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March 22, 1982
NRC/THI-82-015

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

Bernard J. Snyder, Program Director
THI Program Office

FROM: Lake H. Barrett, Deputy Program Director
THI Program Office

SUBJECT: NRC THI PROGRAM OFFICE WEEKLY STATUS REPORT

Enclosed is the status report for the period of March 14, 1982 to March 20, 1982. Major items included in this report are:

-- Liquid Effluents

-- Airborne Effluents

-- NRC and EPA Environmental Data

-- Radioactive Material and Radwaste Shipments

-- Submerged Demineralizer System Status

-- EPICOR II

-- Reactor Building Entries

-- Reactor Coolant System Water Processing

-- Control Rod Drive Disassembly

-- Public Meetings

Original signed by
Lake H. Barrett

Lake H. Barrett
Deputy Program Director
THI Program Office

Enclosure: As stated

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NRC TMI PROGRAM OFFICE WEEKLY STATUS REPORT

March 14, 1982 - March 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 0500, March 19, 1982) (approximate values)
Average Incore Thermocouples: 101°F
Maximum Incore Thermocouple: 130°F

RCS Loop Temperatures:

	A	B
Hot Leg	94°F	97°F
Cold Leg (1)	82°F	78°F
(2)	87°F	79°F

RCS Pressure: 96 psig

Reactor Building: Temperature: 63°F
Water level: Elevation 283.2 ft. (0.5 ft. from floor)
Pressure: -0.3 psig
Airborne Radionuclide Concentrations:
1.5 E-6 uCi/cc H^3
(sample taken 3/18/82)
<7.5 E-6 uCi/cc Kr^{85}
(sample taken 3/1/82)

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 March 12, 1982, through March 18, 1982, 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 five millionths (0.000005) of a curie of cesium was discharged.

   The public can check current gamma radiation levels in effluent water released from TMI by looking at the remote monitor recorder that has been installed at the EPA TMI Field Station office, 100 Brown Street, Middletown. This recorder replicates the output from an on-site

instrument that continuously samples water released from TMI Industrial Water Outfall and monitors it for gamma radiation. This monitor also automatically notifies EPA and PA-DER personnel if the gamma radioactivity in the water exceeds one-twentieth (1/20) of the Federal limit for cesium-137 in the environment. As a confirmatory practice, part of the monitored water is automatically collected for later laboratory analysis.

2. Airborne Effluents. Airborne releases to the environment as measured by licensee installed monitors at discharge stacks, are listed below. These releases were well within regulatory limits.

	February 1982	
	Unit II	EPICOR II
Noble gases (Ci)	$<9.47 \times 10^{1}$	$<1.53 \times 10^{1}$
Particulates (Ci)	7.61×10^{-6}	1.49×10^{-7}
Tritium (Ci)	1.68×10^{-1}	5.77×10^{-3}

3. Environmental Protection Agency (EPA) Environmental Data. Results from EPA monitoring of the environment around the TMI site were as follows:

-- The EPA measured KR-85 concentrations (pCi/m^3) at several environmental monitoring stations and reported the following results:

Location	February 5, 1982 - February 26, 1982 (pCi/m^3)
Goldsboro	25
Observation Center	30
Middletown	31
Yorkhaven	23

All of the above levels of Kr-85 are considered to be background levels.

-- 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 March 10, 1982 through March 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:

Sample	Period	I-131 (uCi/cc)	Cs-137 (uCi/cc)
HP-291	March 10, 1982 - March 17, 1982	<6.3 E-14	<6.3 E-14

5. NRC Environmental Samples. During the period March 15, 1982 to March 19, 1982, the NRC obtained environmental samples from the following locations:

- control soil and liquid samples (airport and river)
- liquid samples from the Unit 2 air intake tunnel and borated water storage tank (BWST) pipe chase
- soil samples in vicinity of the BWST
- soil samples in vicinity of processed water storage tank (PWST)

These samples will be analyzed at the Radiological and Environmental Sciences Laboratory in Idaho.

6. Monitoring of East Dike Runoff Basin Water. Recently the East Dike (a closed catch basin for natural runoff water) showed slightly elevated levels of tritium (H-3). The East Dike samples taken during February 1982, by EPA indicated an average concentration of 600 pCi/l ± 250. This concentration is about twice the natural background concentration of H-3 in surface water in the TMI area. The EPA and NRC will continue to sample the East Dike.

7. Licensee Radioactive Material and Radwaste Shipments.

-- On Monday, March 15, 1982, three Unit 1 liquid samples (various locations) were mailed to Radiation Management Corporation, Philadelphia, Pennsylvania.

-- On Tuesday, March 16, 1982, one drum containing 13 SDS (Submerged Demineralizer System) samples from Unit 2 was shipped to Oak Ridge National Laboratory, Oak Ridge, Tennessee.

-- On Tuesday, March 16, 1982, two Unit 1 precoat samples were shipped to the Westinghouse Electric Company Laboratory, Waltz Mills Site, Madison, Pennsylvania.

-- On Thursday, March 18, 1982, steam generator tube plugging equipment used in Unit 1, was returned to Westinghouse Electric Company, Advanced Reactor Division, Madison, Pennsylvania.

-- On Thursday, March 18, 1982, 51 drums containing contaminated laundry from Unit 1 and Unit 2 were shipped to Tri-State Industrial Laundries, Utica, New York.

-- On Thursday, March 18, 1982, nine Unit 1 liquid samples (various locations) were shipped to the Westinghouse Electric Company Laboratory, Madison, Pennsylvania.

Major Activities

1. Submerged Demineralizer System (SDS). Processing of batch 23 (reactor coolant bleed tank water) was completed on March 12, 1982. The batch 23 process parameters are enclosed in Attachment 1. The SDS system is now secured for minor maintenance. Processing of reactor coolant system water through the SDS is scheduled to commence in June 1982.

2. EPICOR II. The EPICOR II system continued to process SDS effluents during the week. Performance parameters are enclosed in Attachment 1.

3. Reactor Building Entries. Following four reactor building entries during the week of March 14, 1982, the flush portions of the gross decontamination experiment were completed. Approximately 10,000 gallons of processed water were added to the reactor building sump during the flushing. The gross decontamination experiment will be concluded next week after technicians test strippable coatings and chemical decontamination data techniques in limited areas of the reactor building. Post decontamination data will also be collected next week to evaluate the effectiveness of the gross decontamination experiment.

   Preliminary area radiation surveys following the flushes on the 305 ft. elevation and the 347 ft. elevation indicate an apparent decrease in radiation levels. It is difficult to quantify the magnitude of the decrease due to significant variations in the radiation levels in various areas of the reactor building, apparent variations in the effectiveness of the decontamination, and the preliminary status of the data. Subsequent weekly status reports will discuss the results as they become available.

4. Reactor Coolant System (RCS) Processing. The licensee is directing engineering effort towards preparations for processing the RCS through the submerged demineralizer system (SDS). The basic operation of the SDS will remain the same as during the processing of the reactor building sump water except that the effluent will be directed to a reactor coolant bleed tank in preparation for injection back into the RCS instead of to EPICOR II for polishing. Since the RCS cannot be drained, a feed and bleed operation to and from the reactor coolant bleed tanks will be used to remove water from the RCS in preparation for processing. This feed and bleed type operation will result in total processing of approximately 300,000 gallons. Since the effluent of the SDS is directed back into the RCS, additions to the total inventory of processed water at TMI are minimized.

   The chemistry of the water injected back into the RCS must be closely controlled to reduce the possibility of corrosion of materials in the RCS. Preliminary discussions have been held between the NRC and the licensee to scope and discuss the problems involved. Testing and evaluations are continuing in this area.

On March 3, 1982, the makeup water path to the RCS was shifted from Loop A to Loop B. The shift was necessary to ensure makeup water injected into the RCS is not removed from the RCS through the letdown line (installed only on Loop A) without passing through the reactor vessel. This will improve the efficiency of the feed and bleed operation when it is commenced. Reactor coolant system water processing is currently scheduled to commence during the month of June 1982.

5. Control Rod Drive Disassembly. A proposed technique for inspecting the interior of the Unit 2 reactor vessel with a television camera was practiced in the Unit 1 reactor building on Monday and Tuesday, March 15 and 16, 1982. The technique was proposed by the Technical Assistance and Advisory Group (TAAG) and involves removing a control rod drive lead screw to make an opening in the top of the reactor vessel head to insert a television camera. The control rod drive disassembly and camera insertion were completed ahead of schedule at Unit 1 and the tops of several fuel assemblies were inspected and video taped on Monday afternoon. The control rod drive was reassembled on Tuesday.

   In Unit 1, the camera was maneuvered to inspect the fuel assembly under the disassembled control rod drive and the four adjacent fuel assemblies. The camera produced a clear image of the tops of fuel pins and other components on top of the fuel assembly. It is expected that the technique will be attempted in Unit 2 sometime this year to provide some visual indications of the conditions of the reactor core. This will assist in planning for reactor defueling.

   Prior to performing the operation in Unit 2, the reactor coolant system will need to be depressurized and the primary system water level lowered below the upper flanges of the control rod drives. NRC review of these proposed actions has been initiated. The Unit 2 reactor coolant system pressure was lowered in increments during the accident recovery and is presently maintained at approximately 90 psig.

Future Meetings

1. On Tuesday, March 23, 1982, the TMI Advisory Panel will meet with the NRC Commissioners at 1:30 PM in Washington, DC to discuss various issues related to the cleanup of TMI Unit 2.

2. On Wednesday, April 14, 1982, Lake Barrett will be the keynote speaker for the Southern Pennsylvania Association Occupational Health Nurses, to be held at the Holiday Inn in York.

ATTACHMENT 1

SDS Performance for Batch Number 23

Radionuclide	Average Influent (uc/ml)	Average Effluent (uc/ml)	Average DF
Cesium 137	1.4×10^{1}	1.3×10^{-2}	1.1×10^{3}
Strontium 90	8.8×10^{-1}	1.7×10^{-2}	5.2×10^{1}

EPICOR II Performance
March 9, 1982 to March 15, 1982

Radionuclide	Average Influent (uc/ml)	Average Effluent (uc/ml)	Average DF
Cesium 137	5.2×10^{-3}	3.0×10^{-7}	1.7×10^{4}
Strontium 90	1.1×10^{-2}	$<1.2 \times 10^{-5}$	$>9.2 \times 10^{2}$
Antimony 125	7.4×10^{-3}	$<3.5 \times 10^{-7}$	$>2.1 \times 10^{4}$