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Site Operations File

February 22, 1982  
NRC/TMI-82-009

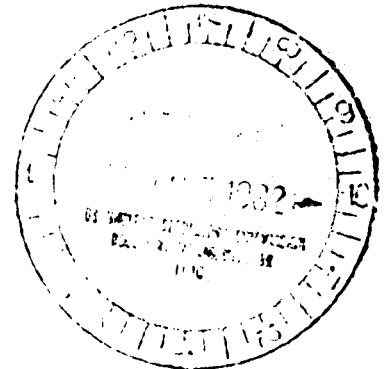
MEMORANDUM FOR: Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
  
Bernard J. Snyder, Program Director  
TMI Program Office

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 13, 1982 to February 20, 1982. Major items included in this report are:

- Liquid Effluent Releases
- Airborne Effluent Releases
- NRC and EPA Environmental Data
- Radioactive Material and Radwaste Shipments
- TMI Occupational Exposure
- Submerged Demineralizer System Status
- EPICOR II
- Ground Water Samples
- Reactor Building Entries
- Unusual Event - Apparent Oxygen Deficiency and Combustible Gas Indications in Reactor Building
- Chairman Palladino Visit to TMI
- Public Meetings



Original signed by  
Lake H. Barrett

Lake H. Barrett  
Deputy Program Director  
TMI Program Office

Enclosure: As stated

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Harold R. Denton  
Bernard J. Snyder

-2-

February 22, 1982

cc w/encl:

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▶ TMIPD *for*

▶ GKalman/jes

▶ 2/1/82

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*[Signature]*

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NRC TMI PROGRAM OFFICE WEEKLY STATUS REPORT

February 13, 1982 - February 20, 1982

Plant Status

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

Available Core Cooling Modes: Decay heat removal systems. Long term cooling "B" (once through steam generator-B).

RCS Pressure Control Mode: Standby pressure control (SPC) system.

Backup Pressure Control Modes: Mini decay heat removal (MDHR) system.  
Decay heat removal (DHR) system.

Major Parameters (as of 0530, February 19, 1982) (approximate values)

Average Incore Thermocouples: 104°F

Maximum Incore Thermocouple: 132°F

RCS Loop Temperatures:

	A	B
Hot Leg	96°F	99°F
Cold Leg (1)	79°F	81°F
(2)	83°F	85°F

RCS Pressure: 96 psig

Reactor Building: Temperature: 64°F  
Water level: Elevation 283.5 ft. (1.0 ft. from floor)  
Pressure: -0.2 psig  
Airborne Radionuclide Concentrations:  
3.3 E-6 uCi/cc H<sup>3</sup>  
(sample taken 2/19/82)  
8.6 E-6 uCi/cc Kr<sup>85</sup>  
(sample taken 2/19/82)

Effluent and Environmental (Radiological) Information

1. Liquid effluents from the TMI site released to the Susquehanna River after processing, were made within the regulatory limits and in accordance with NRC requirements and City of Lancaster Agreement dated February 27, 1980.

During the period February 11, 1982, through February 18, 1982, the effluents contained no detectable radioactivity at the discharge point and individual effluent sources, which originated within Unit 2, contained no detectable radioactivity.

2. Airborne Effluents. Airborne effluents are reported on a monthly basis.

3. Environmental Protection Agency (EPA) Environmental Data.

-- The EPA Middletown Office has not received the analytical results for Kr-85 measurements around the TMI site from the EPA's Counting Laboratory at Las Vegas, Nevada. When these results become available, they will be included in a subsequent report.

-- No radiation above normally occurring background levels was detected in any of the samples collected from EPA's air and gamma rate networks during the period from February 10, 1982 through February 18, 1982.

4. 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</u> <u>(uCi/cc)</u>	<u>Cs-137</u> <u>(uCi/cc)</u>
HP-307	February 10, 1982 - February 18, 1982	<5.6 E-14	<5.6 E-14

5. License Radioactive Material and Radwaste Shipments.

-- On Friday, February 12, 1982, seven liquid SDS samples from Unit 2 were shipped to Oak Ridge National Laboratory, Oak Ridge, Tennessee.

-- On Friday, February 12, 1982, 20 boxes containing compacted and noncompacted Unit 1 trash were shipped to U.S. Ecology, Richland, Washington.

-- On Thursday, February 18, 1982, 60 drums containing laundry were shipped from Unit 2 to Tri-State Industrial Laundries, Utica, New York.

6. TMI Occupational Exposure. Licenses TLD (Thermoluminescent Dosimeter) records indicate the following Unit 2 total occupational radiation exposure for January 1982: 15 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 one man-rem.

## Major Activities

1. Submerged Demineralizer System (SDS). Processing of batch 20 was completed on February 16, 1982. SDS performance parameters for batch 20 are enclosed as Attachment 1. Transfer of batch 21 (30,000 gallons) from the reactor building sump commenced on February 16, 1982 and was completed on February 17, 1982. Processing of this new batch was delayed until February 20, 1982, while a valve in the EPICOR II system was repaired. To date, approximately 570,000 gallons of water have been transferred from the reactor building sump. Approximately 70,000 gallons of water remain there.
2. EPICOR II. The EPICOR II system continued to process SDS effluents until a valve malfunction forced the system to be shutdown on February 17, 1982. Performance parameters are enclosed as Attachment 1.
3. Ground Water Samples. Tritium levels in water samples from test borings 2, 16, and 17 remained above their January 1982 levels during the week; water samples from test borings 3, 8, and 13B indicated tritium levels slightly higher than the previous week. Cesium 137 levels in water samples from test borings 4, 5, 10, and 6 were just slightly above the lower limit of detection. Increases in radionuclide levels in other test borings near the borated water storage tank (BWST) are expected. Additional samples are being taken to closely monitor the situation. A map showing the location of the test borings is enclosed as Attachment 2, with figures indicating the recent concentrations.
4. Reactor Building Entries. An entry was completed on February 16, 1982. The major tasks accomplished were:
  - A gamma spectrometer survey was conducted on the 347 ft. elevation.
  - A radiation survey was conducted on the 305 ft. elevation.
  - New fire hoses were installed at four fire stations: two on the D-ring and two on the 305 ft. elevation.
5. Unusual Event - Apparent Oxygen Deficiency and Combustible Gas Indications in Reactor Building. Prior to a scheduled personnel entry into the Unit 2 reactor building (RB), at about 9:00 AM on February 19, 1982, the reactor building purge was activated and air-oxygen (O<sub>2</sub>) concentration was measured with portable instruments to be 17% (normal O<sub>2</sub> concentration is about 20.5 - 21%). This O<sub>2</sub> deficient atmosphere was apparently verified using another portable O<sub>2</sub> meter within about 30 minutes from the original measurements. A second team entered the reactor building at approximately 1:45 PM, to perform additional air sampling and visual observation. The team was equipped with portable combustible gas and O<sub>2</sub> detection instruments. Portable instruments indicated variable O<sub>2</sub> concentrations at the reactor building (RB) 305 ft. level with the lowest oxygen level at 12%. The portable detection equipment also indicated the apparent presence of combustible gasses near the top of the RB stairwell to the 347 ft. elevation.

An air sample from the RB 305 ft. level was taken during the 1:45 PM entry. At approximately 4:20 PM results of the analysis of this gas sample indicated 1-1.5% hydrogen ( $H_2$ ) with no detectable carbon dioxide or carbon monoxide and 19%  $O_2$ . At 5:26 PM, the licensee declared an unusual event because of the uncertainty of the actual atmospheric conditions inside the reactor building. The sample analysis was subsequently determined to be in error due to undetermined problems with a gas chromatograph. The sample contained no detectable hydrogen or any other combustible gas. The gas chromatograph in question gave the same erroneous results for a sample taken of normal outside air. The licensee used additional onsite and offsite equipment on subsequent analyses to verify that none of the samples contained any combustible gas.

Purging of the RB, which was in progress since 9:00 AM was continued. Between 5:00 PM and midnight on February 19, 1982, analyses of samples taken via the HPR-227, RB dome sample point, and results from portable monitor measurements of the RB purge exhaust trains indicated normal (20-21%) levels of  $O_2$  and no detectable levels of combustible gas.

An entry into the RB was conducted between 12:33 AM and 12:52 AM on February 20, 1982. During this entry two Edmont and one Gas Tech portable  $O_2$  and combustible gas detectors were used. The Gas Tech was used to measure combustible gasses only, and the Edmonts were used to measure  $O_2$  and combustible gasses simultaneously. The Gas Tech alarmed to indicate a low  $O_2$  concentration; however, the readings from the Edmonts indicated normal  $O_2$  concentrations. The readings from all three instruments indicated the absence of any combustible gasses. Grab samples taken during this entry were analyzed by laboratory equipment; the results indicated normal levels of  $O_2$  and no detectable levels of combustible gasses. During a critique held by the licensee following this entry, entry personnel stated that the transmissions from the portable radios, that they were using for communication, appeared to affect the  $O_2$  and combustible gas detector readings.

The licensee secured the unusual event status of the plant at 2:04 AM, February 20, 1982. The reactor building purge was shutdown at 10:20 AM on February 20, 1982. Licensee personnel made an additional reactor building entry at 6:45 PM on February 20, 1982. A licensee test performed during this entry confirmed that radio frequency transmissions interfered with the portable gas monitors which measure  $O_2$  and combustible gasses.

The results of all five grab samples of air taken during this entry indicated normal levels of  $O_2$  and no detectable levels of combustible gasses. The licensee is continuing to take air samples from the HPR-227 reactor building dome sample connection every two hours. As of 11:00 AM on Monday, February 22, 1982, all of these samples have indicated normal levels of  $O_2$  and no detectable levels of combustible gasses. The reactor building purge remains shutdown.

The Environmental Protection Agency collected samples from all 13 air particulate monitoring stations. Results indicated no detectable activity.

During the entry at 1:45 PM on February 19, 1982, one licensed radiation detection instrument (RO-2A) read full scale (50 R/hr). This was determined to be due to a faulty switch. No abnormal radiation levels or exposures were observed on subsequent entries.

Plans are proceeding to make another reactor building entry on Wednesday, February 24, 1982. Additional investigations will be performed to further confirm normal reactor building atmospheric conditions. Additional investigations are also being performed on the malfunctions of the Gas Tech monitors.

Chairman Palladino Visit to TMI

On Tuesday, February 23, 1982, NRC Chairman Nunzio Palladino is scheduled to come to Three Mile Island to meet with the NRC staff and review activities at the site. A short press conference for the news media will be held at the Environmental Protection Agency (EPA) Middletown Office at 100 Brown Street following his visit.

Future Meetings

1. On Monday, February 22, 1982, Lake Barrett will meet with the Middletown Mothers to discuss TMI related issues in general.
2. On Friday, February 26, 1982, Lake Barrett will be speaking for the dinner meeting being held by the Engineers Week Joint Planning Council to honor Lehigh Valley's Engineer of the Year and Young Engineer of the Year.
3. On Saturday, March 13, 1982, Lake Barrett will address the Society of Manufacturing Engineers in Williamsport, PA, on the cleanup of TMI and general aspects of nuclear power.



ATTACHMENT 1

SDS Performance for Batch Number 20

<u>Radionuclide</u>	<u>Average Influent</u> (uc/ml)	<u>Average Effluent</u> (uc/ml)	<u>Average DF</u>
Cesium 137	$1.1 \times 10^2$	$7.2 \times 10^{-4}$	$1.5 \times 10^5$
Strontium 90	4.4	$7.0 \times 10^{-3}$	$6.2 \times 10^2$

EPICOR II Performance  
February 6, 1982 to February 15, 1982

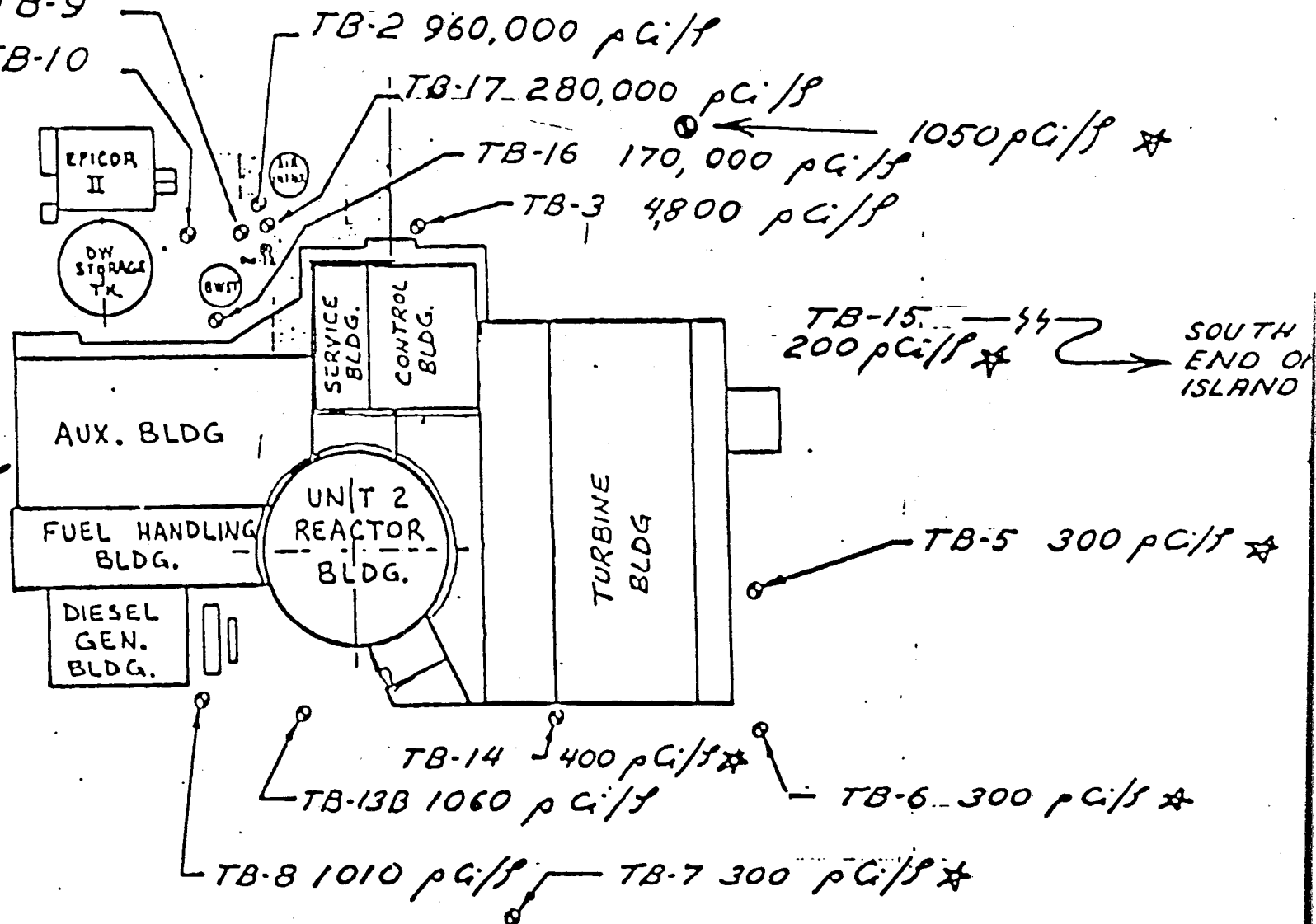
<u>Radionuclide</u>	<u>Average Influent</u> (uc/ml)	<u>Average Effluent</u> (uc/ml)	<u>Average DF</u>
Cesium 137	$7.0 \times 10^{-4}$	$1.9 \times 10^{-7}$	$3.7 \times 10^3$
Strontium 90	$6.8 \times 10^{-3}$	$<1.2 \times 10^{-5}$	$>5.7 \times 10^2$
Antimony 125	$1.1 \times 10^{-2}$	$<3.5 \times 10^{-7}$	$>3.1 \times 10^4$

## TEST BORING TRITIUM CONCENTRATIONS

★ 2500 pCi/l TB-9

★ 1500 pCi/l TB-10

TB-2 960,000 pCi/l  
 TB-17 280,000 pCi/l  
 TB-16 170,000 pCi/l  
 TB-3 4,800 pCi/l  
 1050 pCi/l ★

NORTH  
ENDSOUTH  
END OF  
ISLAND

MINIMAL TRITIUM CONCENTRATION, NO SIGNIFICANT CHANGE OBSERVED