

September 28, 1987
RRC/TMI-87-074

MEMORANDUM FOR: Dennis M. Crutchfield, Director
Division of Reactor Projects - III, IV, V & Special Projects
Frank Schroeder, Jr., Assistant Director
Region IV Reactors and Special Projects

FROM: William D. Travers, Director
TMI-2 Cleanup Project Directorate

SUBJECT: NRC TMI-2 CLEANUP PROJECT DIRECTORATE STATUS
REPORT FOR AUGUST 31 - SEPTEMBER 28, 1987

i. DEFUELING

- Pick and place defueling of the core region continued. Part length fuel assemblies constitute the bulk of the work effort and mass of material removed with 125 of 177 assemblies having been loaded into defueling canisters. Some fuel pins are loose or splayed within a partial length assembly. These are cut and loaded individually. Additionally some agglomerated, once molten material called "rocks" is usually loaded separately but occasionally attached to partial assemblies.

Currently, approximately 160,000 lbs out of a total of approximately 300,000 lbs of core debris and other materials has been loaded. The total mass to be removed includes the mass of the core, 207,000 lbs; structural and absorber materials 78,000 lbs; and mass added by oxidation of core and structural material 8,500 lbs. Additionally, portions of the baffle plates, formers, and other components may become commingled with core debris during cutting operations. An estimate of 6,500 lbs was used for this material to bring the total to 300,000 lbs.

Completion of removal of partial length fuel assemblies is expected in December of this year. This will complete defueling of the core region. The next two areas to be defueled are the lower internals and the lower head (below the normal core region). The lower internals is the region between the lower grid top rib section and the elliptical flow distributor head. This area contains a mixture of loose material and solidified, once molten material in the spaces between the horizontal structural components and in the flow holes of the structural components. The bulk of the material in this area is likely to be solidified, once molten material. The lower head is the hemispherical bottom of the reactor vessel and also contains a

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mixture of loose material and solidified once molten material. The bulk of the mass in this area is likely to be loose and vacuumable.

Defueling of the areas between the baffle plates (radially outside the normal core region) and the core barrel will follow. The decay heat drop line has a significant quantity of fuel and will probably be defueled with the remainder of the reactor coolant system piping.

- Ex-vessel defueling activities are now concentrated on defueling of the "B" steam generator. Defueling of the pressurizer and initiation of defueling activities in the reactor coolant system decay heat drop leg are also expected before the end of the current year.

3. ENVIRONMENTAL MONITORING

- US Environmental Protection Agency (EPA) sample analysis results show that TM1 site liquid effluents are in accordance with regulatory limits, NRC requirements, and the City of Lancaster Agreement.
- TM1 water effluents from the station (Units 1 and 2) discharge are analyzed by EPA. Gamma spectrum analyses of the daily composited samples for August 15 through September 12, 1987 indicated no reactor related activity.
- EPA's gamma spectrum analysis of the NRC's TM1 outdoor air samples for August 28 - September 4, September 4 - 11, September 11 - 18, and September 18 - 25, 1987 showed no reactor related radioactivity.
- The water works for the City of Lancaster composited seven daily samples from August 16 - 22, August 23 - 29, August 30 - September 5, and September 6 - 12, 1987. EPA's gamma spectrum analysis of the composite samples showed no reactor related radioactivity.

4. DECONTAMINATION ACTIVITIES

- During August 1987, Phase III endpoints were reached for six areas. The areas were the nitrogen gas header, the reactor coolant evaporator room, the area and sump below the main steam relief valves (R-20 area) in the service building, the external piping area for the borated water storage tank, and the east corridor of the fuel handling building 328' elevation.
- The sludge removed from the reactor building basement floor was solidified in two disposal liners. The liners were transferred to the onsite temporary storage facility to await shipment to an offsite shallow land disposal facility.
- Resins removed from the reactor coolant cleanup demineralizers were solidified and moved to the temporary storage facility for later shipment to a burial site.

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- Preparations are being made to move the makeup and purification demineralizer resin to a consolidation tank for sampling prior to solidification. These resins will be stabilized in concrete and temporarily stored prior to transport to a burial site.
- The "A" Once-Through-Steam-Generator (OTSG) upper tube sheet was cleaned of debris by pick-and-place and vacuuming. Pick-and-place yielded about 5 pounds of rock/gravel debris while vacuuming produced about 5 pounds of finer debris.
- On September 8, 1987 the licensee staff briefed the TMICPB staff on the status of their decontamination and radiation level reduction program and their plans for further activities in this area.

Further progress has been made in all major areas of decontamination. The auxiliary building sump and reactor building sludge removal has been completed and the reactor building gross flush is in progress. Seventy-five percent of the previously contaminated areas (462,708 sq.ft.) of the auxiliary and fuel handling buildings have been decontaminated to Phase III levels, 11 systems flushes out of 22 planned have been accomplished, 2 of 10 tanks desludged and 7 of 9 demineralizers cleaned. Of 143 contaminated cubicles, 107 have been decontaminated to Phase III levels, leaving 36 to decontaminate. Twenty-three of the remaining 36 are scheduled for decontamination in 1987.

Projected cumulative worker dose for 1987 (1027 person-rem) is below the licensee's goal of 1175 person-rem and just 120 person-rem (13%) above the 907 person-rem total for 1986. The major contributor to the aversion of doses during 1987 is the reduced dose rates on the shielded defueling work platform.

The results of a licensee study of the various options for decontaminating the reactor building basement are expected shortly. Such options span the range from leaving the basement virtually as is to utilizing mechanical and chemical means to physically remove the contaminated material. Leach tests are still in progress as a basis for determining the feasibility of removing radioactivity from the reactor building basement by flooding part or all of it followed by processing of the water to remove the radioactivity. The results of these tests will be considered in an upcoming report.

4. NRC EVALUATIONS IN PROGRESS

- Technical Specification Change Requests 52, 53 and 56.
- Recovery Operations Plan Change Request 30.
- Solid Waste Facility Technical Evaluation Report.
- Processed Water Disposition Proposal.
- Pressurizer Defueling Safety Evaluation Report.
- Safety Evaluation Report for Defueling of the Core Support Assembly.
- Environmental Evaluation of the Post-Defueling Monitored Storage Proposal.

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- Canister Handling and Preparation for Shipment Safety Evaluation Report, Revision 4 and Revision 5.
- Defueling Water Cleanup System Technical Evaluation Report Annual Update.
- Defueling Canister Technical Evaluation Report Annual Update.
- EPICCR 11 System Description Annual Update.
- Request for Exemption from 10 CFR 70.42 Requirements.
- Staging of Liners in the Waste Handling and Packaging Facility.

During the reporting period, the NRC staff approved the licensee's proposed organization plan changes 16 and 17. These changes involved a realignment of divisional responsibilities at the corporate level and minor changes in the defueling organization at the TMI-2 site. In addition, the staff completed a preliminary review of Technical Specification Change Request 53. This change involves a realignment of the Technical Specification requirements in preparation for a phased entry to the Post-Defueling Monitored Storage period. The staff has forwarded comments to the licensee and has requested additional information to support the licensee's proposal. A review of the environmental impacts of the licensee's Post-Defueling Monitored Storage program is in progress with a draft supplement to the PEIS tentatively scheduled for issuance in January 1988.

5. PUBLIC MEETING

No date has been set for the next meeting of the Advisory Panel for the Decontamination of Three Mile Island Unit 2. The details of the next meeting will be announced.

ORIGINAL SIGNED BY
William D. Travers

William D. Travers
Director
TMI-2 Cleanup Project Directorate

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Dennis H. Crutchfield
Frank Schroeder, Jr.

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September 23, 1987
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