

July 1, 1983
NRC/TMI-83-040

MEMORANDUM FOR: Harold R. Denton, Director
Office of Nuclear Reactor Regulation
Bernard J. Snyder, Program Director
TMI Program Office

FROM: Lake H. Barrett, Deputy Program Director
TMI Program Office

SUBJECT: NRC TMI PROGRAM OFFICE WEEKLY STATUS REPORT FOR
June 26 - July 1, 1983

Data from effluent and environmental monitoring systems indicated no plant releases in excess of regulatory limits. Waste shipments and water processing tasks continued on a routine basis. Plant parameters showed no significant changes. General clean-up and preparations for headlift continued.

Major activities this week were ongoing surfaces and drain decontamination in the Auxiliary Building, continued decon facility construction, "A" spent fuel pool refurbishment, procedure review and continued followup of polar crane issues. Three Reactor Building entries supported miscellaneous tasks. (For more details see appropriate paragraphs below.)

Significant items included in the enclosure are:

- Auxiliary and Fuel Handling Activities
- Reactor Building Activities
- Polar Crane Status
- Defueling Preparation Activities
- Waste Management Activities
- TMI Occupational Exposures
- Groundwater Monitoring
- Schedule of Future Activities
- Public Meetings

Data summary sheets included in this report are:

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-- Liquid Effluents
-- Environmental Data
-- Radioactive Material/Radwaste Shipment Data
-- Water Processing Data
-- Plant Status Data
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Lake H. Barrett  
Deputy Program Director  
TMI Program Office

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Enclosure: As stated

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| OFFICE  | Enclosure: As stated |  |  |  |  |  |  |  |  |  |
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| DATE    |                      |  |  |  |  |  |  |  |  |  |

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| DATE    | 7/1/83            | 7/1/83          | 7/1/83          | 7/1/83          |  |  |  |

## ENCLOSURE

### AUXILIARY AND FUEL HANDLING BUILDING ACTIVITIES:

The major ongoing activity in the Auxiliary and Fuel Handling Buildings (AFHB) continues to be the decontamination of the 282' elevation. The scabbling activity is now centering on individual cubicles and the south corridor. Most large open areas are completed. No remote decontamination was performed this week using "Fred" (robot, see Weekly Status Report dated May 23, 1983). Fred has been in the process of being repaired and is to be returned to service next week. Cleaning of the Auxiliary and Fuel Handling Building floor drains continued this week.

Results of the chemical decontamination experiment using sulfamic acid and 10%, 30% and 50% concentrations of phosphoric acid on steel indicated a poor decontamination efficiency on heavily rusted, pitted surfaces. This week test on stainless steel surfaces established that a 10% phosphoric acid mixture was as effective as other more corrosive chemicals and would therefore be the choice for general chemical decontamination tasks on stainless steel. Further tests and evaluations are scheduled for the next few weeks.

Routine trash compaction and tool separation/decontamination continued in support of other tasks and activities presently in progress.

Work on the fuel handling crane rails was completed this week.

### REACTOR BUILDING ACTIVITIES:

Three of the four Reactor Building entries scheduled for the week of June 26, 1983, were completed. LOCA duct decontamination was the most man-hour intensive activity inside containment during the week. Additionally, the head lift tripod welds were examined several times (see paragraph below) and snubbers were inspected. Four reactor building entries are scheduled for the week of July 3, 1983.

Other activities included decontamination of the air coolers and the seal plates, an incontainment photograph survey walkdown and routine housekeeping tasks.

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### POLAR CRANE STATUS:

The NRC continues to review Reactor Building 5-ton hoist procedures for miscellaneous tasks in containment. Addendum 1 to the Polar Crane Load Test Safety Evaluation Report (SER), dated June 17, 1983, was received by the staff for review and approval. The Load Test Procedure for the Polar Crane was also received by the staff on June 20, 1983, for approval. It is anticipated that the Load Test Procedure and Operating Procedure will not be formally approved by the staff until the NRC approves the licensee's SER. None of the above approvals will occur until the NRC's Office of Investigation's review of the polar crane safety and quality assurance allegations is completed.

As previously reported in Weekly Status Reports, the NRC has learned via discussions with GPU staff that welds in the upper area of the tripod are undersized relative to their design specification. The design specification

face dimension of the upper welds is 1-3/16", however, an inspection performed on June 8, 1983, discovered welds as small as 5/8" in dimension. The licensee is currently working on an analysis of the stress capability of the "as found" welds. An NRC evaluation of these results and the need for testing and corrective actions will be completed prior to NRC approval of tripod use.

#### DEFUELING PREPARATION ACTIVITIES:

Refurbishment and preparation of the "A" spent fuel pool for the eventual staging and temporary storage of core fuel and debris continued this week. The upper tank fill and drain flushing process continues to be on hold with 3 feet of water retained in the tanks for shielding purposes. General area radiation levels remain at 35 mR/hr. The fill and drain process will continue as water inventories permit.

The three completed lift lug welds have been inspected and will be load tested when the test rig is in place. The remaining 11 lift lugs are scheduled to be welded by mid-July. Completion of this task requires fuel handling crane procedure be modified permitting removal of obstructing components (tank farm air dryers and filters). The SER covering heavy load drop and tank farm removal is still being prepared by GPU.

Submersible pump piping is in the process of being rerouted. Steam educator and related piping removal is continuing.

In support of the eventual underhead characterization and headlift, the NRC is presently reviewing numerous operating procedures related to RCS drain down and underhead characterization tasks. Additionally, NRC is reviewing licensee response to 14 items of further clarification on the SER submitted for underhead characterization. The licensee intends to complete all software related to underhead characterization prior to starting RCS drain down. It now appears that drain down will be initiated sometime near the end of July.

#### WASTE MANAGEMENT ACTIVITIES:

1. SDS Liner Shipments. No SDS shipments were made this week. The pool water leakage problem identified last week on SDS liner D20026 has also occurred on liner D10011. The leakage was attributed to catalyst pellet blockage of both the Hansen check valve and mechanical plug on the catalyst insertion vent line. The mechanical plug was removed and the liner vent tool was reinstalled in order to clear the pellets. The liner D10011 is being redewatered and vacuum dried. This drying process will take about 5 additional days since reweighing indicated that water is still present in the liner. Liner D10011, which contains approximately 88,000 curies, is not scheduled to be shipped until sometime after July 8, 1983. As with previous SDS shipment preparations, liner D10011 will be monitored to assure against combustible gas mixtures during handling and shipment.
2. EPICOR II Prefilter (PF) Shipments. Two EPICOR II prefilters (PF-4 and PF-21) were shipped from IMI to the Idaho National Engineering Laboratory (INEL) on June 27 and 28, 1983, respectively. These shipments represents number 46 and 47, in a group of 50 liners, that have been sent to INEL.

over the past year. One prefilter (PF-22) is scheduled for shipment next week. The prototype gas sampler, which is used to sample and inert each liner prior to shipment, was modified to compensate for the raised vent plugs on the final four EPICOR II prefilters. This modification was completed and the sample chamber was satisfactorily leak tested prior to sampling PF-21. The licensee anticipates the last EPICOR prefilter will be shipped offsite by July 13, 1983.

#### SCHEDULE OF FUTURE ACTIVITIES:

The start of the primary system depressurization and draindown to commence the next phase of underhead data acquisition appears to have slipped to the end of July. The activity had been scheduled to commence in February 1983. The February schedule was based on using the polar crane to support the work. Following allegations that the crane as refurbished was unsafe, the licensee began revising procedures and fabricating hardware to perform the underhead data acquisition without using the polar crane.

Control rod drive mechanism removal to facilitate the underhead inspection is scheduled to occur in mid-August. The underhead data acquisition is planned for the latter part of August.

#### TMI OCCUPATIONAL EXPOSURE:

Licensee TLD (Thermoluminescent Dosimeter) records indicate the following Unit 2 occupational radiation exposures for 1983. The April cumulative exposure previously reported in the May 27, 1983 Weekly Status Report was in error and is corrected below.

|            |             |
|------------|-------------|
| April 1983 | 24 man-rem* |
| May 1983   | 40 man-rem  |

Total 1983 (January-May) 198 man-rem

During the period April 1 - April 30, 1983 licensee TLD records indicated the following personnel occupational radiation exposure ranges:

#### Unit 1 and Unit 2 Exposure Range

| <u>Category in Rem</u> | <u>Number of Station Personnel</u> |
|------------------------|------------------------------------|
| No Measurable Exposure | 1,202                              |
| Exposure Less Than 0.1 | 385                                |
| 0.1 to 0.25            | 106                                |
| 0.25 to 0.5            | 77                                 |
| 0.5 to 0.75            | 22                                 |
| 0.75 to 1              | 7                                  |
| 1 to 2                 | 1                                  |
| 2 to 3                 | 0                                  |

Total Cumulative Plant Exposure (through May 1983) - 79 Man-Rem\*

\*Man-rem is an expression for the summation of whole body doses to individuals in a group. Thus, if each member of a population group of 1,000 people were to receive a dose of 0.001 rem (1 millirem), or if two people were to receive a dose of 0.5 rem (500 millirem) each, the total man-rem dose in each case would be one man-rem.

#### Unit 2 Reactor Building Entries (TLD Data) During April 1983

|                                          |        |
|------------------------------------------|--------|
| Number of Personnel:                     | 237    |
| Highest Whole Body<br>TLD Reading (REM): | 0.398  |
| Total Man-Rem                            | 31.250 |

#### GROUNDWATER MONITORING:

The TMI groundwater monitoring program was instituted to detect possible radioactive liquid leakage from TMI-2 into the ground. Since the monitoring program commenced in January 1980, tritium has been the only radioisotope detected consistently in the groundwater. It was detected adjacent to the TMI reactor containment building (within approximately 100 feet). Tritium concentrations in the groundwater have ranged from background (approximately 300 pCi/L) to 1.1 E6 pCi/L. In all cases the tritium concentrations have been below the maximum permissible concentrations for restricted areas. Periodically, trace concentrations of radioactive cesium and strontium have been detected in some of the monitoring locations. When detected, the cesium and strontium concentrations were very close to the laboratory lower limit of detection and typically, the radioactivity was not seen when the sample was re-analyzed or when a second sample was taken at a given monitoring location. The most recent samples taken from the groundwater monitoring locations indicate that tritium concentrations in the groundwater have remained in the same range as reported in previous Weekly Status Reports.

Appendix 6 is a sketch of six of the groundwater sampling locations in the immediate area of the BWST. The most recently recorded tritium concentration and the highest recorded tritium concentration are noted in each location. Pre-accident TMI monitoring data indicate that surface water, drinking water and rain precipitation in the TMI area will contain an average of 300 pCi/L of tritium with values as high as 600 pCi/L. The monitoring locations are in an area considered "restricted" and the maximum permissible concentration (MPC) for tritium in restricted areas is 1 E6 pCi/L.

#### PUBLIC MEETINGS:

##### Past Meeting

On June 28, 1983, William D. Travers met with the Concerned Mothers of Middletown to discuss cleanup operations at TMI-2. They expressed their concern that TMI Unit 1 should not be restarted prior to completion of the Unit 2 cleanup.

## APPENDIX 1

### LIQUID EFFLUENT DATA

#### GPU Nuclear

Liquid effluents from the TMI site released to the Susquehanna River, after sampling and monitoring, were within regulatory limits and in accordance with NRC requirements and the City of Lancaster Agreement.

During the period June 24, 1983, through June 30, 1983, the effluents contained no detectable radioactivity at the discharge point and individual effluent sources originating within Unit 2 contained no detectable radioactivity.

#### Environmental Protection Agency

|                          |                         |
|--------------------------|-------------------------|
| Lancaster Water Samples: | 9 samples               |
| Covering Period:         | May 31 - June 8, 1983   |
| Results:                 | Gamma Scan Negative     |
| TMI Water Samples:       | 6 samples               |
| Covering Period:         | June 11 - June 18, 1983 |
| Results:                 | Gamma Scan Negative     |

## APPENDIX 2

### ENVIRONMENTAL DATA

#### EPA Environmental Data

- The EPA Middletown Office has not received the environmental Kr-85 analytical results for the samples which were taken subsequent to June 10, 1983, from the EPA's Counting Laboratory at Las Vegas, Nevada. These results will be included in a subsequent report.
- No radiation above normally occurring background levels was detected in any of the samples collected from the EPA's air and gamma rate networks during the period from June 21, 1983, through June 30, 1983.

#### NRC Environmental Data

The NRC continuous air sampler was put back in service on June 27, 1983, after routine maintenance and repairs were performed. The results of air samples will be reported as usual beginning in the next Weekly Status Report.

### APPENDIX 3

#### SHIPMENTS

##### RADIOACTIVE MATERIALS/RADIOACTIVE WASTE

- On June 27, 1983, one 8-120 cask containing EPICOR II prefilter liner No. 4 was shipped to EG&G, Scoville, Idaho.
- On June 28, 1983, one 8-120 cask containing EPICOR II prefilter liner No. 21 was shipped to EG&G, Scoville, Idaho.
- On June 29, 1983, one box containing steam generator equipment from Unit 1 was shipped to Babcock and Wilcox, Lynchburg, Virginia.
- On June 30, 1983, 133 drums of contaminated laundry from Unit 1 and 2 were shipped to Interstate Uniform, New Kensington, Pennsylvania.

## APPENDIX 4

### WATER PROCESSING DATA

#### Submerged Demineralizer System (SDS)

SDS completed processing batch number 12 of Reactor Coolant System (RCS) water on June 23, 1983. This batch comprised approximately 44,000 gallons and had been staged to the "C" reactor coolant bleed tank by the RCS "feed and bleed" process. Performance parameters are given below.

#### SDS Performance Parameters

June 17, 1983 to June 23, 1983

| <u>Radionuclide</u> | <u>Average<br/>Influent<br/>(uc/ml)</u> | <u>Average<br/>Effluent<br/>(uc/ml)</u> | <u>Percent<br/>Removed</u> |
|---------------------|-----------------------------------------|-----------------------------------------|----------------------------|
| Cesium 137          | $2.5 \times 10^{-1}$                    | $1.6 \times 10^{-4}$                    | 99.94                      |
| Strontium 90        | 2.9                                     | $6.4 \times 10^{-3}$                    | 99.78                      |

#### EPICOR II

EPICOR II was shutdown during this week.

## APPENDIX 5

### PLANT PARAMETERS

Core Cooling Mode: Heat transfer from the reactor coolant system (RCS) to Reactor Building ambient.

Available Core Cooling Mode: Mini Decay Heat Removal (MDHR) system.

RCS Pressure Control Mode: Standby Pressure Control System.

Major Parameters (as of 5:00 AM, July 1, 1983) (approximate values)

Average Incore Thermocouples\*: 100°F\*\*

Maximum Incore Thermocouple\*: 121°F

RCS Loop Temperatures:

|              | A    | B    |
|--------------|------|------|
| Hot Leg      | 82°F | 82°F |
| Cold Leg (1) | 73°F | 81°F |
| (2)          | 75°F | 82°F |

RCS Pressure: 64-psig

Reactor Building: Temperature: 80°F

Pressure: -0.1 psig

Airborne Radionuclide Concentrations:

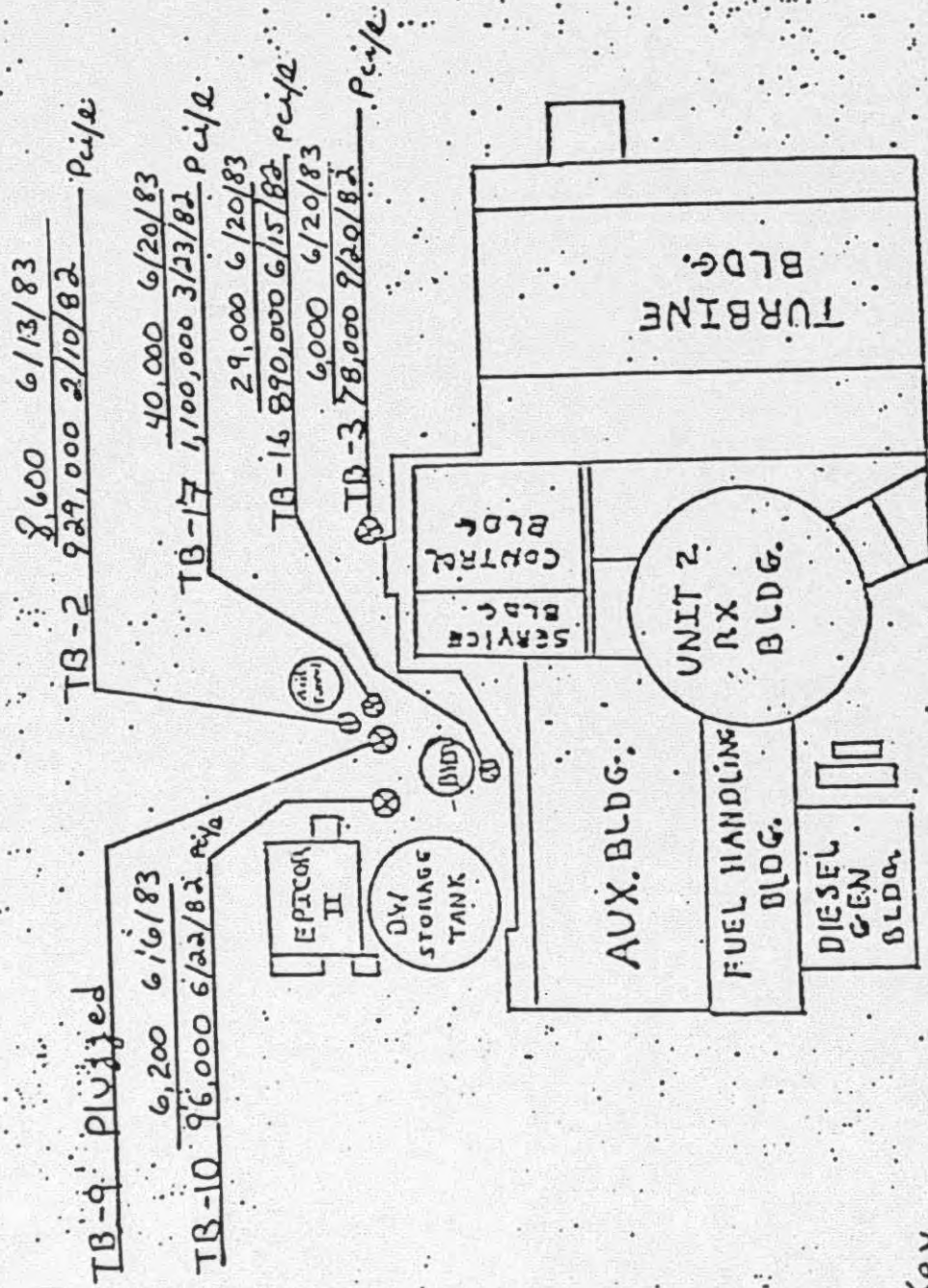
4.8 E-7 uCi/cc H<sup>3</sup> (Tritium)  
(sample taken 6/29/83)

7.9 E-9 uCi/cc particulates  
(predominately Cs-137)  
(sample taken 6/29/83)

\*Uncertainties exist as to the exact location and accuracy of these readings.

\*\*Due to a computer outage, the calculation was performed by hand and therefore includes an addition of 5°F.

# U-2 TEST BORING H-3 CONCENTRATION



APPENDIX 6

Key

analysis of latest sample / date  
analysis of highest sample / date