

February 14, 1983
NRC/TMI-83-012

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 6, 1983, through February 12, 1983. Major items included in this report are:

- Liquid Effluents
- EPA and NRC Environmental Data
- TMI Occupational Exposure
- NRC TLD Results
- Radioactive Material and Radwaste Shipments
- Submerged Demineralizer System Status
- EPICOR II Status
- Reactor Building Entries
- SDS Liner Shipment Preparations
- EPICOR II Prefilter Shipment
- Groundwater Monitoring Program
- Public Meetings

Original signed by
Lake H. Barrett

Lake H. Barrett
Deputy Program Director
TMI Program Office

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Enclosure: As stated

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DATE						

Harold R. Denton
Bernard J. Snyder

February 14, 1983

cc w/encl:
EDO
OGC
Office Directors
Commissioner's Technical Assistants
NRR Division Directors
NRR A/D's
Regional Administrators
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NAME ▶	LGage:js	JWiebe	BONeill	AFasano	LBarrett	WTravers	
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NRC TMI PROGRAM OFFICE WEEKLY STATUS REPORT

February 6, 1983 - February 12, 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 5:00 AM, February 11, 1983) (approximate values)

Average Incore Thermocouples*: 92°F

Maximum Incore Thermocouple*: 136°F

RCS Loop Temperatures:

	A	B
Hot Leg	77°F	77°F
Cold Leg (1)	69°F	81°F
(2)	70°F	80°F

RCS Pressure: 62 psig

Reactor Building: Temperature: 68°F

Pressure: -0.1 psig

Airborne Radionuclide Concentrations:

7.3 E-6 uCi/cc H³
(sample taken 2/10/83)

4.2 E-9 uCi/cc particulates
(sample taken 2/10/83)

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 4, 1983 through February 10, 1983, the effluents contained no detectable radioactivity at the discharge point although individual effluent sources which originated within Unit 2 contained minute amounts of radioactivity. Calculations indicate that less than one millionth (0.000001) of a curie of cesium and less than eighteen millionths (0.000018) of a curie of tritium were discharged.

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

2. Environmental Protection Agency (EPA) Environmental Data

The EPA measures Kr-85 concentrations at several environmental monitoring stations and reported the following results:

<u>Location</u>	<u>January 3 - 21, 1983</u> (pCi/m ³)
Goldsboro	25
Middletown	23
Yorkhaven	22
TMI Observation Center	28

- The EPA Middletown Office has not received the environmental Kr-85 analytical results for the samples which were taken subsequent to January 21, 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 monitoring networks during the periods from February 2, 1983 through February 9, 1983.

3. NRC Environmental Data

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

<u>Sample</u>	<u>Period</u>	<u>I-131</u> (uCi/cc)	<u>Cs-137</u> (uCi/cc)
HP-356	February 2 - February 9, 1983	<7.2 E-14	<7.2 E-14

4. TMI Occupational Exposure

Licensee TLD (Thermoluminescent Dosimeter) records indicate the following Unit 2 occupational radiation exposures for 1982:

November 1982	38 man-rem
December 1982	54 man-rem
Total 1982 (January-December)	389 man-rem

(The total Unit 2 exposure for 1981 was 146 man-rem. The increase in the number of reactor building entries are the reason for the increase in exposure during 1982.)

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.

5. NRC TLD Results

The NRC TLD Environmental Direct Radiation Monitoring Network at TMI consists of 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.

During April through June 1982, the NRC offsite locations provided readings that indicated gamma radiation was between 0.15 - 0.26 mR/day. These dose rates are consistent with natural background radiation in the TMI area.

6. Licensee Radioactive Material and Radwaste Shipments

- On February 7, 1983, 30 wooden boxes containing concrete shield blocks from Unit 2 were shipped to U.S. Ecology, Hanford, Washington.
- On February 7, 1983, 93 drums containing contaminated laundry from Unit 1 and Unit 2 were shipped to Interstate Uniform Services, New Kensington, Pennsylvania.
- On February 10, 1983, one box containing two 1000-milliliter liquid samples taken from the Unit 2 "B" once-through steam generator was sent to Westinghouse Electric, Madison, Pennsylvania.
- On February 10, 1983, one box containing eight smears from Unit 1 once-through steam generators was shipped to Babcock and Wilcox, Lynchburg, Virginia.
- On February 11, 1983, 81 drums containing contaminated laundry from Unit 1 and Unit 2 were shipped to Interstate Uniform Services, New Kensington, Pennsylvania.

Major Activities

1. Submerged Demineralizer System (SDS). SDS processing of 40,000 gallons of reactor coolant system water (RCS batch 8) was completed on February 8, 1983; the performance parameters are included in Attachment 1. Staging of reactor building sump water to the SDS tank farm began on February 8, 1983. This water will comprise the next batch to be processed through SDS.
2. EPICOR II. EPICOR II processed 2,000 gallons of water from the "A" once-through steam generator on February 8, 1983; its performance parameters are included in Attachment 1.
3. Reactor Building Entries. Reactor building entries are continuing at the rate of five entries per week. Polar crane refurbishment and decontamination inside the D-rings using remote high-pressure water spray were the primary work activities this week. Reactor building sump water processing, through the submerged demineralizer system, is being performed periodically as water from decontamination activities accumulates in the sump.

Preparations for a second underhead reactor vessel characterization experiment are scheduled to begin next week. The primary system will be depressurized and the water level will be lowered to permit access into the vessel through the control rod drive assemblies. A vertical radiation dose profile will be obtained from the top of the reactor head to the core debris pile. A visual inspection will be performed of the space bounded by the reactor vessel head and the top of the plenum assembly. (All previous underhead characterizations were performed through the opening created after a control rod leadscrew was removed. However, the leadscrew opening is surrounded by various support assemblies which restrict access to the region above the plenum.) Characterization of conditions on the top surfaces of the plenum are vital for planning reactor vessel head removal. The proposed characterization experiment includes steps to remove, and replace with a manipulator tube, the entire centermost control rod drive assembly (number 8H) to provide access to the plenum region.

The reactor building entry procedure is being modified to expedite reactor building ingress and egress by using both reactor building airlocks on a routine basis. The personnel airlock in the equipment hatch will be used for ingress into the reactor building. Both doors of the other airlock will be maintained open during reactor building entries to expedite worker egress, thereby minimizing occupational radiation exposures. As the tempo of recovery operations increases, both airlocks will be maintained open for the duration of an entry. The reactor building purge will be started after the airlock doors are opened to ensure that air flow will be maintained in only one direction: into the building through the airlocks and out through the purge discharge filters.

4. SDS Liner Shipments. The fourth SDS waste liner (D10013) will be shipped from TMI to the Rockwell Hanford facility (Richland, Washington) on February 13, 1983. This 10 ft³ waste liner, which contains approximately 97,000 curies of mixed fission products, was loaded with a catalytic recombiner to maintain non-combustible gas conditions during the shipping period. As with previous shipments, this spent SDS liner was vacuum dried, loaded with the palladium catalyst recombiner material, and monitored (including gas sampling) to demonstrate safe transport conditions. The internal equilibrium conditions measured on this spent liner were 27.5 inches of mercury (vacuum), 1.1% hydrogen, 1.8% nitrogen and 0.9% oxygen. As per procedural requirements, the CNS-1-13C (type B) shipping cask was also inerted with nitrogen to assure an additional safety margin.

The three previous DOE waste SDS shipments (two of which contained recombiner material) were received and processed at the Pacific Northwest Laboratory Hanford Operations facility for research and development-type vitrification demonstrations. This fourth SDS waste liner will be received at Rockwell Hanford (also a DOE contractor at Richland) for research and development demonstrations on overpack containers and waste disposal.

5. EPICOR II Prefilter Shipments. Because of inclement weather and schedule considerations, no EPICOR prefilter liners were shipped from TMI this week. Two shipments are scheduled for next week.
6. Groundwater Monitoring Program. Periodic sampling of TMI groundwater began in January 1980 in an effort to detect any potential leakage from the contaminated water in the basement of the reactor building. The monitoring program accumulated data did not indicate any leakage from the reactor building. The program did identify some groundwater contamination which resulted from previous leakage from the borated water storage tank (BWST).

A leakage collection trough and more sensitive level indication equipment were added to the BWST. The effectiveness of these corrective measures continues to be evaluated by the groundwater monitoring program.

Attachment II includes 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 at each location. Pre-TMI monitoring data indicate that surface water, drinking water and precipitation in the TMI area will contain an average of 300 pCi/L of tritium with values as high as 600 pCi/L within the expected range. The highest TMI groundwater contamination was recorded in test boring 17 on March 23, 1982 (1.1×10^6 pCi/L). The monitoring locations are in an area considered "restricted" and the maximum permissible concentration (MPC) for tritium in restricted areas is 1×10^8 pCi/L.

Past Meetings

1. On February 7, 1983, Lake H. Barrett met with Friends and Family of TMI to discuss various TMI related issues.
2. On February 14, 1983, Lake H. Barrett met with the Concerned Mothers of Middletown to discuss TMI related issues. They expressed their concern that TMI Unit 1 should not be restarted prior to completion of the Unit 2 cleanup.

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

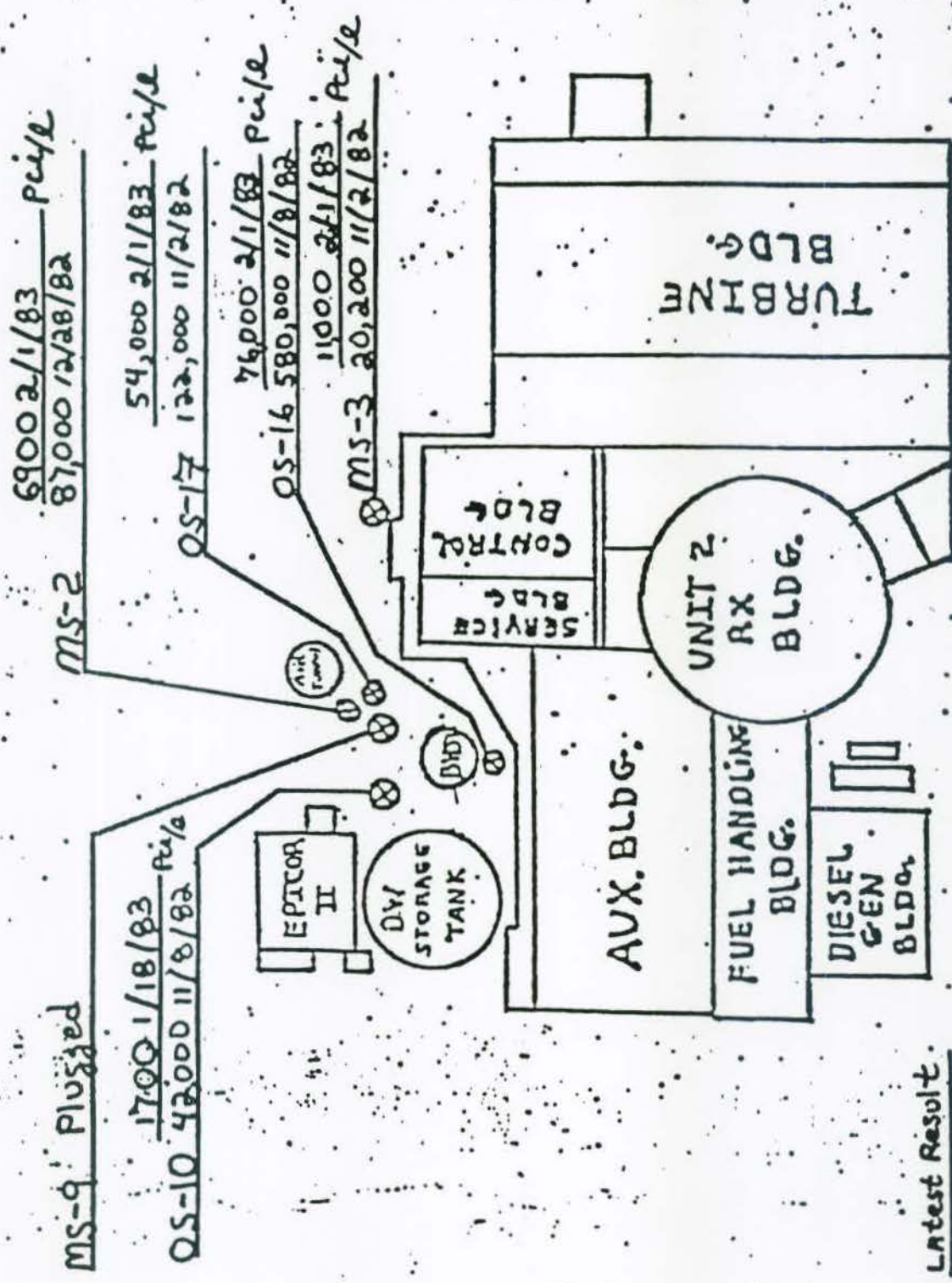
SDS PERFORMANCE FOR RCS BATCH 8

<u>Radionuclide</u>	<u>Average Influent</u> (uc/ml)	<u>Average Effluent</u> (uc/ml)	<u>Average DF</u>
Cesium 137	7.3×10^{-1}	2.9×10^{-4}	2.5×10^3
Strontium 90	6.0×10^0	1.5×10^{-2}	4.0×10^2

EPICOR II PERFORMANCE PARAMETERS
February 8, 1983

<u>Radionuclide</u>	<u>Average Influent</u> (uc/ml)	<u>Average Effluent</u> (uc/ml)	<u>Average DF</u>
Cesium 137	3.5×10^{-5}	4.2×10^{-7}	8.3×10^1
Strontium 90	$<1.8 \times 10^{-5}$	$<1.8 \times 10^{-5}$	1.0×10^0
Antimony 125	$<1.2 \times 10^{-6}$	$<2.9 \times 10^{-7}$	4.1×10^0

U-2 LES 1 BOKTING H-3 CONVINCE IN 1 KATION



Key
Latest Result
Highest Result