July 23, 1984
NRC/TMI-84-055

MEMORANDUM FOR: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Bernard J. Snyder, Program Director
TMI Program Office

FROM: Philip J. Grant, Acting Deputy Program Director
TMI Program Office

SUBJECT: NRC TMI PROGRAM OFFICE WEEKLY STATUS REPORT FOR
July 15, 1984 - July 21, 1984

Data from effluent and environmental monitoring systems indicated no plant release in excess of regulatory limits.

Head lift is scheduled for this week (July 24-25, 1984), and will be performed in accordance with TMIPO approved procedures. Final approval of the safety evaluation report for head lift was given on July 17, 1984.

Site activities this period included: reactor building entries in support of technical specification requirements and head lift preparations; auxiliary and fuel handling building decontamination; "A" spent fuel refurbishment; purification demineralizer elution equipment installation; and procedure review. Significant items covered in the enclosure are:

-- Reactor Building Activities
-- Auxiliary and Fuel Handling Building Activities
-- Waste Water Processing
-- NRC Thermoluminescent Dosimeter (TLD) Results
-- Public Meetings
-- Public Interest Item

Data summary sheets included in this report are:

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

ORIGINAL SIGNED BY:
Philip J. Grant
Acting Deputy Program Director
TMI Program Office

Enclosure: As stated

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SURNAME ▶	DCollins/lmp	AFasano	T. [illegible], Chief	PGrant
DATE ▶	7/31/84	7/[illegible]/84	7/[illegible]/84	7/23/84

NRC FORM 318 (10-80) NRCM 0240

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ENCLOSURE

REACTOR BUILDING ACTIVITIES:

Following a significant work effort during the weekend of July 21, 1984, all major reactor vessel head lift preparations were completed. It is anticipated that the actual head lift will be performed on Tuesday morning, July 24, 1984.

One of the final head lift prerequisites controlling lead screw "parking" was completed on July 22, 1984. Dose rates in the vicinity of the head service structure increased when the lead screws were raised (parked) into the service structure. The dose rate increase was less than predicted by computer modeling which used conservative basis to evaluate the feasibility of the task. These lower service structure dose rates will tend to reduce the worker doses below the values predicted by the head lift analysis.

The most significant factor on worker exposure is expected to be the time interval between head lift and the shielding of the exposed reactor internals within the water filled internals indexing fixture (IIF). The head lift/IIF installation is expected to require 140 man-hours of work inside the reactor building. The projected worker exposure is 10-15 man-rem.

The increased radiation levels during the head lift will not be detectable outside the reactor building. The building purge system will be secured during head lift to minimize any chance for an airborne release to the environment.

A head removal/IIF installation sequence of major events is included below.

-- Attach reactor vessel head pendant cables to polar crane

-- Raise head partially, check for level lift (0.289 in. maximum variation on height indicators)

-- If necessary, adjust rigging to level head

-- Lift head approximately 3 feet

-- Install contamination control boot under the head

-- Move head to head storage stand, disconnect attachment to polar crane

-- Attach internals indexing fixture (IIF) to polar crane

-- Partially lift IIF, check for level lift (0.10 in./ft.)

-- If necessary adjust rigging to level IIF

-- Lift IIF and transfer to reactor vessel

-- Lower IIF onto reactor vessel flange

-- Increase reactor vessel water level and fill IIF

-- Check for leakage at reactor vessel flange/IIF interface

-- Disconnect polar crane from IIF

Assuming no delays, the above sequence could be completed in less than 24 hours. The onsite NRC staff will monitor the events on a continuous basis. (See Public Interest Item for head lift inquiries.)

AUXILIARY AND FUEL HANDLING BUILDING ACTIVITIES:

Work continued on installation of the makeup and purification demineralizer elution system. Decontamination of steel removed from the "A" fuel pool has continued as part of the "A" pool refurbishment. Adjustments were made and maintenance was performed on the auxiliary building exhaust fans. Decontamination flushing was conducted in the auxiliary building sump tank.

WASTE MANAGEMENT ACTIVITIES:

The submerged demineralizer system (SDS) processed batch 98 directly from the reactor building sump on July 12-16, 1984. Total volume processed was 27,080 gallons. SDS will continue to process water from the lower tank farm in the "A" fuel pool, as a result of the ongoing decontamination of the two 25,000 gallon tanks in the lower tank farm.

EPICOR II processed batches 217, 218 and 219 from the SDS effluent on July 14-18, 1984. Batches 217 and 219 were from the "A" monitor tank, while batch 218 originated from the "B" monitor tank. Total volumes processed were 5,000 gallons, 10,498 gallons, and 10,518 gallons for batch 217, 218 and 219, respectively.

SDS and EPICOR II performance parameters for previously processed batches are provided in Appendix 4.

NRC THERMOLUMINESCENT DOSIMETER (TLD) RESULTS:

The NRC TLD environmental direct radiation monitoring network at TMI consists of 49 offsite locations. The locations range from 0.4 miles to 9.6 miles from the site. Two sets of TLDs are placed at each location. Each set consists of two lithium borate and two calcium sulfate phosphors. Both sets are read on a quarterly basis.

During July through September 1983, the NRC offsite locations indicated that gamma radiation was between 0.13 and 0.23 mR/day. During October through December 1983, the NRC offsite locations indicated an average gross gamma radiation level between 0.14 and 0.21 mR/day. These dose rates are consistent with expected natural background radiation in the area.

PUBLIC MEETINGS:

Past Meeting:

On July 20, 1984, Phil Grant met with Dauphin County Commissioner Jack Minnick and members of EPA, Pennsylvania DER, GPU and Dauphin County Emergency Management Agency to discuss communication of head lift activities to the public. Hourly status reports will be provided to the County for dissemination/progress reports to the public.

Future Meeting:

On August 9, 1984, the Advisory Panel for the Decontamination of Three Mile Island Unit 2 will meet from 7:00 PM to 10:00 PM in the Holiday Inn, 23 South Second Street, Harrisburg, Pennsylvania. The topics for discussion will be TMI-2 head lift, changes in funding, and the Panel will comment on EPA's changes to area monitoring. The meeting will be open to the public. Persons that have questions pertaining to the TMI-2 cleanup that would like to have them considered or addressed by the Advisory Panel are asked to contact, in writing, Mayor Arthur Morris, 120 Duke Street, Lancaster, PA 17602. Persons desiring the opportunity to speak before the panel are asked to contact Mr. Thomas Smithgall at 2122 Marietta Avenue, Lancaster, PA 17603 (telephone 717-291-1041).

PUBLIC INTEREST ITEM:

During the head lift activities commencing on July 24 through 25, 1984, the TMI Program Office staff and NRC Public Affairs personnel will be available to take calls from the public. The TMIPO telephone number is 717-948-1120. This telephone number is provided for those interested in the progress of the lifting of the reactor vessel head and placement of the internals indexing fixture on the reactor vessel flange. (See Reactor Building Activities for additional details on the head lift activity.)

APPENDIX I

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 13 through July 19, 1984, 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 4.5 E-7 (0.00000045) of a curie of Cs-137 was discharged.

Environmental Protection Agency

Lancaster Water Samples:	7 samples
Period Covered:	July 1 - 7, 1984
Results:	Gamma Scan Negative
TMI Water Samples:	7 samples
Period Covered:	June 30 - July 7, 1984
Results:	Gamma Scan Negative

APPENDIX 2

ENVIRONMENTAL DATA

NRC Environmental Data

The NRC operated continuous outdoor air sampler at the TMI site did not detect any reactor related radioactivity. The air sampler analysis results are listed below.

Sample	Period	Volume	I-131&Cs-137 (uCi/cc)
HP-428	July 11 - July 18, 1984	267.1 m^3	<1.3 E-13

APPENDIX B

RADIOACTIVE MATERIALS/RADWASTE SHIPMENT DATA

-- On July 17, 1984, Unit 2 samples from the auxiliary building sump and sump tank were sent to Babcock & Wilcox at Lynchburg, Virginia.

-- On July 17, 1984, a Unit 1 and Unit 2 shipment consisting of drums of radioactively contaminated waste was sent to U.S. Ecology at Richland, Washington.

-- on July 17, 1984, a Unit 1 shipment of two solicified resin liners (P-16 and P-17) was sent to U.S. Ecology at Richland, Washington.

-- On July 18, 1984, a combined Unit 1 and 2 shipment of radioactively contaminated laundry was sent to Interstate Nuclear Service, Royersford, Pennsylvania.

-- On July 20, 1984, a combined Unit 1 and 2 shipment consisting of dewatered resin in steel liners and boxes of contaminated waste in steel boxes was sent to U.S. Ecology at Richland, Washington.

APPENDIX 4

WASTE WATER PROCESSING DATA

Submerged Demineralizer System (SDS)

Batch	Source	Volume (gallons)	Processing Dates
92	"C" Reactor Coolant Bleed Tank	50,616	May 31-June 7, 1984
94	Neutralizer Tank	13,696	June 16-21, 1984
95	"C" Reactor Coolant Bleed Tank	56,050	June 23-July 1, 1984
96	Reactor Building Sump	7,897	July 3-4, 1984
97	"A" Monitor Tank	7,773	July 6-7, 1984

SDS Performance Parameters

Batch	Radionuclide	Average Influent (uCi/ml)	Average Effluent (uCi/ml)	Percent Removed
92	Cesium 137	5.5 E-1	1.5 E-4	99.97
	Strontium 90	3.1 E+0	2.8 E-3	99.91
94	Cesium 137	4.4 E-1	1.5 E-4	99.97
	Strontium 90	6.8 E-1	3.1 E-3	99.55
95	Cesium 137	4.4 E-1	2.6 E-4	99.94
	Strontium 90	2.9 E+0	3.5 E-3	99.88
96	Cesium 137	9.3 E+0	1.6 E-4	99.998
	Strontium 90	3.8 E+0	4.9 E-1	87.24
97	Cesium 137	6.5 E-1	4.1 E-5	99.99
	Strontium 90	3.3 E+0	6.8 E-3	99.80

EPICOR II

Batch	Source	Volume (gallons)	Processing Dates
213	"B" Monitor Tank	10,662	June 15-16, 1984
214	"A" Monitor Tank	10,890	June 20-21, 1984
215	"B" Monitor Tank	6,825	June 22-23, 1984
216	"B" Monitor Tank	7,786	July 7-8, 1984
217	"A" Monitor Tank	8,000	July 14-15, 1984

EPICOR Performance Parameters

Batch	Radionuclide	Average Influent (uCi/ml)	Average Effluent (uCi/ml)	Percent Removed
213	Cesium 137	9.2 E-5	1.6 E-6	98.30
	Strontium 90	2.3 E-3	7.8 E-6	99.99
	Antimony 125	1.7 E-2	1.4 E-6	99.70
214	Cesium 137	1.0 E-4	6.7 E-7	99.30
	Strontium 90	1.5 E-3	8.0 E-6	99.50
	Antimony 125	4.2 E-3	6.6 E-7	99.98
215	Cesium 137	1.0 E-4	4.2 E-7	99.60
	Strontium 90	2.0 E-3	7.9 E-6	99.60
	Antimony 125	5.7 E-3	9.1 E-7	99.98
216	Cesium 137	3.6 E-5	1.4 E-6	96.10
	Strontium 90	3.9 E-3	2.4 E-5	99.40
	Antimony 125	1.9 E-2	6.5 E-7	99.99
217	Cesium 137	1.7 E-5	6.6 E-7	96.10
	Strontium 90	3.6 E-3	7.2 E-5	98.00
	Antimony 125	2.1 E-2	1.1 E-6	99.99

APPENDIX 5

PLANT STATUS

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

Available Core Cooling/Makeup Sources:
Standby pressure control (SPC) system
Reactor coolant bleed tank (RCBT) water transfer system
Mini decay heat removal (MDHR) system

Major Parameters as of 5:30 AM, July 20, 1984 (approximate values):

Reactor Coolant System:

Loop Temperatures:

	A	B
Hot Leg**	72°F	79°F
Cold Leg (1)	68°F	72°F
(2)	68°F	72°F

Pressure: Open to reactor building atmosphere

Reactor Core:

Average Incore Thermocouples*: 98°F
Maximum Incore Thermocouple*: 148°F
Decay Heat: 16.5 kilowatts

Reactor Building: Temperature: 68°F
Pressure: -0.03 psig

Airborne Radionuclide Concentrations:

Tritium: 1.6 E-7 uCi/cc H^3 (sample 7/19/84)
Particulates: 1.2 E-9 uCi/cc (sample 7/17/84) predominately Cs-137

*Uncertainties exist as to the exact location and accuracy of these readings.
**Since the RCS is drained down below these temperature detectors, they no longer are indicative of RCS temperatures.