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February 28, 1983
NRC/TMI-83-015

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

Enclosed is the status report for the period of February 19, 1983, through February 26, 1983. Major items included in this report are:

-- Liquid Effluents

-- EPA and NRC Environmental Data

-- TMI Occupational Exposure

-- Radioactive Material and Radwaste Shipments

-- Submerged Demineralizer System Status

-- EPICOR II Status

-- Reactor Building Entries

-- SDS Liner Shipment Preparations

-- EPICOR II Prefilter Shipment

-- Purification Demineralizer Disposal Status

-- Public Meetings

Original signed by
Lake H. Barrett

Lake H. Barrett
Deputy Program Director
TMI Program Office

Enclosure: As stated

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NRC TMI PROGRAM OFFICE WEEKLY STATUS REPORT

February 19, 1983 - February 26, 1983

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: Standby Pressure Control System.

Major Parameters (as of 4:00 AM, February 25, 1983) (approximate values)
Average Incore Thermocouples*: 89°F
Maximum Incore Thermocouple*: 131°F

RCS Loop Temperatures:

		A	B
Hot Leg		85°F	83°F
Cold Leg	(1)	75°F	76°F
	(2)	76°F	78°F

RCS Pressure: 64 psig

Reactor Building: Temperature: 68°F
Pressure: -0.2 psig
Airborne Radionuclide Concentrations:

1.7 E-8 uCi/cc H^3
(sample taken 2/24/83)

5.2 E-9 uCi/cc particulates
(sample taken 2/24/83)

1. Effluent and Environmental (Radiological) Information

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

During the period February 18, 1983 through February 24, 1983, the effluents contained no detectable radioactivity at the discharge point, and individual effluent sources which originated within Unit 2 contained no detectable radioactivity.

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

2. Environmental Protection Agency (EPA) Environmental Data

-- The EPA Middletown Office has not received the environmental Kr-85 analytical results for the samples which were taken subsequent to February 4, 1983. These results, which are being provided by the EPA's Counting Laboratory at Las Vegas, Nevada, 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 monitoring networks during the periods from February 16, 1983, through February 24, 1983.

3. NRC Environmental Data

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

Sample	Period	I-131 (uCi/cc)	Cs-137 (uCi/cc)
HP-358	February 17 - February 23, 1983	<7.9 E-14	<7.9 E-14

4. TMI Occupational Exposure

Licensee TLD (Thermoluminescent Dosimeter) records indicate the following Unit 2 occupational radiation exposure for 1983:

January 1983 52 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 1 man-rem.

5. Licensee Radioactive Material and Radwaste Shipments

-- On February 18, 1983, one drum containing camera equipment from Unit 1 was sent to Arkansas Power and Light Company, Russellville, Arkansas.

-- On February 22, 1983, one box containing three Unit 2 150 milliliter makeup gas samples was shipped to Westinghouse Hanford, Richland, Washington.

-- On February 22, 1983, one box containing three 500-milliliter liquid samples taken from Unit 1, was mailed to Nuclear Water and Waste Technology, San Jose, California.

-- On February 22, 1983, eight steel overpacks containing paper and plastic trash from Unit 1 were shipped to Chem-Nuclear Systems, Inc., Barnwell, South Carolina.

-- On February 23, 1983, one CNSI 8-120-3 (Type B) shipping cask containing Unit 2 EPICOR Prefilter No. PF-40, was shipped to EG&G, Scoville, Idaho.

-- On February 24, 1983, 128 drums containing compacted trash and concrete block chips from Units 1 and 2, were shipped to U.S. Ecology, Richland, Washington.

-- On February 24, 1983, 83 drums containing contaminated laundry from Units 1 and 2, were shipped to Interstate Uniform Services, New Kensington, Pennsylvania.

-- On February 24, 1983, one CNSI-8-120-4 (Type B) shipping cask containing Unit 2 EPICOR Prefilter No. PF-36, was shipped to EG&G, Scoville, Idaho.

-- On February 25, 1983, one box containing four Unit 1 liquid samples was mailed to Nuclear Water and Waste Technology, San Jose, California.

-- On February 25, 1983, one HN-200 (Type B) shipping cask containing Unit 2 EPICOR Prefilter No. PF-32, was shipped to EG&G, Scoville, Idaho.

-- Erratum: On February 3, 1983, one box containing one 1,000 milliliter reactor building sump sample (from the Saxton, Pennsylvania, facility) was shipped to Teledyne Corporation, Westwood, New Jersey. This shipment was reported in the weekly report for January 29 - February 5, 1983, as having originated from Unit 2.

Major Activities

1. Submerged Demineralizer System (SDS). SDS processing of 41,500 gallons of reactor building sump water was completed on February 22, 1983; the performance parameters are included in Attachment 1. Approximately 14,500 gallons of reactor coolant system water have been staged to the "C" reactor coolant bleed tank to await SDS processing.

2. EPICOR II. EPICOR II processed SDS effluents throughout the week; its performance parameters are included in Attachment 1.

3. Reactor Building Entries. Four reactor building entries were conducted during the week of February 20, 1983. Activities conducted in the reactor building included:

   -- preparations for the polar crane full load test

-- remote decontamination of walls below the 305' elevation

-- shut-down and restart of reactor building air cooler fans (in preparation for the experiments designed to decontaminate the air cooler and to reduce the redeposition of contaminated particulates on decontaminated surfaces)

-- preparations for "Quick Scan II" (the repeat of the first radiation measurements of the reactor vessel head and plenum).

The licensee reported the initial results of the first phase of the dose rate reduction program which was begun during January 1983. This program includes the design and use of radiation shielding materials in the reactor building. To date, shielding has been constructed around the enclosed stairwell and core flood tank B (on the 305' elevation). Various small high radiation sources on 305' have been eliminated.

Attachment 2 depicts the floor-plan for the 305' elevation, and shows the before-and-after radiation rates for three personnel traffic areas. The floor hatch and open stairwell areas are scheduled to be shielded by the end of March 1983; this is expected to provide further reduction in the general dose rate radiation levels.

4. SDS Liner Shipments. The licensee is making preparations for the fifth (in a group of twelve) recombiner-loaded SDS shipments, which is tentatively scheduled for March 5, 1983. As with previous shipments, this spent SDS liner (D10017) will be vacuum dryed, loaded with a catalytic recombiner, and monitored to demonstrate non-combustible gas conditions.

5. EPICOR II Prefilter (PF) Shipments. Three EPICOR prefilter shipments (PF-40, -36, and -32) were made this week to the Idaho National Engineering Laboratory (INEL) in Scoville, Idaho. These shipments represent a total of 28 prefilters (out of a group of 50) that have been sent to INEL. No prefilter shipments are scheduled next week.

6. Purification Demineralizer Disposal Status. Significant progress has been made by GPU and DOE in preparation for the eventual processing and disposal of the spent resins from two reactor coolant system (RCS) purification demineralizer vessels. These spent ion exchange resins contain up to 15,000 curies of mixed fission products (predominately Cs-137 and Sr-90) which were deposited on the resins during the March 29, 1979, accident. The two 90-ft^3 stainless steel vessels, which contained approximately 60-ft^3 of organic resins, are located within the auxiliary building demineralizer cubicles (see Attachment 3 for vessel configurations).

Part of the GPU/DOE disposal plan is to characterize external and internal conditions within the vessels. The external characterization (i.e., visual examinations, gamma scans, and contamination measurements) was completed last year (see October 25, 1982, Weekly Status Report) and

provided important information relative to radionuclide loadings, fuel content, and cubicle conditions. Part of the internal characterization effort is to collect gas, liquid, and resin samples to better determine the optimum processing and disposal option. Currently, GPU has completed the gas sampling phase and confirmed the presence of the anticipated quantities of hydrogen (approximately 78% H_2, 10% N_2, <0.2% O_2 and 12% organic gases at approximately 8 psig). The major source of the hydrogen and organic gas has been attributed to radioloysis of both the residual water and spent organic resins. Because of the relatively high hydrogen concentration, GPU has depressurized and inerted both vessels with nitrogen. The resin fill lines (which will be used as a pathway for collecting resin samples) were also vented and purged with nitrogen to insure that non-combustible conditions are maintained.

Preparations are currently being made to install the necessary equipment (i.e., isolation valves, fiber-optics system, resin vacuum pickup system, and a diaphram valve blocking assembly) for collecting the first resin core sample from the "A" cubicle demineralizer. This resin sample is scheduled to be taken the first week of March, 1983. The resin samples will be shipped to Oak Ridge National Laboratory (ORNL) for detailed analysis and chemical elution tests. The results of these tests (including resin sluicibility) will be used to determine the optimun processing and disposal method. The current methods being considered include: (1) sluicing the resins into the spent resin storage tank or special shipping container, (2) chemically dissolving the ion exchange media followed by sluicing and solidification, and (3) removal of the intact demineralizer vessel. The actual shipment of this waste material to a DOE facility is anticipated to occur towards the end of 1983.

Future Meetings

On March 17, 1983, the Advisory Panel for the decontamination of TMI Unit 2 will hold a meeting at 7:00 PM, at the Holiday Inn, 23 South Second Street, Harrisburg, Pennsylvania.

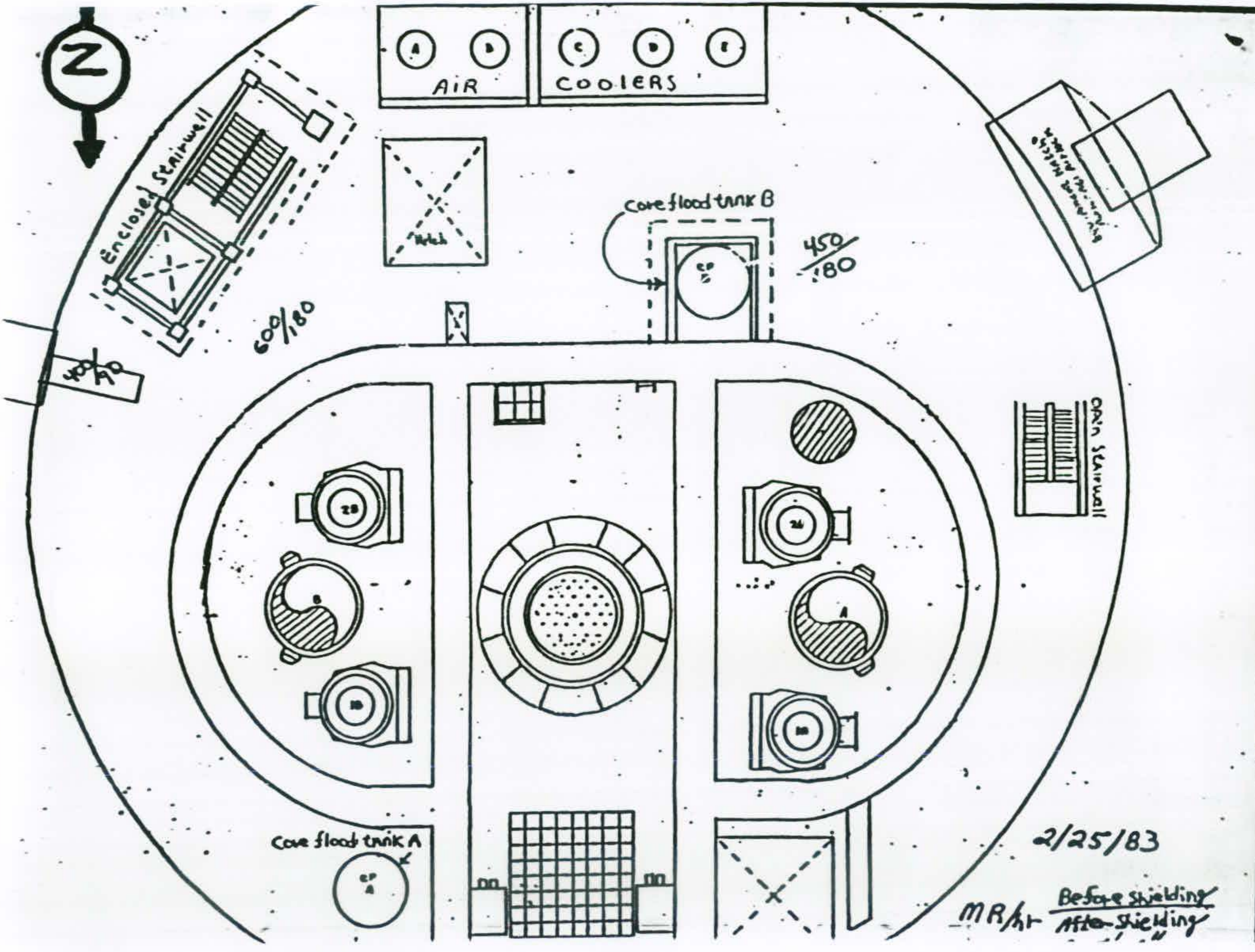
ATTACHMENT I

SDS PERFORMANCE PARAMETERS
February 17, 1983, to February 22, 1983

Radionuclide	Average Influent (uc/ml)	Average Effluent (uc/ml)	Average DF
Cesium 137	9.20	6.66×10^{-5}	1.38×10^{5}
Strontium 90	3.37	9.13×10^{-4}	3.69×10^{3}

EPICOR II PERFORMANCE PARAMETERS
February 19, 1983, to February 24, 1983

Radionuclide	Average Influent (uc/ml)	Average Effluent (uc/ml)	Average DF
Cesium 137	6.50×10^{-5}	1.45×10^{-7}	4.47×10^{2}
Strontium 90	1.16×10^{-3}	8.14×10^{-6}	1.43×10^{2}
Antimony 125	2.43×10^{-3}	3.43×10^{-7}	7.08×10^{3}



Z
AIR COOLERS
A
C
D
E
Enclosed Stairwell
Hatch
Core flood tank B
450/180
600/180
400/90
Open Stairwell
2B
B
1B
2A
A
1A
Core flood tank A
2/25/83
MR/hr Before Shielding / After Shielding

ATTACHMENT 3

TMI-2
MAKE-UP & PURIFICATION DEMINERALIZERS