October 25, 1973

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

Before the Atomic Safety and Licen ing Board

In the Matter of	)	
	)	
METROPOLITAN EDISON COMPANY, et al.	)	Docket No. 50-289
	)	
(Three Mile Island Nuclear Station, Unit 1)	)	

APPLICANTS' PREPARED TESTIMONY
RELATED TO
EMERGENCY PLAN

The Metropolitan Edison Company plans for coping with radiation emergencies are described in the Radiation Emergency Plan (FSAR App. 12A). The Radiation Emergency Plan is, in turn, a portion of a broader plan entitled, "Three Mile Island Emergency Plan". The TMI Emergency Plan also encompasses plans which delineate organizational responsibilities of State personnel during the period immediately following a radiological accident, plans for interfacing State and facility personnel, and detailed procedures which implement the Three Mile Island Emergency Plan. All radiation emergencies are treated in a consistent manner with the degree of response keyed to the degree of severity. The plans and procedures for radiation emergencies cover all emergencies up to and including the consequences of a Design Basis Accident.

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The responsibility for control of personnel and activities onsite during any radiation emergency rests with the Metropolitan Edison Company. The responsibility for such offsite involvement as may be required lies principally with the Commonwealth of Pennsylvania. Interfacing responsibilities between these two entities are spelled out in a document incorporated into the overall TMI Emergency Plan entitled, "State/Met-Ed Radiation Emergency Interface Plan". It is the intent of this plan to coordinate activities of the Commonwealth of Pennsylvania, Department of Environmental Resources, Bureau of Radiological Health, with the Metropolitan Edison Company Three Mile Island Nuclear Generating Station. This plan also outlines the role of other organizations such as the State Police, Civil Defense, U.S. Coast Guard and local fire companies. This document reflects the desire of all parties involved to provide in-depth safety measures for the public and prevent damage to property should a radiological incident occur.

The TMI Emergency Plan describes action levels and specific duties required of station personnel during any incident involving abnormal radiation levels. A complete set of radiation emergency procedures and emergency operating procedures further describes measures to be taken during a radiation emergency. Preparation of these procedures is complete and copies have been reviewed by the Atomic Energy Commission, Directorate of Regulatory Operations.

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The TMI Emergency Plan is in large part concerned with local and site emergencies, the consequences of which would not extend beyond the site boundaries. The detailed procedures specify appropriate warning systems, conditions requiring site evacuation, the site evacuation routes, radiation monitoring checkpoints and procedural steps for site evacuation by visitors, vendors, construction workers and plant staff personnel who are not essential to actual plant operation or to carrying out the emergency plan.

Although events requiring evacuation for persons living within a two-mile radius of the plant site are highly improbable and would have to be catastrophic in nature, detailed general emergency procedures covering this eventuality have also been prepared. These detailed general emergency procedures address the criteria for evacuation of various sectors of the low population zone (LPZ), the interaction and communications between the TMI plant site and the AEC, Pennsylvania State Department of Environmental Resources Division of Radiological Health, State Police, the Civil Defense and the Coast Guard. A general emergency will be declared by TMI when one or more of the following has occurred:

(a) The reactor building high range gamma monitor indicates 8 rem/hr.

(b) The radiation level at the site boundary is 125 mrem/hr.

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(c) The liquid effluent radiation monitor (RML-7) indicates greater than 6.8×10^{-3} µc/cc.

The Commonwealth of Pennsylvania has adopted its own emergency plan entitled the "Pennsylvania Plan for the Implementation of Protection Action Guides" applicable to all stationary nuclear power plants within the State. This Plan details, among other things, the prime State agencies responsible for its use, classifies accidents as to their severity, and specifies protective actions to be taken in the event of radiation emergencies. Under the State plan, evacuation of affected areas of the low population zone may be ordered by the State Bureau of Radiological Health whenever exposures to offsite persons as a result of accidental releases of airborne radioactive materials are calculated to exceed 5 rems whole body dose or 30 rems thyroid dose. In the event of a catastrophic accident presenting immediate severe danger to the local population, if contact cannot be promptly established between the TMI staff and the Bureau of Radiological Health, TMI may initiate evacuation through the State Police.

If the decision is made to evacuate a section of the LPZ, the State Police will notify each resident of the affected area and instruct them to report to Civil Defense shelters as directed by the Civil Defence Officer. Those individuals needing transportation will indicate the same to the State Police who will in turn notify Met Ed. Met Ed will arrange transportation by its own vehicles obtained from

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other Met Ed offices or by Civil Defense vehicles. Specific evacuation routes for offsite persons have not been established in the Radiation Emergency Plan. Met Ed does not consider it either necessary or feasible to prescribe specific routes in advance. However, the State/Met Ed Interface Plan does provide that in the event of a general emergency the State Police will establish road blocks at designated points on the periphery of the low population zone, thus preventing vehicles from entering the LPZ and thereby facilitating evacuation from the LPZ.

Specially equipped and trained offsite radiation monitoring teams will be dispatched from the site to measure the radioactive concentrations and radiation levels offsite. Arrangements have been made with the Hershey Medical Center for the handling and treatment of contaminated and injured site personnel. The Medical Center has developed detailed procedures for the handling and care of contaminated and injured personnel.

To insure that plant staff members and outside agencies are maintained at a high degree of emergency readiness, annual drills and periodic training sessions will be conducted. The Training Coordinator, in conjunction with senior plant management, will annually review with Met Ed employees their responsibilities regarding emergency conditions. Each year they will select specific accident conditions to thoroughly analyze the required responses by

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each individual involved in the implementation of the Radiation Emergency Plan. Prior to the conduct of the drill, thorough analysis and review, or walk-through exercise, may be utilized to better familiarize each person with his responsibilities in the inter-relationships of the various tasks performed during an emergency situation. These training exercises may involve the cooperation of various offsite agencies. The time allotted for the exercise will be one day, although training for the exercise may involve several days.

In addition to scheduled training and exercise sessions, periodic unrehearsed training exercises may be enacted to evaluate the plant's readiness in real emergency situations. Appropriate members of the plant staff will receive training sessions in areas such as use of diffusion overlays and topographical maps, use of meteorological data, and use of portable survey instruments.

The development of this emergency plan required the direct gross expenditure of an estimated $40,000 for labor and materials. Indirect costs, more difficult to quantify and more remote, are the labor and materials expended by other agencies in developing previous plans and guides which served as a starting point in the development of the Three Mile Island Emergency Plan. The cost of implementation of the emergency plan is not susceptible of quantification because

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of the broad spectrum of events and effects which can be hypothesized.

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Educational and Professional Qualifications

Richard W. Heward, Jr.

Project Manager

GPU Service Corporation

1. My name is Richard W. Heward, Jr. I am employed by GPU Service Corporation in Parsippany, New Jersey, as Project Manager for the Three Mile Island Nuclear Station.

2. I was graduated from Swarthmore College in 1957 with a Bachelor of Science Degree. In 1958 I completed a one-year course at the Oak Ridge School of Reactor Technology.

3. From 1957 to 1967 I was employed by New York Shipbuilding Corporation in varying engineering and management capacities on the nuclear ship "Savannah", four nuclear powered attack submarines and one nuclear powered frigate.

4. In 1967 I joined General Public Utilities and was Safety and Licensing Manager of the Nuclear Power Activities Group until March 1970. From March 1970 until November 1971 I was Project Manager for the Forked River Nuclear Power Station. In November 1971 I was assigned as Project Manager for the Three Mile Island Project.

RESUME OF ROBERT C. ARNOLD

MY NAME IS ROBERT C. ARNOLD; I AM MANAGER OF GENERATION FOR METROPOLITAN EDISON COMPANY.

I GRADUATED FROM THE UNIVERSITY OF MICHIGAN IN 1959 WITH A B.S. (SCIENCE ENGINEERING). UPON GRADUATION, I WAS COMMISSIONED IN THE U.S. NAVAL RESERVES AND SERVED MY INITIAL FOUR YEARS IN VARIOUS DESTROYER ASSIGNMENTS.

IN OCTOBER OF 1963, I COMMENCED ONE YEAR OF TRAINING IN THE U.S. NAVY NUCLEAR POWER PROGRAM. UPON COMPLETION OF QUALIFICATION AT THE PROTOTYPE PLANT, WHICH WAS A PART OF THE ONE-YEAR PROGRAM, I WAS ASSIGNED TO THE STAFF OF THE MANAGER-OPERATIONS, LARGE SHIP REACTOR PROTOTYPE (A1W) AT THE NAVAL REACTOR FACILITY, IDAHO FALLS, IDAHO. UPON COMPLETION OF A TWO-YEAR TOUR OF DUTY AT THE NAVAL REACTOR FACILITY AND COMPLETION OF QUALIFICATION AS AN ENGINEER OFFICER FOR A NUCLEAR POWERED SHIP, I WAS ASSIGNED AS MAIN PROPULSION ASSISTANT ABOARD THE U.S.S. LONG BEACH (CGN-9). I SERVED ABOARD LONG BEACH FOR THREE YEARS, THE DUTY BEING TERMINATED UPON MY RESIGNATION FROM THE NAVAL SERVICE.

IN SEPTEMBER OF 1969, I JOINED METROPOLITAN EDISON COMPANY AS AN ENGINEER-SR. ON THE STAFF OF THE SUPERINTENDENT-PRODUCTION. IN JULY OF 1971, I WAS PROMOTED TO SUPERVISOR-PRODUCTION; AND, IN JANUARY 1972, I WAS PROMOTED TO MANAGER-PRODUCTION. IN THIS CAPACITY, I WAS RESPONSIBLE FOR THE OVERALL TECHNICAL DIRECTION AND SUPERVISION OF METROPOLITAN EDISON COMPANY'S GENERATING FACILITIES AND REPORTED TO THE COMPANY'S CHIEF ENGINEER.

IN JANUARY OF 1973, THE POSITION OF MANAGER-PRODUCTION WAS ABOLISHED AND I WAS NAMED MANAGER - GENERATION--WITH RESPONSIBILITY FOR TECHNICAL AND ADMINISTRATIVE SUPERVISION OF THE OPERATION, ENGINEERING AND MAINTENANCE OF MET-ED'S GENERATING FACILITIES. IN THIS CAPACITY, I REPORT DIRECTLY TO THE COMPANY PRESIDENT.

THROUGHOUT MY FOUR YEARS PLUS AT METROPOLITAN EDISON, I HAVE BEEN DIRECTLY AND INTIMATELY INVOLVED WITH THE PREPARATION AND TRAINING OF THE OPERATING STAFF FOR THREE MILE ISLAND OPERATIONAL PHASE. SINCE JANUARY OF 1972, I HAVE HAD LINE RESPONSIBILITY FOR OVERALL DIRECTION AND SUPERVISION OF THIS EFFORT.

EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS
EDWIN GRANT WARD
SENIOR PROJECT MANAGER, NUCLEAR POWER GENERATION DIVISION
POWER GENERATION GROUP
THE BABCOCK & WILCOX COMPANY

1. My name is Edwin Grant Ward. I reside at 4705 Heritage Drive, Lynchburg, Virginia. I am employed by The Babcock & Wilcox Company, Nuclear Power Generation Division, Reactor Department, as a Senior Project Manager.

2. I was graduated from Purdue University in 1948 with a Bachelor of Science of Mechanical Engineering Degree.

3. I am currently registered as a Professional Engineer in the State of Indiana.

4. In 1948, I joined The Babcock & Wilcox Company where the first year was spent in the Company's Student Engineer Training Program.

5. In 1949, I was assigned to the Company's Field Service Department where I was engaged in startup and trouble shooting activities in industrial and utility steam generating installations.

6. In 1956, I was appointed District Service Engineer for the Philadelphia District where I was responsible for field service activities including supervision of field engineers.

7. In 1967, I was transferred to the Nuclear Power Generation Department as a Proposal Manager where responsibilities included preparation of Nuclear Steam System proposals in response to bid requests.

8. Later in 1967, I was assigned to the Nuclear Power Generation Contract Section as an Assistant Project Manager with responsibilities for administration of the Three Mile Island Unit No. 2 NSS contract. My present position is Senior Project Manager and includes responsibility for Three Mile Island Nuclear Station, Units #1 and #2.

WILLIAM F. SAILER
Project Manager

Summary:	Project Manager, engineering and licensing effort for Metropolitan Edison Company's Three Mile Island Nuclear Generating Station Unit No. 1, 840 MW (e). Also, responsible for the preparation of schedules, design review, manhour estimates, cash flow forecasts and the coordination of site liaison, startup and Quality Assurance personnel.
Education:	Albright College United States Naval Electronics School Wyomissing Polytechnic Institute Railway Educational Bureau
Experience:	Gilbert Associates since 1958
1971 to Present	Project Manager for the engineering and licensing effort for Metropolitan Edison Company's, Three Mile Island Unit No. 1, 840 MW, Nuclear Generating Station.
1966 to 1971	Project Electrical Engineer - Responsible for all electrical engineering, design, specifications and the preparation of the PSAR and FSAR for Metropolitan Edison Company, Three Miles Island, Unit No. 1, 840 MW, nuclear.
1965	Electrical Engineer - Electrical design for Rochester Gas & Electric Corp., Ginna Unit No. 1, 420 MW, nuclear; du Pont, Victoria Plant, 300,000 lb/hr and May Plant, 230,000 lb/hr.
1964-1965	Electrical Engineer - Supervision for electrical construction and startup for Societa Mineraria Carbonifera Sarda, Centrale Termoelettrica Sulcis, Unit No. 1, 250 MW.
1962-1964	Preparation of detailed technical specifications and system diagrams for the purchase and installation of transmitter-receiver radio telephone equipment for the Forest Protection Communications and Flood Control Radio System; supervision for the installation and testing of these systems.
1958-1962	Electrical Engineer - Short circuit and voltage regulation studies, protective relay calculations and the design of elementary single line, three line, instrument and control diagrams and approval of manufacturer's prints and inspection of equipment prior to shipment for: Saxton Nuclear Energy Corp., Saxton Experimental Reactor, 20 MW (t); Baltimore Gas and Electric Company, Crane Unit No. 1, 175 MW; Kyushu Electric Power Company, Japan, Karita Unit No. 2, 156.25 MW; Kyushu Electric Power Company, Japan, Karita Unit No. 3, 156.25 MW.
1954-1958	Reading Company Railroad, Reading, Pennsylvania Senior Technician, Research and Development

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WILLIAM F. SAILER (Continued)

1952-1954	U. S. Navy
Licenses:	Professional Engineer - Commonwealth of Pennsylvania, State of Florida First Class Radio Telephone - Federal Communications Commission
Societies:	Institute of Electrical and Electronics Engineers Member of JCNPS SC-4 Subcommittee on Auxilary Power Systems
Year of Birth:	1930

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CERTIFICATE OF SERVICE

I hereby certify that copies of Applicants' Prepared Testimony, dated October 25, 1973, were served upon those persons on the attached service list by deposit in the United States mail, first class or airmail, this 25th day of October, 1973.

George F. Trowbridge

Dated: October 25, 1973

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October 25, 1973

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POOR ORIGINAL

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