

November 7, 1983
NRC/TMI-83-069

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
October 30 - November 5, 1983

Data from effluent and environmental monitoring systems indicated no plant releases in excess of regulatory limits. Waste shipments continued on a routine basis. Plant parameters showed no significant changes. The reactor coolant system is depressurized and RCS level remains at 321'6" as part of underhead characterization studies.

Site activities this week included: AFHB decontamination, "A" spent fuel pool refurbishment and procedure review. One reactor building entry was made in support of technical specifications and miscellaneous tasks. (For more details see appropriate paragraphs below.)

Significant items covered in the enclosure are:

- Reactor Building Activities
- Polar Crane Status
- Spent Fuel Pool "A" Refurbishment
- Auxiliary and Fuel Handling Building Activities
- Waste Management Activities
- NRC TLD Results
- TMI Aerial Radiological Survey
- Public Meetings

Data summary sheets included in this report are:

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

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11/2/83
Lake H. Barrett
Deputy Program Director
TMI Program Office

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x of 11-6-1*

OFFICE	Enclosure: As stated	TMI:PO	TMI:PO	TMI:PO	TMI:PO
SURNAME		De11:wa	P. Fasano	ANFasano	LHBarrett
DATE		11/7/83	11/7/83	11/7/83	11/7/83

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ENCLOSURE

REACTOR BUILDING ACTIVITIES:

One reactor building entry was conducted during the week of October 30, 1983. Primary system water samples were taken from different core locations to compare the chemical and radionuclide content in different core regions. Samples were taken near the surface of the water (one foot below the top of the plenum, inside the control rod guide tube) and from the core void region. The chemical and radionuclide content of the samples were similar. Boron was approximately 3780 ppm and Cesium-137 concentration was approximately 6 uCi/cc.

Brief, weekly entries have been scheduled for Mondays for the next several weeks. In addition to the weekly primary system water sampling, which is required by the technical specifications, a DOE financed project to sample water in the reactor coolant drain tank will commence on November 7, 1983. Also, on Monday, November 7, 1983, an NRC inspector will perform a general inspection inside the reactor building.

POLAR CRANE STATUS:

The TMIPO has received all GPU correspondence required by the September 28, 1983 letter to the licensee on polar crane refurbishment. The staff is reviewing all related documentation and will address the adequacy of the planned load test in a letter to the licensee in the near future.

SPENT FUEL POOL "A" REFURBISHMENT:

Approximately one thousand gallons of water generated from flushing and high-pressure cleaning of the internals of the upper tanks was processed through SDS on October 28, 1983. Further decontamination activities are being delayed due to operational problems with the pump used to transfer processed (decontamination) water to the fuel handling building. Shield slab lifting has been delayed, but is planned to start the week of November 6, contingent on availability of funds.

AUXILIARY AND FUEL HANDLING BUILDING ACTIVITIES:

Work on the 328 ft. elevation decontamination facility addition continued this week. The ventilation system is now complete. Partial operation of the facility should begin the week of November 6. Full operation will occur when final procedural adjustments are made for operation of all the special decontamination equipment.

Other decontamination activities in the auxiliary and fuel handling building are severely curtailed due to funding constraints.

WASTE MANAGEMENT ACTIVITIES:

1. SDS Liner Shipments. SDS zeolite liner D20031 was shipped from TMI to Hanford, Washington on November 4, 1983. This will be the last SDS liner shipped this year.

2. EPICOR Demineralizer Shipments. Demineralizers 2K-7 and K-10 were shipped from TMI to Hanford, Washington, on November 2, 1983. Demineralizer F-48 has been dewatered in preparation for shipment.

Sixteen EPICOR polishing liners remain to be shipped. The licensee intends to ship these liners for burial as Class "A" waste prior to the December 27, 1983, implementation date of 10 CFR 20.311. Also, the licensee has filed a request with the State of Washington for exemption from the limits of 10 CFR 61 to allow commercial shallow land burial of future EPICOR liners with Sr-90 levels of one curie per cubic meter.

NRC TLD RESULTS:

The NRC TLD Environmental Direct Radiation Monitoring Network at TMI includes 59 offsite locations. Two sets of TLDs are placed at each location. Each set contains two lithium borate and two calcium sulfate phosphors. Both sets are read on a quarterly basis. Based on data reported in NUREG 0837, Volume 2, No. 4, July 1983, gross gamma radiation levels ranged from 0.12 to 0.26 mR/day at the 59 offsite locations during the period September 1982 through January 1983. The unavailability of control TLD readings prevented the determination of net (above background) exposure rates. However, the reported gross exposure rates are consistent with natural background radiation in the TMI area.

TMI AERIAL RADIOLOGICAL SURVEY

An Aerial Radiological Monitoring Survey (ARMS) was conducted in the TMI area during the period October 25 through November 1, 1982. (See Weekly Status Reports October 18 and 25, 1982.)

Copies may be examined at the TMIPO Middletown Office. With the exception of the activity observed within the TMI facilities, there was no indication of any man-made radioactivity which might have occurred as a result of operations at TMI.

The survey was performed by EG&G under a contract with the U. S. Department of Energy (DOE). The survey covered an area of about 25 square miles centered on the TMI plant site and included Middletown, Goldsboro, York Haven and Royalton, Pennsylvania.

The survey was performed over a 25 square mile area using a helicopter flying at altitudes of between 150 and 300 feet in a rectilinear pattern.

The gamma detection system consisted of a mosaic of 19 NaI(TL) crystals which were summed for increased sensitivity and one single crystal for recording areas of higher activity (total sensitive area is 2.4 ft²).

Ground-based measurements and soil samples were also taken.

The final report on this survey was issued last week. The report abstract is included as Appendix 6. Copies of the entire document may be obtained from:

National Technical Information Service
U. S. Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22161

PUBLIC MEETINGS:

1. On November 14, 1983, Lake Barrett will meet with the Middletown Mothers to discuss TMI related issues.
2. On November 17, 1983, at 11:00 AM, Lake Barrett will speak on NRC issues at a Lancaster County ELANCO meeting to be held at the Trinity Lutheran Church, 221 East Main Street, New Holland, Pennsylvania.
3. On December 8, 1983, the Three Mile Island Unit 2 Advisory Panel will meet from 7:00 p.m. to 10:00 p.m. in the Holiday Inn, 23 South Second Street, Harrisburg, Pennsylvania. The meeting will be open to the public. The major topic for the meeting will be the 1984 plans for lifting the reactor vessel head. Persons or groups that have questions pertaining to the TMI-2 cleanup that would like to have them considered or addressed by the Advisory Panel and persons or groups desiring the opportunity to speak before the Advisory Panel on TMI-2 cleanup related items are asked to contact, in writing, Mr Joel Roth, 4705 Carlisle Pike, Mechanicsburg, Pennsylvania 17055.

APPENDIX 1

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 October 28, 1983 through November 3, 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 $2.5 \text{ E-}8$ (0.000000025) of a curie of Cs-137 was discharged.

Environmental Protection Agency

Lancaster Water Samples:	7 samples
Period Covered:	October 16 - October 22, 1983
Results:	Gamma Scan Negative
TMI Water Samples:	7 samples
Period Covered:	October 15 - October 22, 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 October 14, 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 October 25, 1983 through November 2, 1983.

NRC Environmental Data

Results from the NRC continuous air sampler monitoring of the TMI site environment are as follows:

<u>Sample</u>	<u>Period</u>	<u>I-131 (uCi/cc)</u>	<u>Cs-137 (uCi/cc)</u>
HP-391	October 26, 1983 - November 2, 1983	<7.4 E-14	<7.4 E-14

APPENDIX 3

RADIOACTIVE MATERIALS/RADWASTE SHIPMENT DATA

- On October 28, 1983, two NU PAC 14/190M casks containing non-compacted trash and HEPA filters from TMI-1 were shipped to U.S. Ecology, Hanford Burial Site, Richland, Washington.
- On October 31, 1983, a box containing a three, 500 milliliter, liquid samples from TMI-1 was shipped to NWT Corporation, San Jose, California.
- On November 2, 1983, two steel liners containing solidified evaporator bottoms and dewatered resin from TMI-1 and two steel liners containing EPICOR II filters 2K-7 and K-10 from TMI-2 were shipped to U.S. Ecology, Hanford Burial Site, Richland, Washington.
- On November 4, 1983, 72 drums and 8 steel boxes containing compacted and non-compacted trash from TMI-2 were shipped to U.S. Ecology, Hanford Burial Site, Richland, Washington.
- On November 4, 1983, a CNSI 1-13C-II Type B cask containing SDS liner D20031 was shipped to U.S. Department of Energy, Rockwell Hanford Operations, Richland, Washington.

APPENDIX 4

WATER PROCESSING DATA

Submerged Demineralizer System (SDS)

SDS was shutdown during the week.

EPICOR II

EPICOR II remained shutdown during the week.

APPENDIX 5

PLANT STATUS

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: N/A

Major Parameters (as of 6:00 AM, November 4, 1983) (approximate values)

Average Incore Thermocouples*: 97°F

Maximum Incore Thermocouple*: 129°F

RCS Loop Temperatures:

	A	B
Hot Leg**	68°F	70°F
Cold Leg (1)	60°F	68°F
(2)	60°F	68°F

Reactor Core Decay Heat: 20.5 Kilowatts

RCS Pressure: 0 psig

Reactor Building: Temperature: 61°F

Pressure: -0.3 psig

Airborne Radionuclide Concentrations:

1.4 E-6 uCi/cc H³ (Tritium)
(sample taken 10/31/83)

1.4 E-9 uCi/cc particulates
(predominately Cs-137)
(sample taken 10/31/83)

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

**Since the RCS draindown, hot leg temperature detectors are above water level.

APPENDIX 6

ABSTRACT

An aerial radiological survey was performed over the area surrounding the Three Mile Island Nuclear Station during October 26 to 30, 1982. The survey covered an 82-square-kilometer area centered on the nuclear plant and encompassed the communities of Middletown, York Haven, Goldsboro and Royalton, Pennsylvania.

The highest radiation exposure rates, up to a maximum of 200 microrentgens per hour ($\mu R/h$), were inferred from data measured directly over the TMI facilities. This detected radiation was due to the presence of cobalt-58, cobalt-60 and cesium-137, which was consistent with normal plant operations. Similar activity is routinely observed in aerial surveys over nuclear power plants which have been or are presently in an operational mode. For the remainder of the survey area, the inferred radiation exposure rates varied from 6 to 14 $\mu R/h$. The reported exposure rate values include an estimated cosmic ray contribution of 3.7 $\mu R/h$.

Ground-based measurements, conducted during the time of the aerial survey, were compared to the aerial results. Pressurized ionization chamber readings and a group of soil samples were acquired at several locations within the survey area, along the river banks upstream and downstream of the survey area, and at the ground-based locations used for a previous aerial survey which was conducted in 1976. The exposure rate values obtained from these measurements were in agreement with the corresponding aerial data.

With the exception of the activity observed within the TMI facilities, no evidence of any contamination which might have occurred as a result of past reactor operations or the 1979 TMI Unit 2 accident was detected from the aerial survey data. This was further supported by the results of the soil sample analyses and the comparison with the 1976 aerial survey data.