Met-Ed / GPU

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July 15, 1980
TLL 344

Mr. B. H. Grier
Director Office of Inspection
and Enforcement Region I USNRC
631 Park Avenue
King of Prussia, PA 19406

Three Mile Island Nuclear Station, Unit II (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
TMI-II Quarterly Report No. 4

Dear Mr. Grier:

Enclosed please find the seventh followup report, the fourth quarterly report, which describes related progress since the March 28, 1979, incident occurring at TMI-II. This report documents current progress information for the period April 1 through June 30, 1980, and is submitted in accordance with section 6.9.1.10 of the TMI-II Recovery Technical Specifications. Also included in this report is the Radiation Safety Program Report as described in section 6.9.1.5 of the TMI-II Recovery Technical Specifications.

Sincerely,

G. K. Hovey
Director, TMI-II

GKH:LWH:lh

Enclosure: TMI-II Recovery Quarterly Progress Report for the period April 1, 1980, through June 30, 1980.

cc: J. T. Collins
[redacted]

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THREE MILE ISLAND UNIT 2
RECOVERY QUARTERLY PROGRESS
REPORT FOR THE PERIOD
ENDING JUNE 30, 1980

APPROVED BY: G K Hovey

G.K. Hovey
Director
TMI Unit 2

Prepared for the U.S. Nuclear Regulatory Commission, Director Region 1 Office, King of Prussia, Penna. in accordance with paragraphs 6.9.1.6 and 6.9.1.10 of TMI Unit 2 Technical Specification.

Submitted to USNRC Region 1, July 15, 1980

METROPOLITAN EDISON COMPANY/
GENERAL PUBLIC UTILITIES
THREE MILE ISLAND
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LIST OF ACRONYMS

A/E.....Architect/Engineer
ADHR.....Alternate Decay Heat Removal System
AGNS.....Allied-General Nuclear Services
ALARA.....As Low As Reasonably Achievable

BOP.....Balance of Plant
BTU/hr.....British Thermal Unit per hour
BWST.....Borated Water Storage Tank

CAM.....Constant Air Monitor
CCB.....Chemical Cleaning Building
cfm.....cubic feet per minute
CFR.....Code of Federal Regulations
Ci.....Curie
CNSI/TMI.....Chem Nuclear Systems Incorporated/Three Mile Island
CRT.....Cathode Ray Tube

DER.....Department of Environmental Resources
DHV.....Decay Heat Valve
DOE.....Department of Energy
DOP.....Di-octyl Phthalate
dpm.....disintegrations per minute
dps.....disintegrations per second

ECM.....Engineering Change Memo
EDF.....Equipment Decontamination Facility
EIAG.....Environmental Impact Assessment Group
EPA.....Environmental Protection Agency
EPRI.....Electric Power Research Institute
ERDA.....Energy Research and Development Agency

Ge(Li).....Germanium Lithium
GORB.....General Officers Review Board
gpm.....gallons per minute

HEPA.....High Efficiency Particulate Air (Filter)
HNDC.....Hittman Nuclear Development Corp.
HP or H/P.....Health Physics
HPP.....Health Physics Procedure
HVAC.....Heating Ventilation and Air Conditioning

I&C.....Instrumentation & Control
ICRP.....International Commission on Radiation Protection
I&E.....Inspection & Enforcement

k.v.....kilo volts

LSA.....Low Specific Activity

MDHRS.....Mini-Decay Heat Removal System
MPC.....Maximum Permissable Concentration
MR.....Material Request
MU-T1.....Make-Up Tank #1

NCRP.....National Council on Radiation Protection
N.D.....Not Detected
NSRW.....Nuclear Service River Water Pumps
NSS.....Nuclear Support Services
NSSS.....Nuclear Steam Supply System
NQAM.....Nuclear Quality Assurance Manual

ORNL.....Oak Ridge National Laboratory

PaBRP.....Pennsylvania Bureau Radiation Protection
pCi/l.....pico curies per liter
PM.....Preventative Maintenance
PO.....Purchase Order
PORC.....Plant Operations Review Committee
ppm.....parts per million
PRAM.....Portable Remote Area Monitoring
psig.....pounds per square inch gauge
PWST.....Processed Water Storage Tank

QAD.....Quality Assaurance Department
QCL.....Quality Classification List

Rad Con.....Radiation Control
RB.....Reactor Building
RCBT.....Reactor Coolant Bleed Tank
RCS.....Reactor Coolant System
R&D.....Research & Development
REMP.....Radiological Environmental Monitoring Program
R/M.....Radioactive Material
RO/SRO.....Reactor Operator/Senior Reactor Operator
RWP.....Radiation Work Permit

SAI.....Scientific Analysis Inc.
SDS.....Submerged Demineralizer System
SG-B.....Steam Generator "B"
SOP.....Standard, Station, or Special Operating Procedure
SPC.....Standby Pressure Control

TLD.....Thermoluminescent Dosimeter

VEM.....Ventilation Exhaust Monitor

SECTION 1

INTRODUCTION & SUMMARY

1.1 INTRODUCTION

This presentation is the:

1) Seventh follow-up report,

2) Fourth Quarterly Report to date and,

3) Second Quarter Report for calendar year 1980,

and as such is submitted to the USNRC as required, by July 15, 1980. This report as proffered will fulfill TMI-Unit II's requirement to comply with USNRC Technical Specifications:

1) 6.9.1.10 Reporting Requirements for incident which occurred on March 28, 1979.

2) 6.9.1.6 Radiation Safety Program Report, including the Management Plan.

This report is a Status of Current Activities and if an item is in contradiction with previously reported progress, this report shall be deemed correct.

The scope of each and every activity was submitted in the third quarterly report, and when no change in scope has occurred, it is not repeated in this report. Those scopes that do appear within, represent a changed scope for that particular section or subsection.

1.2 INTENT

It is the intent of this document to report the activities of TMI-II's Recovery Efforts that occurred during the months of April, May, and June of 1980. This report will show that during this reporting period, progress was made in the area of corrective action, i.e., decontamination, modifications, procedure revisions, training, monitoring, construction, engineering and planning.

A graphic presentation included in Section 1 - Introduction and Summary, shows the overall progress on Recovery activities to date, and the graphics presented in Section 8 - Construction, show the tie-in to the text explaining the current tasks. This visual approach shows TMI-Unit II's Recovery Status.

1.3 SUMMARY OF CURRENT PROGRESS

1.3.1 RECOVERY ENGINEERING - SECTION 3

Project Engineering was involved in engineering design activities regarding the move of Epicor I, and preliminary design work for the Reactor Coolant System Cleanup capabilities. Results are under review for the Submerged Demineralizer System dewatering tests completed at AGNS and responses to Round 1 comments from the USNRC on Submerged Demineralizer System - Technical Evaluation Report are being drafted. Project Engineering provided engineering support for Groundwater observation wells and Processed Water Storage Tanks' construction. Substantial work was done on the Mini-Decay Heat Removal System including drafting normal and emergency procedures for its operation. Project Engineering has reviewed the Core Boron Concentration dynamics. Revision of flow diagrams, and development of general arrangement diagrams for the Evaporator/Solidification Facility were in progress. Studies relating to laundry facilities and laundry requirements were in progress, as well as screening tests for the Epicor II resins, and the completion of a design to modify Epicor II liners.

Support Engineering revised a procedure for opening either DHV1 or V171 valve, which was approved by the USNRC with comment. Creation of a direct measurement system for the Reactor Building water level occurred this reporting period. Graphs and studies provided trends for the Reactor Coolant System Chemistry, and variations in dissolved gas concentrations were reviewed. A flow measuring device was installed, to the "A" generator feed line for the Reactor

coolant System and the Boron Concentration was analyzed. Revision of a procedure to reduce pressure in the Reactor Coolant System to 100 psig was approved by the USNRC, and the desirable pressure reduction was realized in May.

Technical Planning investigated the concept of "strong container" in the area of Solidification of ion exchange media. Waste transportation activities included a review of plans for cask optimization and procurement, and review of a transportation services bid by Chem-Nuclear Services. Sample runs of the Li-Con mini-evaporator are being evaluated to determine its possible use as a contingency processing method. Technical Planning also participated in Research and Development projects.

Burns & Roe Engineering prepared change packages to the Epicor II System including design of Health/Physics enclosure, an "in-line" radiation monitor, piping design for sump water, and modifications to increase storage capacity of tanks. Engineering change packages were also prepared on the Mini-Decay Heat Removal System including pressure indication and alarm for inlet debris filter, vibration monitoring, shielding design for valves and piping and a design to relocate existing seismic monitors. On the Submerged Demineralizer System, engineering change packages were prepared to supply the electrical power requirements for the system. Additional engineering change packages were prepared for plant fire protection, BOP diesel generators, and the borated water storage tanks.

1.3.2 OPERATIONS AND MAINTENANCE - SECTION 4

Process Support reports that the temporary liquid waste storage tanks in the "A" Fuel Pool are being used to store 51,000 gallons of water of Auxiliary Building miscellaneous waste. The tanks have a total capacity of 110,000 gallons. Epicor II is currently operating successfully and has processed 365,000 gallons of water from Unit II. The Interim Solid Waste Facility for Epicor liners is operational. Construction has been completed and start-up testing has begun on the Nuclear Sampling System.

Site Operations and Maintenance report that both the "A" and "B" trains, in the Auxiliary Ventilation System are in service, and modifications for the Reactor Building purge have been completed.

This included the uncapping of the ventilation stack and the securing of the supplemental roof filter and fan system. The generator layup is complete and the "D" Nuclear Service River Water Pump has been repaired and returned to service. The "B" waste gas compressor was also repaired but the discharge pressure did not meet specifications. At this time, maintenance is attempting to repair the suction line blockage. Review of all systems Preventative Maintenance is continuing.

Plant Engineering reports that high priority was placed on completion of items related to the purge. On the in-place Recovery Systems and pre-accident plant systems, a backup replacement charging pump has been ordered for the Standby Pressure Control System, and a direct reading manometer for Reactor Building water level was

made operational. A Technical Specification change request was submitted for the heating and ventilation systems, and a failure analysis on Nuclear Service River Water pump 1D shaft bearings is being performed. Fixed sprinkler systems were installed, and a procedure for welding and cutting permits was revised. On Recovery Systems, Plant Engineering was involved in preparation of operating and emergency procedures, engineering reviews, and requests of Technical Specifications where necessary. The expansion of the gamma spectroscopy facility and the testing of the Temporary Sampling System was completed.

Decontamination section reports that 91% of the decontamination of open areas is complete and that nine (9) cubicles were decontaminated to less than 1000 dpm. An additional 40% of floor drains, drain bells and drain piping has been hydrolased and decontaminated. Gross decontamination of both the seal injection cubicle and the makeup pump room "B", were performed. In addition, five (5) system filters have been removed, replaced and decontaminated.

1.3.3 RADIOLOGICAL CONTROLS - SECTION 5

Accomplishing the objectives as outlined in the Management Plan represented the major activities performed by Radiological Controls. Technical and ALARA support was provided for the Re-entry Program, including instrument, dosimetry and protective clothing testing and related tasks. Also included was respiratory protection equipment selection. Nineteen (19) listed procedures were written in addition to revisions to numerous existing procedures. Continuing efforts were expended to upgrade the dosimetry program including

initiations of corrective actions and development of a computer program. Radiological training programs were written in procedural format. The ALARA procedure is now in the approval cycle, and a calibration program has been initiated to calibrate all Radiological Equipment on a routine basis.

1.3.4 SPECIAL PROJECTS - SECTION 6

A major emphasis during this reporting period was on completion of those items relating to the controlled purge of the Reactor Building. As of June 30, approximately 4500 curies of Krypton 85 have been released. Further details will be submitted in the next quarterly report. An assessment of all Reactor Building air sample analysis results was completed in May 1980. At the end of Section 6, Tables 1 through 8, will reflect these samples.

The Reactor Building Entry was attempted on May 20, 1980, but was unsuccessful due to a non-operational handwheel which caused the inner door to jam.

1.3.5 ENVIRONMENTAL MONITORING - SECTION 7

Of primary importance was maintaining the Radiological Environmental Monitoring Program. Groundwater monitoring continued with the completion of seven (7) additional observation wells being installed. Immediately following section 7, there are charts depicting the test results. Preparations for the containment atmosphere purge were completed, including additional equipment acquisitions, equipment calibration, and equipment field testing and placement. All personnel involved, were trained on pertinent equipment and two (2) trial runs were made to test personnel preparedness.

1.3.6 CONSTRUCTION - SECTION 8

This section outlines by project or system, the construction activities occurring during this reporting period. Modifications to systems, and percentages of completion will depict the construction efforts of the overall Recovery of TMI-II. Immediately following section 8, is a graphic presentation of the Recovery progress.

1.3.7 QUALITY ASSURANCE - SECTION 9

The TMI-II Recovery Quality Assurance Plan was extensively reviewed by other TMI organizations and appropriate revised drafts were written.

Program discussions have continued with Bechtel and the first general review of their draft QA Manual was performed.

Work has continued in cooperation with Technical Functions to establish a workable quality classification system.

1.3.8 TRAINING - SECTION 10

Operator training is continuing, including training for Auxiliary "B" Operators and replacement operators. Operator Requalification Program, maintenance skills training program and Health Physics training program were conducted. On a continuing basis is the general employee training. Requirements of a USNRC, I&E bulletin were met in the performance of Radwaste Administration Training as well as Radwaste Reduction Training. A special program was completed for the Reactor Building Re-entry team as well as the Reactor Building purge system training. The chemistry technician

training commenced for Unit I personnel in May, and is being made available for Unit II personnel.

1.3.9 SECURITY - SECTION 11

Fifteen (15) procedures have been written and approved during the quarter. The Control Room Doors were modified to resolve a non-compliance from an earlier inspection.

MILESTONE SUMMARY SCHEDULE

FIGURE 1-1
(SHEET 1 OF 15)

LEGEND

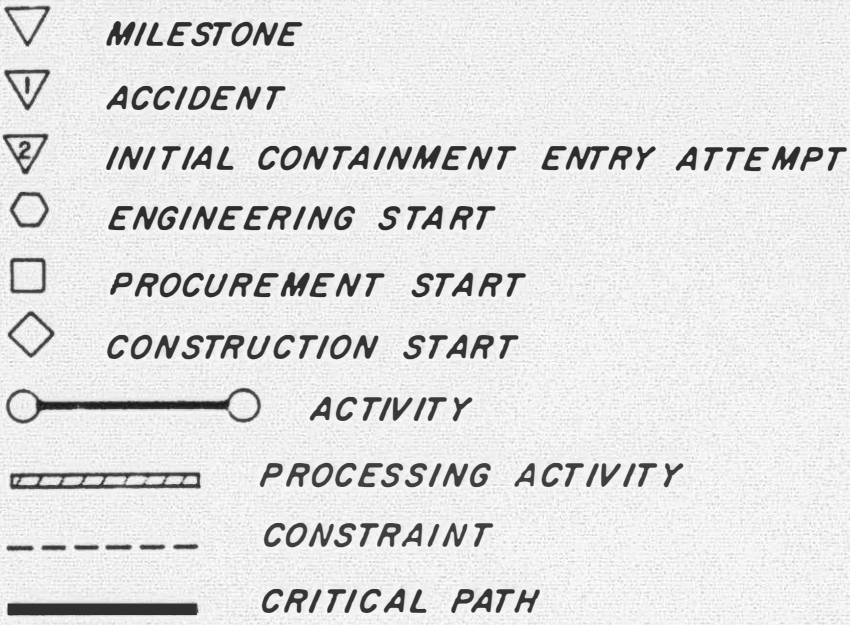
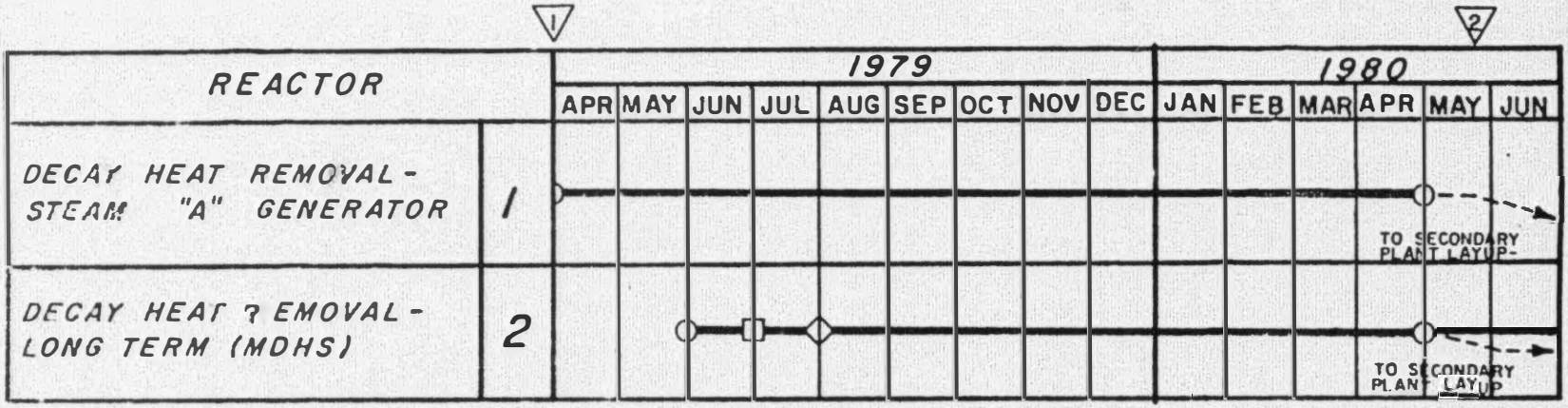


FIGURE 1-1
(SHEET 2 OF 15)

NOTES

1. SCHEDULE INFORMATION FROM G.P.U. ESTIMATE.
2. GENERAL NOTE:
   CRITICAL PATH ITEMS ARE ADJUSTED FOR ROLLING FOUR-TEN WORK SCHEDULES BEGINNING JAN. 1, 1981. ROLLING FOUR-TEN'S DOUBLE SHIFTS FOR 1982 & BEYOND. FACILITIES NOTED WITH (* *).

FIGURE 1-1
(SHEET 3 OF 15)



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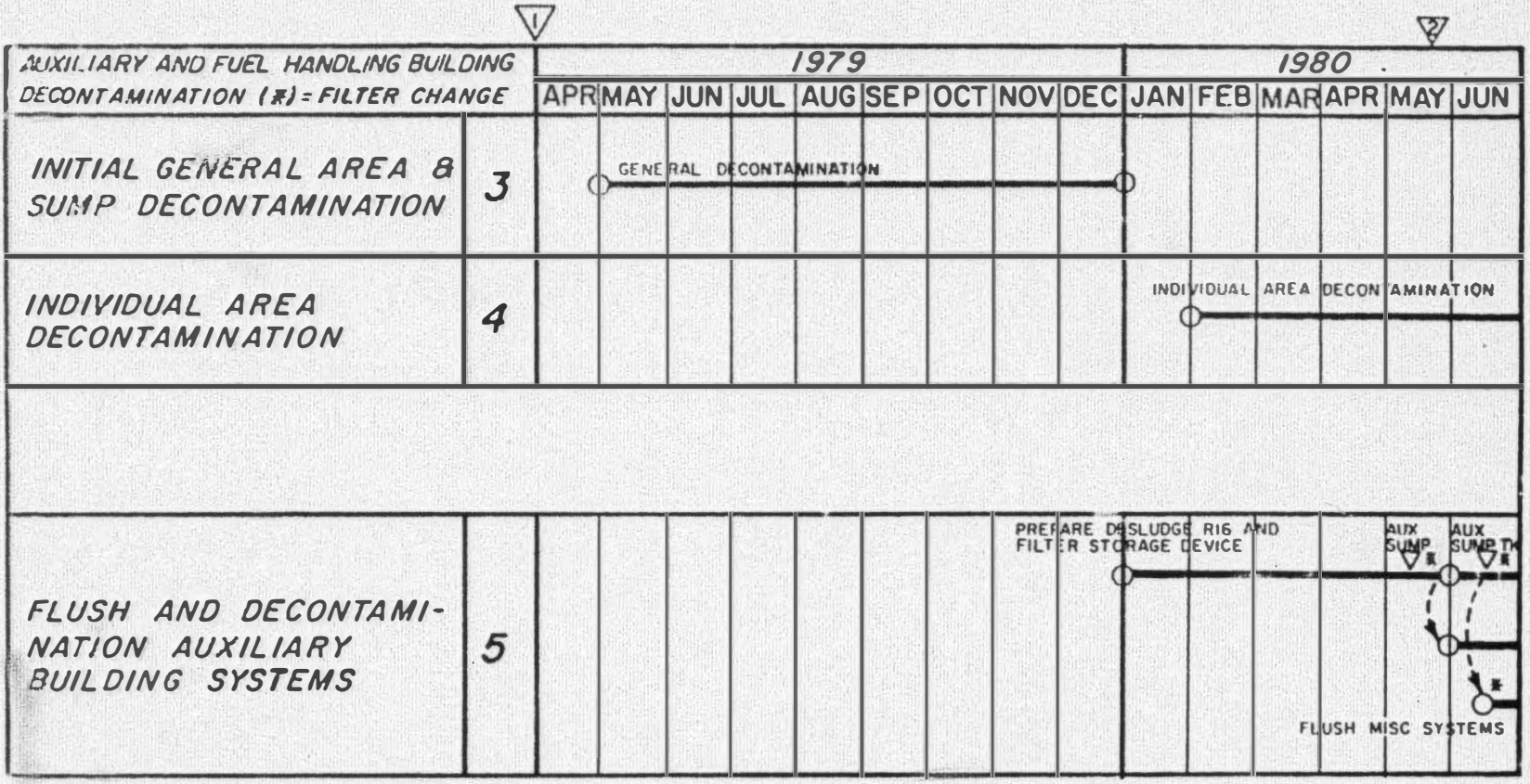
(SHEET 4 OF 15)



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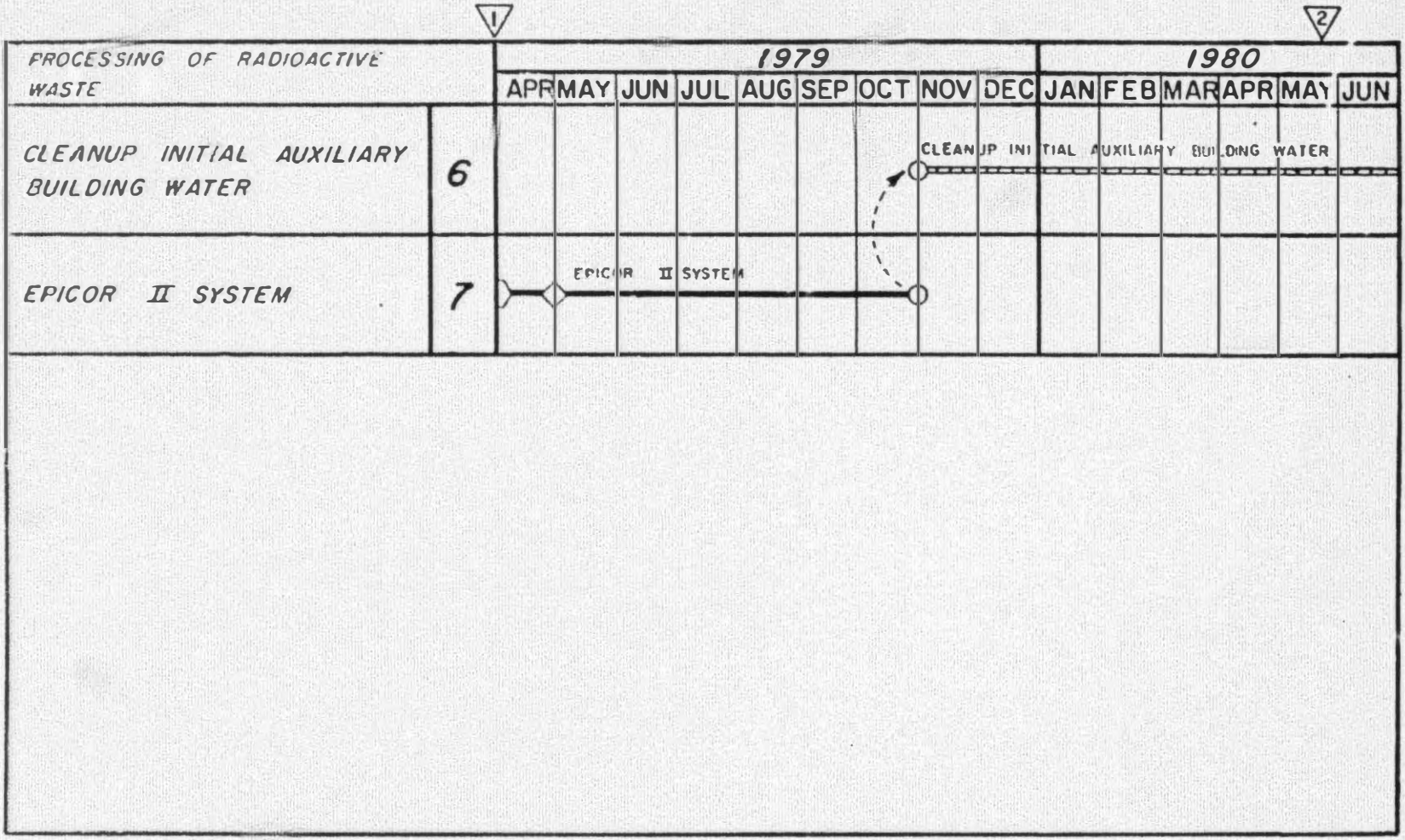
(SHEET 5 OF 15)



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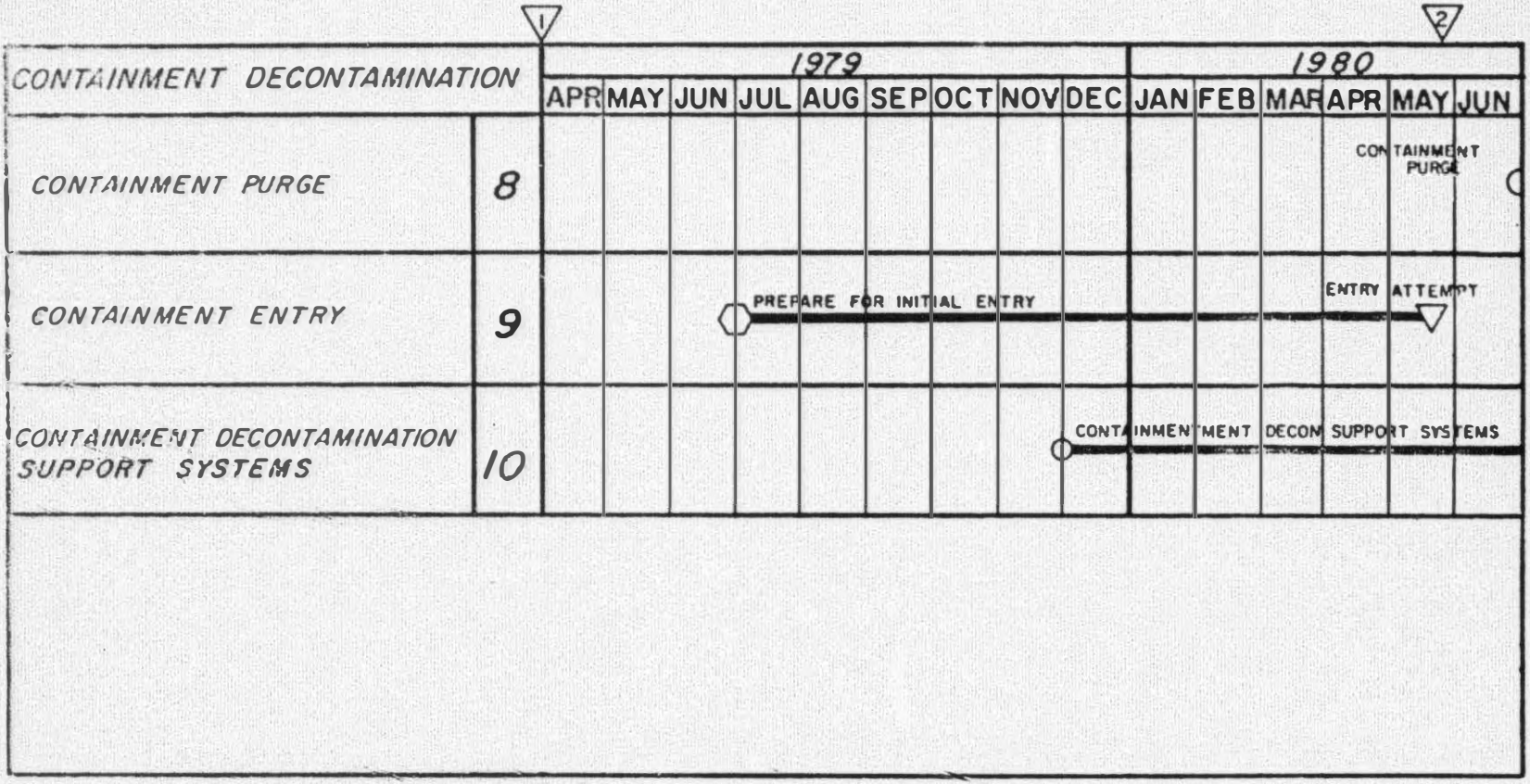

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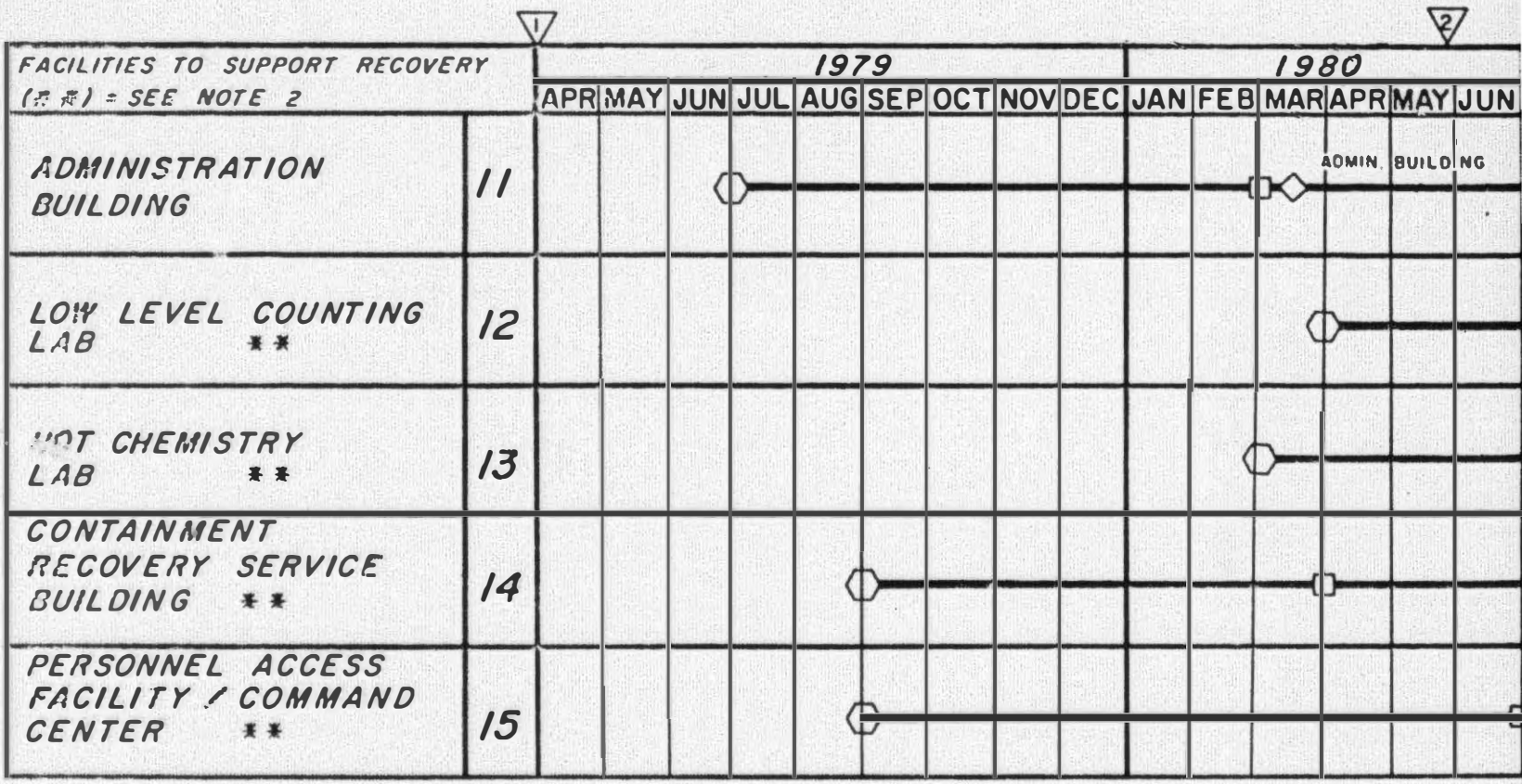
(SHEET 7 OF 15)



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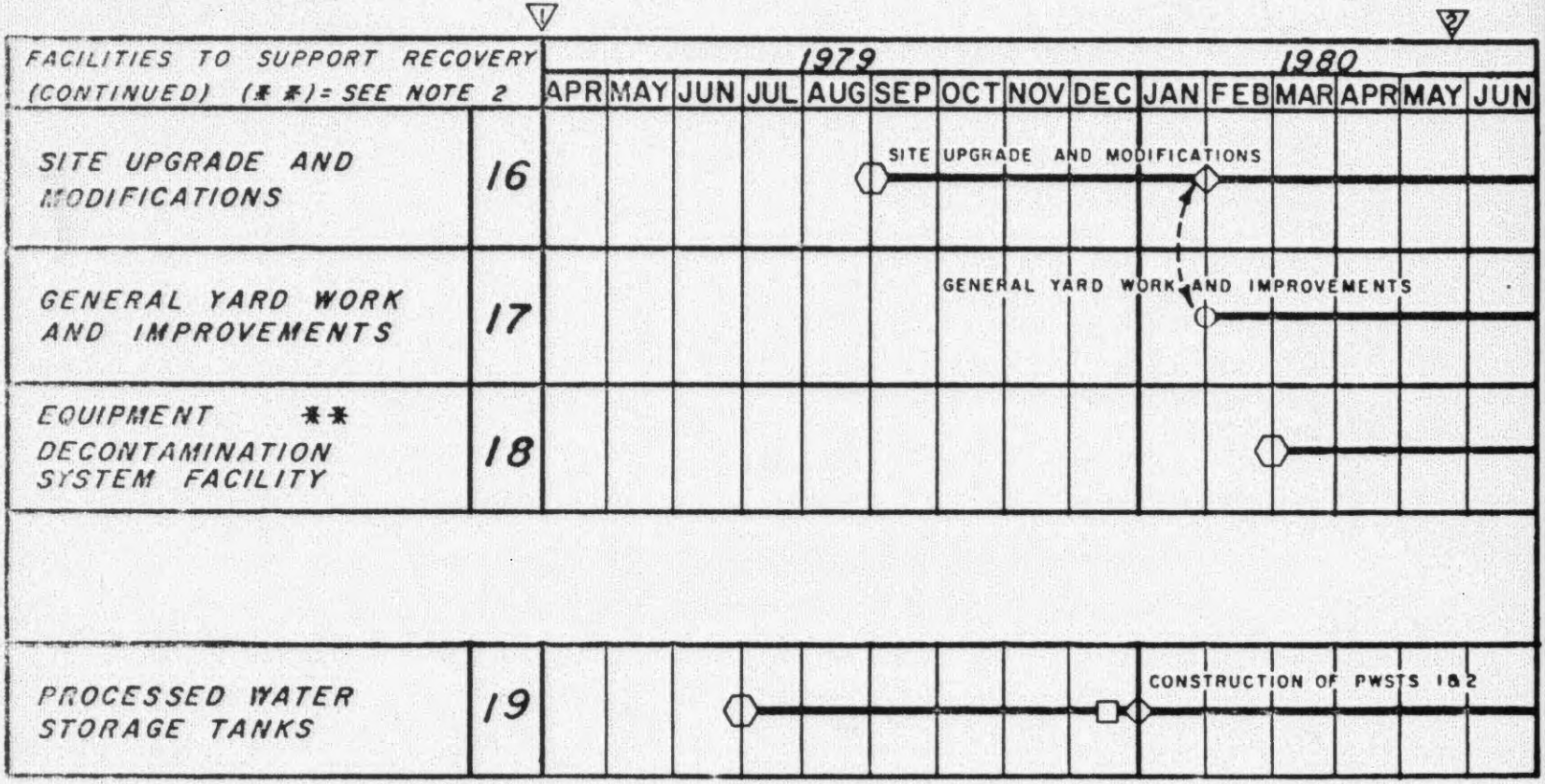
(SHEET 8 OF 15)



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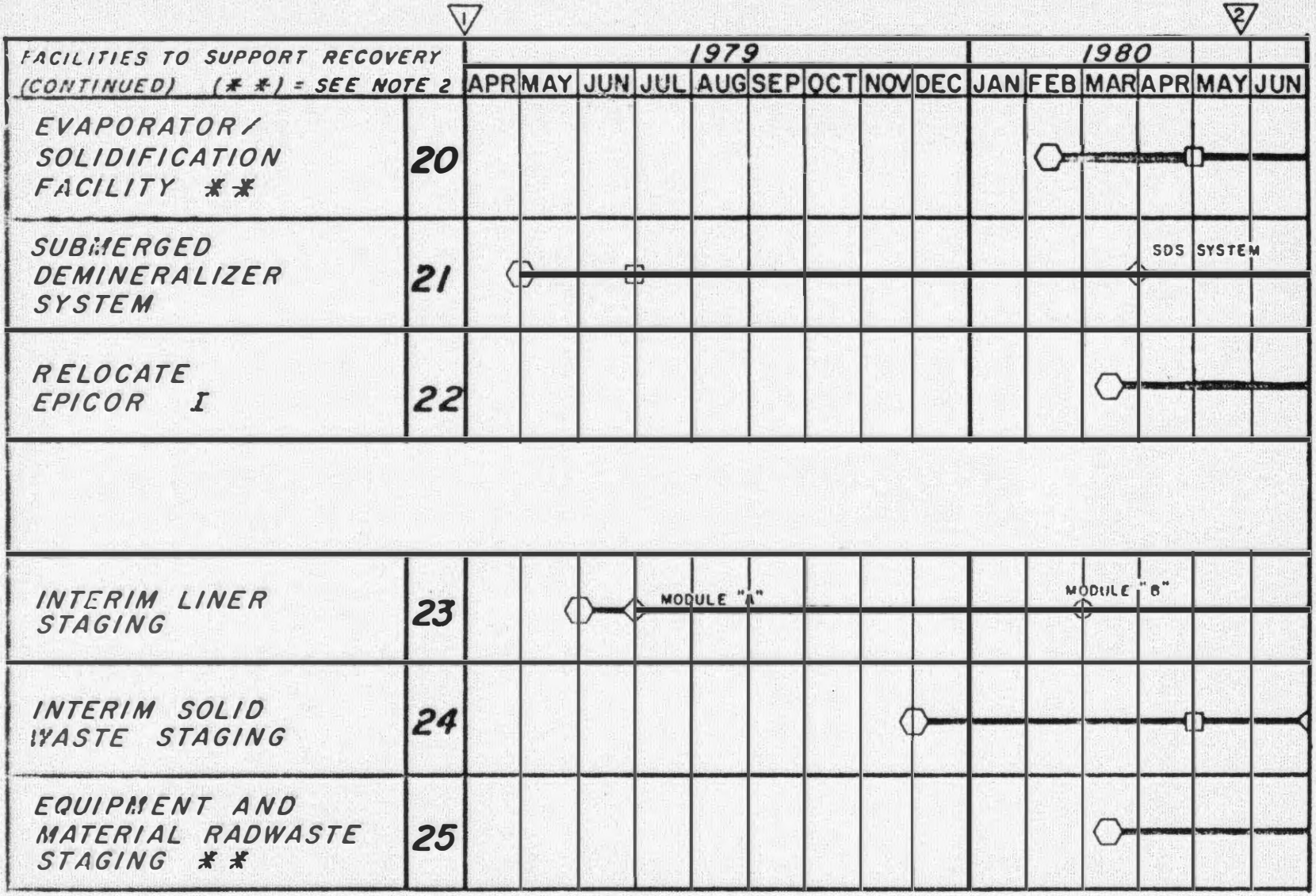
(SHEET 9 OF 15)



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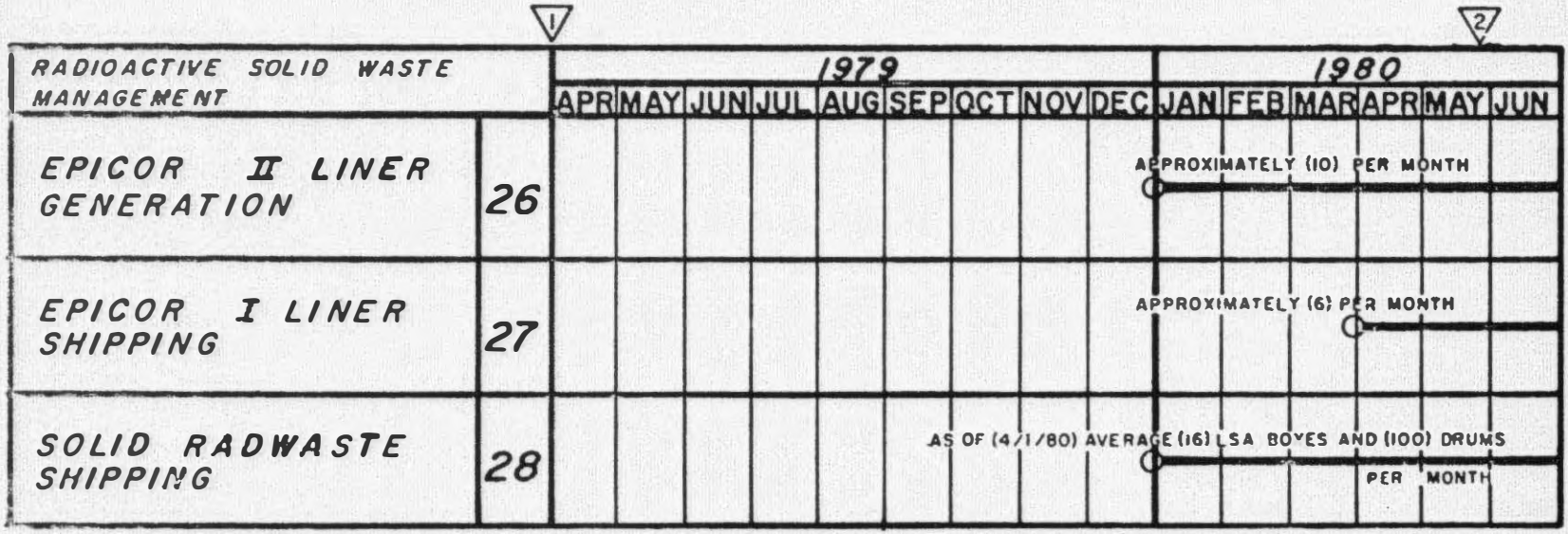

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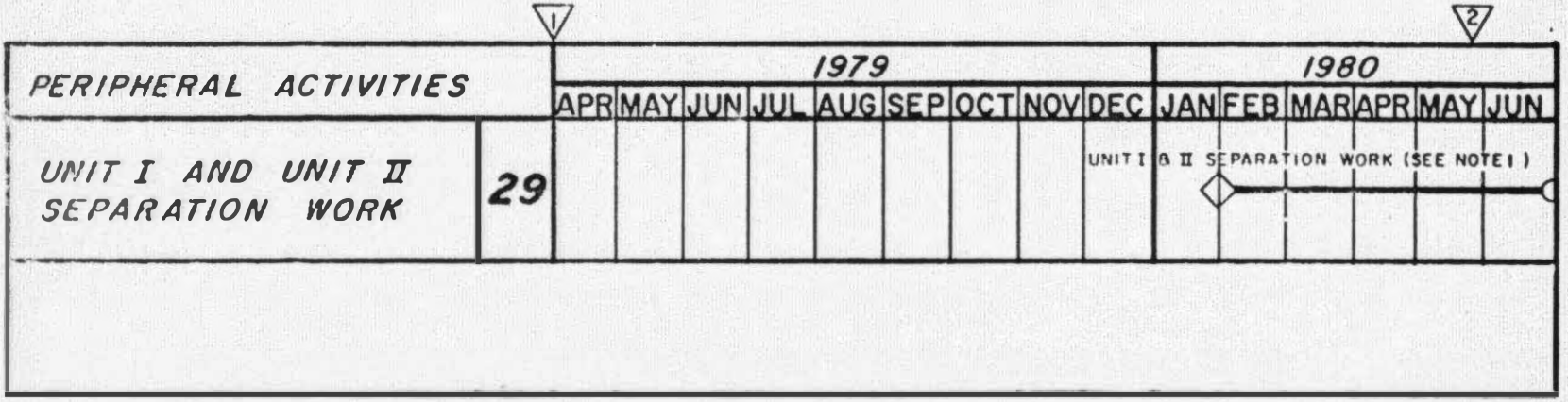
(SHEET 11 OF 15)



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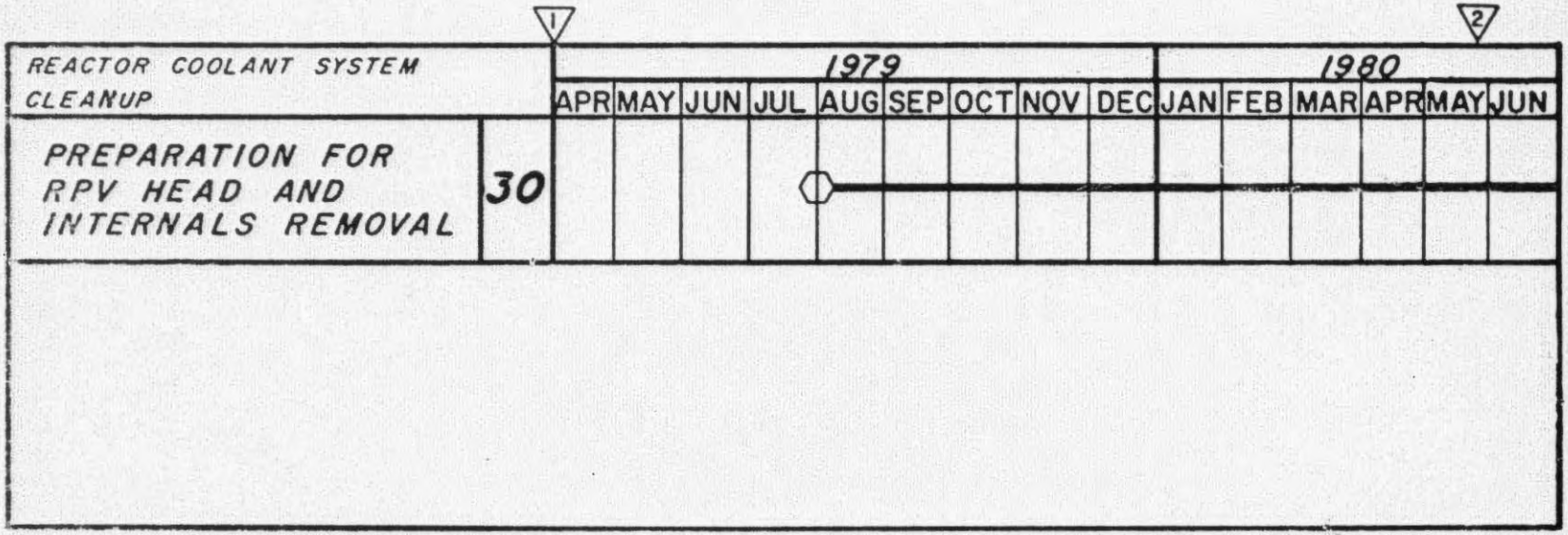

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(SHEET 13 OF 15)

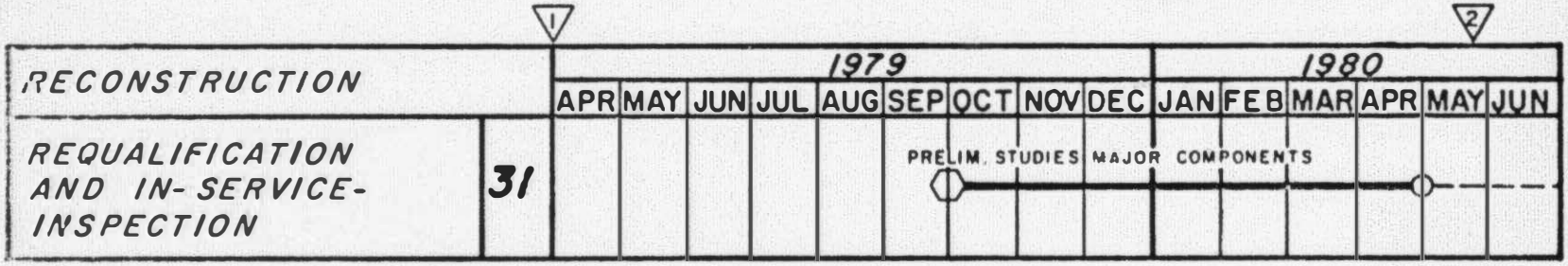

FIGURE 1-1
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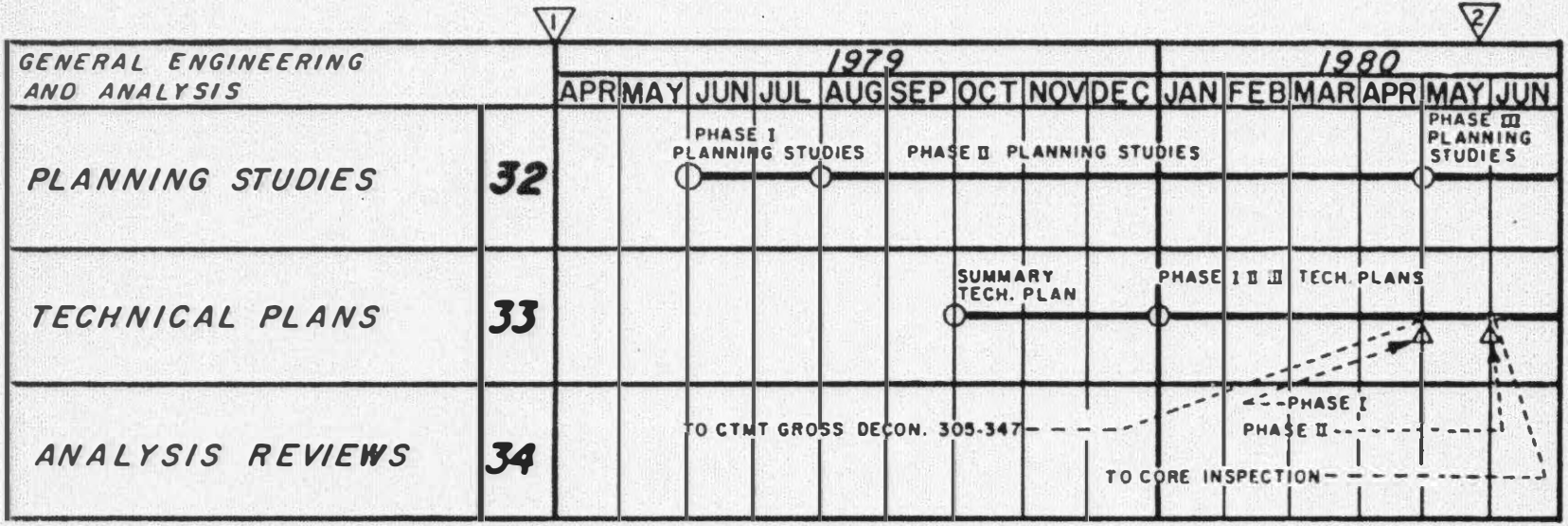


FIGURE 1-1
(SHEET 15 OF 15)

SECTION 2

ADMINISTRATION & TECHNICAL SERVICES

2.1 CURRENT ACTIVITIES - ADMINISTRATIVE CONTROLS

Efforts in the Administrative Controls Section area have centered on the review of those standards to which the unit is expected to be committed under the Recovery Quality Assurance Plan, cataloging such requirements into the framework of a completely revised administrative controls program. Those procedures necessary to initiate this program, specifically those dealing with the procedural hierarchy within Unit-II, have been submitted to management for approval of concept.

Recognizing the extensive effort which will be required to formulate and promulgate the administrative controls hierarchy of the prospective GPU Nuclear Corporation, especially considering the unusual interface areas with the diverse separation of responsibilities, a series of meetings have been conducted between representatives of Unit I and II and, on June 18, with representatives from each of the divisions and units of GPUNC to formulate the framework of the prospective corporation's procedure systems The mosts pressing need, the definition of the functions, responsibilities and authorities of the divisions and units which will comprise GPUNC, has been assigned to an office within the corporate staff.

In order to upgrade the quality of the procedures in the plant, and to improve responsiveness, the word processing function has been split so that Unit II is self-sufficient.

A supervisor dedicated solely to Unit-II word processing is in place, and three of the four authorized clerical positions are filled with trained

personnel. An advanced and more efficient word processing system has been partially installed in the present Administration Building and the complete system will be operational upon occupancy of the new administration building, which is currently under construction.

2.2 CURRENT ACTIVITIES - TECHNICAL SERVICES

During this reporting period, Technical Services has continued, under the authority and guidance of GPUSC/Met-Ed's Administration and Services Department, to coordinate and produce the TMI-II Quarterly Report to the USNRC.

Reorganized within this quarter, Technical Services has revamped the internal schedule for input from the major contributors. This will result in a more comprehensive presentation as we report in a timely manner to the USNRC on Recovery related activities.

A special emphasis has been placed on fulfilling the requirements as mandated in the Technical Specification Sections 6.9.1.6 and 6.9.1.10, during the review cycle of this report preparation. Requests were made by Technical Services for greater detail, specific dates for beginnings and completions of tasks, percentages where appropriate and titles when referring to various procedures.

This report includes Recovery Tasks and Recovery Milestones diagramatically, to facilitate a tie-in with the text. This results in a clear visual presentation on Recovery Efforts at TMI-II.

SECTION 3

RECOVERY ENGINEERING

3.1 CURRENT ACTIVITIES - PROJECT ENGINEERING

3.1.1 TMI-II LOW LEVEL LIQUID WASTE PROCESSING SYSTEM (EPICOR I) STATUS

Engineering design activities have been in progress during this quarter directed at moving Epicor I from Unit 1 to Unit 2.

3.1.2 SUBMERGED DEMINERALIZER SYSTEM (SDS) STATUS

Activities for the SDS include:.

1. Preliminary design work for the RCS Cleanup capability has progressed to the point where the design drawings are complete.
2. Dewatering tests of the CNSI/TMI ion exchange vessels and filters have been completed at AGNS with the results under review.
3. USNRC Round 1 comments were received on the SDS Technical Evaluation Report on May 19, 1980. GPU/CNSI responses to the questions have been drafted and are currently being reviewed.

3.1.3 GROUND WATER MONITORING STATUS

Detection of elevated tritium levels in the well located adjacent to the Borated Water Storage Tank required the development of a program to isolate the source. This included the drilling of seven (7) additional observation wells during this period, with grab sampling capability (no installed pumps) and soil sampling.

The initial tritium levels detected in the well located adjacent to the Borated Water Storage Tank were in the range of 1500 pico curies per liter (pCi/l) and presently are in the range of 600 pCi/l, which is well below the EPA drinking water limit of 20,000 pCi/l. All construction activities have been completed. The sample results are being compiled and evaluated to enable the source to be determined and to develop the overall sampling program.

3.1.4 PROCESSED WATER STORAGE TANKS

Activities for the Processed Water Storage tanks include:

1. Foundations PW-T1 and T2 have been completed.
2. Tank erector on site and erection has commenced.

3.1.5 MINI-DECAY HEAT REMOVAL SYSTEM (MDHRS) STATUS

Essentially, all of the final fabrication activities on the MDHRS were completed this quarter with major emphasis on creating a stainless steel filter in a compact cask, which can be moved into and out of the MDHRS area in the Auxiliary Building. The filter and cask are still in fabrication with completion due in several weeks.

Normal and Emergency Procedures for MDHRS Operations were drafted during this quarter.

Reviews of the MDHRS by various on-site and off-site organizations were completed. Engineering follow-ups to these reviews are nearing completion.

Studies of the Core Boron Concentration Dynamics during MDHRS startup were conducted and reviewed with the USNRC.

3.1.6 EQUIPMENT DECONTAMINATION FACILITY (EDF) STATUS

The activities for the Equipment Decontamination Facility include:

1. Procurement of decontamination and processing equipment has continued.
2. Engineering design and procurement activities have continued.

3.1.7 EVAPORATOR/SOLIDIFICATION FACILITY STATUS

The activities for the Evaporator/Solidification Facility include:

1) Flow Diagrams:

Revised flow diagrams, for the majority of the systems were received, reviewed and commented on.

2) Layouts:

The general arrangement diagrams for the facility have been developed.

3) Site Work:

Sample borings were taken from the proposed locaton of the facility to support the civil/structural engineering effort.

3.1.8 PROCESSED WATER STORAGE AND RECYCLE SYSTEM (PWST) STATUS

Engineering development has been in progress.

3.1.9 LAUNDRY FACILITIES STATUS

Studies to define anti-contamination clothing, and laundry requirements during the TMI-II containment recovery were in progress. These studies will be used to define the type of laundry facilities necessary for the Recovery effort. The new facilities would replace the existing temporary facility.

3.1.10 EPICOR II RESIN SOLIDIFICATION PROGRAM STATUS

1) Chemistry Test Program:

Laboratory tests in which individual Epicor II resins and combinations of resins were solidified using various mixing ratios of water, cement and additives have been completed. Approximately 1600 specimens were prepared. The data from these tests will be reviewed, and the candidates that have exhibited superior results will be selected to undergo further tests.

2) Liner Modifications:

The design of the modified Epicor II liners (both 4 x 4 and 6 x 6) that provides insitu-solidification capabilities has been completed. A prototype 4 x 4 liner has been filled with Epicor II resins, in preparation for performance tests (flow, differential pressure) and test solidification.

3.1.11 SOLID WASTE STAGING FACILITY STATUS

Module C:

A bid package was prepared for soliciting firm fixed price construction.

3.1.12 INTERIM WASTE STAGING BUILDING STATUS

Baseline engineering was in the development phase.

3.1.13 CONTAINMENT RECOVERY SERVICE BUILDING STATUS

Baseline engineering development was in progress, including general arrangement drawings and design criteria.

3.1.14 PERSONNEL ACCESS FACILITY/COMMAND CENTER STATUS

Baseline engineering development was in progress, including general arrangement drawings and design criteria.

3.2 SUPPORT ENGINEERING

3.2.1 SCOPE - SUPPORT ENGINEERING

3.2.1.1 OPENING DHV1/V171

To prepare a procedure for opening and a safety analysis for opening one of the two (2) valves.

3.2.1.2 REACTOR BUILDING WATER LEVEL

To prepare two (2) separate measuring methods to be used for determining gross changes in R.B. water level.

3.2.1.3 REACTOR COOLANT SYSTEM CHEMISTRY

To maintain continuous surveillance of the Reactor Coolant system chemistry parameters.

3.2.1.4 REACTOR COOLANT SYSTEM

To present a general status of the Reactor Coolant System during the quarter.

3.2.1.5 BORON CONCENTRATION

To ensure that the boron concentration in the Reactor Coolant System remains above 3000 ppm and to develop a log for determining what the boron additions to the RCS from SPC system or MU-T1, have been.

3.2.1.6 SOLIDIFICATION

To present a status of the efforts expended to resolve problems of resin solidification.

3.2.1.7 DECREASING REACTOR COOLANT SYSTEM PRESSURE TO 100 psig.

3.2.2 CURRENT ACTIVITIES - SUPPORT ENGINEERING

3.2.2.1 OPENING DHV1/V171

The procedure was revised for opening these valves, incorporating PORC comments from the first review, and was forwarded to PORC for approval. PORC approved the procedure and it was submitted to the USNRC. A meeting between GPUSC and USNRC, was held on May 12, 1980, in which the opening of DHV1/V171 was discussed. The procedure was approved with comment, which requested emergency procedures for action to be taken in case of leakage past valves downstream of DHV1/V171. DHV1 or V171 must be opened to operate the Mini-Decay Heat Removal System. A position statement was issued which stated that of the two valves opened, DHV1 should be the first one attempted.

3.2.2.2 REACTOR BUILDING WATER LEVEL STATUS

A direct measurement system using a manometer through penetration 401 was created and is being used to monitor the water level in the Reactor Building. Statistical methods are being used to establish "in flow rates" to the Reactor Building for comparison with RCS leakage. Current water level is at 290.3 ft.

3.2.2.3 REACTOR COOLANT SYSTEM CHEMISTRY STATUS

During this quarter, results of the sample analysis were recorded and graphed in order to understand long term trends. The graphs included values of boron, oxygen, hydrogen, nitrogen, chlorides, sodium, total gas, pH,

tritium, strontium, and cesium. The concentrations of these items in the RCS generally followed expected trends during this quarter. General postulated reasons for a continually increasing RCS Boron concentration were determined through a review of Boric Acid addition procedures, Boron analysis accuracy and control room log books. The levels of Boron increase provide greater shutdown margin, however, we desired to know the mechanism creating the increase. Variations in dissolved gas concentrations were reviewed with respect to the use of two different RCS pressure control systems and the possibility of sample air contamination. Concerns regarding these variations were resolved.

A complete record of "Daily Plant System Sheets" and graphs of hourly values of critical RCS temperature have been, and continue to be, maintained.

3.2.2.4 REACTOR COOLANT SYSTEM STATUS

Cyclic natural circulation in both loops continues to cool the core. Due to the reduction in the Decay Heat Generation rate, the switchover of building coolers to the summer cooling mode, and the somewhat higher condenser back pressures, the "A" loop burp period has changed (increased) to between 20 and 24 hours from approximately 18 hours. The "B" loop burp frequency has been running at about 86 hours and remains there.

During this reporting period, a flow measuring device was installed to the "A" generator feed line. The preliminary data from this device indicates that, on the average, about 120,000 BTU/hr. are being drawn off by the "A" steam generator. This is approximately 25% of the total decay heat generation rate. The remaining 75% is rejected to the building coolers by insulation losses. Hot leg temperatures are varying between 150-155°F while the bulk core thermocouple average temperature varies between 140-170°F.

The average RCS heatup rate between burps is about 0.6° F/hr.

Reactor Coolant System pressure has been holding steady between 92-96 psig. Use of pressurizer heaters was discontinued prior to dropping the RCS pressure to the 80-100 psig range. Pressurizer temperature has therefore dropped steadily, is currently about 90°F and is approaching Reactor Building ambient temperature (70°F).

The reactor coolant leak rate has dropped off with the reduction of RCS pressure; current values are holding at approximately 0.1 gpm.

3.2.2.5 REACTOR COOLANT SYSTEM BORON CONCENTRATION STATUS

In accordance with the Technical Specifications, the reactor coolant system boron concentration must remain above 3000 ppm.

When the Mini-Decay Heat System is started, a quantity of water with boron concentration of 2250 ppm will be injected into the Reactor Vessel. The question arose as to whether or not this would dilute the boron concentration below 3000 ppm in the Reactor Vessel.

Recovery Engineering analyzed the problem of Boron concentration in the RCS by calculating Boron concentration versus time. Additional studies were performed to ensure that the phenomena are well understood because the dynamics of the entire system are complex. More advanced analyses were performed by GPU/Parsippany and have been submitted to USNRC for their approval prior to MDHS start-up. Results of these analyses demonstrate that the Boron Concentration in the core remains above 3000 ppm.

3.2.2.6 DECREASING REACTOR COOLANT SYSTEM PRESSURE TO 100 psig.

The procedure (#R-2-80-16) for accomplishing pressure reduction was approved by USNRC. The original procedure included use of makeup and letdown system for reducing pressure. This original procedure was revised to allow use of the SPC solely, which is the RCS pressure control means for the present and foreseeable future. Additionally, permission had been obtained from the NRC to use bleed tank "A" (which is the dedicated reserve tank) for receiving fluid from the Reactor Coolant system as a result of depressurization. In the week of April 14, Reactor Coolant System pressure was lowered to 190-225 psig from 300±50 psig

which had been in effect since April (1979). The week of April 28, the RCS was lowered to 130-170 psig. The final pressure reduction to 80-100 psig was accomplished on May 9, 1980.

3.3 CURRENT ACTIVITIES - TECHNICAL PLANNING

3.3.1 SOLIDIFICATION OF ION EXCHANGE MEDIA

The concept of "strong container" as an alternate to solidification was briefly investigated. It was concluded that technical feasibility can probably be demonstrated.

3.3.2 WASTE TRANSPORTATION

Activities for Waste transportation include:

1) A recommendation for GPUSC to initiate plans for cask optimization and procurement is under review based on evaluation of waste transportation requirements.

2) A bid to provide transportation services was received from Chem-Nuclear and has been reviewed.

3.3.3 ALTERNATE PROCESSING

Observed the Li-Con mini-evaporator for possible contingency development. Results of sample runs are being evaluated.

3.3.4 WATER MANAGEMENT PLANNING

Commenced the development of detailed processed water recycle planning in order to formulate recommendations for tanks and systems.

3.3.5 RESEARCH & DEVELOPMENT

Participated in the initiation of the Radwaste Sub-group of the Technical Working Group. Provided status and plans for TMI-II and suggested several R&D projects of generic as well as TMI-II value. DOE is considering these, along with other suggestions to arrive at a set of recommendations that will be considered by the Technical Working Group.

3.4 CURRENT ACTIVITIES - BURNS & ROE ENGINEERING

3.4.1 EPICOR II SYSTEM

Prepared engineering change packages to enhance the operability and maintainability of the system. Major engineering items were:

a) Final design for the Health Physics Enclosure on the north side of the Chemical Cleaning Building to facilitate a permanent controlled entrance point.

b) New "In-Line" radiation monitor to detect Off-Spec Processed Water.

c) Piping design to allow direct processing of the Epicor II building sump water.

d) Permanent Access Ladder to the Auxiliary Building Corridor Roof for access to valves used during venting and priming the Epicor II feed line.

e) Modifications to interlocks, setpoints and equipment to allow greater storage capacity of processed water in the system tanks.

f) Design for platforms and ladders to provide for ease of maintenance of the T.V. cameras within the Epicor II building.

3.4.2 MINI-DECAY HEAT REMOVAL SYSTEM

Prepared the following engineering change packages to enhance operability of the Mini-Decay Heat Removal System prior to initial operation:

a) Differential pressure indication and alarm for the system's inlet debris filter.

b) Vibration monitoring instrumentation for the MDHR pumps to indicate and alarm impending failure.

c) Shielding design for existing plant Decay Heat Valves and Piping in the proximity of the MDHR system.

d) Engineering design to relocate the plant's existing seismic monitors to a more accessible area due to limited access during MDHR system operation.

3.4.3 SUBMERGED DEMINERALIZER SYSTEM

Prepared engineering change packages to supply the electrical power requirements for the SDS system, as follows:

a) Main Power Distribution Panel to feed 480 VAC loads.

b) Two (2) Miscellaneous Power Distribution Panels with step down transformers to feed all 120/208 VAC loads.

c) Issued detailed wiring diagrams for the individual skid mounted components as the installation proceeds and supplied field engineering support.

3.4.4 PLANT MAINTENANCE AND OPERATIONS

Continued engineering support for plant maintenance and operations.

3.4.5 PLANT FIRE PROTECTION

Prepared engineering change packages to extend fire protection coverage to new or existing structures, as follows:

a) Extend the yard 12" fire main to service an existing warehouse and the new administration building.

b) Provide additional sprinkler systems to cover the expanded purchasing department office area located in an existing warehouse.

c) Perform engineering and procurement efforts for a Fire Door Alarm System for Unit II.

3.4.6 BOP DIESEL GENERATORS

Provided electrical engineering support and prepared engineering change packages to support future disconnection of the BOP diesel generators.

3.4.7 BORATED WATER STORAGE TANKS

Prepared engineering change packages to protect the Borated Water Storage Tank area from rain and to provide for the collection of valve leakage in the area.

3.4.8 UPDATING DRAWINGS

Update and issue the TMI-II plant drawings (2555 series) through March 28, 1979. Provide baseline recovery period drawings (3475 series) to show post incident tie-ins from the Recovery Systems. All Recovery system drawings will be updated on a continuing basis as engineering changes are completed.

SECTION 4

OPERATIONS AND MAINTENANCE

4.1 CURRENT ACTIVITIES - PROCESS SUPPORT

4.1.1 FUEL POOL WASTE STORAGE SYSTEMS STATUS

4.1.1.1 SYSTEM STATUS

The system is being used to store 51,000 gallons from the Unit II Miscellaneous Waste System. The steam eductors have been used to transfer 42,000 gallons from the lower tanks to the "C" RCBT successfully. The water in the tanks falls in the intermediate activity category. Shielding has proven highly adequate, and access, above and adjacent to the "A" Spent Fuel Pool, is unrestricted.

4.1.2 LIQUID RADIOACTIVE WASTE PROCESSING SYSTEM "EPICOR II" STATUS

4.1.2.1 SYSTEM STATUS

The system is operating successfully and has processed approximately 365,000 gallons. A total of fifty-seven (57) spent resin liners have been used and are in the waste staging area. Processed water is stored in CC-T-1, Evaporator Condensate Test Tank B, the U-2 BWST and Secondary Condensate Storage Tank 1A.

An outage was completed April 2, 1980. A number of minor modifications were made to enhance system reliability and to improve performance.

Operator re-training and requalification was completed on April 7, 1980. The RCBT 'B' was then processed.

The following data represents system performance after the outage:

(1) Net Processing Rate - - - 2.08 gpm

(2) Man-MilliRem exposure per gallon processed - - - 0.03

PROCESSING PERFORMANCE TABLE (BATCH 36)

INLET (μci/ml)		EFFLUENT (μci/ml)
Cs^{137}	31.34	$<4.529 \times 10^{-6}$
Cs^{134}	6.025	$<6.557 \times 10^{-6}$
Sr^{89}	0.37	5.347×10^{-8}*
Sr^{90}	0.30	4.34×10^{-8}*

*calculated estimates

Processing the 'B' RCBT was completed on May 10, 1980. Processing of the 'C' RCBT was started on May 15, 1980 and completed on June 16, 1980.

In the middle of June 1980, water movements within the Auxiliary and Fuel Handling Buildings occurred in preparation for processing tank farm and flush water. Several minor maintenance and modification items were completed during this time. The water movement was completed and the system began processing the "C" RCBT. The "C" RCBT contains water from the lower tanks of the tank farm and additional water used for flushing of Auxiliary Building systems.

4.1.3 STAGING FACILITIES FOR DEWATERED RESINS AND EVAPORATOR BOTTOMS STATUS - INTERIM SOLID WASTE STAGING FACILITY

4.1.3.1 SYSTEM STATUS

Five (5) EPICOR I Resin Liners, one (1) EPICOR I Prefilter, and one (1) smaller resin liner (used to remove trace activity and fluorescein dye) are staged in the facility. Sixteen (16) EPICOR II resin liners and one (1) Unit I used precoat liner are also staged in the facility. Readings are as previously reported below the 5 mr/hr design criteria. All but one 4 x 4 and three 6 x 6 cells are filled.

4.1.4 STAGING FACILITIES FOR DEWATERED RESINS AND EVAPORATOR BOTTOMS STATUS - SOLID WASTE STAGING FACILITY

4.1.4.1 SYSTEM STATUS

As of June 25, 1980, there were fifty-five (55) liners in the A Module.

Radiation levels are as expected.

Work is underway on Module B. Scheduling B Module is in progress; integrating expected liner generation rate with construction rate.

4.1.5 NUCLEAR SAMPLING SYSTEM STATUS

4.1.5.1 SYSTEM STATUS

The Temporary Nuclear Sample Sink is operational. The first samples were drawn on June 16, 1980. Initial operation was highly successful with total personnel exposure substantially below previous levels, averaging 34 mrem vs. 150 mrem.

4.1.5.2 SOLID WASTE STATUS

Solid Waste, in the form of LSA boxes and LSA drums, continues to be generated and shipped whenever possible. The generation rates for the second quarter of 1980 are:

LSA Boxes	12 Boxes/Month
LSA Drums	65 Drums/Month

These are stored on-site until shipment for disposal occurs.

Specifically tailored training of personnel involved in generating and handling this waste has been implemented this quarter to reduce the volume of waste. Volume reduction of waste has been a key objective and continues to be a goal of the Waste Management Group.

Shipment of waste to Hanford, Washington has resumed after completion of personnel training in accordance with USNRC, I & E Bulletin 79-19.

Since completion of the training, one hundred twenty-eight (128), 55-gallon drums and eighteen (18), LSA Boxes have been shipped.

4.2 CURRENT ACTIVITIES - SITE OPERATIONS AND MAINTENANCE

4.2.1 AUXILIARY BUILDING VENTILATION SYSTEM

Both the "A" and "B" trains of the exhaust system had been placed back into service by the end of April. DOP testing of filters was satisfactorily completed and inspection, repair and resetting of dampers has been concluded. Routine preventive and corrective maintenance on the system continues along with some modifications required for the Reactor Building purge. All modifications required for the purge were completed prior to the purge date including uncapping of the ventilation stack and the securing of the supplemental roof filter and fan system, located on the Auxiliary Building roof. Engineering has been examining what can be done to prevent the fans in the non-running train from free-wheeling backwards, which we believe is contributing to the repetitive damage to the fans.

4.2.2 LAYUP

The generator layup is complete with a dehumidification unit installed, generator links open, cooling water systems drained and vented, and temperature and humidity monitoring instruments installed. Turbine layup continues to be delayed until an alternate means (presently the MDHR system) of core cooling is established.

4.2.3 NUCLEAR SERVICE RIVER WATER (NSRW) PUMPS

The "D" NSRW pump has been repaired and returned to service this quarter. One outstanding item remains to be accomplished. Specifically, non-QC packing material was utilized and must be replaced when QC packing is available.

4.2.4 "B" - WASTE GAS COMPRESSOR

The "B" waste gas compressor was repaired, utilizing non-QC material. Replacement QC material will not arrive for about one year. Initial checkout of the unit after maintenance showed that discharge pressure did not come up to specifications and a blockage of the suction line was suspected.

A Special Operating Procedure was prepared to investigate this theory and we confirmed a suction line blockage and the inoperability of the compressor. Attempts to locate and repair the blockage are presently underway.

4.2.5 PREVENTATIVE MAINTENANCE

A continuing review of all systems Preventative Maintenance (PM) requirements is proceeding with an estimated 25% completion to date. About 40% of the systems installed since the accident have been reviewed. Emphasis is presently focused on these new systems before returning to previously installed systems.

Renewed emphasis has been placed on obtaining additional Met-Ed personnel to reduce our dependency on contractors and expand our vibration analysis program.

4.3 CURRENT ACTIVITIES - PLANT ENGINEERING

4.3.1 REACTOR BUILDING PURGE

High priority was placed on completion of all hardware and software prerequisites to allow completion of the purge. In preparation for uncapping the plant stack, inspection and repair of leaks in auxiliary and fuel handling ductwork was initiated to eliminate potential flow paths for particulate activity bypassing the exhaust filters. Installation of the revised reactor building air sampling system was completed and the first samples were taken.

4.3.2 IN-PLACE RECOVERY SYSTEMS AND PRE-ACCIDENT PLANT SYSTEMS STATUS

4.3.2.1 STANDBY PRESSURE CONTROL SYSTEM

A backup replacement charging pump has been ordered. Meanwhile the system has been operating without difficulties. A revised sample point for total gas analysis was used to take samples at the makeup system interface. An associated Technical Specification revision is in preparation.

4.3.2.2 REACTOR BUILDING WATER LEVEL MEASUREMENT

Based on successful operation of the new direct reading level manometer, the previous procedure requiring cycling of the building sump recirculation valve was terminated.

4.3.2.3 HEATING AND VENTILATION SYSTEMS

A Technical Specification change request was submitted to change the flow rate surveillance requirements for fuel handling and auxiliary buildings to reflect recovery mode

operations of the systems. Fuel Handling, Auxiliary Building, and the hydrogen control system filters were DOP tested in preparation for the reactor building purge.

4.3.2.4 PLANT EQUIPMENT

The 'B' Waste Gas Compressor was rebuilt and tested. Problems with achieving full discharge pressure are being evaluated.

A failure analysis of the shaft bearings for Nuclear Service River Water Pump 1D is being performed by the Systems Lab.

A modification to the Filter Transfer Shield has been designed. When completed, this modification will facilitate the changing of spent filters, minimizing the likelihood of airborne contamination due to filter handling mishaps.

Oil problems with the water treatment system vacuum degasifier pumps have been identified and are under investigation.

4.3.3 PLANT FIRE PROTECTION

Fire Door Supervision - A proposal was submitted to NRC utilizing administrative controls for implementation. Fixed sprinkler systems have been installed in various plant outbuildings and new facilities, to accommodate occupancy changes for plant recovery.

Procedure for control of welding and cutting permits was revised.

Newly proposed Appendix R, of 10 CFR 50, titled "Fire Protection Program for Nuclear Power Plants, Operating Prior to January 1, 1979," is being reviewed for impact on Unit-II fire protection.

4.3.4 RECOVERY SYSTEM STATUS

4.3.4.1 MINI-DECAY HEAT REMOVAL SYSTEM

Preparation of operating and emergency procedures was completed. Support was provided in responding to the system design review performed by MPR Associates.

4.3.4.2 SUBMERGED DEMINERALIZER SYSTEM (SDS)

An engineering review of the system electrical and I&C portions is being conducted to determine field interface points and areas requiring field modifications. Problem areas are being resolved with the supplier and A/E.

4.3.4.3 BOP DIESEL GENERATORS AND 13.2KV TRANSFORMERS

The Technical Specifications Change Request and the Recovery Operations Plan Change for the disconnection and removal of the BOP Diesels and the 13.2KV transformers have been submitted to the USNRC.

4.3.4.4 DECONTAMINATION OF ELECTRICAL SWITCHGEAR AND MOTOR CONTROL CENTERS

A detailed procedure has been approved for decontamination of switchgear and motor control centers located in the Auxiliary and Fuel Handling Buildings. To date, one (1) motor control center is 75% decontaminated.

4.3.4.5 SITE ELECTRICAL COORDINATION AND UPGRADE OF POWER FEED TO UNIT II SUPPORT FACILITIES

Meetings were held to define the organization interfaces for TMI-II Recovery Electrical Engineering Coordination, and to define electrical requirements for Recovery Support Systems.

The temporary power and light system for TMI-II area is currently being replaced with an upgraded system.

4.3.5 PLANT CHEMISTRY AND RADIOCHEMISTRY

The expansion of the gamma spectroscopy facility on the turbine deck was completed. The facility is operational.

Engineering by Bechtel is underway for the new hot chemistry Lab and counting facility, with first issue of the lab layout completed.

Construction of the on-line oxygen measurement package was completed. Procedure preparation is underway.

Capability for strontium analysis of air samples on site is now established.

4.3.6 STARTUP AND TEST

Testing of the Temporary Sampling System was completed. Testing of the reactor building purge system modification is complete.

4.4 CURRENT ACTIVITIES - DECONTAMINATION

4.4.1 DECONTAMINATION OF AUXILIARY AND FUEL HANDLING BUILDING, THREE MILE ISLAND - UNIT #2

1. Decontamination of open areas (corridors, stairwells, etc.) is 91% complete. Contamination levels on the 328' and 305' elevations have been reduced to less than 500 DPM and general radiation levels are less than one (1) mR/hr. Approximately one-third (1/3) of the 328' and 305' elevations have been decontaminated and released for entry without anti-contamination clothing. Contamination of the 280'6" elevation general area has been reduced to less than 1000 DPM and general radiation levels are less than 1 mR/hr.

2. Decontamination of cubicles continued with the following cubicles decontaminated to less than 1000 DPM.

   a. "B" Spent Fuel Pool

   b. Concentrated Waste Tank Cubicle

   c. Cleanup Demineralizer

   d. Gas Analyzer Room

   e. Sample Sink Cubicle

   f. Spent Fuel Cooler and Filter Area

   g. Makeup and Purification Valve Corridor

   h. Tendon Gallery Area

   i. Reactor Coolant Bleed Tank A

   Cubicle Decontamination is seventy-eight (78%) percent complete.

3. An additional forty percent (40%) of the floor drains, drain bells and drain piping has been hydrolased and decontaminated.

4. Initial entries of the seal injection cubicle, and the makeup pump room "B" were performed. Gross decontamination of both cubicles was performed.

5. Commenced in-plant filter removal, replacement and decontamination. The above has been accomplished on the following systems:

   a. Spent Fuel Filters

   b. Auxiliary Sump Filters

   c. Contaminated drain Tank Filters

   d. Neutralizing Filters

   e. "A" Makeup Filter

SECTION 5

RADIOLOGICAL CONTROLS

5.1 CURRENT ACTIVITIES - RADIOLOGICAL CONTROLS

The major activities performed by the Radiological Controls Department during this reporting period were associated with accomplishing the objectives set forth in the management plan for TMI Unit II Radiological Control program presented in the previous quarterly report. The specific activities associated with this task are herein presented in the Quarterly progress report on the management plan (See 5.2). An overview of the activities performed by the Radiological Control Department is presented below.

5.1.1 INITIAL REACTOR BUILDING RE-ENTRY PROGRAM

The Radiological Control Department continued providing technical and ALARA support for this effort. Contributions included, in addition to on-the-job Radiological Control coverage:

1. instrument testing, selection, calibration, and procedure development for use was completed before May 20, 1980;
2. dosimetry testing, selection, and use criteria;
3. protective clothing testing, selection, and use criteria;
4. respiratory protection equipment selection; and
5. procedural review.

5.1.2 RADIOLOGICAL CONTROL PROCEDURE REVISION

Although progress is being realized in the procedure revision program, this task is currently behind schedule. An effort is currently underway to accelerate the review and approval cycle, without a sacrifice in the quality of the review cycle.

In addition to numerous instrument calibration procedures, TLD program procedures, and changes to existing procedures to ensure compatibility with current conditions, the following significant procedures have been written and are in the various stages of review, approval or distribution as indicated:

A) Procedures written and in review cycle:

1) QA of the TLD System

2) ALARA Review

3) Surveys

4) Counting of Air Samples and Smears

5) Control Point Operations

6) RWP Procedure

7) Record Retention and Documentation

B) Procedures in approval cycle:

8) Bioassay Program

9) Radiological Training Program for TMI-II Workers

10) Training Program for Radiological Control Technicians and Foremen

11) Personnel Decontamination

12) Administrative Procedure for Procedure Generation, Review and Approval

13) Respiratory Protection Program

C) Procedures approved and issued:

14) Radiological Control Department Organization and Responsibility

15) Audit Response

16) Radiological Investigative Report

17) Radiological Deficiency Report

18) Radioactive Material Accountability

19) Drills for Radiological Control Technicians and Foremen

5.1.3 DOSIMETRY PROGRAM

The Radiological Control Department is continuing its efforts to upgrade the dosimetry program at TMI-II. The major accomplishments achieved within this reporting period include:

1) Comprehensive review of the TLD program;

2) Initiation of corrective actions to resolve the comprehensive review findings; and

3) Development of a computer program to provide exposure tracking by major task and craft line capabilities.

5.1.4 TRAINING PROGRAM

Training programs for Radiological Control technicians and TMI-II workers were written in procedural format. These procedures have been reviewed and are currently in the approval cycle. Training for TMI-II workers, in accordance with the intensified training program described by this procedure, has been initiated prior to the actual procedure distribution. All Radiological Control Technicians and foremen employed at TMI-II at the beginning of this year have completed the qualification training program. Training sessions for newly hired Radiological Control Technicians commenced in June 1980.

5.1.5 ALARA PROGRAM

ALARA Reviews have been accomplished up to this point by contractor supplied ALARA engineering personnel. Met-Ed/GPU Engineers are currently participating in an ALARA engineering training program in preparation for assuming ALARA engineering responsibilities for TMI-II. The procedure which defines the ALARA review process was developed during this reporting period and is currently awaiting approval.

5.1.6 FIELD OPERATIONS

The Field Operations group of the Radiological Control Department continues to provide coverage for all TMI-II operations having Radiological implications. In an effort to increase the efficiency and/or control associated with Radiological coverage provided for TMI-II operations, the following modifications were accomplished during this reporting period:

1. multiple means of access to the Auxiliary building have been replaced by one access control point; and
2. successful decontamination activities have permitted protective clothing requirements to be relaxed in a major portion of the 305' level of the Auxiliary building.

5.1.7 INSTRUMENTATION

The Radiological Support Services group of the Radiological Control Department is participating in a major effort to proceduralize the calibration and maintenance of all radiological survey/monitoring equipment in use at TMI-II. As indicated in the previous quarterly

report, instrument selection is a continuing task. During this reporting period, high range instrumentation has been procured and placed in strategic locations for use during emergency situations.

5.2 CURRENT ACTIVITIES - MANAGEMENT PLAN FOR TMI-II RADIOLOGICAL CONTROL PROGRAM

This section shows the current progress as it relates to the Management Plan for TMI-II Radiological Controls Program. This section summarizes the progress made in completing the ACTION ITEMS identified in the Management Plan for TMI-II Radiological Controls Program that was included as Appendix "A", page 5-4 of the last quarterly report (submitted to the NRC on April 15, 1980).

This sections includes:

1. Table 1, consisting of nine (9) pages, addresses the status on specific action items;
2. Table 2, consisting of one (1) page, presents a summary of the Management Plan Progress and;
3. Table 3, consisting of one (1) page, presents a current organizational chart for the Radiological Control Department.

TABLE - 1 MANAGEMENT PLAN PROGRESS

	Finding		Corrective Action	Due Date	Status
1.	Management commitment in support of Radiation Safety Program. (morale/attitude problem, operations influence).	a.	The senior vice president, Met-Ed, held policy statement session with all TMI managerial, supervisory and radiological control personnel.	NA	Action completed
		b.	Restructure the Radiological Control Department under a manager reporting directly to the senior vice president.	NA	Action completed
		c.	Create an independent Radiological Assessment Group to monitor the Radiological Control Program.	NA	Action completed
		d.	Implement a Radiation Protection Plan which outlines the philosophy, basic objectives, and policies relating to the Radiological Control Program.	2 weeks after NRC action	Submitted to NRC in January 1980. Resolution of comments in progress.
		e.	Assign technician foremen exclusively to on-the-job supervisory duties to provide additional support and direction to technicians.	NA	Action complete

TABLE - 1 MANAGEMENT PLAN PROGRESS

	Finding		Corrective Action	Due Date	Status
1.	(Cont.)	f.	Establish supervisory and management development training programs.	12/80	Action not initiated at this time.
2.	Organizational Structure (Responsibility, function, assignment, and line of authority uncertainties.)	a.	Radiological Control Department re-organization.	NA	Action complete.
		b.	Prepare a procedure defining the Radiological Control Department organization, and responsibilities.	02/80	Action complete -- issued.
		c.	Utilize only Radiological Control technicians and foremen trained in accordance with the revised training program to provide Radiological Control coverage for work at TMI Unit II.	07/31/80	Action complete -- all technicians and foremen employed at TMI-II at the time of publication have been trained in accordance with the revised training program.

TABLE - 1 MANAGEMENT PLAN PROGRESS

	Finding		Corrective Action	Due Date	Status
3.	Technical depth of Radiation Safety Program	a.	Initiate a recruiting program to reinforce the technical/supervisory expertise within the Radiological Control Department.	08/80	Continuing task, current status indicated on TABLE - 3 -- Radiological Controls organization chart.
4.	Training (Training for Radiation Safety & Operations Personnel was inadequate)	a.	Establish training program for all current technicians and foremen.	07/31/80	Training status presented in 2-c, page 2.
		b.	Establish a Radiological training program for all workers at TMI-II.	05/01/80	Program implemented and in progress. Procedure defining program is currently in the approval cycle. Action complete.
		c.	Establish Criteria for special training on "high risk tasks".	07/01/80	Action not started.

TABLE - 1 MANAGEMENT PLAN PROGRESS

	Finding		Corrective Action	Due Date	Status
5.	Resolution of audit findings.	a.	Establish an audit response procedure.	03/15/80	Action complete.
		b.	Assign responsibility for stating and completing corrective actions on previous NRC and the latest QA audit findings.	02/15/80	Action complete.
		c.	Re-evaluate all previous audit findings for applicability. Re-issue applicable open items.	03/01/80	Action complete.
		d.	Establish an in-house deficiency reporting program.	04/15/80	Action complete.

TABLE - 1 MANAGEMENT PLAN PROGRESS

Finding	Corrective Action	Due Date	Status
6. Preparation and implementation of procedures.	a. Revise all Radiological Procedures compatible with verbatim compliance objectives.		
	1) Five (5) initial procedure revisions applicable to current activities.	04/01/80	One (1) of the initial procedures was issued (Investigative Report Procedure); the remaining procedures have been developed and are currrently in the approval cycle.
	2) Complete a Radiological Control Procedure Manual.	12/01/80	Continuing effort based on priority list issued 01/22/80.
	b. Criteria for action sign off steps in work procedures.	08/01/80	Action not started.
	c. Change tech specs to expedite review.	open	Awaiting NRC resolution.
7. External Dosimetry	a. Evaluate dosimetry for R. B. re-entry.	02/15/80	Action complete.
	b. Evaluate TLD system and implement modifications.	12/01/80	Evaluation initiated, action not complete.

TABLE - 1 MANAGEMENT PLAN PROGRESS

Finding		Corrective Action	Due Date	Status
7. (Cont.)	c.	Coordinate and direct contracted technical expertise in assessment of external exposures.	02/80	The technical expertise for assessment of external exposures is currently being coordinated and directed by the Manager of Radiological Technical Support. The organization and responsibility procedure defining the current organization was issued in May 1980. The committed action for this finding is considered complete.
	d.	QA program for TLD system	04/30/80	Procedure defining program has been developed and is currently in the review cycle.
	e.	Computerized exposure tracking by work group and major task.	04/01/80	Action complete. (system capability)
	f.	Computerized exposure tracking by specific tasks.	12/31/80	Action in progress to meet committed date.

TABLE - 1 MANAGEMENT PLAN PROGRESS

	Finding		Corrective Action	Due Date	Status
8.	Internal Dosimetry Program	a.	Coordinate available technical expertise in evaluation of internal exposures.	NA	Action complete.
		b.	Revise the Bioassay Program.	04/01/80	Procedure defining program has been developed and is currently in the approval cycle.
9.	Instrument Program	a.	R.B. re-entry instrument evaluation.	03/01/80	Action complete.
		b.	Coordinate instrument selection, calibration, and maintenance activities.	NA	Action complete.
		c.	Develop a QA program for Instrument calibration.	07/01/80	Action in progress.
		d.	Upgrade the TMI instrument calibration facility.	12/31/80	Action complete.
		e.	Make recommendations for Health Physics counting Lab improvements.	02/15/80	Submitted and being evaluated action complete.
		f.	Implement improvements to counting lab.	06/01/80	Action not complete.

TABLE - 1 MANAGEMENT PLAN PROGRESS

Finding		Corrective Action	Due Date	Status
9. (Cont.)	g.	Improve air sampling capabilities.	NA	Action complete
	h.	Improve air sampling practices.	NA	Action complete.
	i.	Improve Radio-Iodine sampling capabilities.	NA	Action complete.
	j.	Implement an improved survey frequency schedule in procedural format.	02/01/80	Procedure developed, currently in approval cycle.
10. Radioactive Material shipping and labeling	a.	Revise all procedures addressing the packaging, handling, shipping, and receipt of Radioactive material.	NA	Action complete.
	b.	Develop guidelines for curie estimations.	04/01/80	PCR to existing procedure submitted and approved. Action complete.
11. Improve decontamination procedures for equipment and tools.	a.	Improve decontamination practices from pre-accident conditions.	NA	Action complete.

TABLE - 1 MANAGEMENT PLAN PROGRESS

Finding		Corrective Action	Due Date	Status
12. Implement a program which emphasizes the reduction of personnel exposures to ALARA.	a.	Implement a Radiation protection plan which stresses TMI-II's commitment to a strong radiological control program within the Concept of ALARA.	NA	Program in effect, Radiation Protection Plan awaiting NRC resolution.
	b.	Implement a program for exposure tracking.	09/01/80	Action not started
	c.	Issue reports on exposure returns to supervision as an aid in tracking exposure for their personnel.	NA	Continuing effort upon implementation of exposure tracking program identified above.
13. Hold personnel accountable for the actions they take. Establish an understanding of responsibilities and expectations associated with achieving a sound Radiological Control Program.	a.	delegate responsibility for resolving audit findings to supervisory personnel responsible for the area in which the finding occurs.	NA	Continuing action, initiated in February 1980.
	b.	Insert action sign off steps in operational work procedures to ensure proper attention is given to radiological considerations.	08/01/80	Action not started.
	c.	Prepare guidelines for conductance of critiques for unusual radiological occurrences.	12/01/80	Action (guidelines) not started.

TABLE - 2

MANAGEMENT PLAN PROGRESS

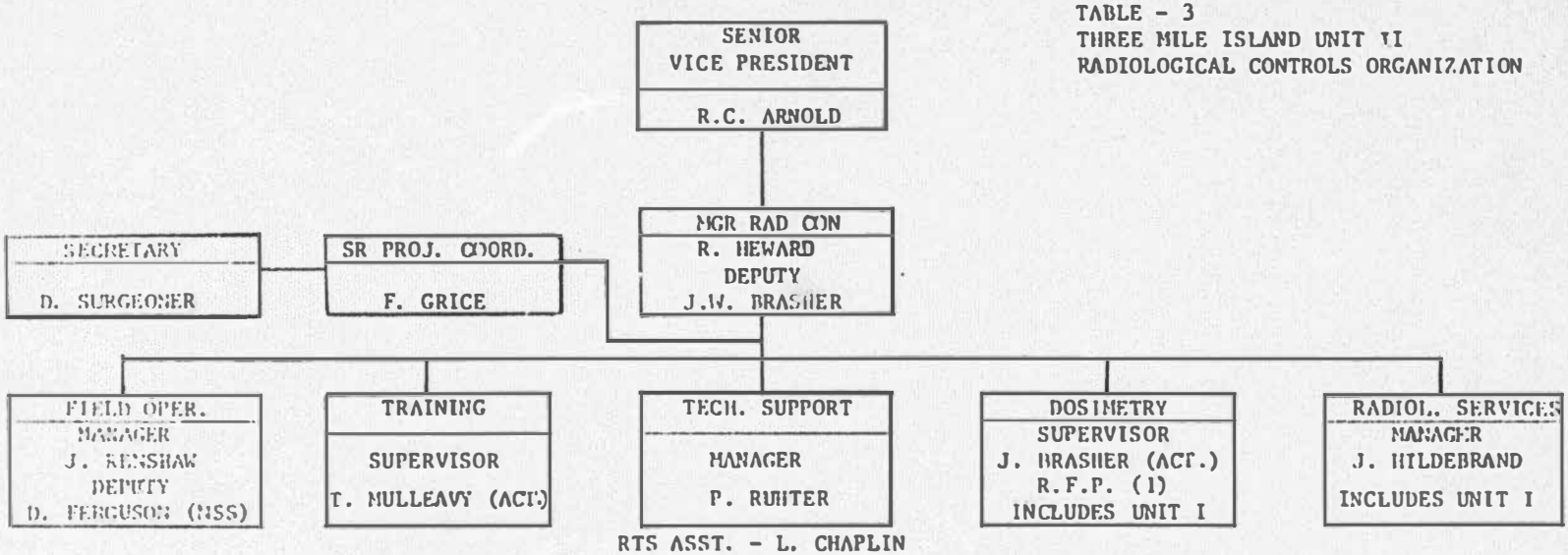
SUMMARY AS OF 06-30-80

COMMITTED ACTIONS

TOTAL	COMPLETED		IN PROGRESS		*DELINQUENT		NOT INITIATED	
NO.	NO.	% TOTAL	NO.	% TOTAL	NO.	% TOTAL	NO.	% TOTAL
48	27	56.3	15	31.2	*5	*10.4	6	12.5

*Delinquent is included in in-progress.

TABLE - 3
THREE MILE ISLAND UNIT II
RADIOLOGICAL CONTROLS ORGANIZATION



RTS ASST. - L. CHAPLIN

FOREMEN
Collins
Heskett
Polanis
R.F.P. (3)

TECHNICIANS
Croll
Altvater
Collier
Morton
Moyer
Merchant
Cooper
R.F.P. (11)

CONTRACTOR
N.S.S. (71)

INSTRUCTOR
Grieco
Weckstien

ADMINISTRATOR
Michael

CONTRACTOR
N.S.S. (1)

QUALIFICATIONS OF TECHNICIANS AND FOREMEN

APPROVAL OF OTHER UNIT II RAD CON TRNG

SUPERVISOR
Peterson
Daniel
Reynolds
R.F.P. (1)

ENGINEER
Della Loggia
Wattson
Hollenbeck
Neville
Skladanowski
R.F.P. (4)

CONTRACTOR
GD/EB (7)
B&W (1)
P/GERTZ (5)
CONSTOCK (1)
RAD ENRG EFF. & DOSE ASSES RAD ANALYSIS

SUPERVISOR
Russ
Schmidt
R.F.P. (2)

CLERICAL
(8) Met-Ed

CONTRACTOR
GD/EB (1)
RAD SERV. (1)
SCHAUSS (1)
N.S.S. (23)

DOSIMETRY

RECORDS

SUPERVISOR
Perry
R.F.P. (1)

CONTRACTORS
Rad Serv. (18)
Rad Mgt Corp (3)

INSTRUMENT CALIBRATION
AND REPAIR
RESPIRATOR PROT.
RADIOLOGICAL LAB.
BIOASSAY
RADIOL. HEALTH

SUMMARY	
Certified Health Phys. (3)	
(2) GPUSC	(1) Consultant
Degrees	(35)
(16) GPUSC	(21) Consultant
GPUSC/Met-Ed (36); R.F.P. (27)	
Consultant (134)	

SECTION 6

SPECIAL PROJECTS

6.1 SCOPE - SPECIAL PROJECTS

This scope has been changed slightly since last quarter. Specifically items 3 and 12. Special Projects is responsible for accomplishing a cleanup of the Reactor Building atmosphere and for conducting the initial entries into the Reactor Building. To support these activities, Special Projects conducts Reactor Building air samples and measurements and experiments designed to measure radiation and contamination levels in the Reactor Building. Special Projects' tasks and task objectives are:

1. Hydrogen control system modifications - make changes to the Reactor Building hydrogen control system to allow use of this system for purging the Reactor Building.

2. Ante-Room modifications - make changes to the ante-room area around the Reactor Building personnel airlock number 2 for the initial Reactor Building entries.

3. Reactor Building atmosphere samples - determine the particulate, iodine and noble gas activity and the chemical/physical makeup of the Reactor Building atmosphere as they relate to Reactor Building entry.

4. Gamma radiation readings through the equipment hatch - determine the isotopic identity and magnitude of plateout on the 305' elevation.

5. Gamma radiation readings through the inner flange of penetration R605 (approximately 2 feet above the sump water level, near the

basement of the Reactor Building) - determine sump water level and specific activity of the contamination in the sump.

6. Sump water sample from penetration R401 (approximately 2 feet above the sump water level) - perform an activity analysis of the water.

7. Gamma radiation readings through the inner metal flange of penetration R626 (at the 347' elevation, approximately 11 feet above the Reactor Building operating floor) - determine general area radiation levels and determine the isotopic identity and magnitude of plateout on the 347' elevation operating floor.

8. Radiation mapping of the number 2 personnel airlock - determine airborne activity level and radiation reading inside the airlock.

9. Analysis of the hydrogen recombiner inlet spool piece - determine what plateout exists on the spool piece as a result of the several days of flow through the hydrogen recombiner which occurred within the first month after the accident.

10. Remote TV camera and radiation surveys through penetration R626 - obtain an initial visual assessment of the damage that may have been done by the accident and obtain the first direct radiation measurement readings inside the building.

11. Airlock entry - obtain better information on the 305' elevation radiation levels and the 305' elevation plateout source.

12. Reactor Building entry - perform radiation surveys of the 305' and 347' elevations and obtain data for decontamination planning.

6.2 CURRENT ACTIVITIES - SPECIAL PROJECTS

6.2.1 HYDROGEN CONTROL SYSTEM SUPPORT

On June 12, 1980, the USNRC granted Metroplitan Edison permission to conduct a controlled purge of the Reactor Building. The order included a waiver of the instantaneous and quarterly average release Technical Specifications.

Metropolitan Edison commenced the purge at 0800 hrs. on June 28, 1980, but shut down immediately to investigate high purge system and stack discharge particulate alarms. Subsequent sampling showed that no particulates were present. The alarms were due to interference of the Krypton on the radiation monitor particulate channels. The purge was recommenced at 1700 hrs., after a periodic sampling program was set up to ensure that particulate releases were within Technical Specification limits. The purge was again shut down at 2200 hrs., to allow analysis of the sample data. The purge was then restarted at 1400 hrs. on June 29, 1980, and is continuing. As of June 30, 1980, approximately 4500 curies of Krypton had been released. Further details on purge related activities and more detailed results will be included in the next quarterly report.

The purge will continue with the modified hydrogen control system until Krypton concentration is low enough to allow use of the "B" Reactor Building purge train. The flow rate through the "B" train can be varied between 1000 and 25000 CFM.

6.2.2 REACTOR BUILDING ATMOSPHERE SAMPLES

An assessment of all Reactor Building air sample analysis results was completed in May, 1980. The major results of this assessment are

shown in Tables 1 through 8, to be found immediately following this section. Additionally, gas samples of the TMI-2 Reactor Building atmosphere were taken on April 3, and April 14, of this quarter, through penetration R626, to determine oxygen and hydrogen levels and to determine if there were any toxic gases present.

The average concentration of oxygen was 12.9% and hydrogen was 0.7%. The results of the toxic gases sampled for were:

CO_2	N.D. to <0.013%
O_3	N.D. to <0.1 ppm
H_2S	N.D. to <2.5 ppm
CO	N.D.

N.D. - Not Detected

6.2.3 REACTOR BUILDING ENTRY

On May 20, 1980, entry into the Reactor Building was attempted. At that time the door was found to be jammed. The handwheel which operates the Reactor Building inner door would not operate through its normal opening sequence. The inner door handwheel was operated and determined to stop at about one-third of a turn, which corresponds to the location of the differential interlock locking pin. Presently, preparations are underway to drill a hole through the airlock inner bulkhead at the locking pin location. This would allow the locking pin to be pryed down manually, permitting proper handwheel operations. Afterwhich, other procedures and testing would be done to verify proper operations.

TABLE 1
GROUP I REACTOR BUILDING GAS GRAB SAMPLE DATA
FROM ORIGINAL SYSTEM AND ORIGINAL ANALYSIS METHOD

NUCLEAR CONCENTRATION (uCi/cc)

SAMPLE NO.	DATE	Kr-85m	Xe-131m	Xe-133m	Xe-133	Xe-135	I-131	Ba-140
*	3/31/79			1.6×10^{1}	6.8×10^{2}		6.4×10^{-2}	
*	4/3/79			5.9×10^{0}	1.7×10^{1}	1.6×10^{-1}	1.1×10^{-1}	2.1×10^{-2}
*	5/4/79	6.3×10^{-1}	6.9×10^{-2}		9.9×10^{0}		2.8×10^{-3}	
*	5/11/79		9.7×10^{-3}		5.5×10^{-3}		3.3×10^{-5}	
*	5/14/79	6.6×10^{-1}	3.1×10^{-1}		8.1×10^{-1}		1.3×10^{-3}	
*	5/27/79	5.5×10^{-1}	2.2×10^{-1}		3.5×10^{-1}		1.4×10^{-3}	
7858	5/30/79	9.6×10^{-2}	3.3×10^{-2}		5.4×10^{-2}		1.7×10^{-3}	
7994	5/31/79	9.8×10^{-1}	3.2×10^{-1}		4.8×10^{-1}		1.0×10^{-3}	
11552	6/21/79	7.9×10^{-1}	8.5×10^{-2}		2.4×10^{-2}		1.2×10^{-4}	
12214	6/26/79	1.0×10^{0}	8.6×10^{-2}		1.5×10^{-2}		1.2×10^{-4}	
15160	8/2/79	9.9×10^{-1}	9.5×10^{-3}					
AVERAGE VALUE		0.71						
STANDARD DEVIATION		0.31						

* See Reference (1)

TABLE 2
GROUP 2 REACTOR BUILDING GAS GRAB SAMPLE DATA
FROM MODIFIED SYSTEM WITH NO CHANGE IN ANALYTICAL METHOD

KRYPTON-85 CONCENTRATION (uCi/cc)

Sample No.	Date	Sample Point Elevation 469'	354'
18648	9/8/79	7.8×10^{-1}	
19709	9/18/79	9.6×10^{-1}	
20503	9/26/79	7.8×10^{-1}	
20504	9/26/79	7.1×10^{-1}	
20498	9/26/79	8.4×10^{-1}	
20582	9/26/79	5.2×10^{-1}	
21299	10/3/79	9.9×10^{-1}	
23825	10/31/79	9.1×10^{-1}	
24455	11/8/79		7.1×10^{-1}
24458	11/8/79	6.8×10^{-1}	
24967	11/14/79		8.3×10^{-1}
24970	11/14/79	7.9×10^{-1}	
26113	11/28/79		9.3×10^{-1}
26692	12/5/79		6.3×10^{-1}
26695	12/5/79	1.5×10^{0}	
27883	12/20/79	9.1×10^{-1}	
28814	1/3/80		6.1×10^{-1}
28816	1/3/80	8.2×10^{-1}	
29292	1/9/80	8.2×10^{-1}	
29293	1/9/80		6.1×10^{-1}
AVERAGE VALUE		0.86	0.72
STANDARD DEVIATION		0.22	0.12
AVERAGE VALUE OF DATA FOR BOTH SAMPLE POINTS		0.81	
STANDARD DEVIATION OF DATA FOR BOTH SAMPLE POINTS		0.20	

TABLE 3

GROUP III - MODIFIED SYSTEM AND MODIFIED ANALYTICAL METHOD
GAS SAMPLE RESULTS USING THE
DIRECT COUNTING OF 30 ML VIALS

SAMPLE NO.	DATE	KRYPTON 85 CONCENTRATION (uCi/cc) 469' el. Sampling Point	354' el. Sampling Point
23826	10/31/79	1.05	
24454	11/8/79		1.09
24457	11/8/79	1.04	
24965	11/14/79		0.98
24968	11/14/79	1.05	
25481	11/20/79	1.09	
25479	11/20/79		1.09
26112	11/28/79	1.06	
26114	11/28/79		1.08
26690	12/5/79		1.07
26691	12/5/79	1.02	
27241	12/12/79	1.04	
27243	12/12/79		1.03
27882	12/20/79		1.07
27884	12/20/79	1.09	
28392	12/28/79	1.03	
28815	1/3/80		1.02
28817	1/3/80	0.97	
29294	1/9/80	1.07	
29295	1/9/80		1.09
29863	1/16/80	1.00	
29869	1/16/80		1.06
30521	1/23/80	1.02	
30522	1/23/80		1.05
31208	1/30/80	1.00	
31209	1/30/80		1.03
32450	2/13/80		1.02
32451	2/13/80	1.00	
Average Value		1.04	1.05
Standard Deviation		0.03	0.03
Average Value of Data for Both Sampling Points		1.04	
Standard Deviation of Data for Both Sampling Points		0.03	

TABLE 4

DIATOMIC GAS ANALYSIS

SAMPLE NO.	DATE	PERCENT OF TOTAL		
		N_2	O_2	Ar_2
7954	5/31/79	84.9	14.5	0.6
15160	8/2/79	85.3	14.1	0.6
19709	9/18/79	80.8	18.3	0.9
20498	9/26/79	86.5	12.8	0.7
23825	10/31/79	83.7	14.9	1.4
24455	11/8/79	80.6	17.8	1.6
24458	11/8/79	83.6	15.5	0.9
24966	11/14/79	84.0	14.7	1.3
24969	11/14/79	80.8	17.6	1.6
25480	11/20/79	85.0	13.8	1.2
25482	11/20/79	85.1	13.7	1.2
26111	11/28/79	84.7	14.0	1.3
26113	11/28/79	84.5	14.2	1.3
26693	12/5/79	84.8	14.1	1.1
26694	12/5/79	84.3	14.6	1.1
27881	12/20/79	85.5	13.3	1.2
27883	12/20/79	87.3	11.6	1.1
28390	12/28/79	85.8	13.4	0.8
28514	1/3/80	85.7	13.3	1.0
28516[a]	1/3/80	89.9	8.8	1.3
AVERAGE VALUE		84.6	14.3	1.1
STANDARD DEVIATION		2.1	2.1	0.3

[a] Note: This data is not considered to be valid because the gas partitioner failed on the day the sample was analyzed.

TABLE 5

IODINE SPECIES SAMPLE ANALYSIS RESULTS

SAMPLE NO	DATE	CONCENTRATION (uCi/cc) I_2	HOI	CH_3I	TOTAL
12213	6/26/79	4.8×10^{-10}	3.5×10^{-6}	5.2×10^{-5}	6.1×10^{-5}
13353	7/9/79	1.4×10^{-6}	2.1×10^{-6}	1.2×10^{-5}	1.6×10^{-5}

TABLE 6
REACTOR BUILDING PARTICULATE SAMPLE DATA

SAMPLE NO.	DATE	NUCLIDE CONCENTRATION (uCi/cc)						
		Co-60	I-131	Cs-134	Cs-137	La-140	Sr-89	Sr-90
11554	6/21/79		1.9×10^{-9}	2.0×10^{-9}	9.5×10^{-9}			
12230	6/26/79		1.1×10^{-3}	3.8×10^{-5}	1.4×10^{-2}	3.9×10^{-3}		
14370	7/23/79	6.0×10^{-10}		9.6×10^{-10}	3.0×10^{-10}			
18698	9/8/79			3.4×10^{-7}	1.5×10^{-6}			
19693	9/18/79			5.0×10^{-11}	3.0×10^{-10}			
21712	10/8/79			----	7.8×10^{-10}			
24456	11/8/79			----	----			
24459	11/8/79			----	----			
27888	12/20/79			----	----			
27889	12/20/79			----	----			
31210	1/30/80			----	7.14×10^{-10}		7.46×10^{-10}	6.88×10^{-10}
31211	1/30/80			----	1.16×10^{-9}		1.42×10^{-10}	1.78×10^{-10}
31825	2/6/80			----	----		1.20×10^{-10}	1.00×10^{-10}
32452	2/13/80			----	2.68×10^{-10}		5.32×10^{-11}	8.04×10^{-11}
32453	2/13/80			----	2.80×10^{-10}		7.01×10^{-10}	5.15×10^{-10}

TABLE 7
GROSS β-γ ANALYSIS RESULTS
OF PARTICULATE SAMPLES

SAMPLE NO.	DATE	β-γ Activity, uCi/cc Sample Point Elevation 469'	354'
24456	11/8/79		2.27×10^{-9}
24459	11/8/79	8.98×10^{-10}	
27888	12/20/79	1.78×10^{-9}	
27889	12/20/79		1.55×10^{-8}
28381	12/28/79	4.77×10^{-9}	
28437	12/28/79	5.24×10^{-8}	
29867	1/16/80		5.33×10^{-9}
29868	1/16/80		4.97×10^{-9}
31210	1/30/80	2.19×10^{-9}	
31211	1/30/80	2.47×10^{-9}	
32452	2/13/80		1.28×10^{-9}
32453	2/13/80		8.94×10^{-10}

TABLE 8
REACTOR BUILDING ATMOSPHERE
TRITIUM CONCENTRATION

SAMPLE NO.	DATE	Tritium Concentration uCi/cc Sample Point	
		469' el.	354' el.
24455	11/8/79		1.52×10^{-4}
24458	11/8/79	6.13×10^{-5}	
25480	11/20/79		1.13×10^{-4}
25482	11/20/79	1.14×10^{-5}	

SECTION 7

ENVIRONMENTAL MONITORING

7.1 SUMMARY

Recovery activity involvement by the Environmental Impact Assessment Group during the current reporting period was directed toward radiological environmental monitoring efforts and associated activities, primarily off-site.

The Radiological Environmental Monitoring Program (REMP) was maintained and represents one of the largest efforts during the present quarter. Sample collections, data acquisition, interpretation, and report preparation were completed relative to REMP responsibilities.

Preparations for the purge of the containment atmosphere were completed during this quarter. Additional equipment acquisitions, in addition to delivery of previously purchased instruments, were completed. All monitoring instrumentation were field checked, located, calibrated, and all personnel were trained relative to their use. Administratively, response to regulatory inquiries, audits, and staffing requirements were completed.

7.2 MONITORING

7.2.1 REMP

As part of the ongoing responsibility of the Environmental Impact Assessment Group (EIAG), the REMP program was maintained during this quarter. REMP environmental samples were taken, including milk, water, air particulate and iodine. Additionally, environmental thermoluminescent dosimetry (TLD) stations were sampled and processed. No unusual levels of radioactivity were identified as a result of REMP sample analysis.

7.2.2 GROUNDWATER MONITORING

7.2.2.1 PROGRAM STATUS

The on-site groundwater monitoring program was expanded during this quarter by the completion of seven (7) additional observation wells. The location of the observation wells, designated as OW-9, OW-10, OW-13B, OW-14, OW-15, OW-16 and OW-17, and the eight (8) original monitoring wells (MW 1-8) are presented in Figure 1. (Figure 1 and Tables I through IV are located immediately following this section.)

The sampling frequency was reduced from daily to weekly on May 21, 1980, with a formal report of results to be submitted every two weeks to PaDER, USNRC and the Department of Natural Resources of the State of Maryland.

7.2.2.2 TRITIUM RESULTS

Tritium values obtained to date are presented in Table I and Table II for the monitoring wells and observation wells respectively.

Analyses have been completed on soil cores obtained from observation wells 9, 10, and 16 and are presented in Tables III and IV respectively, along with a description of each core section.

The significance of this data in relation to source is presently being evaluated by Bechtel Power Corp., and Ground/Water Technology, Inc.

7.2.2.3 BROWN WATER

Analyses were performed on the water from monitoring well 3, to determine the cause of the brown discoloration noted in this well. These analyses, although not providing a positive identification of the constituents, confirmed the nontoxic nature of this water.

In summary, the findings were as follows:

(1) none of EPA's priority pollutants were found;

(2) heavy metal concentrations were well below toxic levels;

(3) inorganic constituents were within natural levels expected and were characteristic of dust and soil particles; and

(4) organic constituents were degradation products of naturally occurring organic debris (i.e. leaves, wood fibers, humus, etc.)

7.2.3 PURGE

Activities relative to preparation for the purge of the containment atmosphere were assigned specific task orders. The following represents these tasks and the completed action taken on each:

1. Equipment: All equipment ordered for, and in relation to, the purge monitoring program was received. This equipment included ten (10) real-time direct radiation recorders, ten (10) cryogenic continuous air samplers, thirty (30) continuous evacuated air samplers, thirty (30) grab evacuated air samplers, a Ge(Li) and Na(I) detectors, two-way communications network for field teams, and a CRT terminal for dose and plume projections. The mobile environmental monitoring van was received during this quarter. The van is equipped with two (2) real-time noble gas monitors, two (2) real-time gamma radiation detectors, two (2) hand held beta and gamma detectors, a thirty-three foot meteorological tower, two-way communication, grab air sampling equipment, self contained power supply, and mounted TLDs.

2. Equipment Calibration: Instrumentation was subjected to rigorous calibration procedures. TLDs and the associate reader were delivered to the University of Michigan for calibration to beta and gamma radiation. Hand held portable meters were calibrated to both sources while the noble gas monitors were calibrated to krypton only. Air samplers were sent to the supplier for orifice and valve stem calibration.

Laboratory procedures for analysis of cryogenic air samplers

were examined and refined with acceptable ranges of analysis performance defined.

3. Equipment field testing and placement: All equipment is placed in the field for testing under actual environmental conditions, as received. Readings are noted and performance recorded. Equipment is then installed at predesignated locations and a calibration record maintained on each for referral.

   The CRT and computer program to be used for meteorological plume tracking and dose projections related to the purge, were placed on line and tested for performance.

4. Personnel Training: All personnel within the EIA Group were trained and checked out on each piece of equipment to ensure their familiarization with all aspects of the monitoring program.

5. Preparedness Test: Two separate trial runs were made with all monitoring teams and associated equipment in preparation of the re-entry attempt and the purge. Revisions, updates, and equipment procedure modifications were made prior to the actual event.

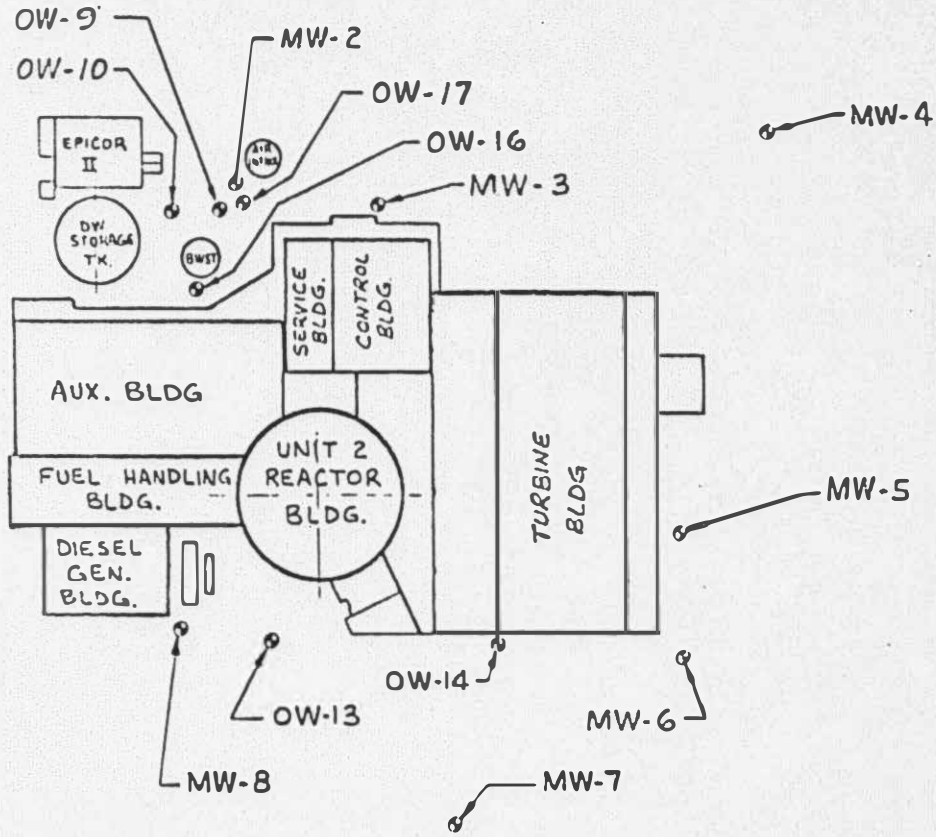
7.3 ADMINISTRATION

Administratively, several activities were completed during the present reporting period. They are as follows:

1. Responses to the USNRC Inspection Nos. 50-289/79-23 and 50-320/79-28 were submitted to the USNRC on May 5, 1980.
2. A survey was conducted of the area for the river flow study and the contract was issued on May 30, 1980, for the Susquehanna River flow study to be done.
3. Completing our obligation to the City of Lancaster was effected by the installation of a Na(I) detector at the city water works. A rigorous training program for Lancaster's personnel followed installation and was implemented on May 26, 1980, and June 10, 1980.
4. An agreement was reached for the use of the ARAC meteorological service during the purge.
5. Three additional professionals were added to the EIA Group staff toward the end of the quarter: One (1) terrestrial ecologist and two (2) health physics personnel.
6. Formal communications were established by GPU with the EPA and PaBRP for the purge.
7. Off-site office and lab facilities were established permanently for REMP functions at Harrisburg International Airport on June 4, 1980.

WELL LOCATIONS

NORTH



COMMENTS

1. MW-1 LOCATED IN NORTH PARKING LOT @ COORDINATES N 301,460.04 E 2,286,538.94
2. OW-15 LOCATED IN SOUTH END OF ISLAND @ COORDINATES N 292,985.44 E 2,287,765.09

FIGURE 1

TABLE I
TRITIUM
MONITORING WELL RESULTS
(pCi/Liter)

DATE	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
1/25				170 ± 70		
2/20			290 ± 90			
2/25		1530 ± 150 (a)				
2/29						280 ± 90
3/5				250 ± 90		
3/11	200 ± 90					
3/26				200 ± 80		
3/27			370±80/660±110(e)		380 ± 80	
3/28		2500 ± 180				990±100/560±100(f)
4/1	990 ± 100					
4/2		1550±100/1770±140(b)	300±80/240±90(d)			430±80/310±80(g)
4/3						
4/9	150 ± 90	1530 ± 160	770 ± 110	< 170	80 ± 70	330 ± 80
4/11	210 ± 90	1010 ± 110	700 ± 80	320 ± 80	120 ± 70	320 ± 80
4/12	250 ± 80	920 ± 110	720 ± 100	350 ± 80	260 ± 70	440 ± 80
4/13	150 ± 70	980 ± 110	690 ± 90	350 ± 80	330 ± 100	530 ± 80
4/14	170 ± 70	1010 ± 100	590 ± 90	270 ± 80	230 ± 70	430 ± 80
4/15	290 ± 70	610 ± 80	1040 ± 100	290 ± 80	210 ± 70	370 ± 80
4/16	100 ± 90	670 ± 90	590 ± 80	230 ± 80	130 ± 80	200 ± 70
4/17	170 ± 70	730 ± 110	1080 ± 90	290 ± 110	240 ± 150	430 ± 90
4/18	160 ± 80	890 ± 100	860 ± 100	160 ± 80	130 ± 60	300 ± 80
4/19	210 ± 90	720 ± 100	550 ± 90	300 ± 80	120 ± 80	380 ± 80
5/2	130 ± 70	490 ± 80	1090 ± 90	360 ± 70	350 ± 70	910 ± 80

(a) recheck = 1600 ± 120
(b) samples for 8:00 & 8:40 a.m.
(c) samples for 9:00 & 9:45 a.m.
(d) samples for 8:19 & 8:23 a.m.
(e) samples for 11:25 a.m. & 12:30 p.m.
(f) samples for 10:30 a.m. & 11:30 a.m.
(g) samples for 8:55 & 9:00 a.m.

TABLE I (Sheet 2)
TRITIUM
MONITORING WELL RESULTS
(pCi/Liter)

DATE	MW-7	MW-8	POND			
3/7		160 ± 80				
3/26	300 ± 80					
4/2		870 ± 90				
4/9	260 ± 90	640 ± 110				
4/11	240 ± 80	1060 ± 100	190 ± 70			
4/12	270 ± 80	1020 ± 100	<100			
4/13	380 ± 80	790 ± 100	100 ± 80			
4/14	480 ± 80	860 ± 100	90 ± 80			
4/15	300 ± 60	570 ± 90	110 ± 80			
4/16	320 ± 90	410 ± 70	< 100			
4/17	490 ± 90	830 ± 80	< 100			
4/18	270 ± 70					
4/19	420 ± 90	870 ± 100	< 130			
4/25						
5/2	310 ± 80	170 ± 100				

TABLE II
TRITIUM RESULTS
OBSERVATION WELL GROUNDWATER
(pCi/Liter)

DATE	OW-9	OW-10	OW-13B	OW-14	OW-15	OW-16
4/25	2610 ± 160	1480 ± 100				
5/2	350 ± 90	170 ± 90				1090 ± 110

(a) recheck = 1600 ± 120
(b) samples for 8:00 & 8:40 a.m.
(c) samples for 9:00 & 9:45 a.m.
(d) samples for 8:19 & 8:23 a.m.
(e) samples for 11:25 a.m. & 12:35 p.m.
(f) samples for 10:30 a.m. & 11:30 a.m.
(g) samples for 8:55 & 9:00 a.m.

TABLE II (Sheet 2)
TRITIUM RESULTS
OBSERVATION WELL GROUNDWATER
(pCi/Liter)

DATE	OW-17					
5/2	3210 ± 200					

TABLE III
DATA SHEET

SUBJECT Observation Well Soil Sample Results — DATE _____ SHEET 1 of 1

LOCATION _____

REMARKS _____

CW-Core-9 4/22/80				CW-Core-16 4/28/80		
Core Depth Feet	Core Description	H_3 pCi/l		Core Depth Feet	Core Description	H_3 pCi/l
0-1	brown to black fill	290±120		0-1	sand, gravel	2070±130
1-2	medium to coarse sand, fine silt & clay	130±100		1-2	clay, sand & gravel	1930±150
				2-3	"	1560±130
2-3	some gravel, very fine sand & silt	300± 90		3-4	clay, sand, gravel & bedrock	910±100
3-4	medium to coarse sand, some gravel & fine sand	280± 80		4-5	same as 3-4 level	2270±150
				5-7	same as 4-5 level	4210±260
4-5	same as 3-4	370± 80		7-9	clay, gravel & sandstone	2550±160
5-6	fine materials	220± 80		9-11	same as 7-9 level	2120±140
6-7	same as 5-6 but more coarse than above	340± 90		11-13	dense clay, gravel & sand	480± 90
				13-15	same as 11-13 level	330± 80
7-9	composition as in 6-7	490±100		15-17	gravel & sand	430± 90
9-11	"	<100		17-19	gravel & sand	370± 80
11-13	"	<140		19-21	dark gravel & clay	830±100
13-15	"	230± 80		21-23	gravel & clay	600±140
15-17	"	150± 90		23-25	gravel, clay & sand	790±100
17-19	"	200± 70		25-27	sand, gravel, clay & limestone	1150±100
19-21	at 19' water table	530± 80		27-28	sandstone, fine sand & gravel	830± 90
21-22	blue gravel, centered medium to coarse sand	820± 80				
22-24	at bedrock very dense	650±100				
24-26	sandstone, quartz cobbles, red color very dense	1440±140				
26.5-27.1	medium dense rock, red sandstone	3480±220				
26-28	fine sandstone-siltstone bedrock 27.1'	3340±220				

TABLE IV
DATA SHEET

SUBJECT H_3 Levels (pCi/l) in Observation Wells

SITE _____ SHEET _____

LOCATION OW-10

GEOLOGIST _____

Core Depth Feet	Core Description	H_3 pCi/l		Core Depth Feet	Core Description	H_3 pCi/l
0-1	sand and gravel	390± 90				
1-2	fill, chips & sand	560± 90				
2-3	sand and chips	240± 80				
3-4	sand, clay & chips	240± 70				
4-5	" " " "	350± 80				
5-7	sand and gravel	160± 70				
7-9	" " "	260± 70				
9-11	" " "	200± 80				
11-13	sand, clay & gravel	330± 80				
13-15A	sand, shale and quartz	<120				
13-15B	"	160± 80				
15-17	sand, shale, gravel quartz & clay	320± 80				
17-19	"	100± 80				
19-21	shale, sand, clay & gravel	140± 70				
21-23	sand and gravel	110± 80				
23-25	sand and gravel	1700±140				
25-27	sand, gravel and bedrock	1630±150				

SECTION 8

CONSTRUCTION

8.1 CURRENT ACTIVITIES - CONSTRUCTION

8.1.1 EPICOR SYSTEM

There now exist two EPICOR systems: EPICOR I and EPICOR II. Relocation of the EPICOR I system into the UNIT II area is now being planned. This would facilitate EPICOR I's exclusive use for Recovery Operations for the decontamination of Auxiliary Building water as well as other low level liquid waste. The combination efforts of these two EPICOR systems involves a need for the placement of foundations, weather protection and the routing of system influent and effluent piping within existing plant structures, and the yard north of EPICOR II area. The following activities relate to this system:

1) Modifications to liners were completed.
2) Additional ECM's were incorporated in the operational system.
3) Bubblers and standpipes were fabricated and installed.
4) EPICOR II is operational and the ECM's to EPICOR II were 100% complete on June 15, 1980, with additional support to modifications provided as required.

8.1.2 WATER CHEMISTRY LAB

The construction of the water chemistry lab for use with the EPICOR II system consists of installing the water chemistry equipment, sample hood, heat tracing, relocating the vent light in the filter unit, supplying demineralized water to the lab and other associated equipment installations. The following was accomplished:

1) New Labs were added.

2) Additional ECM's were written to relocate gages.

3) The lab was 100% complete on June 7, 1980, with additional support to modifications as required by start-up.

8.1.3 TEMPORARY SAMPLE SINK

The Pressurizer (RCS) sample line is being tied into the Unit II temporary sample sink with swage-lok fittings and small bore stainless tubing to verify the accuracy of the Reactor Coolant Pump seal cavity pressure instrument.

This item was listed as 100% complete on May 4, 1980, with additional support to start-up as required. First primary sample was taken on June 10, 1980.

8.1.4 SOLID WASTE STAGING FACILITY

The staging facility is composed of six (6) modules (lettered A through F) for the storage of radioactive wastes (solidified or dewatered resins) until they can be transported for burial. Each module consists of sixty (60) storage cells embedded in concrete.

Each cell is 84 inches in diameter and capped with a 3 foot thick concrete plug. Each cell has a drain line to a sump which serves three (3) modules. The sump will collect any rainwater leakage from the cells.

1) Module "A":

a) Ten frames on hold were dispositioned.

b) Final grading is complete.

c) Permanent lighting installation is complete.

d) Module "A" was 100% operational on June 13, 1980, with additional support to modifications as required.

2) Module "B":

a) Concrete pours continued through May and June.

b) Module "B" is 60% complete as of June 30, 1980

3) Module "C" has been excavated and mud mat placed.

8.1.5 SUBMERGED DEMINERALIZER SYSTEM (SDS)

The submerged demineralizer system is being installed in the Unit II "B" Spent Fuel Pool. The system utilizes the natural shielding capabilities of water while processing high level liquid waste from reactor building sump as well as other sources within the containment. The system is composed of two (2) trains of process equipment [forty-seven (47) truck loads] including a full chemistry lab, Ge(Li) and counting facilities. The equipment is delivered to TMI and due to the modular design, is connected together structurally with bolts, and the small bore process tubing is connected with swage-lok fittings.

The system inscallation is 35% complete as of June 30, 1980.

8.1.6 PROCESSED WATER STORAGE TANKS (PWST)

There are two (2) processed water storage tanks of 500,000 gallon capacity each to be installed on concrete ring foundations. The tanks are to be used for the storage of water processed by EPICOR system and the SDS. These foundations were 100% complete on May 19, 1980, with valve pit design still outstanding. Construction of Tank PWT-1, is 70% complete and tank PWT-2, is 30% complete.

8.1.7 PERMANENT SAMPLE SYSTEM

The permanent sample system is being installed in the Unit II Auxiliary Building to replace the temporary sample system where numerous tie-ins for water processing equipment are contained.

The system installation was 25% complete as of June 30, 1980.

8.1.8 GROUND WATER MONITORING WELLS

The ground water monitoring wells are drilled at numerous locations on Three Mile Island to monitor radioactivity in the ground water supply. These wells were 100% installed and operational on May 23, 1980, with additional support as required for their operation.

8.1.9 MISCELLANEOUS WASTE HOLDUP TANK LEVEL

A new alternate miscellaneous waste holdup tank level transmitter was to be mounted and electrically energized, and as of April 18, 1980, this installation has been successfully completed.

8.1.10 PURGE MODIFICATIONS

The permanent plant Reactor Building purge system has been modified to permit a controlled venting of the containment atmosphere via the hydrogen control system (650 CFM) and the "B" train of the Reactor Building Purge (25,000 CFM). All Reactor Building purge modifications were 100% complete on May 23, 1980.

8.1.11 RADIATION SAMPLE SYSTEM OVERPRESSURE

The Radiation sample system overpressure device helps to prevent inadvertent contamination of the sample area. The overpressure protection in the sample system was 100% complete on April 11, 1980.

8.1.12 LONG-TERM COOLING SYSTEM FOR "B" STEAM GENERATOR (SG-B)

The Long-term cooling system for the "B" Steam Generator will be modified to utilize the 600 PSI Design, and as of May 9, 1980, this installation has been successfully completed.

8.1.13 MAKE-UP SYSTEM FOR REACTOR COOLANT

The Make-Up system for the Reactor Coolant System has been installed for sampling SPC with an alarm circuit available. This make-up system was 100% complete on May 23, 1980, with support to start-up as required.

8.1.14 DIESEL GENERATORS

Two (2) 2500 KW Diesel Generators have been installed as additional capacity in the event of a loss of off-site power. The removal of the system installation is pending review and approval by USNRC.

8.1.15 ALTERNATE DECAY HEAT REMOVAL SYSTEM (ADHR)

The Westinghouse Alternate Decay Heat Removal System has been tied-in and piped within the Auxiliary Building, and skids containing Decay Heat pumps and heat exchangers have been prefabricated in an on-site Fabrication shop location. The modifications to the system supports were 100% complete on June 6, 1980.

8.1.16 MINI-DECAY HEAT REMOVAL SYSTEM (MDHRS)

The Mini-Decay Heat Removal System requires the installation of two (2) electric motor driven centrifugal pumps, two (2) heat exchangers, piping, valves, and associated controls. The system is located at the south end of the Fuel Handling Building at the 280'6" elevation. Shielding, air flow control and filtration equipment have been installed to minimize personnel exposure. The system will be intertied with the Submerged Demineralization System for the demineralizer clean-up of the Reactor Coolant System.

This system is approximately 95% complete, with additional support to start-up as required.

8.1.17 AIR HANDLING SYSTEM FAN LUBE POINTS

Air handling system fan lube points have been extended outside of ducting for ease in lubrication access. These extensions for air handling lube points outside ducting were 100% complete on April 3, 1980.

8.2 CURRENT ACTIVITIES - PROJECT OPERATIONS

The work for the Project Operations organization includes all activities carried out by Bechtel Power Corporation.

8.2.1 ENGINEERING DESIGN WORK

During this reporting period engineering design work has progressed in a number of significant areas. Bechtel has released the following drawings, specifications, material requests and purchase orders during this reporting period:

System	Drawings Released for Review	SPEC, M.R. or P.O. Released
Submerged Demineralizer System	8	13
Low Level Waste Processing	10	8
Process Water System	6	5
Containment Recovery Service Bldg.	5	0
Personnel Access Facility	1	0
Other Misc. Systems	72	43

Further refinements of the design are also in process (piping isometrics, electrical single line diagrams are being produced for the above noted facilities as well as the EPICOR-I relocation).

8.2.2 PLANNING STUDY - PROJECT ENGINEERING PROCEDURES MANUAL

The Planning Study for Phase II-Reactor Internals Disassembly, Fuel Removal and System Cleanup was issued for review. Project Engineering also issued its General Design Criteria and revisions to the Project Engineering Procedures Manual. Discussions also continued to refine the flow of information which will be

required to accomplish changes or modifications to permanent plant facilities.

8.2.3 BECHTEL QUALITY ASSURANCE MANUAL

A Bechtel Quality Assurance Manual was developed and forwarded in June 1980, to GPUSC for review and approval. The manual and its procedures reflect the requirements of the TMI-II Recovery Quality Assurance Plan. During this period an off-site schedule of QA audits was developed and the plan implemented.

8.2.4 PROCUREMENT ACTIVITIES

Bechtel procurement activities, which include purchasing, expediting and vendor surveillance, were centered on the development of a comprehensive procurement plan. The plan, Project Procurement Procedures Manual, was submitted on April 21, 1980, to GPUSC for review and coordination. Procurement activity to support the overall project schedule is expected to commence shortly; in the intervening period, GPUSC is handling these efforts.

8.3.5 CONSTRUCTION ACTIVITIES

Construction activities centered on the following facilities:

1. Processed Water Storage Tanks - Pittsburgh-Des Moines Steel Company mobilized on May 19, 1980, to begin erection of the tanks. The bottom of Tank PWT-1 was placed and welded out first. Two shell rings were erected and welded out before beginning work on PWT-2. Erection has been completed through ring #5 on PWT-1 and through ring #2 on PWT-2. Construction of Tank PWT-1 is 70% complete and Tank PWT-2 is 30% complete as of June 30, 1980.

2. Subsurface Exploration - Warren-George, Inc. completed soil boring and extraction of samples for testing in 22 locations in the Unit 2 Area where permanent facilities are planned.

Furthermore, plans are being developed to begin work on other facilities which include: The relocation of EPICOR-I, relocation of security fencing and construction of the evaporator/solidification facility.

STATUS OF RECOVERY ACTIVITIES IN-PROCESS

FIGURE 8-1
(SHEET 1 OF 9)

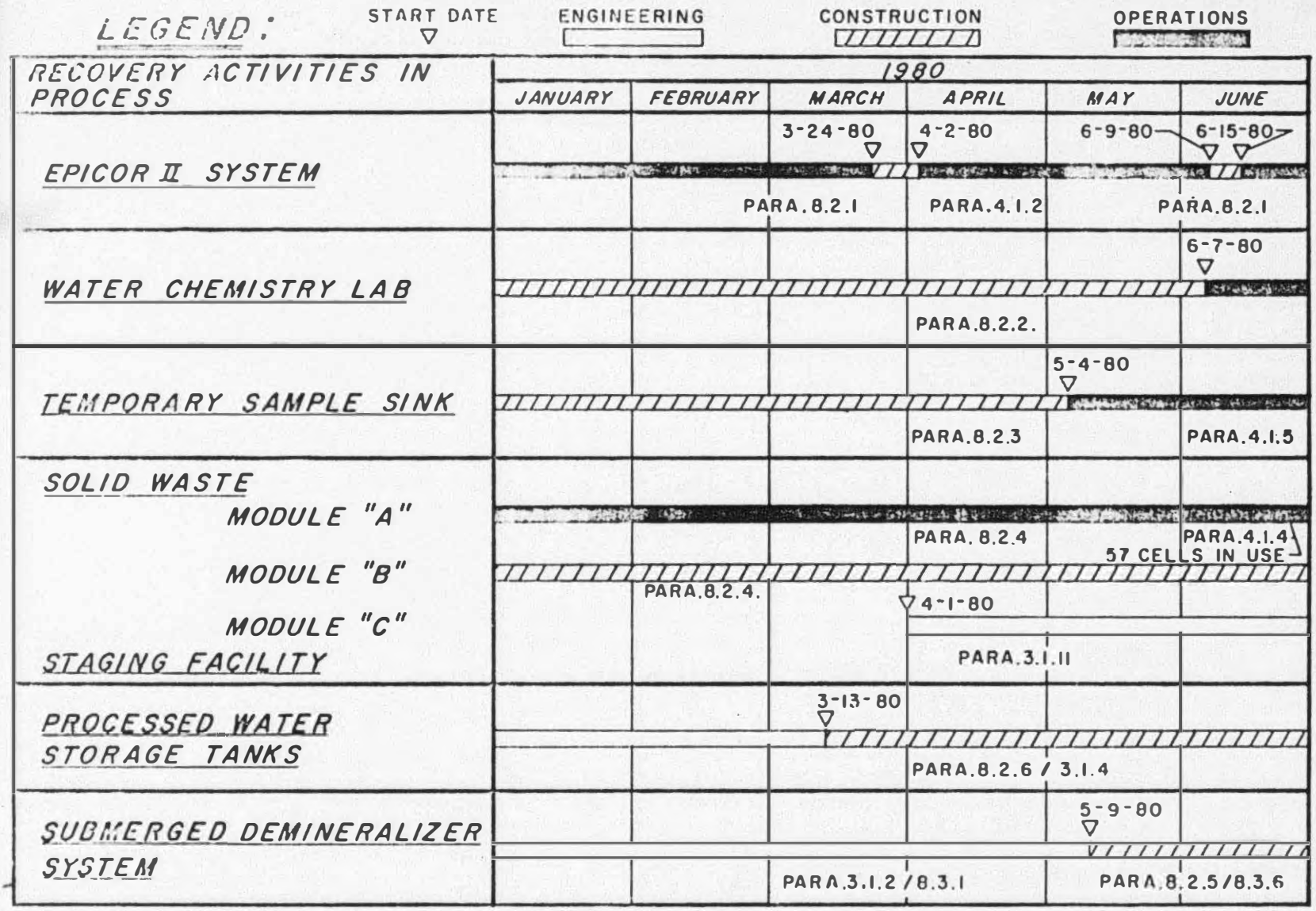


FIGURE 8-1
(SHEET 2 OF 9)

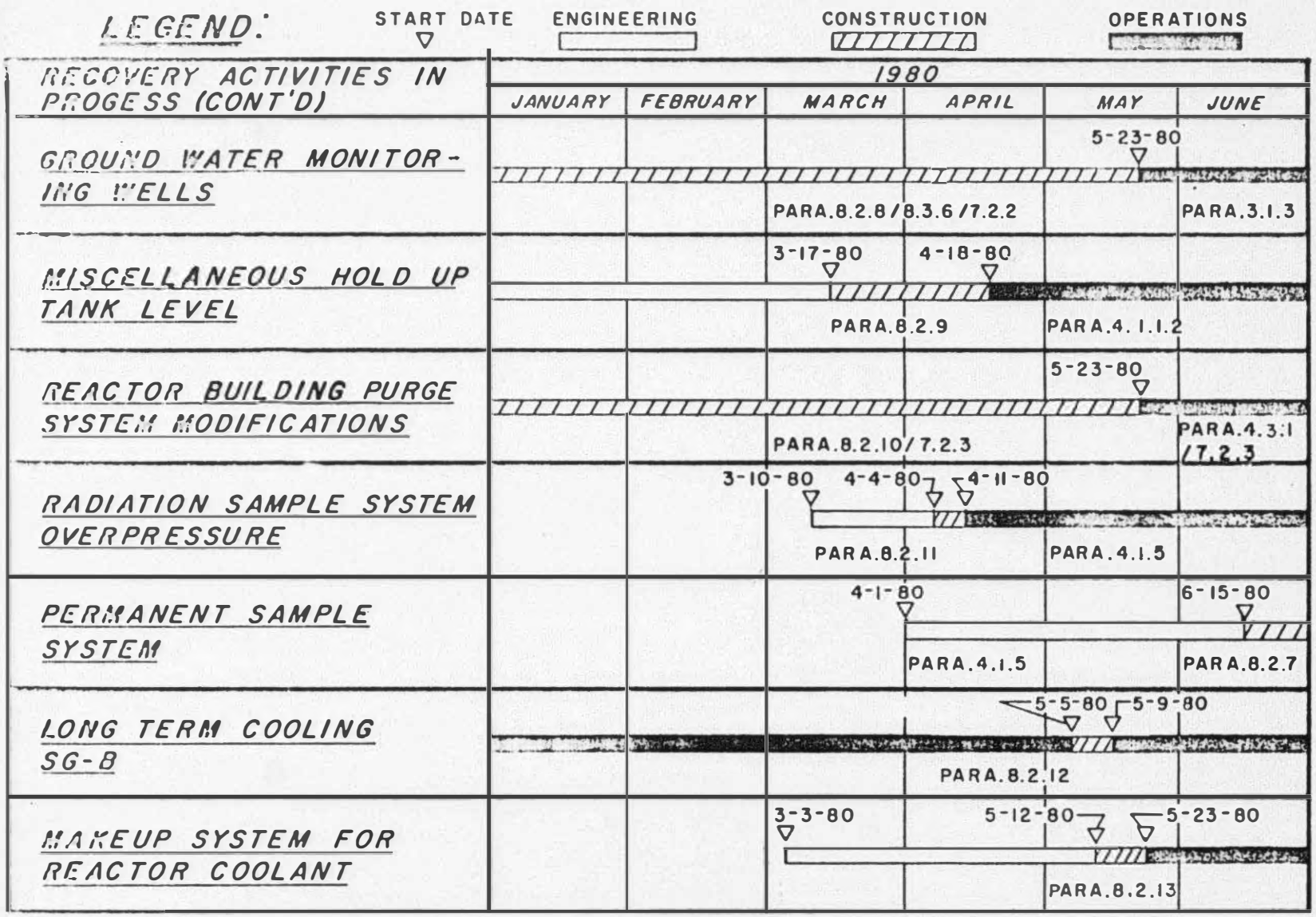


FIGURE 8-1
(SHEET 3 OF 9)

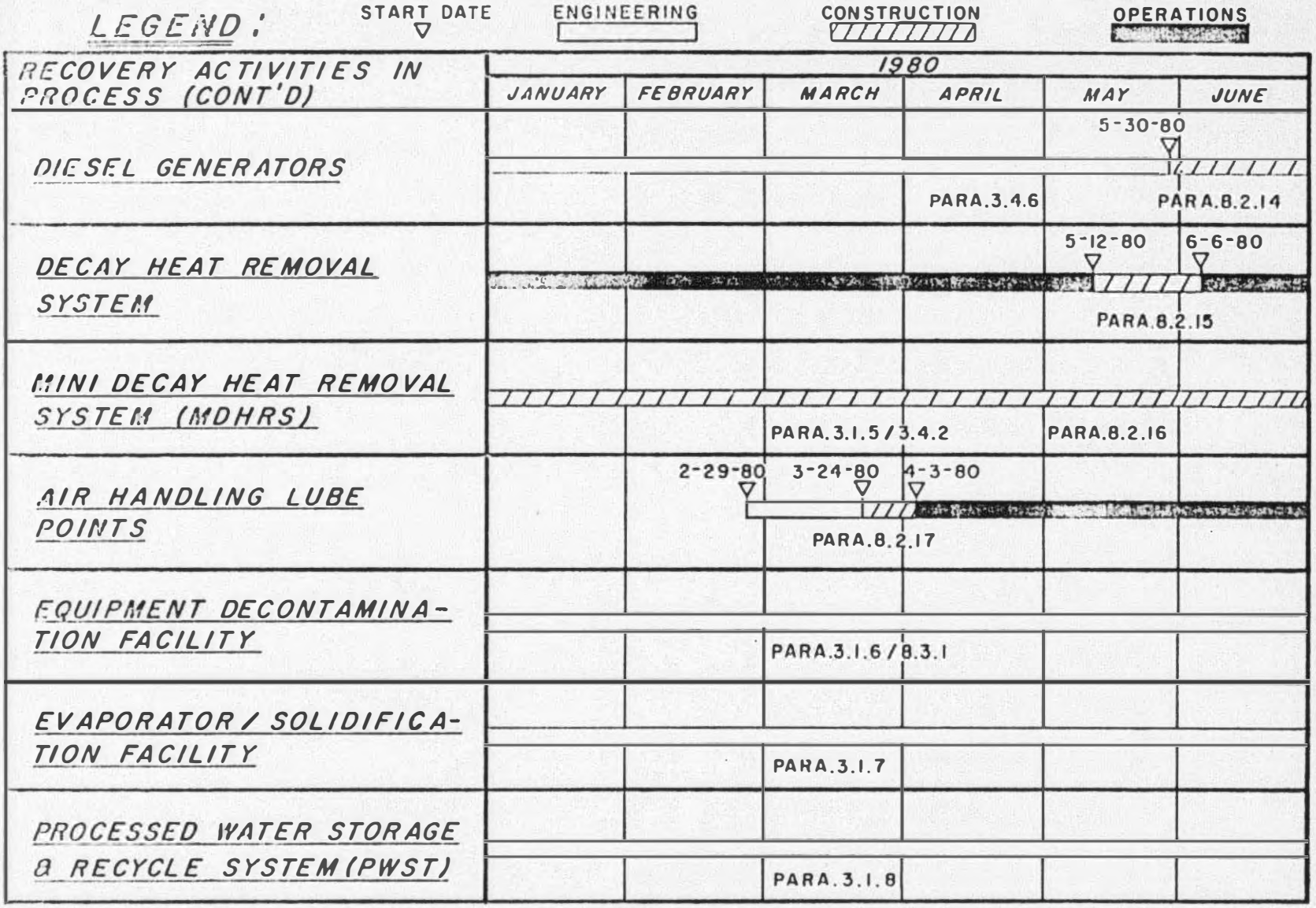


FIGURE 8-1
(SHEET 4 OF 9)

LEGEND: START DATE ▽ ENGINEERING CONSTRUCTION OPERATIONS

RECOVERY ACTIVITIES IN PROCESS (CONT'D)	1980 JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
LAUNDRY FACILITIES			PARA.3.1.9			
EPICORE II LINER SOLIDIFICATION FACILITY			PARA.3.1.10			
INTERIM WASTE STAGING BUILDING			PARA.3.1.12			
CONTAINMENT RECOVERY SERVICE BUILDING			PARA.3.1.13			
PERSONNEL ACCESS FACILITY/COMMAND CENTER			PARA.3.1.14			
OPENING DHVI/VI7I			PARA.3.2.2.			
REACTOR BUILDING WATER LEVEL			PARA.3.2.2.2	TERMINATED ▽ PARA.4.3.2.2		

FIGURE 8-1
(SHEET 5 OF 9)

LEGEND: START DATE ▽ ENGINEERING CONSTRUCTION OPERATIONS

RECOVERY ACTIVITIES IN PROCESS (CONT'D)	1980 JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
SOLIDIFICATION			PARA.3.2.2.6			
FUEL POOL WASTE STORAGE SYSTEM			PARA.4.1.1			
INTERIM SOLID WASTE STAGING FACILITY				24 OF 28 CELLS FILLED		
		PARA.4.1.3.	SHIPMENTS TO BURIAL SITE IN PROGRESS			
L S A SOLID WASTE GENERATION AND SHIPMENT		2-15-80 ▽	LAST SHIPMENT			
	15 BOXES/MO. 85 DRUMS/MO.		PARA. 4.1.5			12 BOXES/MO. 65 DRUMS/MO
GENERATOR LAYOUT		PARA. 4.2.2	PENDING MDHRS OPERATION			
NUCLEAR SERVICE RIVER WATER PUMPS			PARA.4.2.3			
"B" WASTE GAS COMPRESSOR			PARA. 4.2.4			

FIGURE 8-1
(SHEET 6 OF 9)

LEGEND: START DATE ▽ ENGINEERING CONSTRUCTION OPERATIONS

RECOVERY ACTIVITIES IN PROCESS (CONT'D)	1980 JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
STANDBY PRESSURE CONTROL SYSTEM				PENDING BACKUP	CHARGING	
	PARA.4.3.2.1			PUMP DELIVERY		
PLANT FIRE PROTECTION						
			PARA.4.3.3/3.4.5			
DECONTAMINATION OF SWITCHGEAR AND MCC'S						
				PARA.4.3.4.4		
UPGRADE ELECTRICAL FEED TO UNIT II SUPPORT FACILITIES						
				PARA.4.3.4.5		
DECONTAMINATION OF AUX. AND FUEL BLDGS.						
				PARA.4.4.1		
BWST MODIFICATIONS						
				PARA.3.4.7		
UPDATE DRAWINGS						
				PARA.3.4.8		

FIGURE 8-1
(SHEET 7 OF 9)

LEGEND : START DATE ▽ ENGINEERING ▭ CONSTRUCTION ▨ OPERATIONS ■

RECOVERY ACTIVITIES IN PROCESS (CONT'D)	1980 JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
REACTOR BUILDING REENTRY PROGRAM				REENTRY FAILURE 5-20-80 ▽		PARA.5.1.1/ 6.2.3
RAD CONTROLS MANAGEMENT PLAN			PARA.5.2			
REACTOR BUILDING ATMOSPHERE SAMPLES			SAMPLES TAKEN 4-3-80 & 4-14-80 ▽ ▽	PARA.6.2.2		
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM			PARA.7.2.1		HIA LAB	6-4-80 ▽ PARA.7.2.1
CITY OF LANCASTER NA(I) DETECTORS				PARA.7.3		
PLANNING STUDY PHASE II REACTOR INTERNALS DISASSEMBLY FUEL REMOVAL AND SYSTEM CLEANUP			PARA.8.3.2			
EMERGENCY PLAN TRAINING			PARA.10.6.2			

FIGURE 8-1
(SHEET 8 OF 9)

LEGEND: START DATE ▽ ENGINEERING CONSTRUCTION OPERATIONS

RECOVERY ACTIVITIES IN PROCESS (CONT'D)	1980					
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
RECOVERY QA PLAN						
			PARA.9.1.1			
OPERATOR REQUALIFICATION PROGRAM						
			PARA.10.1.2			

FIGURE 8-1
(SHEET 9 OF 9)

SECTION 9

QUALITY ASSURANCE/QUALITY CONTROL

9.1 CURRENT ACTIVITIES - QA/QC

9.1.1 PROGRAM DEVELOPMENT

The TMI-2 Recovery Quality Assurance Plan was the subject of a continuing review and revision effort during this quarter. By the end of June, the Plan was substantially complete.

9.1.2 CLASSIFICATION

Implementation of the "important to safety" scope concept and other program changes described in the Plan have been attempted in advance of actual issuance. Cooperation between the various affected organizations has been good. The implementation process begins with preparation of classification criteria and the Quality Classification List (QCL). QA Department personnel have been contributing to this effort by Technical Functions through consultation and review of draft criteria.

9.1.3 BECHTEL PROGRAM

Meetings were held during this quarter with representatives of Bechtel regarding their program development activities. Bechtel submitted their draft Nuclear Quality Assurance Manual (NQAM) for TMI-2 Recovery in June. GPUSC comments on the draft NQAM were limited to generic discussions of concepts and interface with GPUSC organizations.

Regular QA meetings have been established with Bechtel to assure coordination of activities and direction.

9.1.4 SUPPORT OF RECOVERY ACTIVITIES

QA Department Sections have continued to provide monitoring, review and inspection services in support of Recovery activities. Operations QA personnel have monitored the Containment Building entry activities and more recently have supplied the ultrasonic testing necessary to determine the exact position of the jammed locking device in the Containment Building hatch. The Reactor Building purge program was monitored through preparations and initial purge activities.

On a continuing basis, QA personnel have been monitoring the handling and shipping of radioactive waste materials. QA personnel also performed an in-depth investigation on the use of cranes in the site radioactive material handling program, performed a number of monitorings on activities employing cranes and are investigating the applicabilities of various materials handling codes and standards to the Unit.

QA Design and Procurement Section personnel have been actively involved with reviews of design documents and purchase requisitions necessary for the Submerged Demineralizer System, the Mini-Decay Heat Removal System, the Reactor Coolant Sample Sink, and the Solid Waste Staging Facility. Quality control personnel have provided inspection services at a rate of approximately two hundred (200) inspections per month in support of these and other Recovery activities. The above activities have been performed routinely in cooperation with engineering, maintenance, operations and construction personnel. In addition, measures are being planned to improve liason and planning of QA support activities.

9.1.5 AUDITS

In addition to regularly scheduled audit activities, a special audit of the Containment Building entry program was conducted. The audit was conducted during preparations, during training of the entry teams, and during testing and rehearsals. The audit team identified weaknesses in documentation and procedural coverage which were addressed and resolved prior to the entry attempt.

Substantial progress has been made in the continuing effort to close out the open audit findings. Since the beginning of the year, approximately two-thirds of the open items have been resolved.

During June, fourteen (14) QA Department personnel participated in an auditor training course conducted by Bechtel off-site. Additional training is planned for other groups also, regarding implementation of the new program concepts.

A computer program is being developed to provide trend analysis of nonconforming conditions.

SECTION 10

TRAINING

10.1 CURRENT ACTIVITIES - OPERATOR TRAINING

10.1.1 AUXILIARY "B" OPERATOR TRAINING PROGRAM

Five (5) Auxiliary Operator "B" trainees have completed their nine week course of instruction. They have now been assigned to shifts to complete their on-the-job training requirements.

10.1.2 OPERATOR REQUALIFICATION PROGRAM

The Unit II Licensed operators have completed their 1st Cycle (one-week) classroom instruction program. The program included recovery systems and additional requalification requirements. The requalification program procedure, formerly AP-1006, is being revised to reflect the current status of the Unit. The new program will reflect and emphasize recovery systems and current plant status.

10.1.3 REPLACEMENT OPERATOR TRAINING PROGRAM

Nine (9) replacement operators are continuing their course of instruction toward obtaining an USNRC operator's license. Their program includes a startup certification program at B&W Simulator, and qualification examinations.

10.2 CURRENT ACTIVITIES - MAINTENANCE TRAINING

The Emergency Plan Training, which consisted of Plan Indoctrination and training in the Emergency Plan Implementing Procedures, was conducted during this quarter. In addition, training was provided in plant systems and maintenance skills. Personnel attendance was by shift rotation,

with each shift receiving the training one week out of six weeks. There are one hundred and eighty-two (182) individuals enrolled in this program.

10.3 HEALTH PHYSICS TECHNICIAN TRAINING

10.3.1 SCOPE - HEALTH PHYSICS TECHNICIAN TRAINING

The training for Health Physics Technicians is separated into the following categories:

1) Met-Ed Employees:

   a. Newly hired Technician Training

   b. Health Physics Technician/Foreman Training

2) Contractor Personnel Training:

TMI Unit II is currently utilizing Nuclear Support Services (NSS) contractor Radiological Control Personnel. This section contains the scope of that training. When Met-Ed system employees are hired by Unit II for Radiological Control Positions they will attend a similar training program. The training for Radiological Control Personnel consists of:

   a. Training of personnel in TMI-II Procedures

   b. Review of basic Radiological Control concepts

   c. Qualification testing by written examinations, oral boards, and practical factors evaluations.

10.3.2 CURRENT ACTIVITIES - HEALTH PHYSICS TECHNICIAN TRAINING

During this period, the program has been conducted as necessary, to provide training to the incumbent NSS Technicians and Met-Ed Personnel. Approximately sixty (60) NSS and Met-Ed personnel were qualified to perform duties in Unit II Radiological Control positions. Additional training has been provided for appropriate personnel

in Practical Factors, Radiation Biology, D.O.T. Shipping Regulations, Mock Oral Examinations, and a Basic Radiation Protection course for those working in the TLD facility.

10.4 CURRENT ACTIVITIES - GENERAL EMPLOYEE TRAINING

General Employee Training is being conducted each Monday, Wednesday, and Friday at full capacity. Training records are being received to ensure that employees who received their original Practical Factors training prior to February 18, 1980, have received the expanded training.

10.5 CURRENT ACTIVITIES - RADWASTE ADMINISTRATION TRAINING REQUIREMENTS

10.5.1 RADWASTE ADMINISTRATION TRAINING REQUIREMENTS

During this period, forty-five (45) supervisory and technician personnel received training in Radwaste Administration. This training is required by USNRC Inspection and Enforcement (I&E) Bulletin 79-19.

10.5.2 RADWASTE REDUCTION TRAINING ACCOMPLISHMENTS

Radwaste Reduction Principles training, required by USNRC, I&E Bulletin 79-19, have been incorporated into the ongoing General Employee Training, conducted three times weekly.

10.6 CURRENT ACTIVITIES - SPECIAL TRAINING

10.6.1 REACTOR BUILDING RE-ENTRY TEAM TRAINING ACCOMPLISHMENTS

The Training Program for the Reactor Building Re-Entry Team was completed in support of a planned Reactor Building entry on May 20, 1980. The training Program, as outlined below, was performed for the Entry personnel and the Management personnel involved in support of the entry:

1) Radiological Fundamentals

2) Task Familiarization and Practices

3) Physical and Psychological Examinations and Preparations

4) Radiological Conditions

5) Communications Familiarization

6) Management Briefings

10.6.2 EMERGENCY PLAN TRAINING ACCOMPLISHMENTS

All Unit II operators and maintenance personnel are attending on-site training concurrently with Unit I personnel. All other personnel assigned to the on-site and off-site emergency response organizations are receiving training on a schedule that will be completed prior to the completion of the drill program.

10.6.3 REACTOR BUILDING PURGE SYSTEM TRAINING ACCOMPLISHMENTS

During this reporting period, thirty-one (31) supervisors and technicians attended a lecture on the Reactor Building Purge System. In addition, twenty-one (21) supervisors and technicians received oral examinations on the Reactor Building Purge.

10.7 CURRENT ACTIVITIES - CHEMISTRY TECHNICIAN TRAINING

The Chemistry Technician Training Program commenced for Unit I personnel on May 9, 1980. This program is being made available for Unit II personnel.

SECTION 11

SECURITY

11.1 CURRENT ACTIVITIES - SECURITY

11.1.1 SECURITY PROCEDURES

The following Unit II Security Procedures have been reviewed and approved by the Security Supervisor, Unit Superintendent, Unit II PORC and Quality Assurance.

		EFFECTIVE DATE
1)	Legal Authority of Site Protection Officers	4/28/80
2)	General Instruction for Site Protection Personnel	4/28/80
3)	Emergency Procedures	4/15/80
4)	General Key Locker Control	4/28/80
5)	Security Operations	4/28/80
6)	Identification and Badging	4/28/80
7)	Inspection and Search	4/28/80
8)	Patrol Operation	4/28/80
9)	Vital Area Access Control	4/28/80
10)	Communications	4/28/80
11)	Testing of Communications, Alarm and Surveillance Equipment	4/28/80
12)	Intrusion/Attempted Intrusion Response	4/28/80
13)	Compensatory Measures/Repair of Degraded Barriers/ Equipment	4/28/80
14)	Civil Disorders	5/12/80
15)	Security Access Authorization	4/10/80

11.1.2 UNIT II BADGING

The new and separate badging system for TMI Unit II employees is being implemented, and upon completion will assist the employees in needed access and enable the Security Department to have more positive control of the personnel entering the vital/protected area. Work is continuing on this new badging system for Company employees for Unit II.

11.1.3 Control Room Doors

Unit II Control Room doors had new hardware installed with access by local reader key card. This was completed on April 30, 1980. This satisfies the previous item of non-compliance from an earlier inspection.

11.1.4 SECURITY STAFF

On April 16, 1980, authorization from Met-Ed was received to increase the Unit II security staff, enabling Site Protection Officers who are employees of Metropolitan Edison to control all access to Unit II Vital/Protected Area.