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MEMORANDUM FOR: William J. Dircks, Acting
 Executive Director for Operations

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

Original Signed By
 E. G. Case

FROM: Bernard J. Snyder, Program Director
 TMI Program Office, NRR

SUBJECT: ADDITIONAL INFORMATION FOR MAY 22, 1980 UDALL HEARING
 ON TMI-2 CLEANUP

Attached are two items for the Udall Hearing:

1. List of minimum times estimated by various sources for getting the ORNL Freon Absorption System operational at the TMI Site.
2. Chronology of major NRC actions to date in cleanup program.

Bernard J. Snyder, Program Director
 TMI Program Office
 Office of Nuclear Reactor Regulation

Enclosures:
 As stated above

cc: J. T. Collins
 E. Hanrahan, PE

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OFFICE	TMI:PO	NRR	NRR		
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DATE	5/20/80	5/20/80	5/20/80		

ESTIMATED MINIMUM TIMES
FOR HAVING ORNL-FREON ABSORPTION SYSTEM
OPERATIONAL AT TMI SITE

<u>SOURCE OF ESTIMATE</u>	<u>DATE OF ESTIMATE</u>	<u>MINIMUM TIME ESTIMATE</u>
ORNL	1/30/80	2 - 4 years
NRC - NUREG-0662*	3/11/80	1 1/2 - 2 years
Prof. Pollock, Michigan State Univ.	3/24/80	1 1/2 years
ORNL	4/25/80	1 1/2 - 2 years
ORNL	5/6/80	13 months
R. Williams, Staff, House Science and Technical Committee	5/9/80	6 months
Union of Concerned Scientists	5/15/80	Provided no separate estimate.
Science Applications, Inc.	5/16/80	13 - 14 months

*NRC met with ORNL to discuss Freon system December 7, 1979. Estimate of 1 1/2 - 2 years based on NRC's reduction of ORNL's estimated 2 - 4 years.

CLEANUP ACTIVITIES AT
THREE MILE ISLAND - CHRONOLOGY

- May 10, 1979 Report published on the results of the Ad Hoc Population Dose Assessment Group in a report titled, "Population Dose and Health Impacts of the Accident at the Three Mile Island Nuclear Station" (NUREG-0558).
- May 25, 1979 Commission issued statement directing the staff to prepare an Environmental Assessment regarding proposals to decontaminate and dispose of radioactively contaminated waste water from Three Mile Island. The Commission further stated that except for the discharge of waste water decontaminated by the existing EPICOR-1 system and discharge of industrial waste water no discharge of waste water shall be permitted.
- June 8, 1979 Meeting between NRC staff and GPU staff and consultants regarding Kr-85 venting - NRC staff indicated a safety evaluation and Environmental Impact Statement required.
- June 13, 1979 Contract signed between NRC and law firm of Rogovin, Stern & Huger for a special inquiry group investigation of Three Mile Island.

June 22, 1979

Letter from Robert A. Barber of the Department of Energy to Thomas Rehm of the NRC providing a copy of the preliminary proposal made by Oak Ridge to the Department of Energy for conceptual studies, design construction and testing of a fluorocarbon based process for removal of Kr-85 from contaminated nuclear offgases (selective adsorption system).

July 2, 1979

Met-Ed contractor Bechtel Power Corporation report on the Initial Planning Study for Containment Entry and Decontamination.

July 2, 1979

Commission order directing that Three Mile Island Unit No. 1 remain shut down until further order of the Commission itself and stated that a public hearing would be held prior to restart of TMI-1.

July 20, 1979

The Commission order suspending the licensee's authority to operate TMI-2 other than in a shut down condition. The Commission further indicated that new and/or revised technical specification will be prepared in about 30 days.

August 9, 1979

Commission order on TMI-1 specifying the basis for the shut down order and the procedure to govern the hearing on TMI-1 restart.

August 14, 1979 NRC issued their Environmental Assessment on the use of EPICOR II at Three Mile Island Unit 2 (NUREG-0591).

August 20, 1979 Commission extended the July 20, 1979 order for an additional 30 days.

September 20, 1979 Commission notice that an additional period of time will be required to finalize the technical specifications.

September 26, 1979 Special panel formed to review radiation protection program for TMI.

October 1, 1979 Letter from Richard T. Kennedy, Acting Chairman of the NRC, to Gary Hart, Chairman of the Subcommittee on Nuclear Regulation, providing information on the contaminated water stored on the site and the licensee's radiation protection program.

October 16, 1979 Order issued by the Commission directing the use of EPICOR II to decontaminate auxiliary building water.

November 13, 1979 Met-Ed submitted its report on gas decontamination titled, "Three Mile Island Unit 2 Reactor Building Purge Program Safety Analysis and Environmental Report."

- November 15, 1979 Letter to Joseph Hendrie, Chairman, Nuclear Regulatory Commission, from Chairman Gary Hart and Senator Alan K. Simpson of the Subcommittee on Nuclear Regulation, submitting a list of questions regarding the risks of the cleanup operations, procedural aspects of the EIS, the venting of krypton from the reactor building and the financial ability of a utility to withstand the effects of an accident or decommissioning.
- November 20, 1979 Letter to Joseph Hendrie, Chairman of the NRC, from Chairman Gary Hart and Senator Alan K. Simpson of the Subcommittee on Nuclear Regulation, requesting information about the program plan for the decontamination of TMI-2; a listing of equipment and technologies needed to accomplish the plan; the appropriate regulatory guidelines to be used; steps necessary to reestablish public confidence in the cleanup operations; and NRC's ability to regulate these operations.
- November 21, 1979 Commission issued policy statement that it would prepare a programmatic Environmental Impact Statement on the decontamination and disposal of radioactive wastes resulting from the Three Mile Island, Unit 2 accident.

November 25, 1979 Letter to R. Vollmer of the NRC from Chairman Gary Hart and Senator Alan K. Simpson of the Subcommittee on Nuclear Radiation, submitting a list of questions on the decontamination and cleanup of TMI-2.

December 7, 1979 Special Panel on Radiation Protection Program at TMI issued its report (NUREG-0640).

December 7, 1979 T. J. Carter of the NRC visited ORNL to discuss the Selective Absorption System for removal of Kr-85 from the TMI-2 reactor building atmosphere.

December 12, 1979 Met-Ed submitted their Summary Technical Plan for TMI-2 Decontamination and Defueling.

December 18, 1979 Letter from Richard Vollmer, NRC, to Robert C. Arnold Met-Ed, regarding containment building atmosphere cleanup.

December 18, 1979 Letter from John T. Collins, NRC, to R. F. Wilson, Met-Ed, requesting additional information on the licensee's proposed program for decontamination of the reactor building atmosphere.

December 20, 1979 NRC staff provides its version of the program plan for decontamination of TMI-2 to the staff of the Subcommittee on Nuclear Regulation.

- January 2, 1980 Letter to Gary Hart, Chairman of the Subcommittee on Nuclear Regulation, from Lee V. Gossick, NRC Executive Director for Operations, providing responses to his November 25, 1979 letter.
- January 4, 1980 Letter from R. F. Wilson, Met-Ed, to John T. Collins, NRC, providing responses to the additional information request of December 18, 1979.
- January 22, 1980 Letter to Gary Hart, Chairman of the Subcommittee on Nuclear Regulation, from John F. Ahearne, Chairman of NRC, providing responses to his November 15, 1979 letter.
- January 24, 1980 Report to the Commissioners on Three Mile Island from the Nuclear Regulatory Commission Special Inquiry Group published (Rogovin Report).
- January 30, 1980 Letter from Herman Postma of Oak Ridge National Laboratory, to Joseph A. Lenard of the Department of Energy, providing a preliminary cost estimate and schedule to develop, design, construct and test a selective absorption system for removing Kr-85 from the containment atmosphere.

February 4, 1980 Letter from John F. Ahearne, Chairman of Nuclear Regulatory Commission, to Gary Hart, Chairman of the Senate Subcommittee on Nuclear Regulation, providing information on the program plan for the decontamination of TMI-2, a listing of equipment and equipment necessary to accomplish the plan, steps necessary to reestablish public confidence in cleanup operations and NRC's ability to regulate these operations.

February 5, 1980 Letter from G. W. Cunningham of DOE, to William Dircks, NRC, stating that from a review of the alternate methods of removing the gas from the containment they concluded that controlled purging is the preferred method.

February 11, 1980 Commission order requiring implementation of the requirements of the revised technical specifications.

February 15, 1980 Established Special Task Force to evaluate cleanup activities at TMI.

February 28, 1980 The Special Task Force on the Three Mile Island cleanup reported on the results of their investigation.

March 4, 1980 Commission approves release of krypton gas in the reactor building air lock at TMI-2.

- March 6, 1980 Further order by the Commission on TMI-1 providing the ASLB further guidance regarding the management competence issues which the Board is to hear in the hearing.
- March 7, 1980 Meeting between S. Miner, J. Carter, M. Greenburg and R. Weller, NRC staff, with J. W. Thiesing, J. Hurd, D. Dalkin, J. Whitecraft and R. Vogue of Bechtel Power Corporation, and N. Cole and D. Strawson of MPR Associates, to discuss the schedule for design, procurement, installation, and startup of the cryogenic system evaluated by licensee and to establish minimum time required for the activities.
- March 10, 1980 Meeting between Sydney Miner, Mark Greenburg and Jerry Carter of NRC, and Milton Lytton of MITRE Corporation, to discuss cryogenic distillation processes for removal of Kr-85 from air and minimum time necessary to design, procure, install, and start up such a system.
- March 11, 1980 Issued the "Environmental Assessment for the Decontamination of the Three Mile Island Unit 2 Reactor Building Atmosphere" (NUREG-0662).

March 19, 1980 Public meeting held in Middletown, Pennsylvania, to discuss the Environmental Assessment for the Decontamination of Three Mile Island Unit 2 Reactor Building.

March 21, 1980 Meeting between R. Vollmer of the NRC, and Milton Lytton of MITRE, to discuss cryogenic distillation of krypton from air.

March 27, 1980 NRC issued Addendum No. 1 to NUREG-0662 providing information on the ongoing stress studies.

March 31, 1980 NRC issued Addendum No. 2 to NUREG-0662 providing an assessment of a fast purge alternative for decontaminating Unit 2 reactor building.

April 7, 1980 Commission approved interim criteria for releases radioactive effluents pending completion of Programmatic Environmental Impact Statement.

April 9, 1980 MITRE Corporation submits its proposal for a cryogenic distillation system.

April 25, 1980 ORNL staff briefs Commission and Congressman Ertel on Selective Absorption System.

May 6, 1980 Letter from Herman Postma of Oak Ridge National Laboratory to Department of Energy provides updated information on the Selective Adsorption System.

May 7, 1980 At request of Governor Thornburg, the Commission extended the public comment period on NUREG-0662 to May 16, 1980.

May 13, 1980 Received letter from Congressmen Kostmayer, Udall and Lujan to Chairman Ahearne describing actions taken to establish a Citizens Advisory Panel for the purpose of consulting and advising the NRC on the decontamination and decommissioning of the TMI-2 reactor.

May 15, 1980 Received letter from Congressman Ertel to Chairman Ahearne describing the possibility of expediting the installation and use of a cryogenic process designed by the MITRE Corporation.

May 15, 1980 Received a copy of letter from Congressman Ertel to Chairman Ahearne which discussed the UCS report prepared for Governor Thornburg.

May 15, 1980 Received a copy of the report prepared for Governor Thornburg by the Union of Concerned Scientists.

May 16, 1980 Received a copy of a draft report prepared by Science Applications, Inc. (SAI) at the request of the Commission. This report compares the purging alternative with the Selective Absorption Process.

May 16, 1980 Received a copy of letter from Governor Thornburg to Chairman Ahearne.

May 16, 1980 Received a copy of report by NCRP which evaluated the health effects of the purge operation.