ± 2400	21000 ± 2600
04/30/85	4800 ± 1900	15000 ± 2400	19000 ± 2600

*Unit 2 Chemistry Results
1 - 1st analysis
2 - 2nd analysis
Δ - small sample volume
** - no sample taken
+ - only sufficient sample for environmental laboratory