November 16, 1981
NRC/TMI-81-063

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 November 8-14, 1981.
Major items included in this report are:

-- Liquid Effluent Releases
-- NRC and EPA Environmental Data
-- Radioactive Material and Radwaste Shipments
-- Submerged Demineralizer System Status
-- EPICOR II
-- Reactor Building Entries
-- In-Core Thermocouple Status
-- Public Meetings

Original signed by
Lake H. Barrett
Deputy Program Director
TMI Program Office

Enclosure: As stated
Harold R. Denton
Bernard J. Snyder

cc w/Encl:
EDO
OGC
Office Directors
Commissioner's Technical Assistants
NRR Division Directors
NRR A/D's
Regional Directors
IE Division Directors
TAS
EIS
TMI Program Office Staff (15)
PHE
EPA
DOE
Projects Br. #2 Chief, DPRI, RI
MPRI Chief, RI
Public Affairs, RI
State Liaison, RI

November 16, 1981
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, November 13, 1981) (approximate values)
Average Incore Thermocouples: 108°F
Maximum Incore Thermocouple: 139°F

RCS Loop Temperatures:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot Leg</td>
<td>105°F</td>
<td>108°F</td>
</tr>
<tr>
<td>Cold Leg (1)</td>
<td>82°F</td>
<td>75°F</td>
</tr>
<tr>
<td>(2)</td>
<td>93°F</td>
<td>73°F</td>
</tr>
</tbody>
</table>

RCS Pressure: 96 psig

Reactor Building: Temperature: 66°F
Water level: Elevation 287.8 ft. (5.3 ft. from floor) via penetration 401 manometer
Pressure: -0.15 psig
Concentration: 8.6 x 10^-6 uCl/cc Kr-85 (Sample taken 11/4/81)

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 November 6, 1981, through November 12, 1981, the effluents contained no detectable radioactivity at the discharge point and individual effluent sources which originated within Unit 2 contained no detectable radioactivity.
2. **Environmental Protection Agency (EPA) Environmental Data.** The EPA announced on July 6, 1981, that, due to a new shipping procedure for Kr-85 samples to the laboratory, the results for the Kr-85 environmental monitoring stations around TMI will not always be available on a weekly basis. The NRC will report these results as they become available.

   -- 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 November 4, 1981, through November 12, 1981.

3. **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:

<table>
<thead>
<tr>
<th>Sample</th>
<th>Period</th>
<th>I-131 (uCi/cc)</th>
<th>Cs-137 (uCi/cc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP-293</td>
<td>November 4, 1981 - November 12, 1981</td>
<td>&lt;7.8 E-14</td>
<td>&lt;7.8 E-14</td>
</tr>
</tbody>
</table>

4. **Licensee Radioactive Material and Radwaste Shipments.**

   -- On Monday, November 9, 1981, a 250 ml sample, Unit 1 Decay Heat B, was mailed to Teledyne Isotopes, Westwood, New Jersey.

   -- On Friday, November 13, 1981, one EPICOR II dewatered resin liner (liner F-10) was shipped to U.S. Ecology, Richland, Washington.

   -- On Friday, November 13, 1981, one EPICOR II dewatered resin liner (liner F-11) was shipped to U.S. Ecology, Richland, Washington.

   -- On Friday, November 13, 1981, six samples taken during reactor building entry number 20 (11:00 AM 11/13/81) were shipped to Massachusetts Institute of Technology, Cambridge, Massachusetts for biological testing.

   -- On Friday, November 13, 1981, one EPICOR II dewatered resin liner (liner F-12) was shipped to U.S. Ecology, Richland, Washington.
Major Activities

1. Submerged Osmemalizer System (SDS). Processing of batch number 9 was completed on November 9, 1981. During November 11-12, 1981, approximately 50,000 gallons of reactor building sump water were transferred to the SDS feed tanks in the fuel handling building. This transfer brings the amount of water transferred from the reactor building sump to a total of approximately 255,000 gallons. Processing of batch number 10 commenced on November 12, 1981. As of November 12, 1981, approximately 205,000 gallons of reactor building sump water had been processed. SDS performance parameters for batch 9 are attached.

2. EPICOR II. Processing of SOS effluent through the EPICOR II system continued this week. As of November 12, 1981, approximately 205,000 gallons of reactor building sump water had been polished. Liners F-10, F-11, and F-12 were shipped to a commercial burial facility near Richland, Washington for disposal. Recent performance parameters for EPICOR II are attached.

3. Reactor Building Entry. During the past week, only one of the two scheduled reactor building (RB) entries was undertaken. Entry 20 was completed on Friday, November 13, 1981. Entries 21 and 22 are scheduled for November 17 and 20, 1981.

During entry 20, a solenoid valve and an area radiation monitor, HPR-212, were removed for generic evaluation of equipment subjected to accident conditions. Reactor building air and water samples were taken for biological analysis and preparations continued for the decontamination experiment. Initially, plans called for replacing HPR-212 with an operable sensor, however, these plans were abandoned when it was determined that the wiring between the sensor and the indicator outside the RB was degraded.

There are no operable fixed radiation monitors inside the RB. Since RB sump water processing commenced, every entry is preceded by a survey of radiation levels in accessible areas of the RB. No changes in airborne or area radiation levels were noted until entry 20. The radiation survey preceding entry 20 identified an apparent increase in the area radiation level on the 305 ft. elevation in the area above the reactor coolant drain tank. The gamma radiation field in this area increased from approximately 1.1 R/hr to 1.6 R/hr. This increase most likely resulted from the transfer of 255,000 gallons of RB sump water to the SDS which lowered the sump water level by approximately three feet, thereby changing the relative geometries of radiation sources and self-shielding characteristics in the basement. As the water level is lowered, further changes are likely.
During the entries next week, personnel are scheduled to commence work on the polar crane in support of the power lift installation which will allow men and equipment to be lifted up to the polar crane. To improve their mobility, workers on the polar crane wear full face respirators with particulate filters (protection factor 50) rather than the powered air filters (protection factor 1,000) which are normally worn in the RB. It is expected that airborne radioactivity at the polar crane will be below 10 CFR 20 maximum permissible concentration (MPC), however, to increase worker protection, the RB purge has remained on through the weekend and will operate continuously throughout the week. Based on samples inside the RB, all air activity is below MPC and the environmental significance of the continuous purge is minimal.

4. In-Core Thermocouple Status. Following pumping of 50,000 gallons of water from the reactor building sump on November 11-12, 1981, the reactor coolant system (RCS) temperatures exhibited changes which indicate natural circulation flow occurred through the RCS loops. During the period of natural circulation, the thermocouple indicating the highest in-core temperature decreased to 139°F (2°F decrease) and the calculated average in-core temperature decreased to 107°F (6°F decrease). The RCS hot leg temperatures \( T_H \) changed little during this period but the cold leg temperatures \( T_C \) increased significantly as the natural circulation pushed the cooler water out of the cold legs and replaced it with warmer water from the hot legs. The "A" loop \( T_C-2 \) increased to 82°F (12°F increase); the "A" loop \( T_C-4 \) increased to 80°F (10°F increase); the "B" loop \( T_C-2 \) increased to 75°F (5°F increase); and the "B" loop \( T_C-4 \) increased to 73°F (5°F increase).

The temperature changes which occurred do not adversely affect the condition and safety of the core. The mixing of water which occurs as a result of natural circulation is beneficial because core temperatures are reduced and RCS water samples (taken on a weekly basis) will be more representative of the water which is present in the core. The TMIPD is monitoring the temperature changes closely as additional water is removed from the reactor building.
Meetings Held

On Saturday, November 14, 1981, Lake Barrett participated in a panel discussion at the Elizabethtown Public Library on the government's response to the TMI accident. The primary topics of discussion were the emergency plans for coping with any possible future accident at TMI. Representatives from GPU, State of Pennsylvania, and Elizabethtown were also on the panel to make brief statements and respond to questions from members of the public. Most questions were addressed towards the adequacy of the emergency plans.

Future Meetings

1. The NRC's Advisory Panel for the Decontamination of Three Mile Island Unit 2 will meet November 16, 1981, from 7:00 p.m. to 10:00 p.m. in the Municipal Building, 400 South 8th Street, Lebanon. At the meeting, the panel plans to discuss cleanup financial problems and the current status of cleanup activities at Three Mile Island. The meeting is open to the public.

2. On Thursday, November 19, 1981, Lake Garrett will be meeting with local mothers to discuss the decontamination experiments and other related TMI-2 issues.
# ATTACHMENT

## SDS Performance for Batch Number 9

<table>
<thead>
<tr>
<th>Radionuclide</th>
<th>Average Influent (uc/ml)</th>
<th>Average Effluent (uc/ml)</th>
<th>Average DF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cesium 137</td>
<td>$7.8 \times 10^{-1}$</td>
<td>$7.3 \times 10^{-4}$</td>
<td>$1.1 \times 10^{5}$</td>
</tr>
<tr>
<td>Strontium 90</td>
<td>$2.9$</td>
<td>$7.4 \times 10^{-3}$</td>
<td>$3.9 \times 10^{2}$</td>
</tr>
</tbody>
</table>

## EPICOR II Performance for Reactor Building Sump Water

November 6, 1981, to November 11, 1981

<table>
<thead>
<tr>
<th>Radionuclide</th>
<th>Average Influent (uc/ml)</th>
<th>Average Effluent (uc/ml)</th>
<th>Average DF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cesium 137</td>
<td>$7.9 \times 10^{-4}$</td>
<td>$3.6 \times 10^{-7}$</td>
<td>$2.2 \times 10^{3}$</td>
</tr>
<tr>
<td>Strontium 90</td>
<td>$7.7 \times 10^{-3}$</td>
<td>$1.6 \times 10^{-5}$</td>
<td>$4.8 \times 10^{2}$</td>
</tr>
<tr>
<td>Antimony 125</td>
<td>$1.1 \times 10^{-2}$</td>
<td>$4.4 \times 10^{-7}$</td>
<td>$2.5 \times 10^{4}$</td>
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</tbody>
</table>