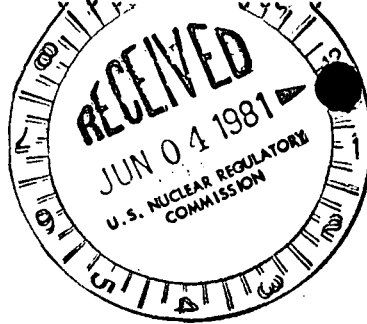




**Consumers  
Power  
Company**



General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • (517) 788-0550

June 1, 1981

Director, Nuclear Reactor Regulation  
Att Mr Dennis M Crutchfield, Chief  
Operating Reactors Branch No 5  
US Nuclear Regulatory Commission  
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES  
PLANT - POST-TMI REQUIREMENTS FOR THE EMERGENCY  
OPERATIONS FACILITY (GENERIC LETTER 81-10)

NRC letter dated February 18, 1981 provided the Commission's changes and clarifications to NUREG 0737, Item III.A.1.2, Upgrade Emergency Support Facilities. Enclosure 1 to that letter established a requirement for Consumers Power Company to submit emergency response facilities (ERFs) conceptual design information by June 1, 1981. This requested information consists of the facility conceptual design description plus six specific items as listed in Generic Letter 81-10, Enclosure 1. The responses to these information requests are provided as Enclosure 1 to this letter.

*Brian D Johnson*

Brian D Johnson  
Senior Licensing Engineer

CC Director, Region III, USNRC  
NRC Resident Inspector, Palisades Plant

Attachment - Enclosure 1

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CONSUMERS POWER COMPANY

Palisades Plant


Post-TMI Requirements for the Emergency  
Operating Facility (Generic Letter 81-10)

Docket No 50-255  
License No DPR-20

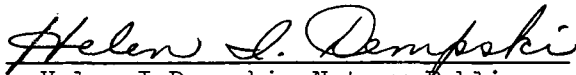
At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended, and the Commission's Rules and Regulations thereunder, Consumers Power Company submits our response to NRC letter dated October 31, 1980, (NUREG-0737, "Clarification of TMI Action Plan Requirements"). Consumers Power Company's response to "Post-TMI Requirements for the Emergency Operations Facility (Generic Letter 81-10) is dated June 1, 1981.

CONSUMERS POWER COMPANY

By

  
R B DeWitt, Vice President  
Nuclear Operations

Sworn and subscribed to before me this 1st day of June, 1981.



Helen I Dempski, Notary Public  
Jackson County, Michigan  
My commission expires December 14, 1983

ENCLOSURE 1

NUREG-0696 - FUNCTIONAL CRITERIA FOR EMERGENCY RESPONSE FACILITIES-PALISADES PLANT

Documentation Required by June 1, 1981  
Response to Generic Letter 81-10  
NRC REQUEST

- (1) Task functions of the individuals required to report to the TSC and EOF upon activation and for each emergency class.

RESPONSE

- (1) Facility Conceptual Design Description

The task functions of individuals required to report to the TSC, OSC, and EOF can be found in the Palisades Plant Site Emergency Plan, Rev. 0, dated March 21, 1980. In order to facilitate review of this submittal Sections 5, Organizational Control of Emergencies; Section 7, Emergency Facilities and Equipment; and Appendix H, Nuclear Plant Emergency Planning Procedure for General Office Personnel of the Emergency Plan have been included.

NRC REQUEST

- (2) Descriptions of TSC instrumentation, instrument quality, instrument accuracy and reliability.

RESPONSE

- (2) The Critical Functions Monitor (CFM) Display System utilizes existing plant signals in the Control Room. The system continuously monitors and displays the critical information associated with selected safety functions. The Display System is built around the Model 5215 display generator manufactured by Aydin Controls. It provides the following features:

- Four channels of seven-color, character-graphics display using a proprietary character set designed by CE,
- Four channels of video trending,
- Customized alphanumeric keyboards with functions keys tailored to the critical function monitoring displays,
- To insure high performance, Aydin Controls submits every 5215 display to stringent testing,
- All the displays in the Technical Support Center (TSC) are inspected in accordance with Aydin Controls, Quality Control document # 298-5000. Quality and reliability are ensured through extensive temperature cycling burn-in, prior to shipment.

NRC REQUEST

- (3) Descriptions of TSC power supply systems, power supply quality, reliability and availability, and consequences of power supply interruption.

RESPONSE

- (3) Consequences of power supply interruption.

The main power for the Critical Functions Monitoring Systems is provided as non-1E, but will be backed by the emergency diesel generator.

The Critical Functions Monitoring System (CFMS) is designed with a battery backup, data is maintained in main memory for a period of twenty (20) minutes after a power failure. When main power is regained, the automatic restart capability will start the system from where it stopped. Although all previous data is maintained, all signal processing for that period of down time is lost.

A means to overcome signal processing loss is to provide a main Uninterruptible Power Supply System (UPS). With this system, spurious power failure due to switchover would be of minor consequence.

NRC REQUEST

- (4) Descriptions of the design of the TSC data display systems, plant records and data available and record management systems.

RESPONSE

- (4) Display System Operation

The primary operator's interface is through a two multi-colored Cathode Ray Tube (CRT) display station. Identical display stations are also provided for the Technical Support Center and the Emergency Operations Facility. Each display station is capable of providing any one of the fixed format graphic displays. These graphic displays are arranged in a hierarchial structure for efficient operator access. The hierarchy is arranged in three levels:

- . Level 1 - Overall Status
- . Level 2 - Function Status
- . Level 3 - Subfunction Diagnostic

Typical displays of the three levels are illustrated in Figures III-2 through III-6. The three levels are arranged in a "tree structure" that allows an operator to "zoom in" on problem areas in a natural, straight-forward manner.

The Level 1 displays provide the operator with a broad overview of the status of all critical functions. Should an abnormality occur, the abnormal area of concern would be highlighted by a change in the color and blink off the affected function. Audible annunciation can also be activated automatically by

CRITICAL FUNCTIONS

APR/28/1981

1421:400

1 2 5 0 5 0 5 0 5 0 5 6 7 102

CORE REACTIVITY

- POST TRIP CNTRATE
- SHUTDOWN CNT RATE
- BORON CONC

1

CORE HEAT REMOVAL

- CORE TEMP
- SATURATION TEMP
- COOLANT FLOW

1

RCS INVENTORY

- PZR LEVEL
- QUENCH TANK LVL
- QUENCH TANK PRES
- QUENCH TANK TEMP
- RELIEF VLV DISCH

2

RCS PRESSURE

- HI PZR PRESSURE
- COLD STRESS TEMP
- PZR PRES CHANGE
- SUB-COOLED MARGIN

2

RCS HEAT REMOVAL

- STEAM GENERATORS
- SAFETY INJECTION

3

2

CNMT TEMP / PRESS

- FAN COOLERS
- CNMT SPRAY FLOW
- CNMT PRESS CHANGE
- HIGH CNMT PRES
- LOW CNMT PRES
- CNMT TEMP

2

4

CNMT ISOLATION

- CNMT ISOLATION
- CPIS
- SAFETY INJ ISO
- MSIS

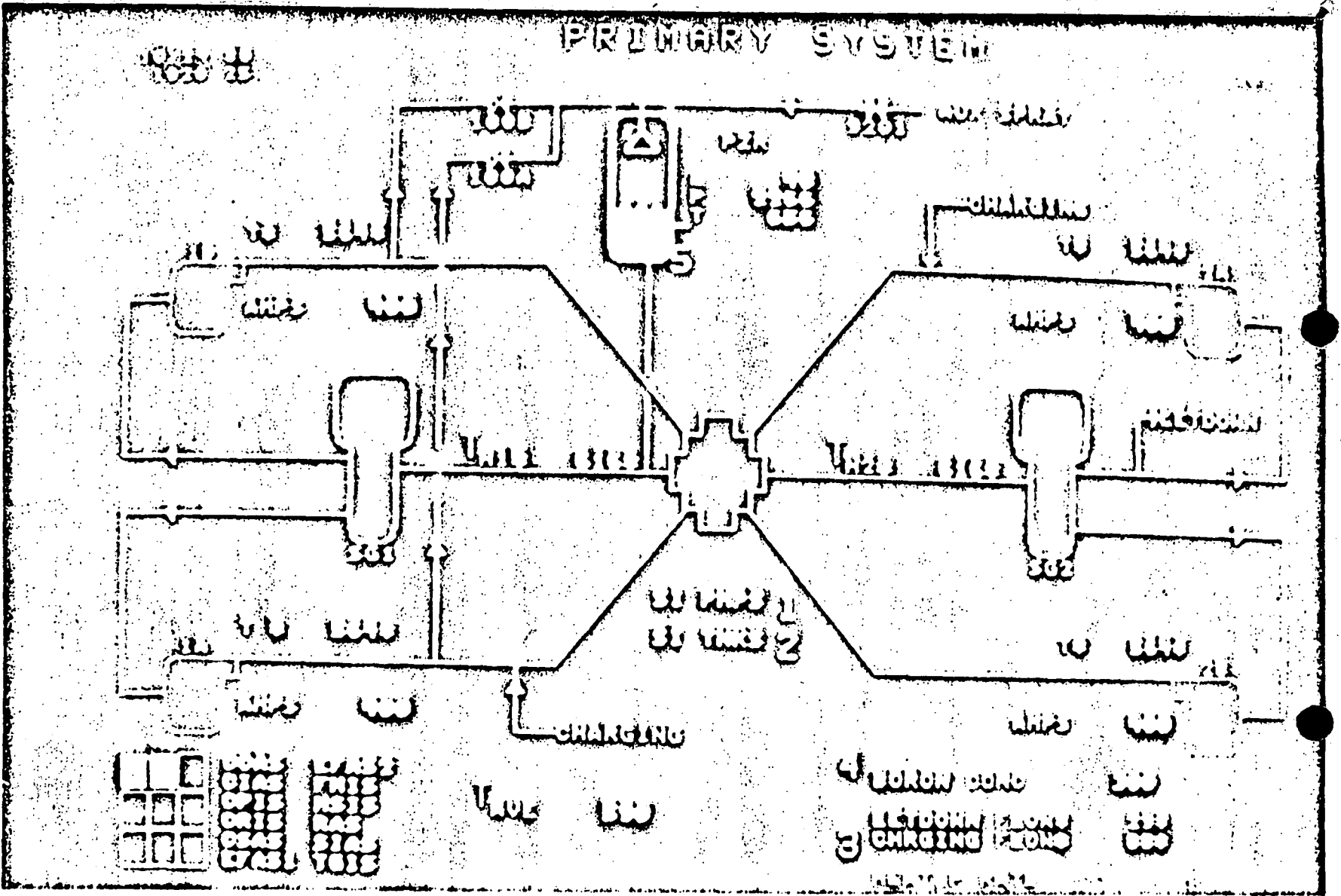
4

3

4

15 0 5 0 | BAD DATA | 0 5

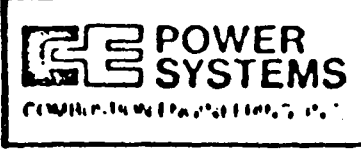
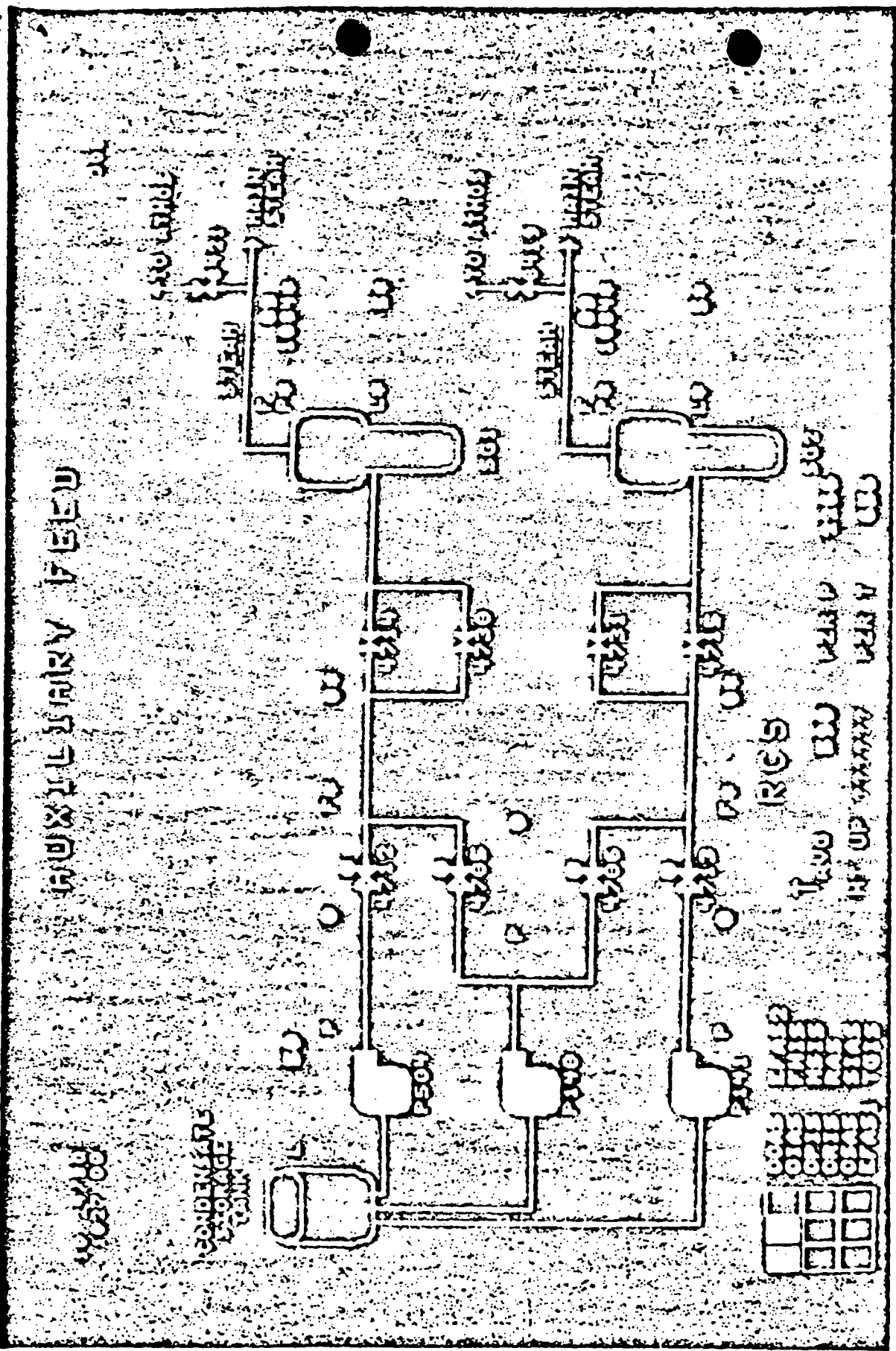
# PRIMARY SYSTEM



POWER SYSTEMS  
COMMISSION, P.O. BOX 11111, ...

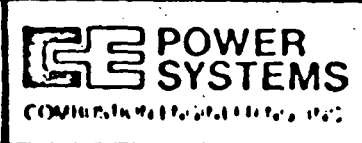
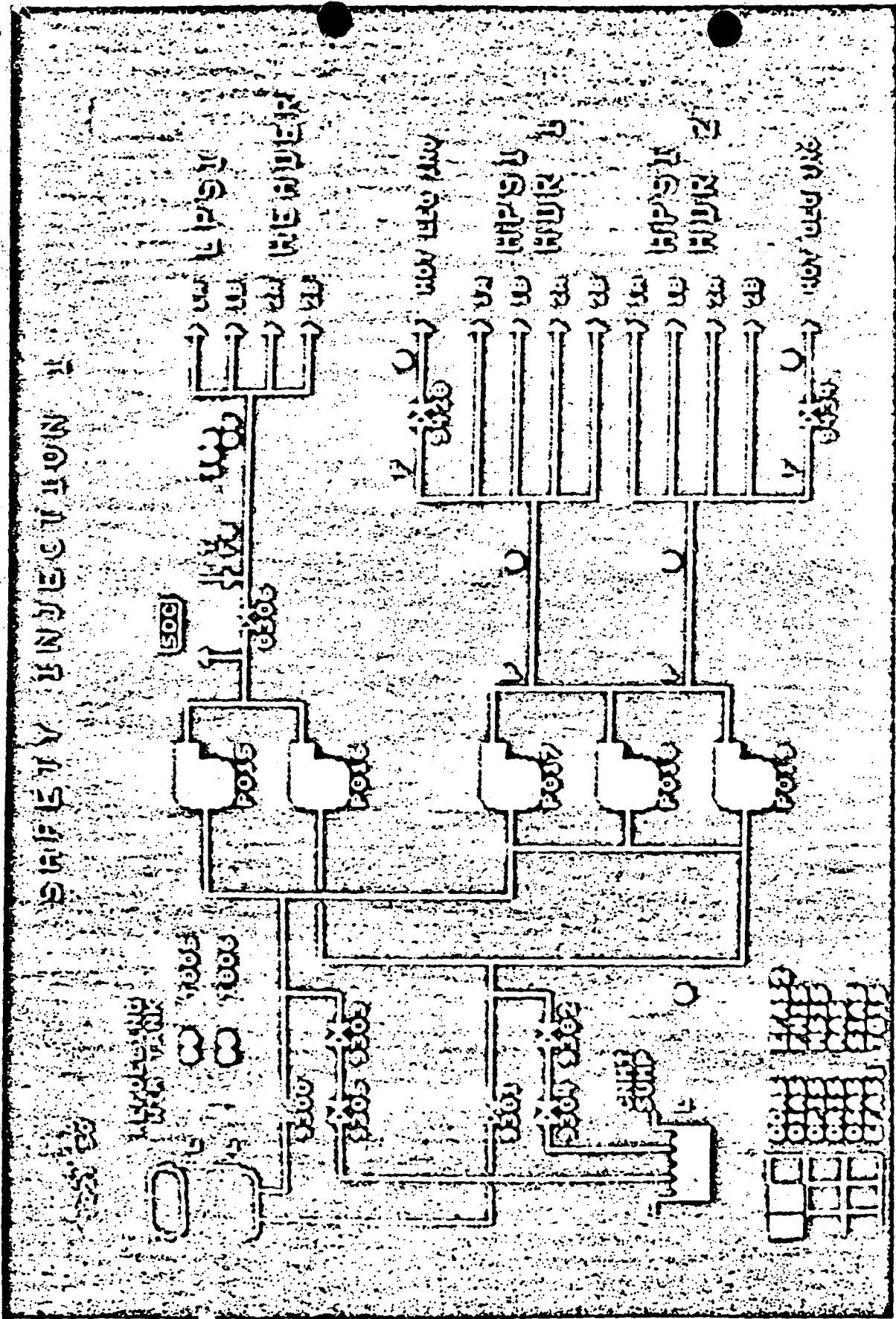
CRITICAL PARAMETER DISPLAY  
LEVEL 2

Figure  
III-3



CRITICAL PARAMETER DISPLAY  
LEVEL 3

Figure  
III-4



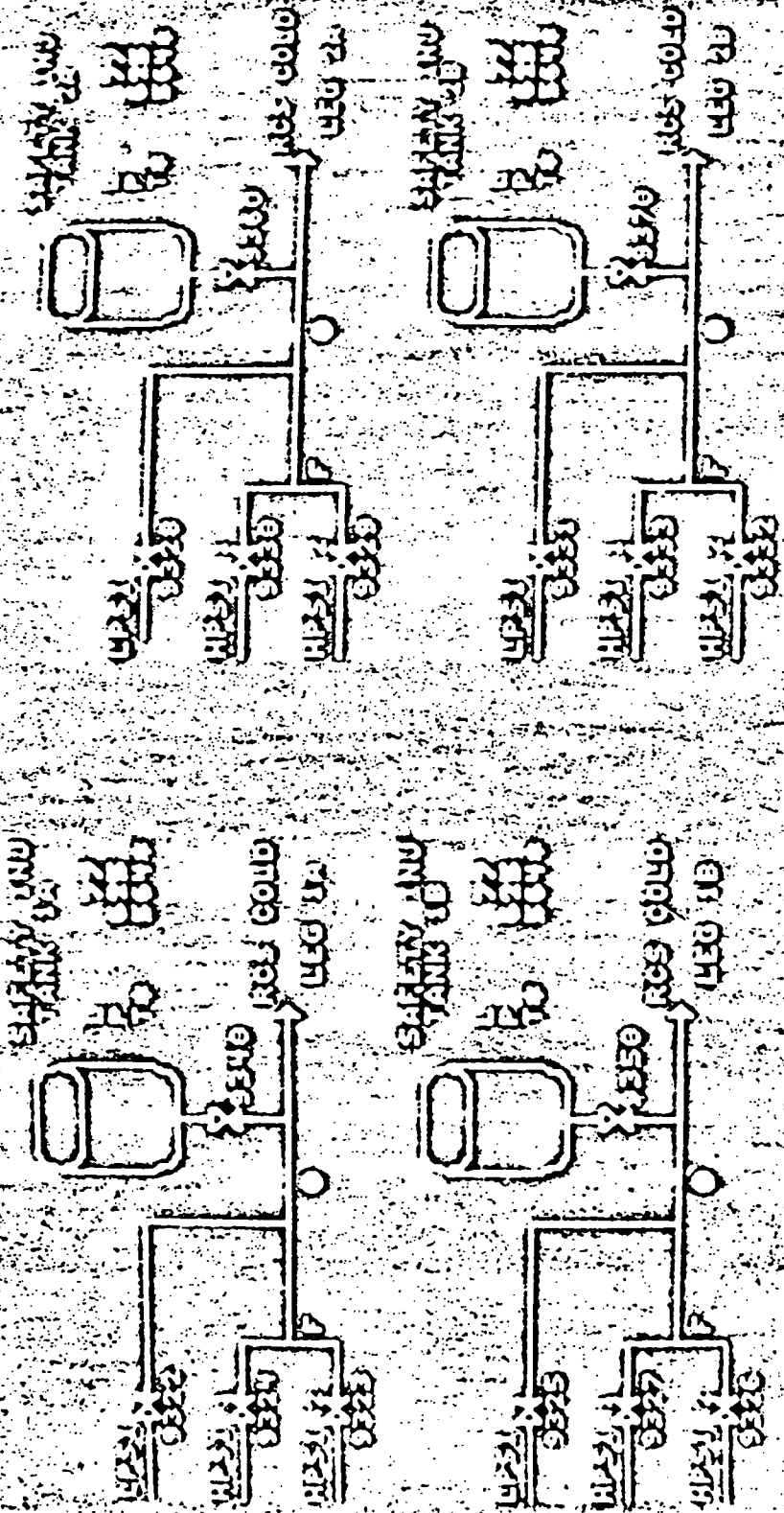
CRITICAL PARAMETER DISPLAY  
LEVEL 3

Figure  
III-5



SAFETY INJECTION 2

1025746  
1025750



|      |      |      |      |
|------|------|------|------|
| OPAS | OPAS | OPAS | OPAS |
| OPAS | OPAS | OPAS | OPAS |
| OPAS | OPAS | OPAS | OPAS |
| OPAS | OPAS | OPAS | OPAS |
| OPAS | OPAS | OPAS | OPAS |
| OPAS | OPAS | OPAS | OPAS |
| OPAS | OPAS | OPAS | OPAS |
| OPAS | OPAS | OPAS | OPAS |

outputs provided from the CFMS. The operator is then directed in the diagnosis of the problem by the guidance on the display page containing the best information on the problem. The Level 1 display would provide a numeric indicator, flashing in the alarm color, that is strategically placed near the affected critical function. This numeric indicator is called a "sector alarm". A "sector" refers to a Level 2 display in the hierarchy that contains more detailed information on the affected function. Should further diagnosis be necessary, the Level 2 display would also have a sector alarm indicator that would lead the operator to a Level 3 display of detailed function diagnostics.

The operator accesses the detailed information by means of the CRT display station, 12-button, Alpha-Numeric Keyboard (ANK) which is part of the CRT display station. There exist two basic methods by which the operator can obtain the detailed information: Hierarchical Paging or Direct Paging. By depressing either the "SECTOR" or the "PAGE" function key of the ANK, the operator is provided with 1) a Pre-Engineered Hierarchical Access leading to the source of critical process problems or 2) Direct Access to any display in the system.

#### 1) Hierarchical Paging

The Hierarchical Paging Methodology is based on utilizing the three-level structure described above and permits the operator to maneuver logically through the display set without memorizing page numbers.

Maneuvering through the hierarchy is accomplished by visual cueing on each CRT display. Visual cueing is accomplished by selecting a "Sector Number" by which one level of the hierarchy is linked to a Display Page on a lower level. The operator is then able to monitor in greater detail a specific component.

The Display System will also automatically cue the operator on the occurrence of a preselected alarm(s). The sector number and associated symbol would then appear in the alarm color blinking, allowing the operator to follow a structured fault diagnosis path with the display hierarchy. The operational display hierarchy includes 25-page formats in the base proposal offering.

In addition to the "vertical" maneuvering through the hierarchy provided by the sector technique, "horizontal" maneuvering is accomplished by the page forward/back function. The forward/back function allows the operator to horizontally scan related displays on the same hierarchical level. The forward/back sequence is present for optimal monitoring of related systems or subsystems.

To access a Level 2 display upon the occurrence of a sector alarm, the operator would press the "SECTOR" key, followed by the number, one through nine, indicated in the flashing alarm color near the affected critical function, followed by the "EXECUTE" key. This sequence would cause the correct Level 2 display of the detailed status of the alarmed function to appear on the operator's CRT. Should further diagnosis be necessary, the Level 2 display would also have a sector alarm indicator that would lead the operator to a Level 3 display of detailed function diagnostics.

Should the operator desire to return to a higher level display, depressing "SECTOR", "ZERO" and "EXECUTE" will cause a return to the higher level display previously selected.

The current alarm list provides a chronologically-ordered list of alarm status of all monitored parameters. The current alarm list provides the following information.

- . Name - alphanumeric description of the alarm,
- . Current value - the currently measured value of the process parameter in Engineering Units,
- . Setpoint - the alarm setpoint,
- . Severity - the severity indicator of the alarm (Hi, Hi-Hi, Lo-Lo).

Six levels of alarm indications are provided:

- . High - the first level of alarm severity in the increasing process direction; color coded yellow
- . Low - the first level of severity in the decreasing process direction; color coded yellow
- . High-High - the second level of severity in the increasing process direction; color coded magenta
- . Low-Low - the second level of severity in the decreasing process direction; color coded magenta
- . Fail High - a sensor out of range in the high process direction; eg, a 4 to 20 milliamp signal that is greater than 20 milliamps. Indication is on the failed sensor list.
- . Fail Low - a sensor out of range in the low process direction; eg, a 4 to 20 milliamp signal that is less than 4 milliamps. Indication is on the failed sensor list.

Each of the six alarm levels may trigger color/brink alarm behavior of associated graphic mimics and/or sector alarms in hierarchial displays. A digital input variable may have one level of process alarming, either yellow or magenta.

The failed sensor list maintains a current listing of all inoperative sensors detected by on-line sensor checks and diagnostics.

The computer status list provides a display of current computer internal status and a listing of diagnostic messages generated by comprehensive on-line self checking software.

## 2) Direct Paging

In addition to the hierarchial access, a direct paging mode is available. A display Directory is provided that logically lists all displays in the system. The alarm CRT also indicates "Best Page" for each alarm parameter. The operator depresses the "PAGE" key, followed by the number of the desired page, followed by "EXECUTE". This sequence causes the selected page to be

displayed to the operator. "FORWARD" and "BACK" key functions allow for multipage display capability and for "lateral" movement through the hierarchy of displays. For example, if the operator has a Level 2 "page" currently displayed, he can scan other Level 2 displays simply by repeatedly pressing "FORWARD". This causes a sequential access of all Level 2 pages in a closed, circular manner such that the operator returns to his original display page, after scanning all existing pages in that hierarchical level.

The operator would most often use the "PAGE" mode in conjunction with special purpose Level 1 displays. The Level 1 displays include:

- . Overall Critical Function Status
- . Current Alarm List
- . Failed Sensor List
- . Computer Status List

The plant records available in the Technical Support Center are a listed in Palisades Plant-Site Emergency Implementation Procedures EI-4.1, Section 5.4.2. Restating from the procedure Section 5.4.2 - the following controlled documents are stored in the Technical Support Center:

- . Plant Administrative Procedures
- . Plant Operating Procedures
- . Plant Emergency Operating Procedures
- . Plant Drawings
- . Technical Specifications
- . Plant Site Emergency Plan
- . Plant Emergency Implementation Procedures
- . Michigan Emergency Preparedness Plan
- . VanBuren County Emergency Operations Plan
- . Emergency Planning Zone Maps
- . Radiation Dose Isopleth Overlays

The Palisades Plant maintains a records-management system, which as described in the Palisades Administrative Procedures controls and distributes controlled documents and initiates, distributes and controls Temporary Changes to those documents. The Administrative Procedures, Operating Procedures, Emergency Operating Procedures, Technical Specifications, Plant Site Emergency Plan and Plant Emergency Implementation Procedures are controlled under Palisades Administrative Procedures No. 10-3, "Document Distribution and Control" and No. 10-3-1, "Temporary Procedure Changes." The plant drawings available in the Technical Support Center are in the form of microfilm aperture cards which are controlled under Palisades Administrative Procedures No 10-4,

"Plant Drawings, Specifications and Instruction Manual Development" and No 10-5, "Plant Drawings, Specifications and Instruction Manuals Distribution and Control."

The Michigan Emergency Preparedness Plan is issued and controlled by the State of Michigan and is reviewed annually by Consumers Power Company's Nuclear Services Emergency Planning and Security Department.

The VanBuren County Emergency Operations Plan is issued and controlled by VanBuren County and is reviewed annually by Consumers Power Company's Nuclear Services Emergency Planning and Security Department.

The Emergency Planning Zoning Maps and the Radiation Dose Isopleth Overlays are issued and controlled by the Palisades Plant Health Physics Department and are reviewed annually by Consumers Power Company's Nuclear Services Emergency Planning and Security Department.

Approximately 400 inputs have been identified and included as the data base for the CFMS. These inputs are obtained from existing plant signals available in the Control Room and are incorporated into the CFMS displays. A current listing of inputs, input ranges, signal types, and alarm setpoints is maintained and periodically will be updated as needed. The input ranges and alarm setpoints generally coincide with existing plant instrumentation.

#### NRC REQUEST

- (5) Descriptions of the data transmission system to be installed between the TSC and the Control Room.

#### RESPONSE

- (5) As described in our response to Item 4, a critical functions monitor (CFM) cathode ray tube will be installed in the Technical Support Center, to provide data directly to the Technical Support Center. We believe that this system represents the current state of the art in the industry for this application.

Because of the location of the Palisades Technical Support Center being adjacent to the Control Room, communications with the Control Room can be face-to-face for further information and decision making.

Because the Control Room indications and many annunciators are visible from the Shift Supervisor's office portion of the TSC, data can be taken directly from the Control Room indicators/annunciators as described in the present Emergency Implementation Procedures as part of the interim data transmission system.

Communications are also possible with the Control Room via intraplant telephone or sound-powered telephone talkers.

NRC REQUEST

- (6) Description of data to be provided to the EOF.

RESPONSE

- (6) The EOF will be supplied with a critical functions monitor cathode ray tube which will supply all the meteorological data required in the EOF to make the offsite dose assessments. A description of the data displays is provided in Response number 4

Also, as described in the Palisades Emergency Implementation Procedures, communications with the Control Room are available via intraplant telephone and hotline hookup with the EOF, normal outside telephone lines and by radio to the Control Room. These lines can be used for verbal communications of additional data as necessary.

SITE EMERGENCY PLAN

Palisades Plant

SECTIONS 5.0 AND 7.0

5.0 ORGANIZATIONAL CONTROL OF EMERGENCIES

Emergency planning must consider the capabilities of the normally present operating staff, augmented by support from other utility personnel and local and distant support. The initial phases of an emergency situation at an operating nuclear power plant will involve a relatively small number of individuals. These individuals must be capable of: (1) determining that an emergency exists, (2) providing initial classification and assessment, and (3) promptly notifying other groups and individuals in the emergency organization.

The Normal Plant Organization at the Palisades Plant has complete capability, at all times, to perform the detection, classification and notification functions required in the early phases of an emergency. These capabilities are augmented, as required, by the On-Site Emergency Organization and the Off-Site Emergency Organization.

This section of the Site Emergency Plan addresses the assignment of personnel and the establishment of responsibilities and authority for the:

- Normal Plant Organization
- On-Site Emergency Organization
- Off-Site Emergency Organization

5.1 PALISADES PLANT ORGANIZATION

The Palisades Nuclear Plant operating and engineering activities are under the control of the Vice President of Nuclear Operations. The operating and engineering activities at the plant are conducted by operating crews on eight-hour shifts. Each eight-hour shift is responsible for continuous operation of the plant.

5.2 NORMAL OPERATING ORGANIZATION

The normal plant organization at the Palisades Plant includes personnel encompassing both the management and operation unit. An organizational chart showing the functional levels is given in Figure 5-1. Each eight-hour operations shift will normally consist of a Shift Supervisor, Shift Technical Advisor, two control room operators and two auxiliary operators. Chemical and Radiation Protection Technicians are available to the Shift Supervisor to perform any special or emergency radiation monitoring, surveillance, decontamination, water chemistry or radiochemical analysis that may be necessary.

Additional members of a five-day week complement consist of department heads and individuals in the Technical Department, Training Department, Maintenance Department, Health Physics and Chemistry Department and Administrative Department.

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Date

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Plant General Manager Date

Rev 0



5.2.1 General Manager

The Plant General Manager is responsible for the technical and administrative management of the day-to-day physical operations, maintenance and radiation protection and chemistry.

5.2.2 Operations and Maintenance Superintendent

The Operations and Maintenance Superintendent is responsible for directing the Maintenance and Operations Departments. This individual is second in charge to the General Manager and assumes all plant responsibilities in the absence of the General Manager.

5.2.3 Maintenance Superintendent

The Maintenance Superintendent has immediate control and responsibility for the Maintenance Department which includes preventive and repair maintenance programs for the plant. He reports directly to the Operations and Maintenance Superintendent.

5.2.4 Operations Superintendent

The Operations Superintendent is responsible for the control and direction of the Operations Department. This responsibility ensures the functional, safe and efficient operation of the plant in accordance with established procedures and Technical Specifications. Additional responsibilities include the preparation of emergency operating procedures and ensuring that all operating personnel are proficient in their application. He reports directly to the Operations and Maintenance Superintendent.

5.2.5 Shift Supervisor

The Shift Supervisor, one of whom is on duty at all times, is responsible for the safe and efficient operation of the plant during his assigned shift. He maintains control over plant operations as the Senior Licensed Operator unless he is properly relieved by another member of the plant staff who holds a valid Senior Operator's License. The Shift Supervisor maintains control over the conduct of operators and personnel in the control room.

5.2.6 Mechanical, Electrical, and Instrument and Control Supervisors

The Mechanical, Electrical, and Instrument and Control Supervisors report to the Maintenance Superintendent. These individuals are responsible for maintenance capability of equipment within their departments.

5.2.7 Chemistry/Health Physics Superintendent

The Chemistry/Health Physics Superintendent is responsible for the organization and control of the Chemistry, Radiation Protection and Environmental Programs.

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Plant General Manager Date

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5.2.8 Chemical Engineer

The Chemical Engineer reports to the Chemistry/Health Physics Superintendent and is responsible for the overall chemical monitoring and control program.

5.2.9 Plant Health Physicist

The Plant Health Physicist reports directly to the Chem/Health Physics Superintendent for administrative purposes. His overall responsibility is for the radiation protection program including monitoring programs (both plant equipment and personnel), radiological environmental monitoring programs, disposal of radioactive waste and all related records.

5.2.10 Technical Superintendent

The Technical Superintendent is responsible for providing engineering and technical requirements to assure the safe and efficient operation of the plant. This is accomplished through a staff of nuclear, electrical and mechanical engineers who provide the necessary engineering design and technical review capabilities. Included with these responsibilities are the development of selected reports, correspondence and action items based on the NRC requests and requirements.

5.2.11 Shift Technical Advisors

Shift Technical Advisors perform accident assessment and evaluate operating conditions. Organizationally, they report to the Technical Superintendent. While on duty, they diagnose abnormal events and report to the Shift Supervisor. The duties of the Shift Technical Advisor do not include the manipulation of controls or the supervision of operators. When on duty, they will be available to the Shift Supervisor in the control room within 10 minutes of being summoned. During emergency conditions, the Shift Technical Advisor will initially report to the control room and, when directed by the Shift Supervisor, will assist in the Technical Support Center.

5.3 ON-SITE EMERGENCY ORGANIZATION

In the event of an emergency in which one of the classification levels is declared (Unusual Event, Alert, Site Area Emergency or General Emergency), all or a portion of the Site Emergency Plan will be activated. The assignment of responsibilities in the On-Site Emergency Organization is ultimately the responsibility of the General Manager. However, an on-site emergency organization is predefined and alternate assignments to various positions are specified to provide for automatic, unambiguous manning of the emergency organization within the time necessary to respond to the emergency.

In general, the emergency organization will be housed in three on-site centers:

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- ~~Control Room~~
- Technical Support Center
- Operations Support Center

### 5.3.1 Control Room

The control room is designed to be habitable under accident conditions and shall serve as the on-site Emergency Control Center. Emergency lighting, power, air filtration-ventilation system and shielded walls enable the operators to remain in the control room to ensure that the reactor remains in a safe condition.

The following is a list of plant personnel who will occupy the control room during an emergency:

- a. Operations Supervisor
- b. On-Shift Personnel
  - 1. Shift Supervisor (SRO)
  - 2. Control Operators - Two (CO)
  - 3. Auxiliary Operators - Two (AO)
- c. The Shift Technical Advisor and Reactor Engineer may perform functions in this area.

### 5.3.2 Technical Support Center

The Technical Support Center (TSC) will provide plant management and technical support to operations personnel during emergency conditions and guidance to control room operating personnel to mitigate the effects of the emergency condition. The TSC will be the primary communications contact with off-site emergency organizations until the Emergency Operations Facility (EOF) is activated and manned at which time the EOF will assume this responsibility.

The following is a list of plant personnel who will be located in the TSC when activated:

- a. Command and Control
  - 1. Plant General Manager/Site Emergency Director
  - 2. Plant Operations and Maintenance Superintendent
  - 3. Recorder/Logger

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Plant General Manager Date

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b. Communications

1. Technical Engineer
2. Recorder/Logger

c. Operations Assistance

1. Shift Technical Advisor
2. Plant Operations Superintendent
3. Off-Shift Personnel

d. Engineering Assistance

1. Technical Superintendent
2. Reactor Engineer
3. Engineers
4. Plant Chemical Engineer

e. Radiological Assessment

1. Chemistry/Health Physics Superintendent
2. Plant Health Physicist
3. General Health Physicist
4. Radiological Materials Control Supervisor

f. Damage Control

1. Maintenance Superintendent
2. Maintenance Engineer
3. Instrument and Control Engineer

5.3.3 Operations Support Center

The Operations Support Center (OSC) will coordinate noncontrol room activities of plant personnel. This assistance will include emergency maintenance support as directed by the control room or TSC and other emergency support as required.

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Date

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Plant General Manager Date

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The following is a list of plant supervisory personnel who will be located in the Operations Support Center when activated:

- a. Radiation Protection Supervisor
- b. Instrument and Control Supervisor
- c. Electrical Maintenance Supervisor
- d. Mechanical Maintenance Supervisor

#### 5.4 EMERGENCY STAFFING

The primary and alternate manning for the on-site emergency organization is illustrated in Figure 5-2. These positions are determined using titles from the Palisades Plant Organization. The extent to which the Emergency Organization is manned is dependent upon the classification and duration of the emergency.

##### 5.4.1 Site Emergency Director

The Site Emergency Director (SED) is responsible for the overall assessment of emergency conditions, especially where emergency conditions present a real or potential hazard to off-site persons or property. The SED will have the overall responsibility for operational decisions involving the safety of the plant and its personnel, and for making recommendations based on technical information supplied by support personnel regarding the general public during an emergency situation. He will also implement the Palisades Site Emergency Plan through the use of specific Emergency Plan Implementing Procedures, as well as notifying the On-Site Emergency Organization and Off-Site Emergency Organization of the emergency situation. In addition, the SED is responsible for providing off-site officials with pertinent information regarding the conditions at the plant. The SED is stationed in the TSC once it is activated.

##### 5.4.2 Communicator

The Communicator will report to the SED during emergency conditions. The function of the Communicator is to serve as a liaison between the SED and other emergency operation centers. Additional responsibilities include maintaining logs and records of off-site communications.

#### 5.5 OFF-SITE EMERGENCY ORGANIZATION

The Off-Site Emergency Organization, when activated, will provide the external support required by the On-Site Emergency Organization and information to Federal, State and local governmental agencies and the public. Specifically, the off-site organization will provide additional technical expertise in engineering and environmental monitoring and assessment, logistics support such as transportation, food, communications, materials and supplies, and other needed services to the Technical Support Center staff.

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Date

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Plant General Manager Date

Rev 0

The Off-Site Emergency Organization is shown in Figure 5-3. Personnel have been assigned positions in the organization for the positions shown in the figure using titles from the corporate office staff. The Off-Site Emergency Organization shall be activated during Site Area and General Emergency conditions, and may be activated during an Alert.

5.5.1 General Office Emergency Control Center

At the onset of an emergency situation, prior to full activation of the Emergency Operations Facility, off-site assistance will be provided from the General Office Emergency Control Center. The Control Center is located at Consumers Power Parnall Road Office, Jackson, Michigan. This location provides favorable proximity to staff personnel involved, and is immediately adjacent to Document Control where all Palisades Plant documented information is filed. The Control Center is capable of 24-hour operation with appropriate billeting, dedicated telephone and backup radio communications and space for the Nuclear Operations staff. The Control Center staff has the responsibility and authority for coordinating and directing the overall activities involved in coping with an emergency and for communications with outside agencies after initial notifications are made by the site. The Control Center will be continually manned until the Site Emergency Director advises the backup is no longer needed.

5.5.2 General Office Control Center Director

The General Office Control Center Director is responsible for assigning and coordinating the activities of the General Office in support of the affected nuclear plant. He will also serve as the primary liaison between the plant and specific nonlocal off-site organizations and individuals.

5.5.3 Nuclear Licensing Representative

The Nuclear Licensing Representative will serve as the Communicator and is responsible to the Control Center Director for the operation of the communications system. Additional assistance may include the coordination of requests for outside assistance and the maintenance of logs and records of all communications.

5.5.4 Reactor Physics and Accident Analysis Support Team Leader

The Reactor Physics and Accident Analysis Support Team Leader will provide technical assistance pertaining to reactor physics. This assistance may include verifying the extent of the emergency situation, and providing support and advice to the Control Center Director in matters related to reactor physics.

5.5.5 Engineering Support Team Leader

The Engineering Support Team Leader during emergency situations will provide technical engineering support. He will assist in verifying the extent of the emergency situation and will support and advise the Control Center Director in technical engineering matters.

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Date

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Plant General Manager Date

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5.5.6 Health Physics Support Team Leader

The Health Physics Support Team Leader will provide technical health physics support to the General Office Control Center Director. This assistance may include backup off-site dose analysis and providing support advice to the Control Center Director in matters related to Health Physics.

5.5.7 Executive Vice President

The Executive Vice President will be consulted when and if it becomes necessary to enact the mutual assistance agreement with the Detroit Edison Company or the Toledo Edison Company. The mutual assistance agreement has been executed to provide emergency support and services to the affected utility as required.

Prior to full activation of the EOF, designated personnel from the Palisades Plant will report to the EOF to initiate those actions necessary to augment the on-site emergency organization. When it is determined that full activation of the EOF is required, all designated individuals will report to the EOF in support of the on-site personnel. In addition to the designated Palisades personnel, those members of the emergency organization at the General Office Emergency Control Center will also report to the EOF.

The EOF's role is to evaluate the magnitude and effects of actual or potential radioactive releases from the plant and to recommend appropriate off-site protective measures, and will be the focal point of the off-site organization. Most communications with on-site emergency personnel will occur at the EOF. The EOF will provide official technical information to cognizant Federal, State and local government agencies. The design features of this facility are discussed in Section 7. The EOF will be manned by Palisades Plant personnel, General Office personnel, NRC officials and other Federal, State and local officials as necessary.

5.5.8 Emergency Operations Facility Director

The Emergency Operations Facility Director is responsible for all activities initiated at the EOF and is also responsible for coordinating efforts with the local, State and Federal agencies. He will be the focal point for official communication, and will be responsible for providing needed plant support via the off-site organization. The Emergency Operations Facility Director will provide assistance and guidance to the SED based on information received from the support team leaders. (Upon activation of the EOF, the off-site support team leaders report to the Emergency Operations Facility Director versus the General Office Control Center Director.)

5.5.9 Media Coordinator

The Media Coordinator will be responsible for disseminating information to the public via the media and will report directly to the Emergency Operations Facility Director. He will prepare and issue official press releases as approved by the Emergency Operations Facility Director, arrange press conferences and prepare technically accurate information for release to the public.

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The Media Coordinator will be located in the Emergency Operations Facility and then in the Joint Public Information Center (JPIC) when activated.

#### 5.6 LONG-TERM RECOVERY ORGANIZATION

Recovery after an emergency condition will be handled by the emergency organization unless conditions indicate that recovery will be complicated or will take a long period of time. At the discretion of the SED, in concurrence with the Emergency Operations Facility Director, Consumers Power will shift from an emergency organization structure to a Long-Term Recovery Organization. Guidelines that will be employed for determining this shift are explained in Section 9.

The Long-Term Recovery Organization will depend upon the nature of the accident and the situations preceding the accident. Figure 5-4 illustrates the Long-Term Recovery Organization.

#### 5.7 LOCAL SERVICES SUPPORT

The potential consequences of some emergencies will require the utilization of off-site individuals, organizations and agencies. As a result, letters of agreement have been entered into with off-site agencies and organizations to provide aid in the event of a declared emergency at the Palisades Plant. Support services encompass such areas as medical assistance, fire control, evacuation, ambulance services and law enforcement. Since the availability of these support agencies/organizations will be on such short notice, written agreements have been entered into to assure these agencies'/organizations' availability. In the letters of agreement, the agencies have outlined their responsibilities to assure their response to a call from the Palisades SED. A copy of the letters of agreement have been included in Appendix A. The services provided by local support groups are listed in the following subsections.

##### 5.7.1 Medical Support

Various types of medical emergencies require the aid of the medical support group. The primary hospital facility for the treatment of serious personnel emergencies is Mercy Hospital. This hospital is located approximately 18 miles from the plant site in Benton Harbor, Michigan. Mercy Hospital is equipped to receive and treat all types of accident victims, including those with radiological complications. Agreements and plans have also been made with the South Haven Community Hospital, six miles from the plant, to provide backup medical treatment facilities and professional capability for treatment of emergency cases with or without radiological complications.

Ambulance service is provided by agreement with the Covert Fire Department, South Haven Ambulance Service and Medic I, Benton Harbor. The ambulance units and emergency medical technicians are trained and equipped to respond to any medical emergency at the Palisades Plant.

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5.7.2 Fire-Fighting Support

When it is determined by the Site Emergency Director that off-site fire support is necessary, fire protection response will be by the Covert Fire Department with mutual aid provided by the Van Buren County Mutual Aid Pact. Fire Department personnel will be trained in handling emergency situations for nuclear facilities.

In addition to their fire suppression capabilities, the fire departments will provide specially equipped vehicles and personnel trained for emergency rescue and other contingencies.

5.7.3 Law Enforcement Agencies

The Covert Township Police and the Van Buren County Sheriff's Department have jurisdiction at the Palisades Plant site and will respond to all civil disturbances or threats. They will also assist in controlling access to areas affected by the emergency, directing area evacuation and providing direct radio communications to the plant. The State Police will also respond, if necessary, upon the request of the local police agencies.

5.7.4 Van Buren County Office of Emergency Preparedness

The Van Buren County Office of Emergency Preparedness is located in the County Sheriff's Department, Kalamazoo Street, Paw Paw. Notification of the director regarding an emergency is via the sheriff's office together with the information and recommendations initially supplied by CP Co.

The Director of Emergency Preparedness has the authority and responsibility for the planning and coordination of the county's emergency response. He has delegated responsibilities and tasks to the local support agencies and has established operating procedures to implement the Van Buren County Emergency Operations Plan. Upon notification of an emergency at the Palisades Nuclear Plant, the Director of Emergency Preparedness will, as a primary duty, provide direction within the county boundaries. This duty will include, if required, the coordination with other agencies to inform the public in affected portions of the county to take protective actions.

5.7.5 Berrien County Office of Emergency Preparedness

The Berrien County Office of Emergency Preparedness is located in the Berrien County Sheriff's Department, St Joseph, Michigan. The Director of Emergency Preparedness is responsible for activating the county's Emergency Operations Plan and coordinating its resources during the disaster with the Van Buren County Director of Emergency Preparedness. The Director of Emergency Preparedness will be responsible for initiating the manning of the Emergency Operations Center (EOC) located in the County Sheriff's Department.

5.7.6 Allegan County Office of Emergency Preparedness

The Allegan County Office of Emergency Preparedness is located in the Allegan County Sheriff's Department, Allegan, Michigan. The responsibilities of the

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Director of Emergency Preparedness parallel that of Berrien and Van Buren Counties.

## 5.8 COORDINATION WITH GOVERNMENTAL AGENCIES

The coordination between the State, county and Federal emergency plans and the Palisades Nuclear Power Plant Site Emergency Plan serves to ensure the safety and health of the public. The coordination of the emergency plans enables all organizations to participate without confusion or hesitation in regard to their responsibilities. All participating agencies should have a clear picture of the roles they play during an emergency situation. As a part of the coordination effort, each participating agency will be assigned specific responsibilities and authority in regard to both emergency planning and emergency response.

### 5.8.1 Michigan Department of Public Health (DPH)

The Department of Public Health, Radiological Health Services located in Lansing is responsible for administering and directing radiation control programs and activities within the State. Their Radcon Field Team provides direct radiological emergency response capability during emergency conditions. The team's responsibilities include:

- a. Moving immediately to the incident site and performing radiological monitoring as appropriate.
- b. Determining and reporting the nature and scope of the hazard.
- c. Providing local authorities with technical guidance, recommending appropriate emergency countermeasures and recovery actions, and otherwise assisting the affected community.

The Department of Public Health, Radiological Health Services Division is responsible for providing the public with health hazard evaluation, guidance or protective actions, and other pertinent information concerning radiological incidents. In addition, the DPH is responsible for coordinating emergency medical support of radiological incidents, as requested by the Radcon Field Team or local health authorities.

### 5.8.2 Michigan Department of State Police Emergency Services Division (MSP)

The Department of State Police Emergency Services Division is the leading State agency for emergency response planning and operations. Responsibilities of this group include:

- a. Development and maintenance of the Michigan State Emergency Preparedness Plan and assistance to the counties in developing their individual emergency operations plans.
- b. Arranging training programs for State and local agencies designed to promote effective response to radiological incidents.

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- c. Providing affected communities with warning authentication upon request.
- d. Providing communications, radiological monitoring, and other available support to affected local governments.
- e. Coordinating the support of other State agencies or political subdivisions near the affected area and obtaining the assistance of Federal agencies as required.

The normal notification point for the Palisades Plant is the State Police Post in South Haven.

Consumers Power Company will support the State Police by providing specific information pertaining to the nature of the incident, recommendations on protective actions, and other available information and technical guidance.

#### 5.8.3 US Department of Energy (DOE)

The Department of Energy will assist during radiological emergencies by furnishing advice, consultation and assistance regarding the protection of personnel, treatment of injured and/or exposed persons, minimization of further exposure and contamination and the determination of existence and extent of contamination. The DOE will respond in support of the State and local monitoring operations but may receive requests for assistance directly from the plant. A letter of agreement has been obtained (Appendix A) to assure response to requests from the plant during radiological emergencies.

#### 5.8.4 Nuclear Regulatory Commission (NRC)

The Office of Inspection and Enforcement, Region III, NRC may dispatch personnel to the scene in the event of an emergency and will lend support in the areas of observation and accident evaluation. The office may also furnish advice and assistance to the plant as deemed necessary. The NRC shall be notified within an hour, any time all or part of the Site Emergency Plan is activated.

#### 5.8.5 Michigan Department of State Police - South Haven Post

Michigan State Police (MSP) Department is responsible for providing mobile monitoring, emergency traffic control, and other available assistance to the chief law enforcement officials of affected areas. The MSP's nearest post is located in South Haven, Michigan with direct radio communications to Van Buren, Allegan and Berrien Counties.

#### 5.8.6 Michigan Department of Transportation

Michigan Department of Transportation (MDOT) is responsible for furnishing emergency traffic barriers and signs and for assisting in emergency traffic regulation coordination with the Michigan State Police, the Sheriff, and the County Road Commission of the affected county.

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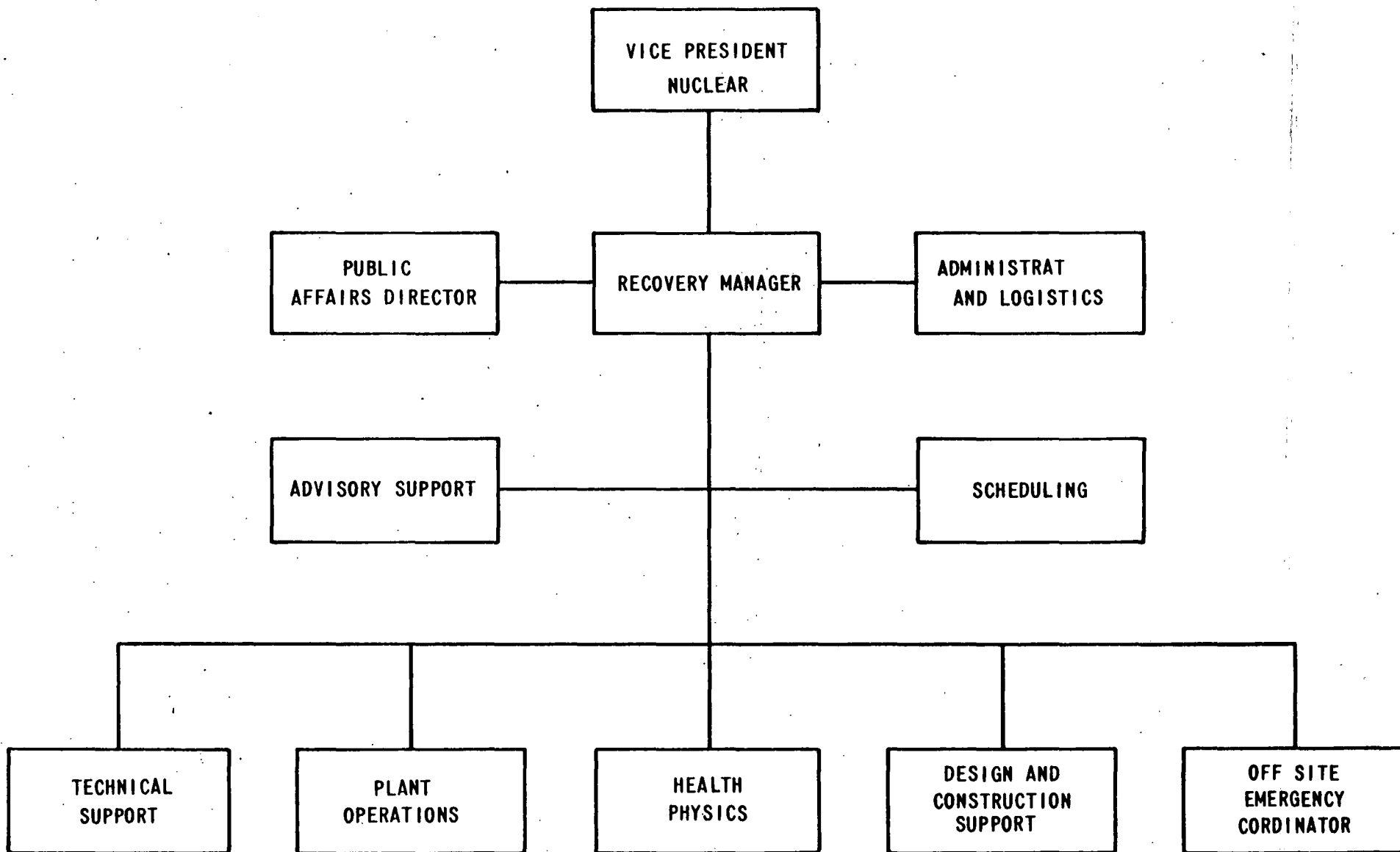


FIGURE 5-4  
LONG TERM RECOVERY ORGANIZATION

5.8.7 Michigan Department of Agriculture

The Michigan Department of Agriculture acts on advice from the State Health Director for controlling agricultural products and production for the purpose of radiation health hazard abatement. Protective actions initiated by the Department of Agriculture may include any or all of the protective actions recommended by the Environmental Protection Agency.

5.9 INSTITUTE OF NUCLEAR POWER OPERATIONS (INPO)

The Institute of Nuclear Power Operations will provide emergency response as requested by CP Co. INPO can provide assistance locating sources of emergency manpower and equipment, analyzing operational aspects of the event and organizing industrial experts who could advise CP Co on technical matters. INPO will be contacted by means of its 24-hour telephone number in the event of a radiological emergency.

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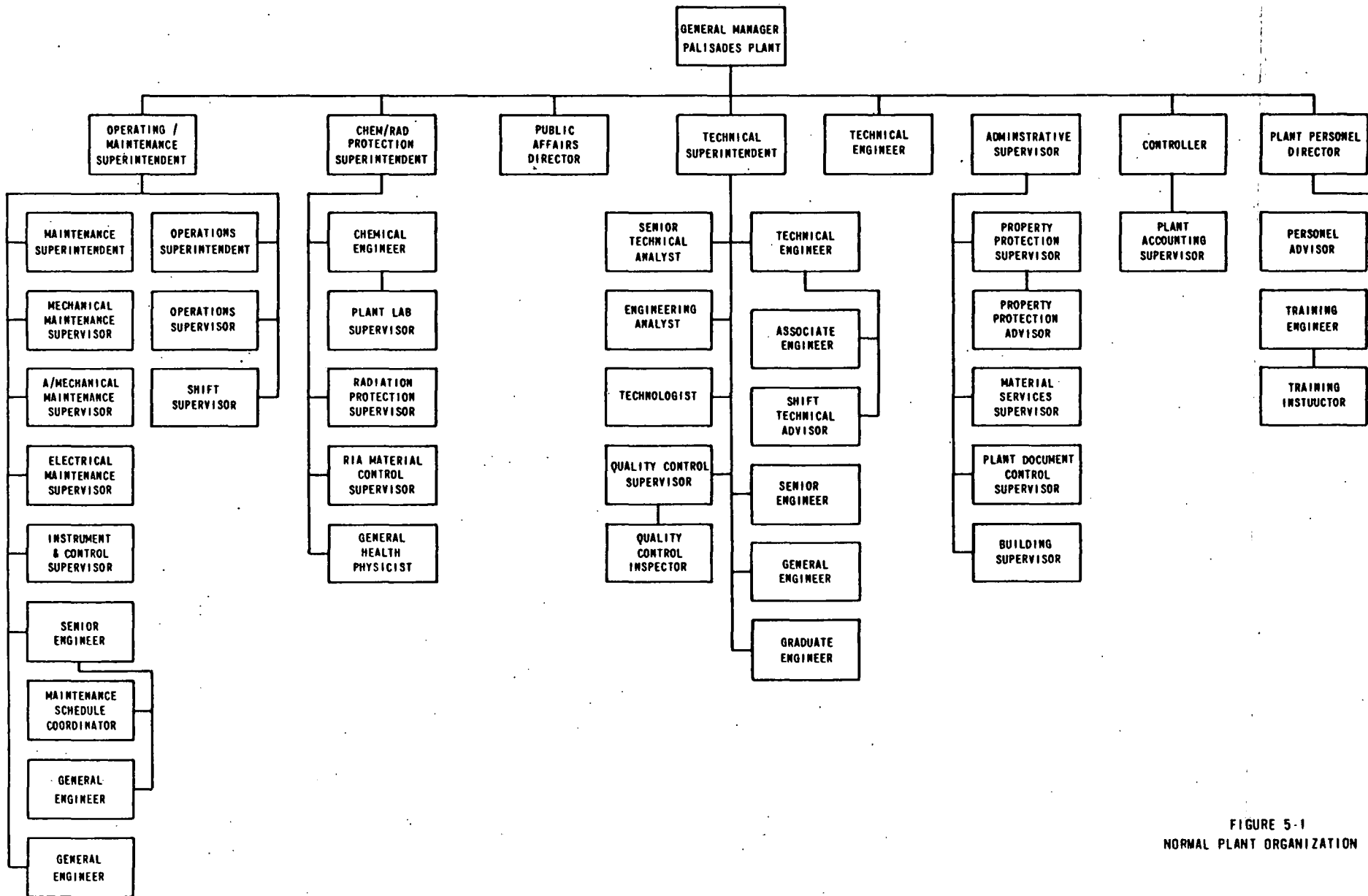


FIGURE 5-1  
NORMAL PLANT ORGANIZATION

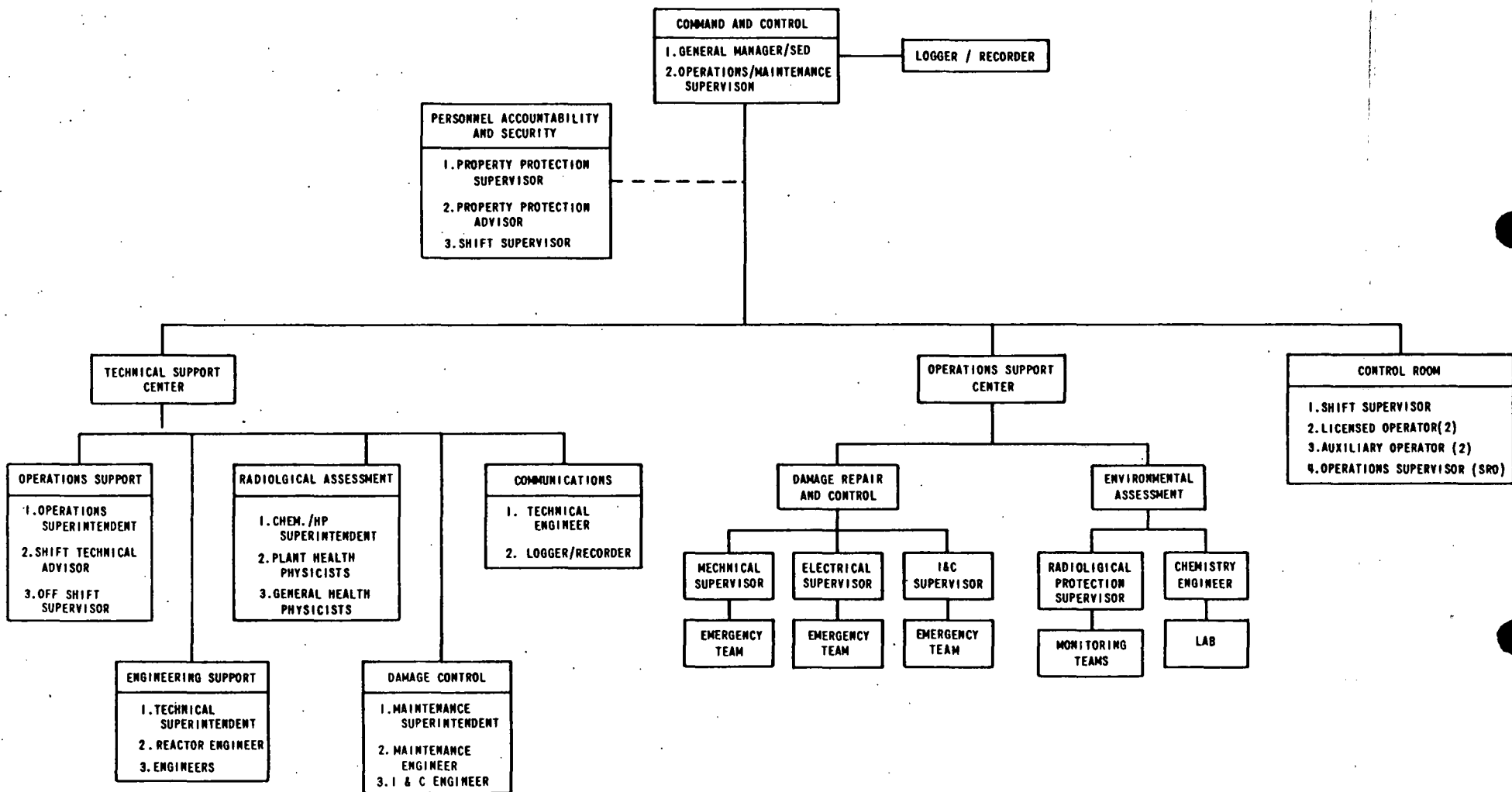


FIGURE 5-2  
EMERGENCY ON SITE ORGANIZATION

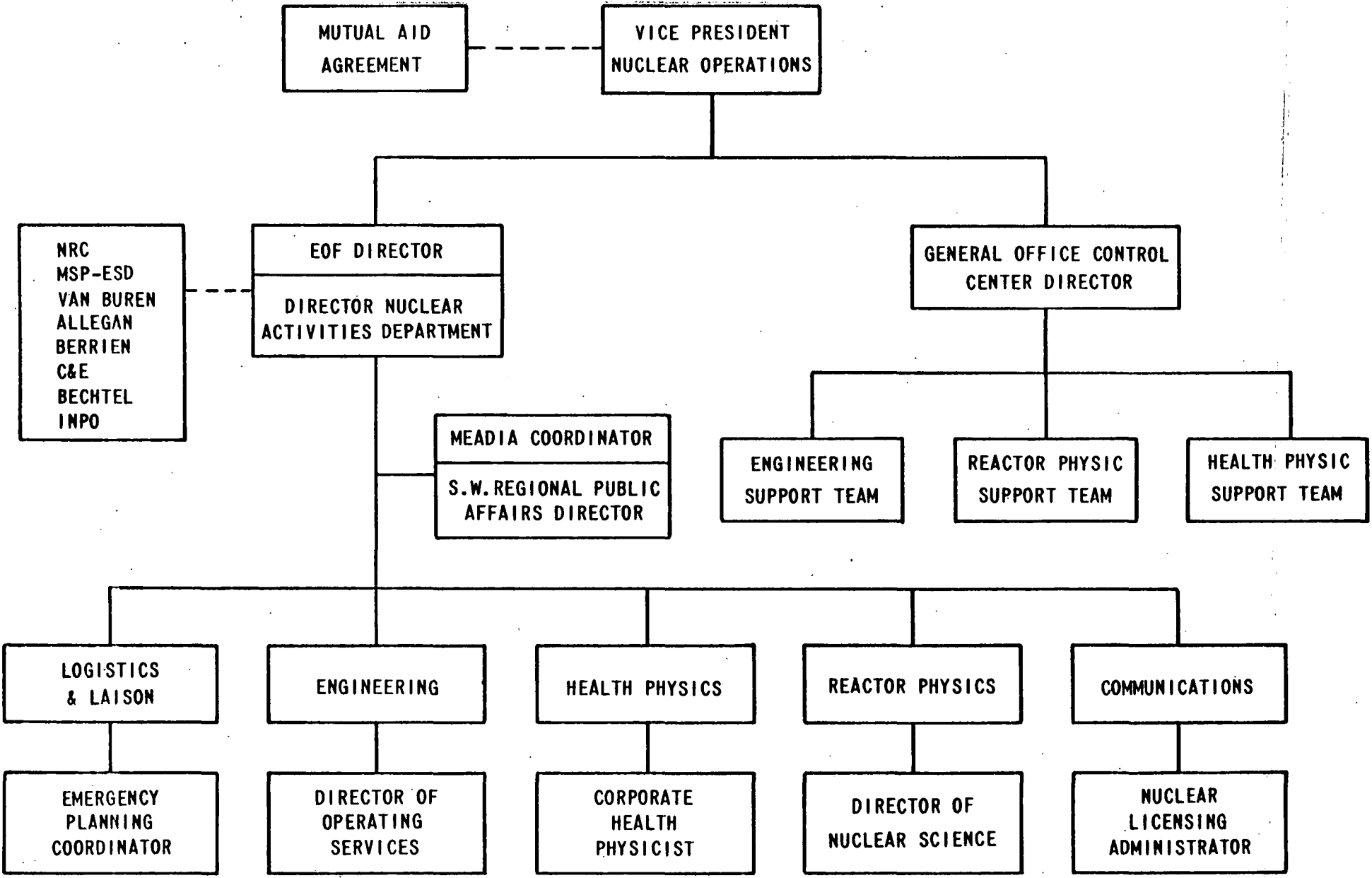


FIGURE 5-3  
EMERGENCY OFF-SITE ORGANIZATION



## 7.0 EMERGENCY FACILITIES AND EQUIPMENT

This section describes the equipment and facilities that are utilized to:

- a. Assess the extent of accident hazards.
- b. Mobilize the resources required to mitigate the consequences of an accident.
- c. Provide protection to plant personnel.
- d. Support accident mitigation operations.
- e. Provide immediate care for injured/contaminated personnel.
- f. Effect damage control.

### 7.1 ON-SITE EMERGENCY FACILITIES

On-site emergency support centers include the control room and two other areas at Palisades. These areas are designated as the Technical Support Center and the Operations Support Center as described below.

#### 7.1.1 Control Room

The principal emergency control center is the plant's control room. Operations personnel will report to the control room and control all evolutions from this central location. Self-contained breathing apparatuses are located in the control room for personnel protection from inhalation. The maximum anticipated external dose rate in the control room during any General Emergency condition is less than 15 mrem/h.

#### 7.1.2 Technical Support Center

The Technical Support Center is located in the area immediately adjacent to the control room and includes the Shift Supervisor's office, the viewing gallery hallway and the offices in the area. The TSC will accommodate personnel who will provide plant management and technical support to Operations and control room personnel during emergency conditions. Complete record keeping and communications capabilities have been installed. All necessary equipment, furnishings and documents are stored in the immediate area and are readily available for use. The TSC may be activated for Unusual Events, and will be activated for Alert, Site Area Emergency and General Emergency conditions.

Further details concerning staffing, equipment, furnishings, procedures and activation are outlined in the Emergency Plan Implementing Procedures (Appendix D).

Habitability of the Shift Supervisor's office portion of the TSC is assured by the control room emergency ventilation system which serves this area. In addition, respiratory protection equipment is provided for up to 10 indivi-

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duals. An area radiation monitor in the viewing gallery area reads out in the control room to provide external dose rate data. Air sampling and analysis equipment are provided in the emergency equipment kits to monitor airborne radioactivity levels. Personal radiation dosimetry normally issued to site personnel and visitors will provide individual radiation dose assessment data. In the event that a portion of the Technical Support Center is not habitable, an alternate center can be established at the OSC, Feedwater Purity Building or the on-site Training Building.

### 7.1.3 Operations Support Center (OSC)

The Operations Support Center (OSC) is located in the conference rooms, the lunchroom and the locker room areas located in the Administration Building which is connected to the rest of the plant by hallways.

The function of the OSC is to assemble and coordinate necessary plant support personnel, who will be dispatched for specific jobs as directed from the TSC. (Duty auxiliary operators will assemble in a small separate room within the control room area.) Group supervisors assembled in the OSC can dispatch their personnel by verbal communication to the other nearby assembly areas.

Additional details concerning staffing, equipment, furnishings, procedures and activation are outlined in the Emergency Plan Implementing Procedures (Appendix D).

Habitability of the OSC is verified using available emergency kit equipment. Equipment is provided for measuring external dose rates and airborne radioactive levels. The OSC ventilation system is independent of the Auxiliary Building system. This minimizes airborne contamination as a result of events in the Auxiliary Building. In the event parts of the OSC should not be habitable, alternate locations such as the Feedwater Purity Building or permanent construction buildings are available for use.

### 7.2 EMERGENCY OPERATIONS FACILITY (EOF)

The Emergency Operations Facility (EOF) for the Palisades Plant is at the South Haven Conference Center, approximately 10 direct miles from the plant. The facility is for the management of overall emergency response, the coordination of radiological assessment and for the management of long-term recovery operations. The EOF is designed to provide assistance in the decision-making process to protect the public health and safety and to control radiological monitoring teams off site. The EOF may be activated for Unusual Event and Alert categories, and will be fully activated for Site Area and General Emergency categories.

Due to its distance from the plant, the EOF is habitable under all accident conditions. To further assure the safety of the staff, a Radiation Protection Technician with monitoring equipment is dispatched to the facility from the plant.

The staff is primarily from the Consumers Power Company General Office and other nuclear plants, supplemented by vendor and consultant personnel. In

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addition, liaison personnel from the county, State and Federal governments will also be present in the EOF.

The EOF shall have ready access to up-to-date plant records, procedures and emergency plans needed to exercise overall utility resources management and for recovery management. Additional up-to-date records related to licensee, State and local emergency response plans, radiological records, on-site personnel control, off-site population distribution and evacuation planning are readily available in the EOF. All such records are readily available in the EOF under emergency operating conditions.

### 7.3 GENERAL OFFICE EMERGENCY CONTROL CENTER (GOCC)

The General Office Emergency Control Center is located in the lunchroom adjacent to the auditorium in the Parnall Building No 1, Jackson, Michigan. The GOCC is designed to:

- a. Relieve the plant staff from activities that might interfere with their efforts to deal with the emergency.
- b. Provide a separate communications link and means of verifying the plant's notifications to county, State and Federal agencies.
- c. Provide managerial and logistical support to the plant and EOF.
- d. Serve as a coordinating point for requesting and receiving support from other utilities through the mutual aid agreement with Detroit and Toledo Edison Companies and Institute of Nuclear Power Operations.

The staff will be assigned to the following working groups: health physics, reactor physics, nuclear licensing, quality assurance, engineering support and logistics (security, buildings operations, etc).

The GOCC will be fully activated for Site Area Emergency and General Emergency categories. Complete details concerning activation, staffing and operations of the GOCC are found in Nuclear Plant Emergency Planning Procedure for General Office Personnel (Appendix H).

### 7.4 COUNTY AND STATE EMERGENCY CENTERS

#### 7.4.1 County Emergency Operations Centers

Potential emergencies could directly impact those individuals living within the 10-Mile Emergency Planning Zone, and indirectly affect property within the 50-Mile Emergency Planning Zone. Therefore, emergency planning efforts have been initiated by those affected counties within the 10-Mile Emergency Planning Zone. The affected counties are: Van Buren, Berrien and Allegan Counties.

Each of these counties has established and maintains an Emergency Operations Center (EOC). These centers are located in the following locations:

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- a. Van Buren County Sheriff's Department  
Paw Paw, Michigan
- b. Berrien County Sheriff's Department  
St Joseph, Michigan
- c. Allegan County Building  
Allegan, Michigan

#### 7.4.2 State On-Scene Emergency Operations Center (SEOC)

The Michigan State Emergency Operations Center is located at the Saugatuck State Police Post. The State Emergency Operations Center is a facility equipped with the necessary communications control capabilities from which essentially all disaster functions are directed and controlled by the Governor. When the Governor determines that the personnel and resources of the State government are needed to support disaster operations of affected local governments, authorization is given by the Governor to activate the State Emergency Operations Center.

#### 7.5 JOINT PUBLIC INFORMATION CENTER (JPIC)

A Joint Public Information Center (JPIC) will be established at the Lake Michigan Community College. The JPIC will be staffed by public information representatives of the utility, State and county government and the Federal government. The plant Public Affairs Director will be located in this facility upon its activation.

Figure 7-1 is a block diagram of the on-site and off-site emergency facilities.

#### 7.6 COMMUNICATIONS EQUIPMENT

The members of the emergency organizations require correct and up-to-date information relevant to the potential or real emergency condition. Therefore, the communications systems that will be used by the emergency organizations must meet the following basic criteria:

- a. Provide for prompt initial notification
- b. Maintain reliability
- c. Provide for alternate methods of communications

##### 7.6.1 Routine Communications System

Communications equipment available for off-site use includes:

- a. General Telephone Company - separate outside lines
- b. Intracompany telephone system.

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- c. Company radio to Southwestern Region Power Controller in Kalamazoo
- d. State Police Radio - through Security Department
- e. Direct dedicated telephone to NRC
- f. Direct dedicated telephone to General Office Control Center
- g. Direct dedicated telephone to Power Controller at Company headquarters, Jackson
- h. Direct dedicated telephone to Van Buren County Sheriff's Department, Paw Paw
- i. Direct dedicated telephone to State Police Post (South Haven)

Communications equipment available for on-site use includes:

- a. Intraplant telephone
- b. Public Address System
- c. Emergency Siren
- d. Company radio - portable and base units
- e. Battery-powered megaphone
- f. Intercoms between emergency centers

Table 7.1 summarizes communications resources.

## 7.7 ASSESSMENT EQUIPMENT SYSTEMS

### 7.7.1 Radiation Monitoring System

The Radiation Monitoring System measures, indicates and records the presence and level of radiation and alerts plant personnel to abnormal levels of radioactivity, thereby contributing to personnel protection and proper operation of plant equipment.

The system consists of permanently installed continuous monitoring devices together with a program and provisions for specific sample collections and laboratory analyses. The system is designed to provide information for use in evaluating the radiological consequences of normal plant operation, anticipated operational occurrences and accidents. Control actions are initiated on the required systems when radiation levels exceed predetermined amounts.

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These monitoring functions are performed by the following subsystems and programs:

- Area Radiation Monitoring
  - Liquid Radiation Monitoring
  - Airborne Radiation Monitoring
1. Gas
  2. Particulate
  3. Iodine

Data from these subsystems are displayed by readouts, annunciators and recorders located in the control room. (Portable airborne and area monitors are capable of being plugged into receptacles throughout the plant.) Instrumentation power for the Radiation Monitoring System will be supplied from a reliable source.

a. Area Radiation Monitors

Area radiation monitors are primarily for the purpose of measuring radiation dose rate for protection of plant personnel and providing supporting data to the surveillance of plant radiation levels.

Monitor alarm setpoints depend on the normal background radiation at the detector location and the calculated levels for abnormal conditions. The monitors will operate within the range of normal environmental conditions applicable to their locations.

Monitored points within the plant are in areas where personnel exposure to radiation is most likely and at appropriate access control boundaries. Readouts and alarms are provided both locally and in the control room.

b. Airborne Radiation Monitors

The radiation monitors located in the gaseous release paths monitor radioactivity with sufficient sensitivity to demonstrate compliance with 10 CFR 20 limits. They also provide sampling capability, ie, removable filters and/or gas sample stop valves. Samples analyzed with laboratory equipment permit evaluation of compliance to more restrictive regulations and provide data required.

c. Liquid Radiation Monitors

The monitoring systems consist of fixed detectors that display radiation levels in the control room.

Testing and maintenance features such as remotely operated check sources, flushing connections and cutoff valves are included for periodic system check and/or calibration. The liquid radiation monitors are designed to insure that liquid effluent releases are maintained below the MPC values of 10 CFR 20 by the use of alarms and automatic shutoff features.

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7.7.2 Meteorology

As emergency instrumentation, this system is concerned primarily with anticipation of the consequences of any accidental release of airborne radioactivity to allow for immediate actions which will mitigate the consequence of this release. The existing on-site meteorological equipment is located in the exclusion area of the plant. This equipment provides for readout in the control room and a data link capability to the TSC. Monitored parameters include wind speed, direction, temperature and temperature differential. Backup dispersion meteorology may be obtained from the D C Cook Nuclear Plant located 30 miles south of the Palisades Plant. Additional meteorological information can be obtained from the US Coast Guard Station, St Joseph, and the Federal Aviation Flight Service at the Kalamazoo Municipal Airport.

7.7.3 Fire Protection System

The fire protection system, including monitoring devices and fire suppression equipment, is completely detailed in the Fire Protection Implementing Procedures.

7.8 OFF-SITE MONITORING

7.8.1 Radiological Monitoring

Listed below are available off-site monitoring capabilities, which include both special emergency facilities and regular capabilities which can be utilized in times of emergency.

- a. The environmental monitoring program provides a number of TLDs and airborne particulate sampling stations which are valuable for long-term appraisal of integrated dose. Figures 7-2 and 7-3 show air sampler/off-site TLD locations and accident TLD locations, respectively.
- b. The Michigan State Department of Public Health provides off-site field monitoring capability within approximately three hours.
- c. Aerial and field monitoring is available through the State Police Department or Emergency Services and other State agencies.

7.8.2 Laboratory Facilities

In addition to the plant laboratory and counting room, the facilities of the Environmental Survey Program Contractor in Chicago, Illinois, are available for analysis of all types of samples. The State Department of Public Health Services samples the environs and operates a radiological laboratory in Lansing.

Consumers Power Company and Indiana/Michigan Electric Company (D C Cook Nuclear Plant) may exchange services for radiological laboratory analyses, laboratory boron analyses and backup dispersion meteorology information.

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7.8.3 Meteorological Monitoring

Capabilities existing for off-site meteorological data include:

- a. Flight Service Station, Kalamazoo Airport
- b. Flight Service Station, Ross Field, Benton Harbor
- c. US Coast Guard Station, St Joseph
- d. Jackson Power Controller, US Weather Teletype
- e. D C Cook Nuclear Plant, Bridgeman

7.9 FIRST AID AND MEDICAL CARE

7.9.1 First Aid and Medical Facilities

The plant first-aid station location is located in the whole-body counting room in the turbine building. The room will be equipped as recommended by the CP Co consulting physician and, as a minimum, contains the equipment required by the Michigan Department of Labor.

At least one person having American Red Cross Multimedia First Aid will be available on site at all times.

Specialized training is given for the treatment and handling of contaminated personnel and injuries.

Emergency call lists for ambulance service and medical facilities are kept current in the Emergency Implementation Procedures.

7.9.2 First-Aid Equipment

There are first-aid kits in appropriate areas of the plant in addition to the First-Aid Room Inventory. Inventory lists and accountability check sheets are found in Health Physics Procedures.

7.9.3 Decontamination and First Aid

Personnel decontamination facilities for emergency conditions include showers, sinks, cleaning agents and first-aid kits which are maintained near the Health Physics access control area. These supplies include special materials and personnel decontamination procedures.

7.9.4 Medical Transportation

Company vehicles maintained on site and/or private vehicles can be used to transport injured and/or contaminated personnel for medical treatment. In addition, ambulances are available from the Covert and South Haven Fire Departments, depending on the severity of the situation.

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7.9.5- Medical Treatment

South Haven Community Hospital, Mercy Hospital, Benton Harbor, and Memorial Hospital, St Joseph, have agreed to accept contaminated injured patients.

7.9.6 Use of Protective Equipment and Supplies

Listings by general category of typical emergency protective equipment and supplies that are stored and maintained for emergency purposes are contained in Appendix E. Additional protective actions considered as measures for minimizing radiological exposure and contamination of plant personnel include use of protective equipment and clothing as described below:

a. Individual Respiratory Protection

Respiratory protective devices will be issued when necessary to significantly reduce the internal exposure to radionuclides. Self-contained breathing apparatus will also be used in emergencies involving smoke, gases, oxygen deficient atmospheres or unknown conditions. Both self-contained breathing apparatus and air-purifying type full-face respirators are maintained in the control room and a larger supply of this equipment is available at the Health Physics area in Access Control. Additional respiratory protective equipment is available in the Technical Support Center. Respiratory protective devices will be issued to survey teams, rescue teams and other personnel required to be in areas of suspected or known high airborne radioactivity. A reserve breathing air supply that is of a rate sufficient to support control room personnel for an extended period of time is available. In addition to breathing apparatus, thyroid blocking agents (ie, potassium iodide) will be dispensed for on-site personnel in accordance with procedures approved by Consumers Power Company's General Medical Consultant and is part of Emergency Implementing Procedures.

b. Protective Clothing

Supplies of this apparel include coveralls, rubber gloves, shoe covers and boots, caps and hoods and plastic suits. Inventories are maintained for normal plant use in Access Control and in the Stockroom.

Additional supplies of protective clothing are in the emergency kits. This clothing will be issued to survey teams, rescue teams and other personnel required to enter known or suspect areas of radioactive contamination. It will also be issued to persons required to work in or occupy contaminated areas. For emergency conditions, normal street clothing is considered as protective apparel, which is supplemented as necessary to protect skin surfaces and which can be cleaned or discarded later. Protective clothing is distributed off site only to members of those support agencies required to occupy contaminated areas for some purpose. In this event, Consumers Power Company will provide supplies to those people as available.

c. Breathing Air

A local supplier of compressed air is capable of providing emergency air cylinders on a 24-hour basis.

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TABLE 7.1  
COMMUNICATIONS RESOURCES  
(Primary and Backup)

|              | C<br>o<br>n<br>t<br>r<br>o<br>l<br>R<br>o<br>o<br>m | T<br>S<br>C | O<br>S<br>C | E<br>O<br>F | G<br>O<br>C<br>C | P<br>C<br>S<br>W | N<br>R<br>C | S<br>E<br>O<br>C | V<br>B<br>E<br>C<br>O<br>C |
|--------------|---|-------------|-------------|-------------|------------------|------------------|-------------|------------------|----------------------------|
| Control Room |   | 2<br>7      | 2<br>4      | 1<br>3      | 1<br>3           | 1<br>3           | 1<br>5      | 1<br>6           | 1<br>5                     |
| TSC          | 2<br>7  |             | 4<br>2      | 1<br>5      | 1<br>3           | 1<br>3           | 1<br>5      | 1<br>6           | 1<br>5                     |
| OSC          | 4<br>2  | 4<br>2      |             | 3<br>5      | 3<br>5           | 3<br>5           | N/A         | N/A              | N/A                        |
| EOF          | 1<br>3  | 1<br>3      | 1<br>3      |             | 1<br>3           | 5<br>3           | 1<br>5      | 1<br>5           | 1<br>5                     |
| GOCC         | 1<br>3  | 1<br>3      | 3<br>5      | 1<br>3      |                  | 1<br>3           | 5<br>-      | N/A              | N/A                        |
| PCSW         | 1<br>3  | 1<br>3      | 3<br>5      | 5<br>3      | 1<br>3           |                  | 5<br>-      | N/A              | N/A                        |
| NRC          | 1<br>5  | 1<br>5      | N/A         | 1<br>5      | 5<br>-           | N/A              |             | 5<br>-           | N/A                        |
| SEOC         | 1<br>6  | 1<br>6      | 1<br>6      | 1<br>5      | 5<br>-           | N/A              | 5<br>-      |                  | 5<br>6                     |
| VBC-EOC      | 1<br>5  | 1<br>5      | N/A         | 1<br>5      | N/A              | N/A              | N/A         | 5<br>6           |                            |

1. Direct dedicated telephone
2. Intraplant telephone
3. Company radio
4. Intercom
5. General Telephone Company
6. State Police radio
7. Face to face

- TSC - Technical Support Center  
 OSC - Operational Support Center  
 EOF - Emergency Operations Facility  
 GOCC - General Office Emergency Control Center  
 PCSW - Power Controller, Southwest Region  
 NRC - Nuclear Regulatory Commission  
 SEOC - State On-Scene Emergency Operations Center  
 VBC-EOC - Van Buren County Emergency Operations Center

NUCLEAR  
REGULATORY  
COMMISSION  
(BETHESDA, MD)

GENERAL OFFICE  
EMERGENCY  
CONTROL CENTER  
(JACKSON)

STATE ON-SCENE  
EMERGENCY  
OPERATIONS CENTER  
(SAUGATUCK)

CONTROL ROOM

NUCLEAR  
REGULATORY  
COMMISSION  
(CHICAGO, ILL)

JOINT PUBLIC  
INFORMATION  
CENTER  
(BENTON HARBOR)

EMERGENCY  
OPERATIONS  
FACILITY  
(SOUTH HAVEN )

TECHNICAL  
SUPPORT  
CENTER

VAN BUREN COUNTY  
EMERGENCY  
OPERATIONS CENTER  
(PAW PAW)

OPERATIONS  
SUPPORT  
CENTER

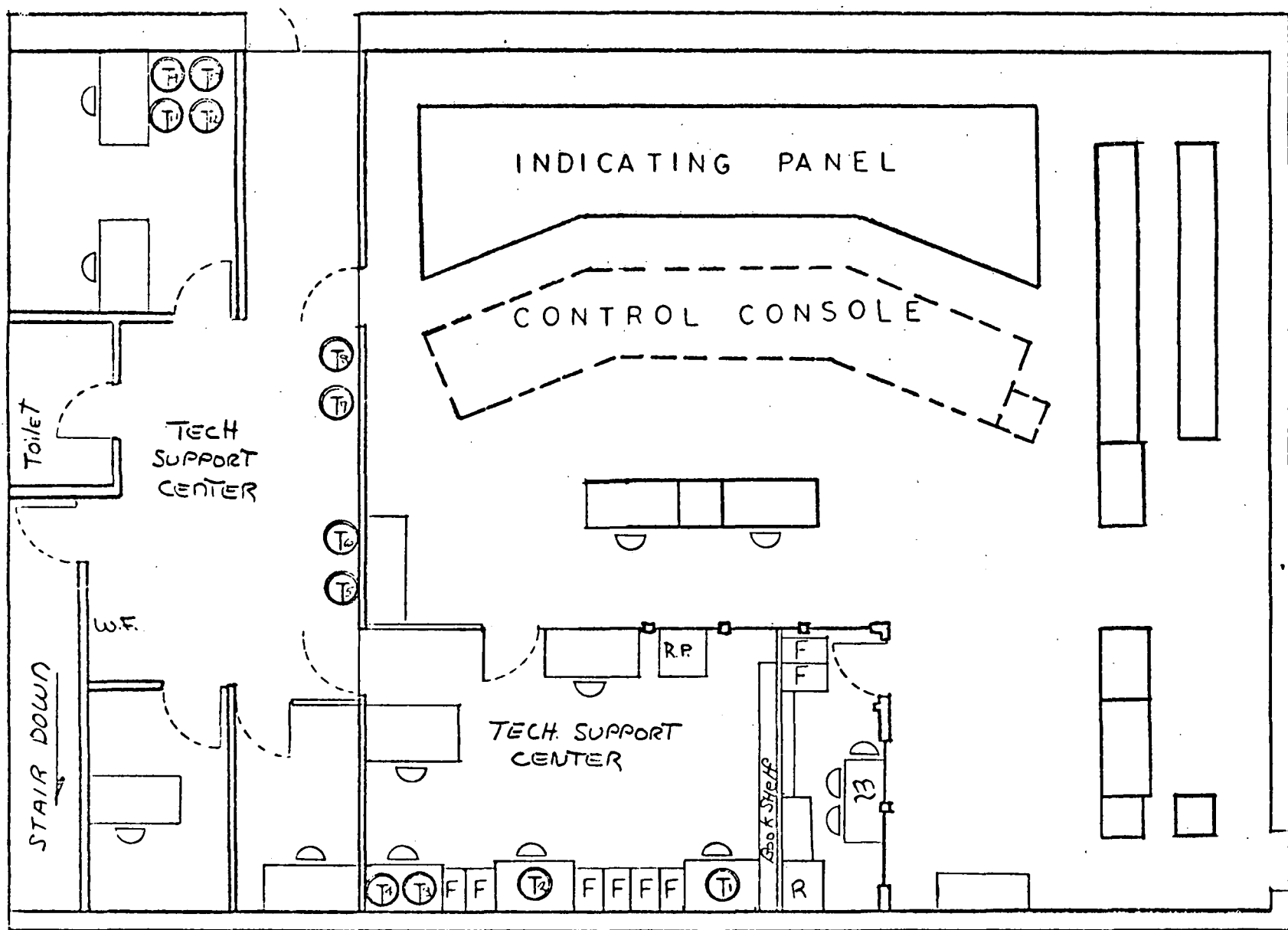
BERRIEN COUNTY  
EMERGENCY  
OPERATIONS CENTER  
(ST. JOSEPH)

OFF SITE

ON SITE

ALLEGAN COUNTY  
EMERGENCY  
OPERATIONS CENTER  
(ALLEGAN)

FIGURE 7-1  
EMERGENCY FACILITIES



TELEPHONES

- T1 = CCo Hotline
- T2 = NRC
- T3 = Sheriff
- T4 = Outside
- T5 = Rad. Pro.
- T6 = Rad. Pro.
- T7 = Maintenance
- T8 = Maintenance
- T9 = Sheriff
- T10 = NRC
- T11 = Jackson
- T12 = State Police

KEY

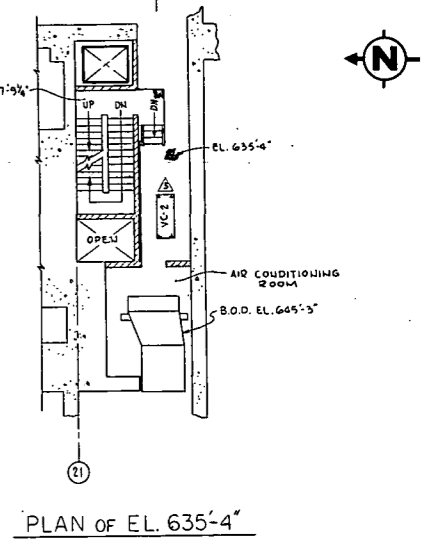
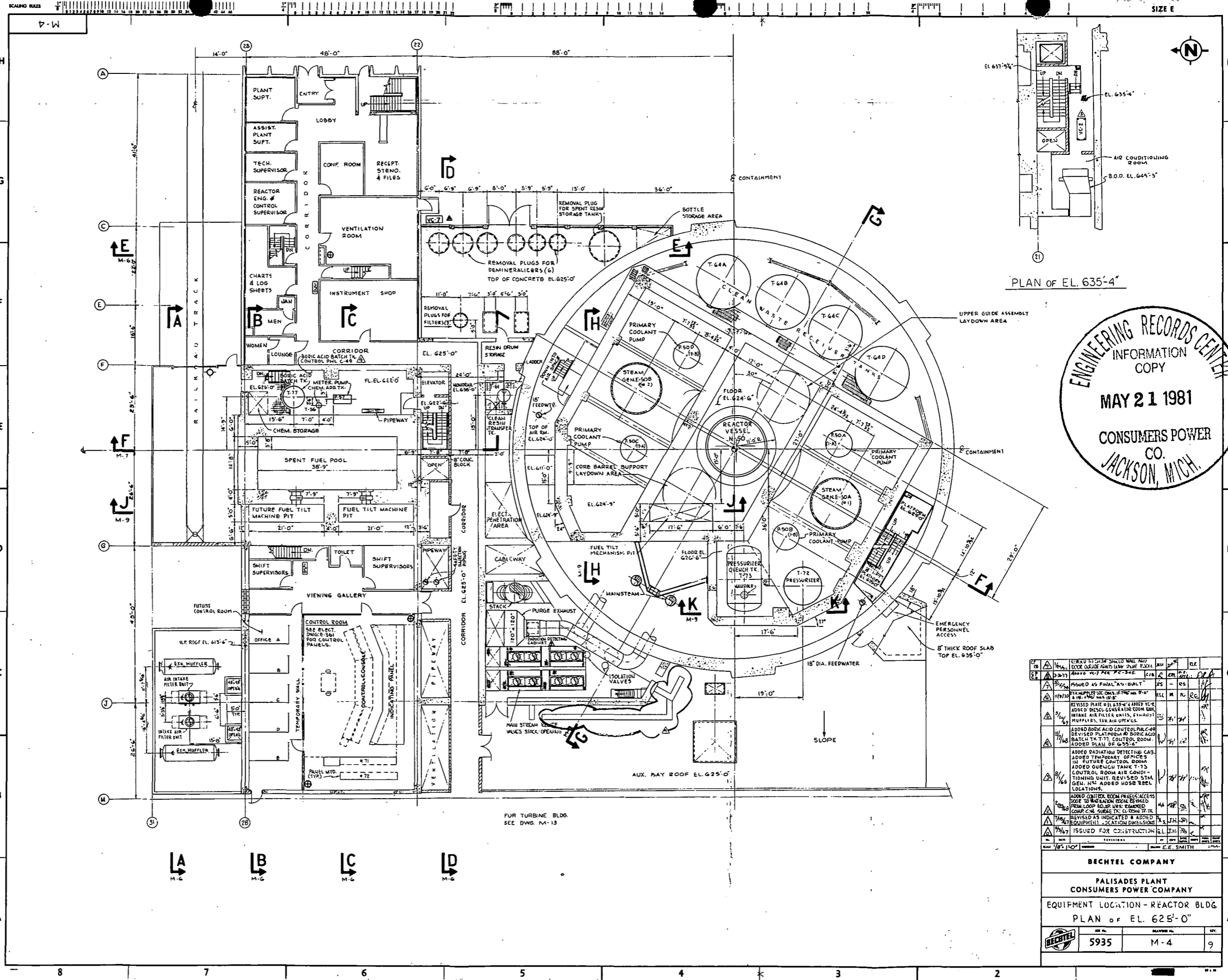
- T = Telephone
- F = File
- R = Refrigerator
- M = Microwave
- WF = Water Fountain
- RP = Reader Printer

CONSUMER POWER COMPANY  
 PALISADES PLANT

CONTROL ROOM AND TECHNICAL  
 SUPPORT CENTER

Scale 1/8" = 1'

12-8-80



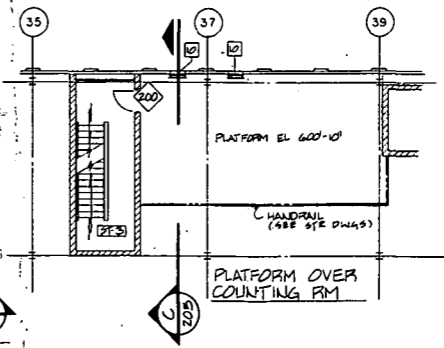
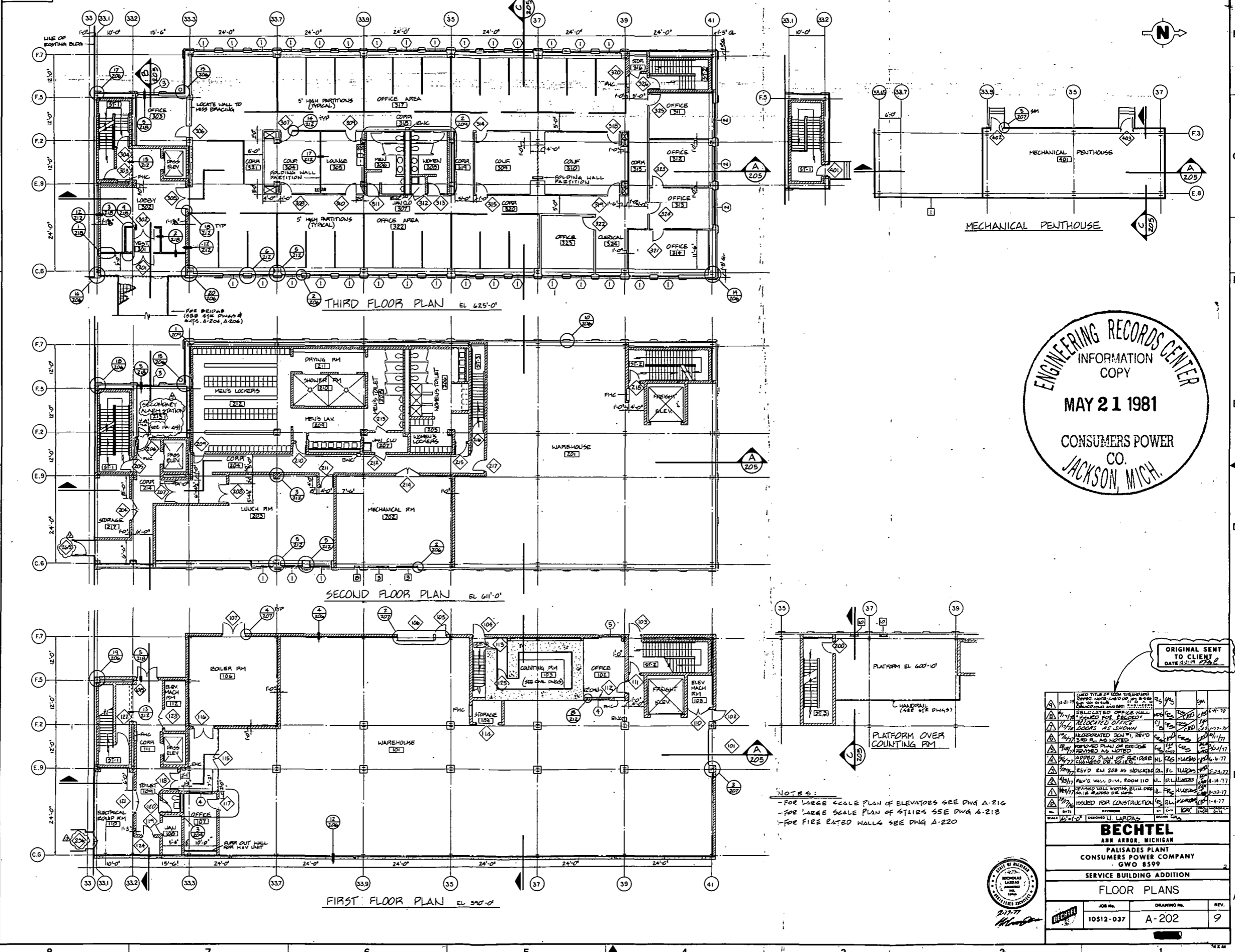
**ENGINEERING RECORDS CENTER**  
 INFORMATION COPY  
**MAY 21 1981**  
 CONSUMERS POWER CO.  
 JACKSON, MICH.

| NO. | DATE    | DESCRIPTION             | BY   | CHK. |
|-----|---------|-------------------------|------|------|
| 1   | 1/24/78 | ISSUED FOR CONSTRUCTION | J.H. |      |
| 2   | 2/1/78  | REVISIONS AS INDICATED  | J.H. |      |
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| 100 | 2/1/78  | REVISIONS AS INDICATED  | J.H. |      |

**BECHTEL COMPANY**  
**PALISADES PLANT**  
**CONSUMERS POWER COMPANY**  
 EQUIPMENT LOCATION - REACTOR BLDG.  
 PLAN OF EL. 625'-0"

|      |     |   |
|------|-----|---|
| 5935 | M-4 | 9 |
|------|-----|---|

FOR TURBINE BLDG.  
SEE DWG. M-13



NOTES:  
 -FOR LARGE SCALE PLAN OF ELEVATORS SEE DWG A-216  
 -FOR LARGE SCALE PLAN OF STAIRS SEE DWG A-213  
 -FOR FIRE RATED WALLS SEE DWG A-220

ORIGINAL SENT TO CLIENT  
 DATE 5-27-77

| NO. | DATE     | DESCRIPTION   | BY | CHKD | APP'D |
|-----|----------|---|----|------|-------|
| 1   | 12-17-77 | ISSUED FOR CONSTRUCTION   | RL | RL   | RL    |
| 2   | 1-17-78  | REVISED WALL WIDTHS, ELEV. DIM. IN 1A & 1B ADDED DR. 10A                      | RL | RL   | RL    |
| 3   | 3-22-77  | REV'D RM 209 AS INDICATED ON EL. ELEVATIONS                                   | RL | RL   | RL    |
| 4   | 4-14-77  | REV'D WALL DIM. ROOM 110  | RL | RL   | RL    |
| 5   | 6-6-77   | ISSUED PLAN OF RELOCATED COUNTING RM. (SEE DWG A-216)                         | RL | RL   | RL    |
| 6   | 8-11-77  | REVISED PLAN OF BRIDGE REMOVED AS NOTED                                       | RL | RL   | RL    |
| 7   | 10-11-77 | INCORPORATED DEN'T, REV'D 110 & 111 AS NOTED                                  | RL | RL   | RL    |
| 8   | 12-17-77 | RELOCATED OFFICE WALLS RELOCATED FOR ELEVATOR RELOCATED OFFICE DOORS AS SHOWN | RL | RL   | RL    |
| 9   | 12-17-77 | RELOCATED OFFICE WALLS RELOCATED FOR ELEVATOR RELOCATED OFFICE DOORS AS SHOWN | RL | RL   | RL    |
| 10  | 12-17-77 | RELOCATED OFFICE WALLS RELOCATED FOR ELEVATOR RELOCATED OFFICE DOORS AS SHOWN | RL | RL   | RL    |



**BECHTEL**  
 ANN ARBOR, MICHIGAN  
 PALISADES PLANT  
 CONSUMERS POWER COMPANY  
 GWO 8599

SERVICE BUILDING ADDITION

FLOOR PLANS

|           |             |      |
|-----------|-------------|------|
| JOB NO.   | DRAWING NO. | REV. |
| 10512-037 | A-202       | 9    |

SITE EMERGENCY PLAN  
PALISADES PLANT

H-i

NUCLEAR PLANT EMERGENCY PLANNING PROCEDURE FOR GENERAL OFFICE PERSONNEL

APPENDIX H

APPENDIX H  
NUCLEAR PLANT EMERGENCY PLANNING PROCEDURE FOR GENERAL OFFICE PERSONNEL

PURPOSE

To define responsibilities of Consumers Power Company support personnel in the event of a Site Emergency, General Emergency, or Alert at one of the Company's nuclear plants.

Actions delineated in this procedure provide:

1. Relief of the plant staff from activities that might interfere with their efforts to control the emergency.
2. A separate means of verifying the plant's notification to local agencies and verifying the State's response.
3. Support for the On-Site Technical Support Center.

SCOPE

This procedure is a separate controlled document and will be used in conjunction with the Site Emergency Implementing Procedures. It will be put into effect upon notification of the occurrence of a Site Emergency, General Emergency, or Alert to Power Control by the affected nuclear plant and will remain in effect until the Site Emergency Director at the affected plant determines it is no longer required. It is anticipated that the duration of use will be from one to three days. This procedure includes recovery actions that are compatible with the Atomic Industrial Forum (AIF) model.

GENERAL RESPONSIBILITIES

THE VICE PRESIDENT - NUCLEAR OPERATIONS, EXECUTIVE VICE PRESIDENT - ENERGY SUPPLY, AND THE COMPANY PRESIDENT MAY PROCEED TO ANY EMERGENCY FACILITY; HOWEVER, THEY SHALL NOT ASSUME ANY POSITION WITHOUT FORMALLY RELIEVING THE INDIVIDUAL IN THAT POSITION.

The Vice President - Nuclear Operations shall:

1. Appoint a Nuclear Emergency Planning Coordinator.
2. Appoint personnel to serve as General Office Control Center Director/Emergency Operations Facility Director (see H-4 through H-7 for locations and floor plans).
3. Approve all changes to this procedure except updating of telephone numbers and personnel and editorial changes.

The Corporate Health Physicist shall:

Appoint an individual to serve as team leader for the Health Physics Support Team.



The Director of Nuclear Activities shall:

Appoint an individual to serve as team leader for the Accident Analysis Support Team.

The Nuclear Licensing Administrator shall:

Appoint an individual to serve as team leader for the Nuclear Licensing Support Team.

The Director of Operating Services shall:

Appoint an individual to serve as team leader for the Engineering Support Team.

The Director of Quality Assurance - Nuclear Operations shall:

Appoint an individual to serve as team leader for the Quality Assurance Support Team.

The Director of Nuclear Services shall:

Appoint an individual to serve as team leader for the Engineering (EOF) Support Team.

The Director of Property Protection shall:

Appoint individuals to serve as members for the Property Protection Group.

The Nuclear Emergency Planning Coordinator shall:

1. Administer this procedure including review, amendment and distribution of same.
2. Review all changes except changes in personnel, telephone numbers and editorial changes with the affected individuals as a minimum. Submit all changes except the above exceptions to the Vice President - Nuclear Operations for approval.
3. Review the complete procedure at least once per year and document same by a report which shall be distributed to the Vice President - Nuclear Operations and maintained for five years in the Uniform File Index under A200\*22\*06\*03.
4. Incorporate minor revisions to this procedure identified by the General Office Control Center Director during drills within 30 calendar days of the drill. Initiate major revisions to this procedure identified by the General Office Control Center Director during drills within 30 calendar days of the drill.
5. Maintain accurate lists of support team members and their phone numbers and update same for the on-shift gas supply controller.

SITE EMERGENCY PLAN  
PALISADES PLANT  
Rev 0

H-3

6. Control the distribution of this procedure per Section XV.
7. Provide for training of personnel whose duties are established by this procedure per Section XV.

The General Office Control Center Director shall:

Prepare a report of suggested improvements to this procedure determined during a drill. Submit this report to the Nuclear Emergency Planning Coordinator within 15 calendar days after the drill.

Each support team leader shall:

1. Establish a team of at least five individuals (including the team leader) competent to carry out the applicable portion of this procedure.
2. Submit a list, and revisions as necessary, of the team members and both office and home phone numbers to the Nuclear Emergency Planning Coordinator.
3. Ensure that all members of his team are not scheduled to be unavailable at any period of time.

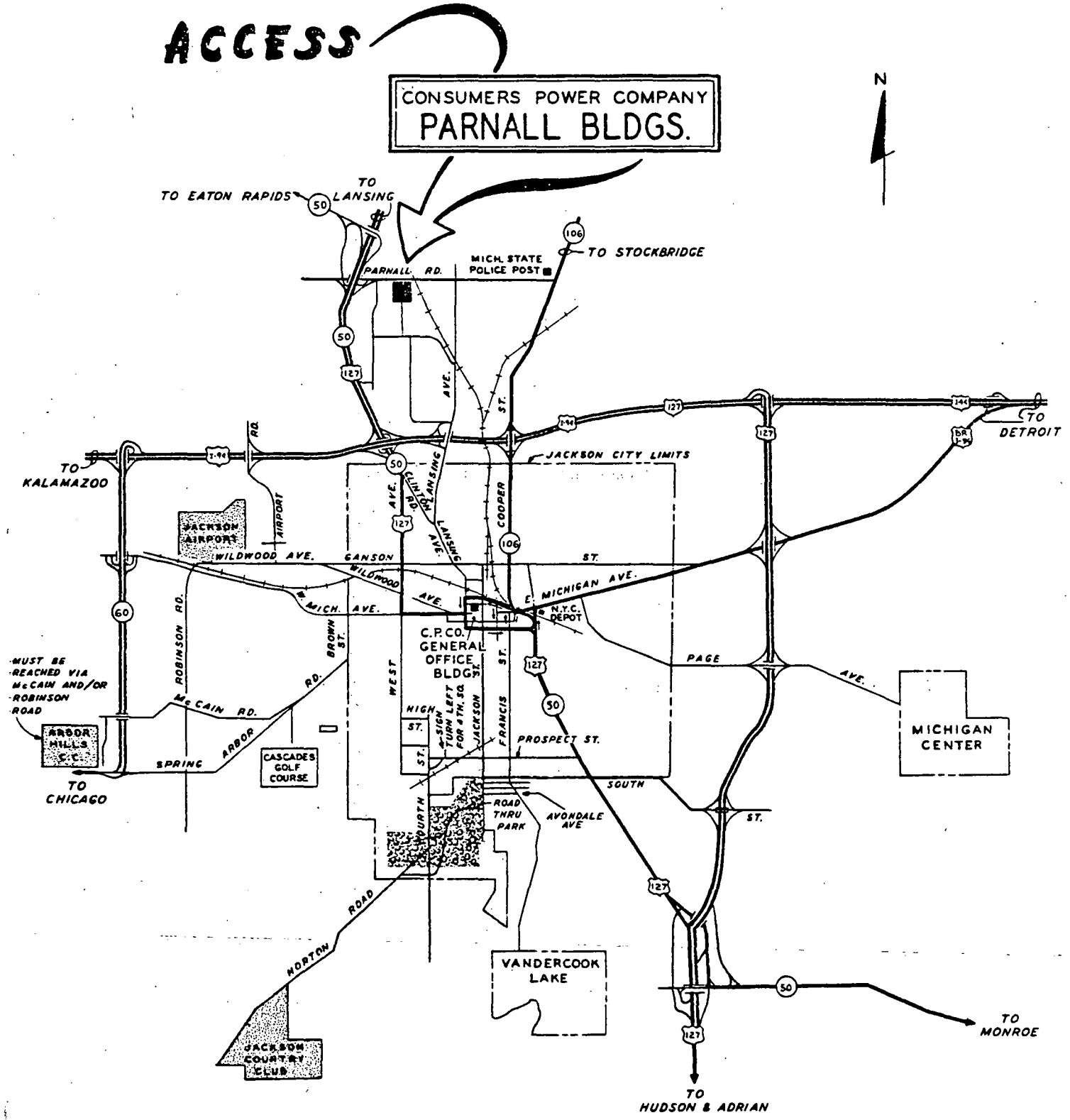
Each support team member, Control Center Director and group member shall:

1. Maintain familiarity with his duties in this procedure.
2. If neither at work nor at home upon becoming aware of a Site or General Emergency at a Consumers Power Company nuclear plant (eg, via the news media), call and provide a telephone number where he can be reached or report immediately to the General Office Control Center.

# ROUTES OF ACCESS

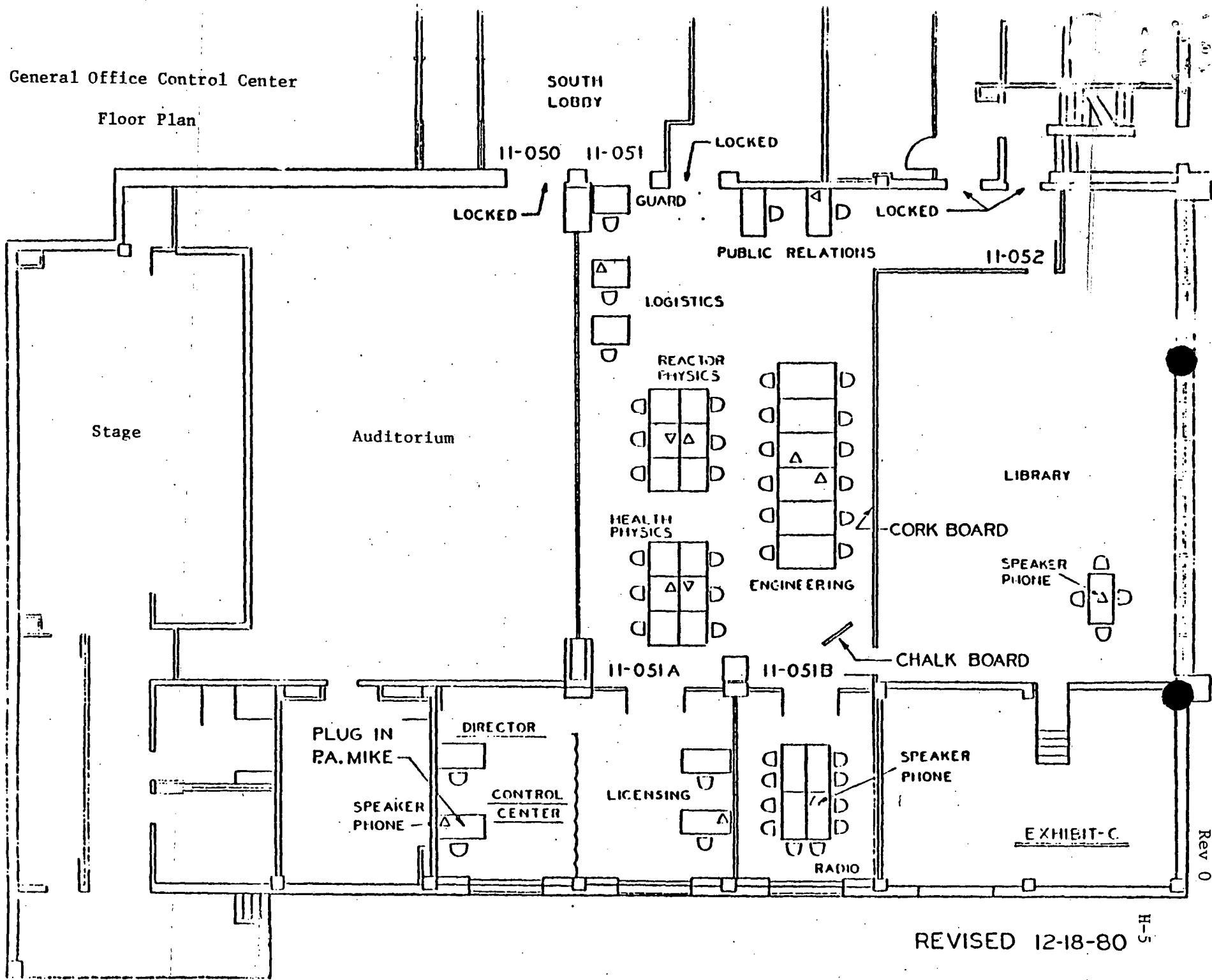
General Office Control Center

CONSUMERS POWER COMPANY  
PARNALL BLDGS.



General Office Control Center

Floor Plan



REVISED 12-18-80

H-5

Rev 0

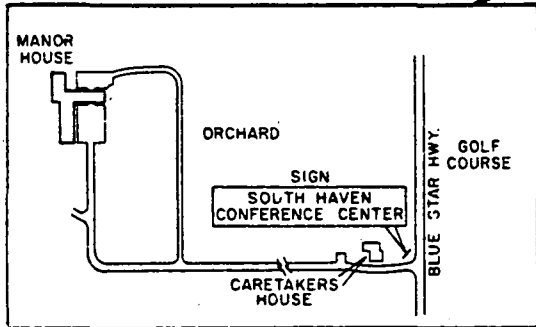
# ROUTES OF ACCESS TO

## South Haven Conference Center

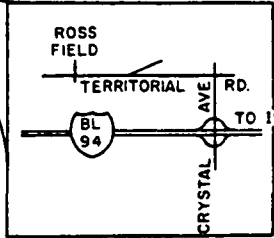
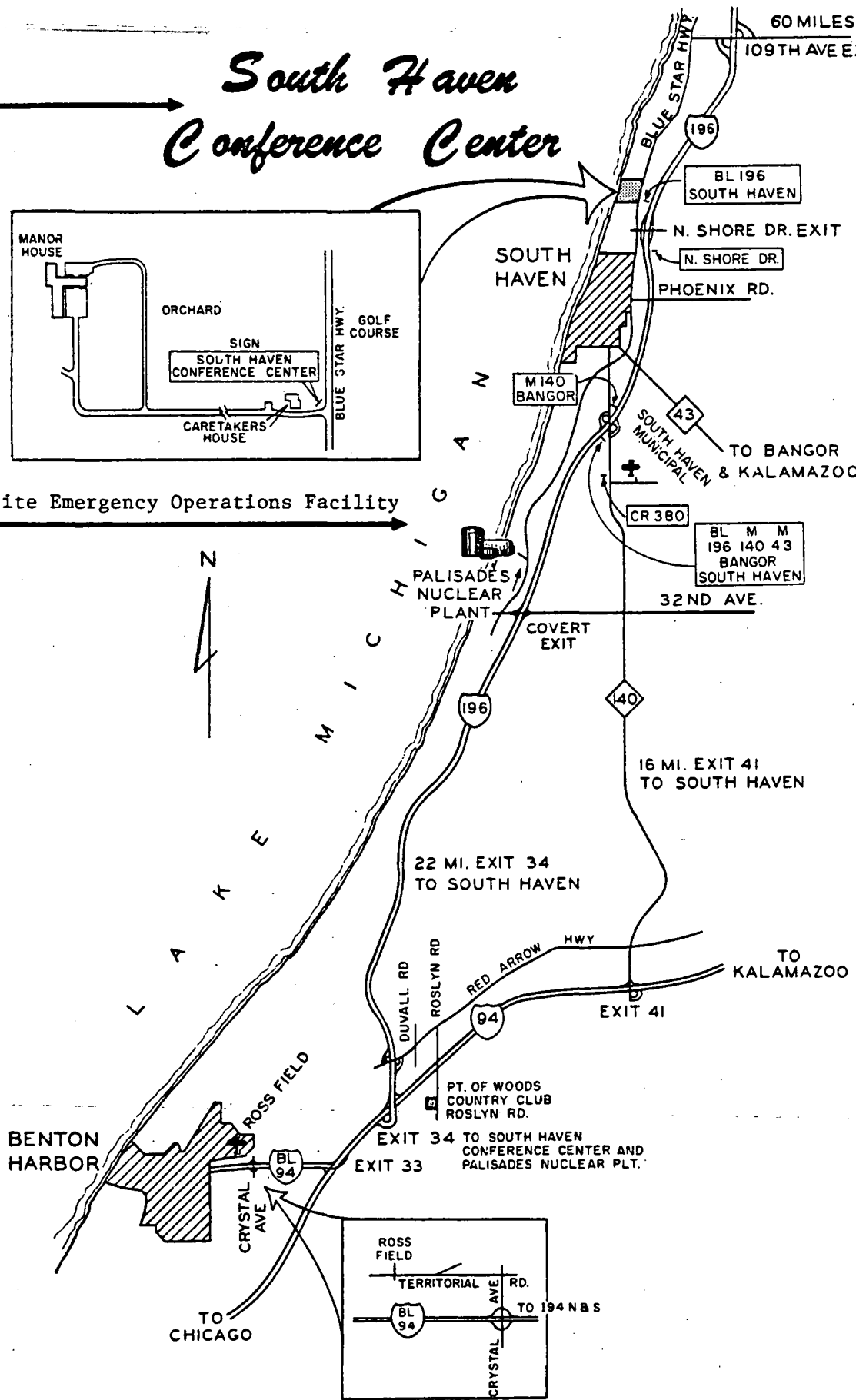
60 MILES TO GRAND RAPIDS

109TH AVE EXIT

and



Near-Site Emergency Operations Facility



# SOUTH HAVEN CONFERENCE CENTER

## Near-Site Emergency Operations Facility

