

August 1, 1983
NRC/TMI-83-048

MENORANDUM 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
July 24 - July 30, 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 head lift continued. The reactor coolant system was depressurized to prepare for underhead inspections.

Major activities this week were ongoing decontamination of the Auxiliary Building, continued decon facility construction, "A" spent fuel pool refurbishment, procedure review, preparations for underhead characterization, 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:

- Reactor Building Activities
- Reactor Building Dose Reduction Activities
- Spent Fuel Pool "A" Refurbishment
- Auxiliary and Fuel Handling Activities
- Waste Management Activities
- Public Meetings

Data summary sheets included in this report are:

- Liquid Effluents
- Environmental Data
- Radioactive Material/Radwaste Shipment Data
- Water Processing Data
- Plant Status Data

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*Original signed by
Lake H. Barrett*

Lake H. Barrett
Deputy Program Director
TMI Program Office

*TDIR-5
TMI*

OFFICE >	Enclosure: As stated				
SURNAME >					
DATE >					

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ENCLOSURE

REACTOR BUILDING ACTIVITIES:

Three reactor building entries were completed during the week of July 24, 1983. Reactor Coolant System depressurization and partial draindown to support the next phase of the reactor vessel Underhead Characterization Study is proceeding on schedule. The primary system was depressurized and the pressure boundary closure plates on top of the control rod drive mechanisms were removed. As anticipated, there has been no change in overall reactor building radiological conditions during this evolution. It is anticipated that the primary system will remain depressurized and partially drained through head removal and detueling.

Four reactor building entries have been scheduled for next week (week of July 31, 1983). During these entries, preparations for control rod drive mechanism (CRDM) removal will be performed. CRDM removal is scheduled to commence on August 10, 1983. The Underhead Characterization will be performed during the latter part of August and during the first two weeks in September.

Other work is continuing inside the reactor building in parallel with the Underhead Characterization. Housekeeping and localized decontamination tasks are typically performed on every entry. During the past week a four inch diameter hole was drilled through the 3 ft. thick concrete floor on the 305 ft. elevation to gain access to the reactor coolant drain tank (RCDT). Procedures are being written to drill through the 14 in. diameter rupture disk pipe, which protrudes from the top of the RCDT, to sample the drain tank contents. The RCDT has not been sampled since the 1979 accident.

REACTOR BUILDING DOSE REDUCTION ACTIVITIES:

Cleanup efforts in the TMI-2 reactor building began in the second half of 1980, following the purge of the krypton-85 inventory. Since then, there have been 264 entries into the reactor building. Cleanup efforts have primarily been directed at radiation mapping, data acquisition, surface decontamination, dose reduction, sump water processing, polar crane refurbishment, and core damage assessment. The total dose incurred to date in the reactor building is approximately 633 person-rem. However, the licensee is establishing more large-scale labor-intensive cleanup efforts in the building, including ongoing decontamination activities, polar crane load testing, pressure vessel head removal, plenum removal, and fuel and debris removal.

Efforts to decontaminate the reactor building to date has reduced the general area radiation levels on the 305 ft. and 347 ft. working elevations, however the magnitude of the reduction has not been as great as initially hoped for. A special dose reduction effort was initiated in late 1982 to shield and remove known sources of radiation, and to improve ingress and egress pathways in the reactor building and to shorten transit times to work areas. Although this effort has had a measure of success in reducing the radiation levels and personnel exposures, further reductions in general area radiation levels are likely to be difficult to achieve. Identified sources of radiation and radioactive material (contamination) such as Cs-137 contaminated concrete surfaces, block walls, and cable trays, have proven very difficult to decontaminate. General area dose rates at the 305 ft. and 347 ft. elevations

are now about 140 mrem/hr and 110 mrem/hr as measured by worker personnel dosimeters. The mean loose contamination is about 4.3×10^5 dpm/100 cm² on the 305' elevation and about 7.5×10^5 dpm/100 cm² on the 347' elevation and polar crane. The licensee is continuing dose reduction activities including localized shielding, decontamination and processing of water from the reactor coolant system and reactor building sump.

Because of the cleanup delays caused by financial problems and the difficulties encountered in reducing dose rates and contamination levels in the reactor building, the NRC staff has considered supplementing the Programmatic Environmental Impact Statement (PEIS) on TMI-2 cleanup. The PEIS, issued March 1981 (NUREG-0683), estimated the cleanup would be completed in 1986 and the occupational radiation dose for the cleanup to be in the range of 2,000 to 8,000 person-rem. Based on the delays to date and personnel dose experience from the 264 reactor building entries it appears that the cleanup could result in an occupational radiation dose in excess of the 8,000 person-rem PEIS estimate. Consequently, the NRC staff is preparing a supplement to the PEIS to update the estimate of possible occupational radiation dose and the potential environmental impacts. Pacific Northwest Laboratory is the NRC consultant for this task. The supplement to the PEIS will be prepared in accordance with the National Environmental Policy Act and 10 CFR Part 51. The public will have an opportunity to provide comments on the draft supplement when it is published later this year.

The TMIPO staff continues to closely monitor GPUN's efforts to reduce occupational radiation exposures. GPUN has a special program to implement actions to minimize Reactor Building occupational exposures as part of its overall program to maintain all radiation exposures to as low as is reasonably achievable (ALARA) levels. GPUN briefed TMIPO staff (and PNL consultants) on July 28, 1983, at the site, on the status of its programs. Decontamination and other dose reduction activities were described by GPUN. The possibility of schedule and work sequence changes resulting from budgetary constraints was discussed in the context of the potential for affecting personnel dose and the TMIPO staff's preparation of the PEIS supplement. Other items discussed included defueling, changes to reactor building ventilation to reduce airborne contamination and surface recontamination, the evaluation of cable trays as sources of radiation, pumping of the elevator pit and the need for careful planning of activities in the reactor building so as to meet program objectives while maintaining personnel doses ALARA.

SPENT FUEL POOL "A" REFURBISHMENT:

The steam eductor pump, which was removed from the lower tank farm (see description in previous Weekly Status Reports) has been replaced by a submersible pump that allows complete transfer of waste from the lower tanks to the upper tank farm.

The SDS sump discharge pipe has been rerouted around the tank farm shield blocks. A new piping system has been connected to the RCS cleanup manifold, so that a direct connection bypassing the tank farm now exists between the reactor building sump and the SDS.

Work to actually isolate the tank farm from the reactor building sump and SDS was initiated on July 25, 1983, after NRC staff approval of the licensee's request for removing the tank farm from the reserve tankage requirement. The licensee showed evidence of availability of 100,000 gallons alternate reserve tankage in 6 other tanks.

Repair of the shield block lifting lugs and preparations for the load testing of the lifting equipment are proceeding.

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. Scabbling and painting of walkways on the 282' elevation are essentially complete. No remote decontamination was performed since the robot has not been repaired. Cubicle decontamination work may resume once the robot is cleaned and repaired. However, budgetary constraints may limit the extent of this work.

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

Expansion of the decontamination facility continued with the completion of the stainless steel floor, the service air and water system and the ventilation system. Supporting procedures governing the operation and use of the newly purchased decontamination equipment remain in the licensee's review chain. Construction of the facility should be completed in late August.

WASTE MANAGEMENT ACTIVITIES:

1. SDS Liner Shipments. No SDS shipments were made this week. Preparations continued for the eleventh SDS shipment (D20026) which is scheduled for August 2, 1983. Liner D-20022, with an estimated loading of 6,000 curies is scheduled to be the twelfth shipment with a tentative shipping date of August 16, 1983.
2. EPICOR Demineralizer Shipments. Planning continues for the shipment of the 31 low level EPICOR demineralizers stored onsite. No shipments are scheduled for the next week. Prior to shipping, liners will be re-dewatered and placed into shipping casks (for > type A quantities) for transport and disposal.

PUBLIC MEETINGS:

Past Meeting:

On July 28, 1983, the Three Mile Island Advisory Panel held a meeting in Harrisburg, Pennsylvania. Representatives from GPU, NRC, DOE, EPA, TMI Alert and the general public provided input to the Advisory Panel on plant related issues. Significant items that were discussed included: EEI (Edison Electric Institute) and DOE funding, planned overhead characterization studies, NRC investigations into employee allegations, schedule delays with polar crane load test and head lift, SDS/EPICOR prefilter waste removal, and public perceptions of the Advisory Panel's role in the recovery effort at TMI.

The proposed \$150M funding from the EEI, which is a utility sponsored institute, has not been accomplished and the marginal progress to date (\$60M in pledges) could significantly impact financial resources and delay the cleanup schedule. (GPU had expected this funding to be available in developing their base case schedule described in the February 7, 1983 Weekly Status Report.) DOE has earmarked funding over the next three fiscal years to include \$37M in FY84, \$30M in FY85 and \$20M in FY86. Over 50% of this funding would be dedicated to preparations for defueling (head lift and plenum removal) and the actual fuel removal which is tentatively scheduled to start in FY85.

The NRC's Office of Investigation (OI), represented by their director, Mr. B. Hayes, outlined OI's policies and responsibilities in investigating allegations related to the Unit 2 cleanup program (polar crane, etc) and Unit 1 investigation. The OI investigation of Parks/King allegations on Unit 2 has involved a two phase approach; Phase I was directed at significant public health and safety issues; Phase II is directed at procedural issues, etc. OI plans to issue their Phase I report to the Commission within 30 days. Concurrent with these investigations, the TMIPD staff will continue to review the technical and safety aspects of the proposed use of the polar crane (i.e., load test and future head lift) before a final decision is made. Based on these developments, the NRC has been informed that the reactor vessel head removal originally scheduled for June 1983 has been delayed at least six months.

Future Meeting:

The Advisory Panel for the Decontamination of Three Mile Island Unit 2 will meet on August 17, 1983 from 7:00 PM to 10:00 PM in the Holiday Inn, 23 South Second Street, Harrisburg, Pennsylvania. The meeting will be open to the public. The panel will discuss TMI-2 cleanup activities.

APPENDIX 1

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LIQUID EFFLUENT DATA

GPU Nuclear

Based on sampling and monitoring, liquid effluents from the TMI site released to the Susquehanna River were determined to be within regulatory limits and in accordance with NRC requirements and the City of Lancaster Agreement.

During the period July 22, 1983, through July 28, 1983, the effluents contained no detectable radioactivity at the discharge point. Individual effluent sources originating within Unit 2 contained minute amounts of radioactivity. Calculations indicate that less than $1.9 \text{ E-}6$ (0.0000019) of a curie of Cs-137 was discharged.

Environmental Protection Agency

Lancaster Water Samples:	7 samples
Period Covered:	July 3 - July 9, 1983
Results:	Gamma Scan Negative
TMI Water Samples:	5 samples
Period Covered:	July 9 - July 15, 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 July 8, 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 July 19, 1983, through July 27, 1983.

NRC Environmental Data

Results from NRC monitoring of the environment around the TMI site were as follows:

- The following are the NRC air sample analytical results for the onsite continuous air sampler:

<u>Sample</u>	<u>Period</u>	<u>I-131 (uCi/cc)</u>	<u>Cs-137 (uCi/cc)</u>
HP-377	July 20, 1983 - July 27, 1983	<6.0 E-14	<6.0 E-14

APPENDIX 3

SHIPMENTS

RADIOACTIVE MATERIALS/RADIOACTIVE WASTE

- On July 22, 1983, a drum containing a 250 milli-curie Cs-137 source from Unit 1 was shipped to Surry Nuclear Power Station, Surry, Virginia.
- On July 22, 1983, four shipments of two solidified evaporator bottoms from Unit 1 were made to U.S. Ecology, Hanford Burial Site, Richland, Washington.
- On July 16, 1983, one steel box containing Unit 2 reactor building air cooler access panels was shipped to EG&G, Scoville, Idaho.
- On July 28, 1983, 104 drums of contaminated laundry from Units 1 and 2 were shipped to Interstate Uniform Service, New Kensington, Pennsylvania.

APPENDIX 4

WATER PROCESSING DATA

Submerged Demineralizer System (SDS)

SDS was shutdown during the week for maintenance.

EPICOR II

EPICOR II was shutdown during the 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 29, 1983) (approximate values)

Average Incore Thermocouples*: 104°F**

Maximum Incore Thermocouple*: 117°F

RCS Loop Temperatures:

	A	B
Hot Leg	82°F	84°F
Cold Leg (1)	85°F	84°F
(2)	85°F	84°F

RCS Pressure: 0 psig

Reactor Building: Temperature: 81°F

Pressure: -0.15 psig

Airborne Radionuclide Concentrations:

1.2 E-7 uCi/cc H³ (Tritium)
(sample taken 7/26/83)

1.4 E-9 uCi/cc particulates
(predominately Cs-137)
(sample taken 7/26/83)

*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 additional 5°F.