

APR 4 1986

Docket No. 50-289

MEMORANDUM FOR: Harry Kister, Chief  
Projects Branch No. 1

FROM: Allen R. Blough, Chief  
Reactor Projects  
Section 1A

SUBJECT: TMI-1 STATUS REPORT FOR THE PERIOD MARCH 21 - 28, 1986

Enclosed is the TMI-1 weekly status report from the NRC Resident Office for the subject period. In addition to the reactor shutdown of March 21, 1986, the licensee conducted a cooldown, degassing, and depressurization of the reactor coolant system. Some outage work was started. The NRC staff activities included: outage work oversight; followup to the radiological events; and Performance Appraisal Team (PAT) inspection conclusion and exit interview.

TMI-1 status reports are intended to provide NRC management and the public with highlights from an NRC regulatory perspective of TMI-1 activities for the previous week. Subsequent inspection reports will address many of these topics in more detail.

Original Signed By:

Allen R. Blough, Chief  
Reactor Projects Section 1A  
Branch 1, DRP

Enclosure:  
As stated

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TMI1 WEEKLY STATUS REPORT -

11/29/80 IE3/11

Harry Kister

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cc w/enclosure:

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W. Travers, NRR

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J. Partlow, IE

T. Gerusky, BRP/DER, Commonwealth of Pennsylvania

R. Benko, Governor's Office of Policy, Commonwealth of Pennsylvania

TMI Alert

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Friends & Family of TMI

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Region I Docket Room (w/concurrences)

B

RI:DRP

Conte

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Blough

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Kister

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TMI1 WEEKLY STATUS REPORT -

11/29/80

## ENCLOSURE

### TMI-1 STATUS REPORT FOR THE PERIOD March 21-28, 1986

#### 1. Plant Status

As of 8:00 a.m. on March 28, 1986, TMI-1 was in a cold shutdown condition with reactor vessel water level maintained at the reactor vessel nozzles and the primary side of the steam generators drained for eddy current testing (ECT). The decay heat system maintained reactor vessel water temperature at about 100° F.

#### 2. Facility Operations Summary

The licensee shut down the reactor Friday night, March 21, 1986; and, on Saturday, the licensee conducted reactor coolant system (RCS) cooldown and degassing (a normal process to remove dissolved gases from the reactor coolant) to support depressurization and RCS drain down. During the degassing process, an Unusual Event occurred (see paragraph 3). By Sunday night, the RCS was depressurized and drained to 6-9 inches above the upper tube sheet of both steam generators (SG) to support the scheduled bubble test of the SG upper tube sheets the following day. The bubble test is designed to detect leakage at the seal between individual tubes and the upper tube sheet.

During the day shift on Monday, March 24, 1986, the licensee removed the hand hole and manway covers of both steam generators for access to the upper tube sheet. Although the reactor building (RB) ventilation exhaust system was in operation, radioactive iodine and noble gasses accumulated from the RCS into the RB between Monday and Tuesday. In the meantime, personnel entered the RB to support outage-related work, including the completion of the bubble test of the SG tube sheets (see paragraph 3).

Subsequent to licensee detection of the airborne radioactivity problem in the RB, the licensee opted (1) to suspend access to the RB on Tuesday and (2) to increase the ventilation purge exhaust flow by more fully opening the purge exhaust valve. By Tuesday night, access was restored to the RB with the satisfactory reduction of the concentration of radioactive iodine and noble gas. Equipment for ECT work was set up on Wednesday and Thursday. ECT started on Thursday, March 27, 1986. The drip test of the lower tube sheet was completed Friday night with satisfactory results.

#### 3. Special Interest Items

##### Outage for Eddy Current Testing of Steam Generator Tubes

With the reactor shut down on March 21, 1986, the thirty-five day ECT outage started. The licensee started work on a number of preventive and corrective maintenance items along with progressing on modifications required for the Cycle 6 startup (after the next refueling outage). Cycle 6 startup

modifications include work for mandatory upgrades on fire protection and emergency feedwater systems. Testing planned for the current outage also includes safety-related motor operated valves, containment isolation valve leakrate, and integrated control system checks.

The ECT of the SG tube just started at the end of the period. Future weekly reports will include summaries of test results. Licensee and NRC evaluation of test results will be reported in future inspection reports.

Although planned for thirty-five days, the length of the outage is dependent upon steam generator tube inspection findings and any resultant tube repairs.

#### Unusual Event of March 22, 1986

During the plant cooldown the licensee degassed the RCS by venting the pressurizer gas space to the makeup tank using the sampling system. At approximately 2:55 a.m. on March 22, 1986, a relief valve in that sampling flow path actuated and caused a release of radioactive noble gases, primarily Xe-133. The plant effluent monitor reached an alarm setpoint and, at 3:00 a.m. that day, the licensee declared an Unusual Event in accordance with their emergency plan implementing procedures. Within five minutes the licensee identified and secured the source of the release. Shortly after, the plant effluent monitor alarm cleared, and the licensee terminated the Unusual Event at 3:25 a.m. No one was contaminated because of this release. The release was initially conservatively calculated as 30 curies, which is about 0.02% of the quarterly allowable. After refined calculations the licensee revised the figure to 14.8 curies of noble gases released.

#### Airborne Radioactivity and Contamination Events

The activities associated with the opening of the RCS at the steam generator manway covers resulted in a radioactive iodine and noble gas buildup in the RB on March 24 to 25, 1986. Also, the planned RB purge involved a release of noble gas from the plant. Five licensee workers were contaminated. Also, 124 personnel, including an NRC inspector, were tested for internal contamination, using whole body counting and bioassay techniques, to substantiate RB atmospheric monitoring results.

With respect to two licensee personnel who entered the steam generator, their exposure due to the general area gamma radiation in the steam generator resulted in about 400 millirem (mrem) to one individual and 100 mrem to another individual. (These individuals had a 3000 mrem quarterly limit). Because of the lack of a tight seal in protective clothing, these individuals had become contaminated externally, mostly on the extremities, which did not result in a substantial increase to the above-noted exposure results. Three other personnel were externally contaminated and were successfully decontaminated.

The licensee is evaluating the exposure levels to the 124 personnel due to their presence in the radioactive iodine (predominantly Iodine 131) environment in the RB. Evaluations thusfar indicate exposures well within federal limits.

With respect to plant releases, there was no detectable radioactive iodine measured at the plant effluent monitor. Approximately 112 curies of noble gas were released in reactor building purging March 21-24. This converts to about 0.06% of the quarterly limit. Releases for the remainder of the week are still being reviewed and will be reported in a subsequent Weekly Status Report; but they also were well within allowable limits.

The licensee will complete its critique of these events, and NRC staff will complete its review in a future inspection.

#### Licensee Event Report of March 26, 1986

At about 4:00 p.m., March 26, 1986, in response to NRC Performance Appraisal Team findings, the licensee made a four-hour licensee event report concerning the single failure susceptibility of the two-hour backup instrument air system for the emergency feedwater system (EFW) flow control valves. The design deficiency is at the interface between the seismically designed (i.e. designed to withstand earthquakes) and the "non-seismic" portions of the air system. A single failure of either of these two "check valves" could drain the air banks on a seismic event (i.e. earthquake). The EFW flow control valves "fail open" on a loss of air, which makes this problem less severe. As an immediate corrective action, the licensee isolated the non-seismic piping using the manual valves. A written report to NRC is required in thirty days.

#### Performance Appraisal Team Inspection

The Performance Appraisal Team (PAT) completed its inspection with an exit interview with licensee management on March 27, 1986. An NRC inspection report (No. 50-289/86-03) will be issued to describe the inspection and findings.

#### 4. NRC Staff Status During the Period

During this report period, the NRC staff on site consisted of the senior resident inspector and resident inspector, supplemented, in part, by the Performance Appraisal Team (PAT), Region I based inspectors, and NRC management. The Director of the NRC Office of Inspection and Enforcement attended the PAT exit interview noted above.

The resident staff continued to follow plant status and outage work. Two radiation specialists from Region I were on site to review outage radiological control practices but also followed up on the radiological events noted above.



5. Systematic Assessment of Licensee Performance (SALP)

The NRC Region I SALP board met on January 24, 1986, to discuss licensee performance during the TMI-1 restart period of September 16, 1985, to January 10, 1986. A management meeting between NRC and GPUN to discuss the SALP is scheduled for 10:00 a.m., March 31, 1986, at the NRC Region I Office in King of Prussia. Members of the public may attend this meeting as observers, but there are no provisions for public participation at that time. Later, at 7:30 p.m. on Thursday, April 24, members of NRC Region I management will be available at the NRC's Middletown office (Downtown Mall, 100 Brown Street, Middletown, Pennsylvania) to answer questions from the public regarding both the SALP and NRC inspection programs at TMI-1. Because of space limitations at the Middletown Office, it is important for those planning to attend the public meeting to contact Allen R. Blough at (215) 337-5146 or (717) 948-1160. If the number of respondents is large, an alternate location in the Middletown-Harrisburg area will be arranged.

6. NRC (TMI-1) Staff Composition During Period

The NRC staff at TMI-1 was comprised of the following personnel during the period:

- A. Blough, Chief, Reactor Projects Section No. 1A
- R. Conte, Senior Resident Inspector
- W. Kane, Deputy Director, Division of Reactor Projects
- H. Kister, Chief, Reactor Projects Branch No. 1
- D. LaQuia, Radiation Specialist
- J. Partlow, Director, Division of Inspection Programs, IE
- M. Shanbaky, Chief, Radiation Protection Section
- J. Taylor, Director, Office of Inspection and Enforcement
- A. Weadock, Radiation Specialist
- F. Young, Resident Inspector
- C. Hix, Secretary

PAT Team

- L. Callan, Leader, NRC
- J. Beall, NRC
- D. Caphton, NRC
- E. Dunlap, Western Services, Inc. (NRC Contractor)
- D. Humenansky, NRC
- J. Isom, NRC
- M. Johnson, NRC
- T. Martin, NRC
- J. Morris, Western Services, Inc. (NRC Contractor)
- G. Overbeck, Western Services, Inc. (NRC Contractor)
- A. Saunders, NRC
- J. Smith, NRC
- D. Sullivan, Jr., NRC