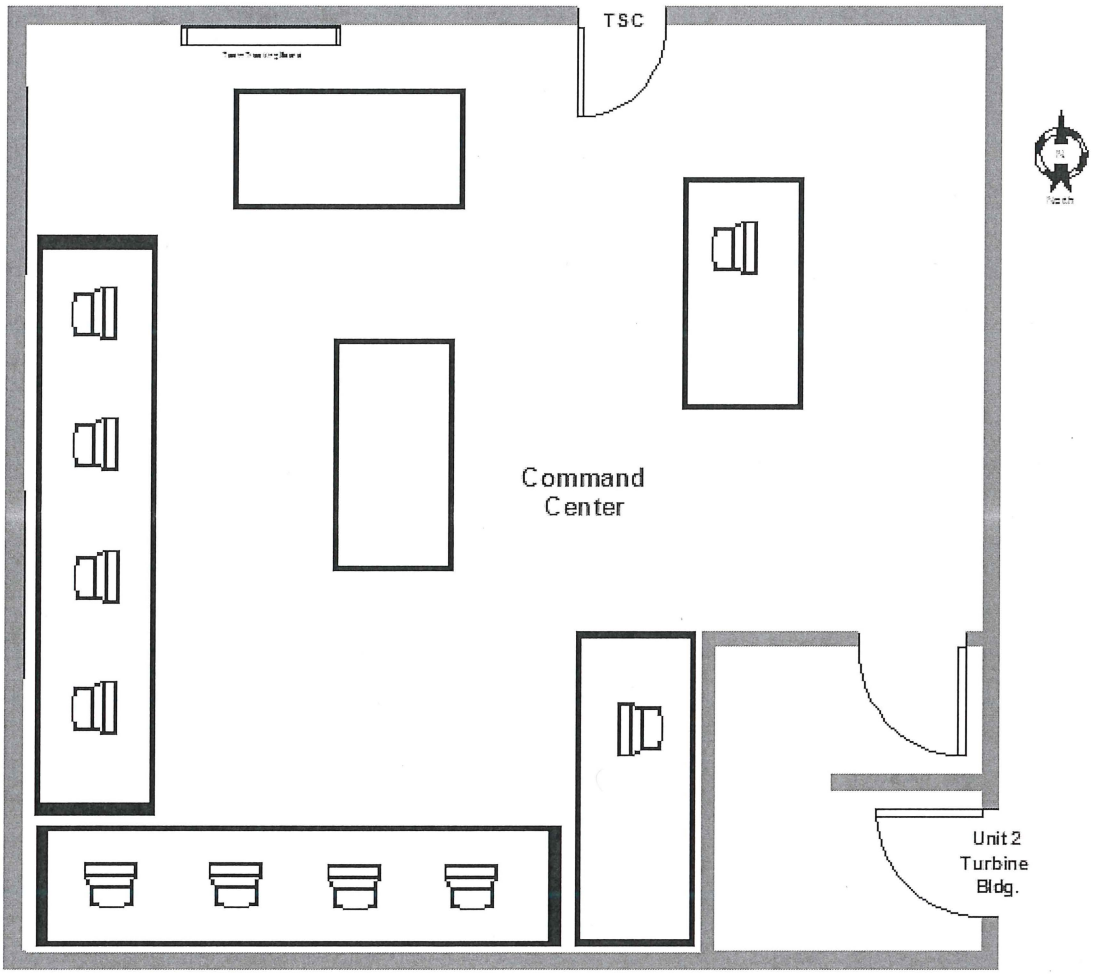
The general floor plan of the OSC command center is shown below.



7.1.5.2 Emergency Functions

Provides a location for staging and dispatching trained emergency workers for assignment to:

- Emergency maintenance, repair, and damage control.
- Firefighting, search and rescue, and first aid.
- Emergency sampling of plant fluids.

The OSC also functions as locations of selected emergency response equipment and provide facilities for personnel decontamination.

The OSC is intended to eliminate congestion in the Control Room and TSC. This area has a supervisor assigned in the emergency organization.

7.1.5.3 Habitability Objectives

The OSC command and assembly areas are not required to have special provisions for minimizing radiation exposure. Consequently, personnel in these areas may be evacuated under certain emergency situations. If evacuation were necessary, personnel required for emergency response would be relocated to another area. Personnel not immediately essential to the on-site response may be assembled in the Learning Services Building or released.

7.1.5.4 Emergency Equipment and Supplies

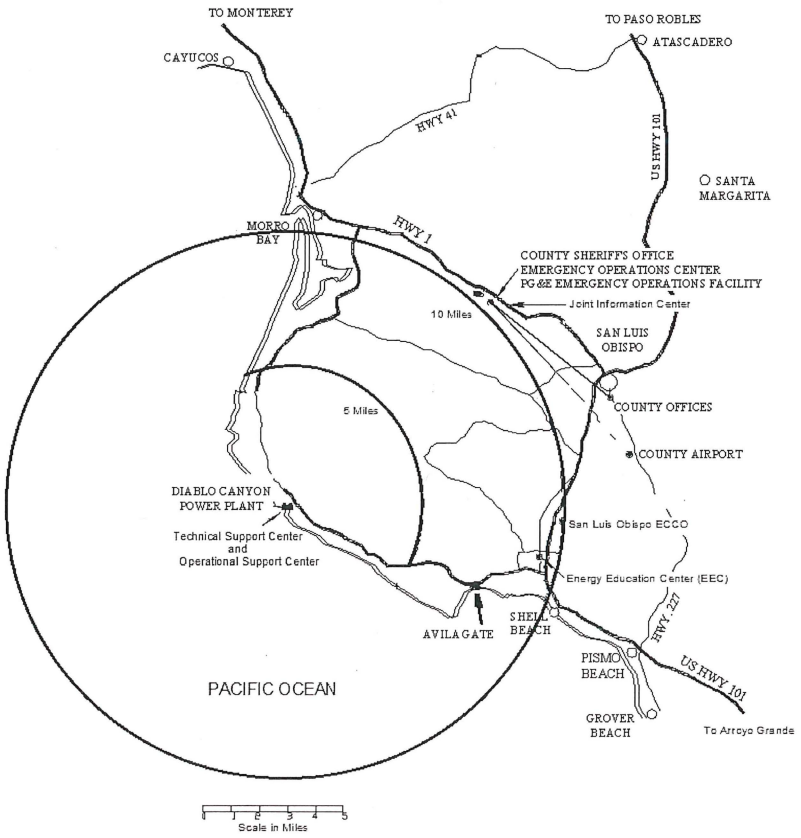
The OSC command center has a dedicated tie line to the TSC and Control Room and has a CBX telephone with emergency facility priority access to commercial telephone circuits. In addition, there is access to portable radio equipment.

The OSC has ample supplies of respiratory protection equipment, protective clothing, monitoring instruments and other emergency response equipment.

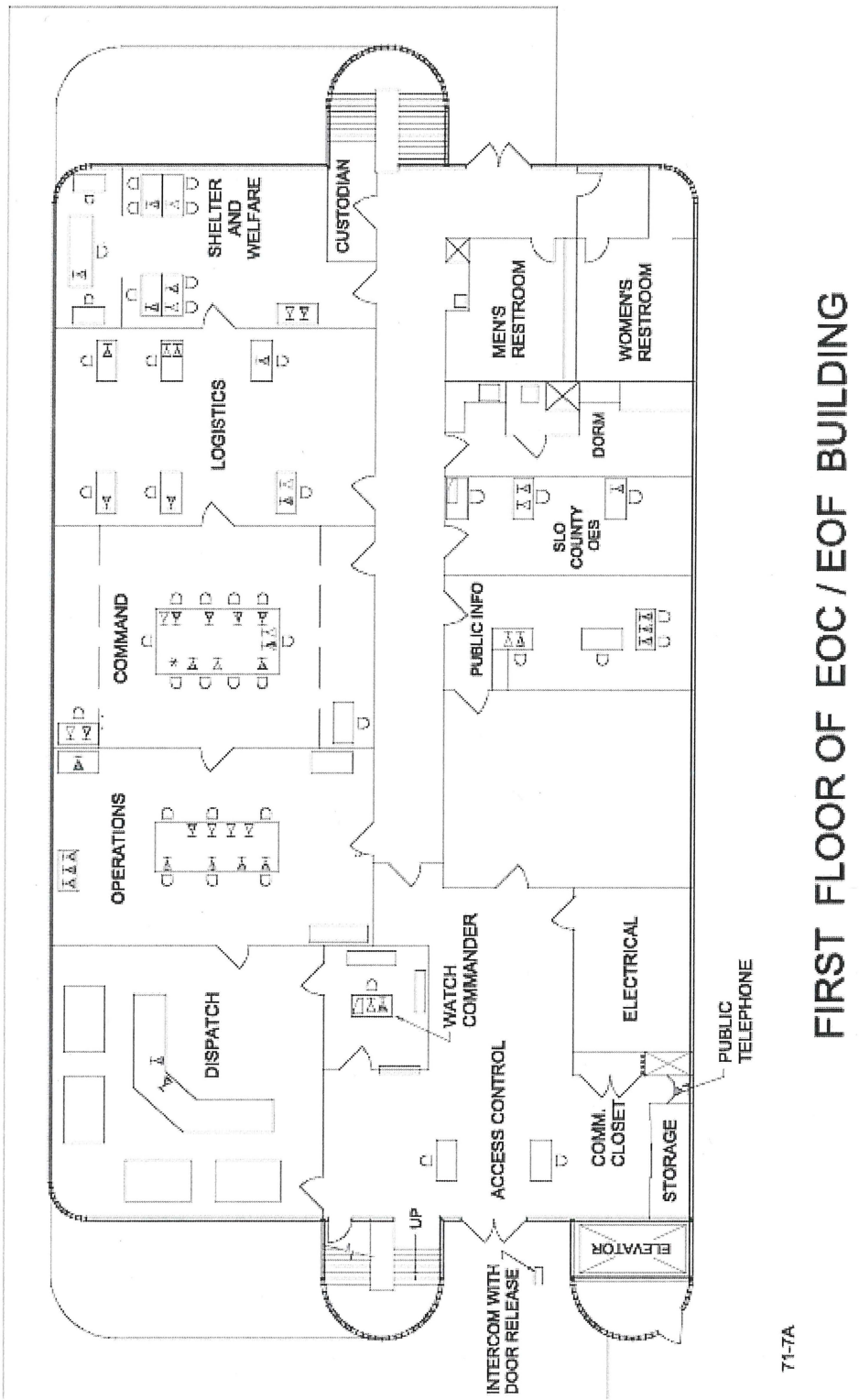
7.1.6 Emergency Operations Facility

7.1.6.1 Location and Description

The Emergency Operations Facility (EOF) and County Emergency Operations Center (EOC) are located approximately 11 miles northeast of the Diablo Canyon Power Plant. See figure below.

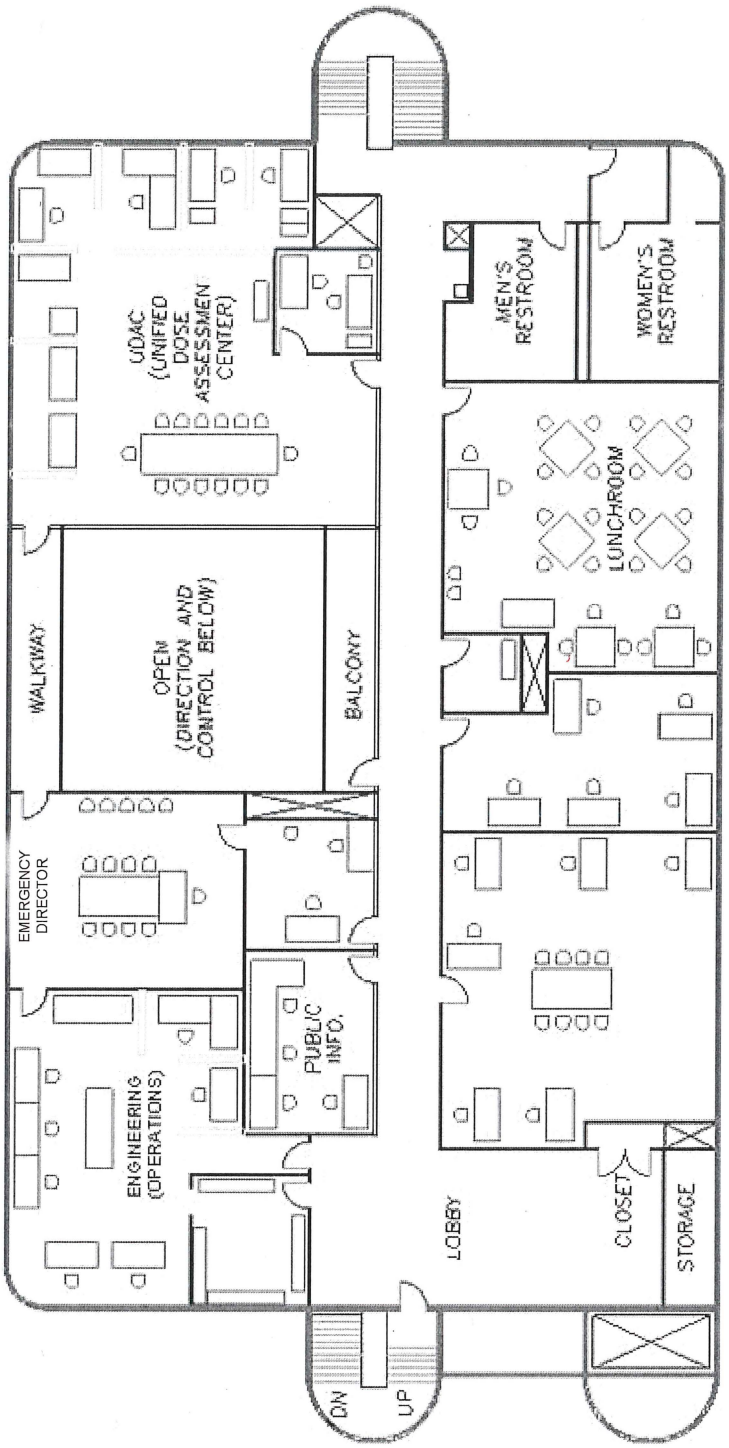


The San Luis Obispo County Sheriff's watch commander and dispatch center occupy this building on a 24-hour basis. The first floor of the building provides space for the County EOC, and the Sheriff's watch commander and dispatch center. See figure below.



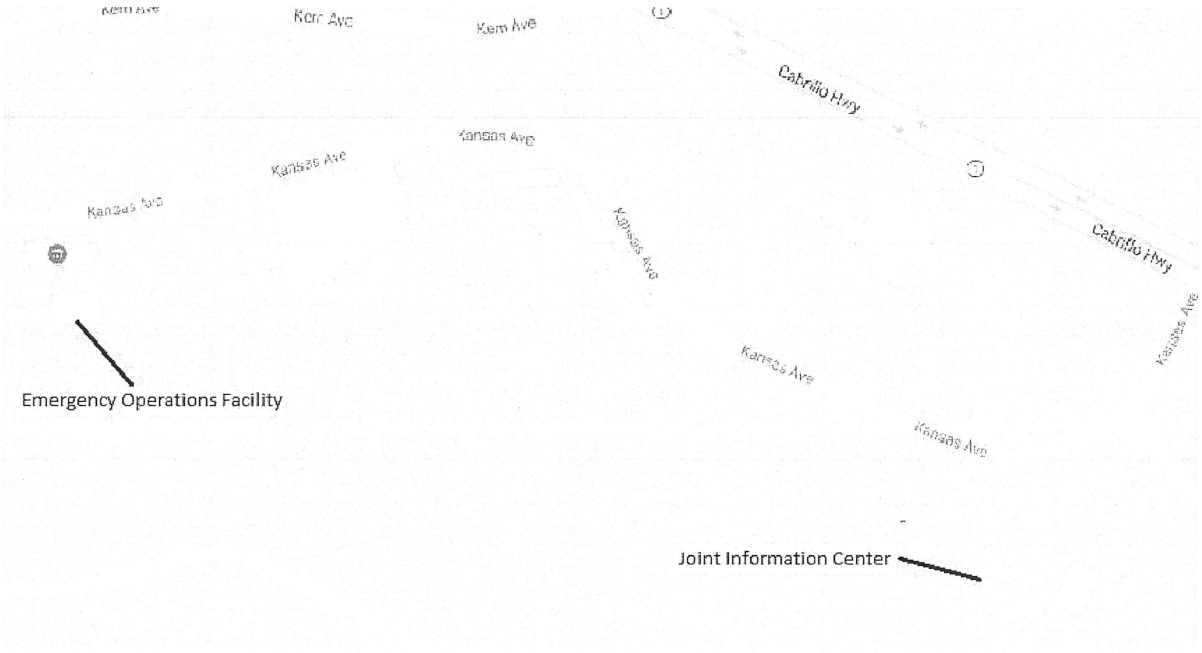
FIRST FLOOR OF EOC / EOF BUILDING

The second floor houses the EOF, the Unified Dose Assessment Center (UDAC) and office space for the State of California Office of Emergency Services (CA OES), the Nuclear Regulatory Commission (NRC), the Federal Emergency Management Agency (FEMA) and other responding Federal agencies. See figure below.



SECOND FLOOR OF EOC / EOF BUILDING

The Joint Information Center (JIC) off Highway 1 on Kansas Avenue is approximately 1/4 mile from the EOF. Utility and county public information personnel perform various functions from this facility. The JIC has a briefing room that includes office space for public information officers and a phone assistance center. See figure below.



7.1.6.2 Emergency Function

The EOF when activated serves as the headquarters for the Emergency Director, Advisor to the County and UDAC. The EOF acts as the interface between the Company/County, and the public. The Emergency Director and his staff utilize the EOF as their headquarters to provide overall direction of the recovery effort for Company response personnel for a declared emergency.

7.1.6.3 Habitability Objectives

The distance from the plant to the EOF, the very low frequency of winds in the direction from the site to this location, and the shielding and turbulence produced by the mountainous terrain between the two locations makes special habitability provisions unnecessary.

7.1.6.4 Special Equipment

The EOF is provided with extensive telephone and radio communications capability. Communication systems in the building are redundant and include microwave links to DCPP and the General Office.

The EOF is provided with computer monitors that can display plant parameters received by the Emergency Response Facility Data System (ERFDS). The ERFDS recall functionality is provided by the Transient Recorder System (TRS). The ERFDS data is available on at least two (2) display computers in the EOF.

The EOF is also a central controlling station for the Emergency Assessment and Response System (EARS) used for off-site dose assessment.

The EOF/EOC building is protected by a Wet Pipe Fire Sprinkler System.

Management coordination between the TSC, the EOF and EOC is assured by reliable telephone communications. Telephones at key locations in the EOF/EOC are equipped for building or area paging. Backup electrical power is supplied from a 100-kW diesel-fueled emergency generator.

Resource materials available in the EOF include:

- Plant procedures
- Emergency Plan and implementing procedures
- Maps with sectors indicated (10 and 50 miles)
- Air Sampler
- Portable Count Rate and Dose Rate Survey Instruments
- Plant electrical, piping and instrumentation drawings

The EOF is provided with a display terminal and printer for each unit's Plant Process Computer (PPC). This provides the ability to monitor and print plant parameters acquired by the PPC.

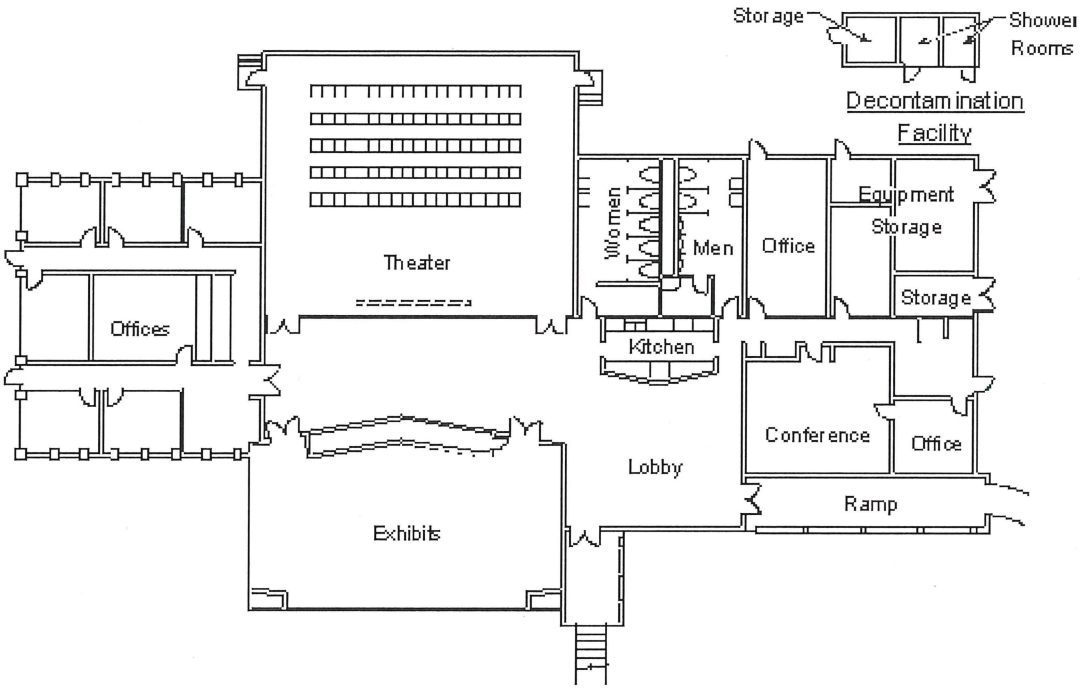
7.1.6.5 PG&E Corporate Interface

The Government Relations Coordinator has direct contact with the Company Incident Commander in the PG&E EOC and the Emergency Director in the EOF. The Government Relations Coordinator is provided with communications from the Company telephone system and WAN links to Diablo Canyon.

7.1.7 PG&E Energy Education Center

7.1.7.1 Location and Description

The PG&E Energy Education Center is located 12 road miles from DCPP in an ESE direction. The Energy Education Center is approximately 7,000 square feet. The floor plan of the Energy Education Center and adjacent decontamination shower facility is shown below.



7.1.7.2 Emergency Function

The Energy Education Center is the preferred location to gather on-site personnel in the event of a site evacuation, providing meteorological conditions permit. The Energy Education Center can also be used as a headquarters, staging area, and personnel decontamination center. Finally, the Energy Education Center is the first choice for a backup Emergency Operations Facility.

7.1.7.3 Habitability Objectives

No special provisions have been provided to enhance habitability for radiological emergencies. The Energy Education Center has lavatory and kitchen facilities.

7.1.7.4 Special Equipment

The Energy Education Center is provided with a base station emergency radio as well as PG&E and Public Switched Telephone Network (PSTN) telephones. It also has two decontamination showers and related supplies, including replacement clothing.

7.1.8 San Luis Obispo Service Center

7.1.8.1 Location and Description

The San Luis Obispo Service Center is located in San Luis Obispo approximately 10 miles east of Diablo Canyon. The Service Center serves as the local headquarters for the Los Padres division of PG&E. There is space for about 15 persons in the adjoining Division Emergency Center. Around the clock access to the San Luis Obispo Service Center is available.

7.1.8.2 Emergency Function

The San Luis Obispo Service Center is a back-up off-site assembly area in the event of a site evacuation. It could also be used as a backup location for the EOF. It also serves as the backup location for activating the Early Warning System EWS.

7.1.8.3 Habitability Objectives

No special provisions have been provided to enhance habitability for radiological emergencies. The San Luis Obispo Service Center has lavatory and limited kitchen facilities.

7.1.8.4 Special Equipment

The San Luis Obispo Service Center is provided with a base station emergency radio as well as PG&E and PSTN telephones.

7.2 COMMUNICATIONS EQUIPMENT

7.2.1 Plant Telephone Network

The Plant Telephone Network (PTN) is part of the Company owned and operated telecommunications system, which is used for routine inter-company communications. Any plant telephone on the company telephone network is capable of communicating with other company telephones, including other plant telephones located at on-site and off-site emergency response facilities. During an emergency, the PTN is the primary communication method for voice communications between emergency response facilities. Plant telephones are located at various locations throughout the plant, including the Control Room, Hot Shutdown panels, Security Building, laboratories, shops, Technical Support Center, Operational Support Center, Emergency Operations Facility, and other work and equipment operating areas. In addition, phone jacks are located in the Control Room and at other strategic operating locations throughout the plant. Each phone jack is associated with a telephone number, and when used in conjunction with a portable telephone unit, can communicate with any other telephone in the power plant as well as the company telephone network.

The PTN is configured to be a highly reliable independent system using a computerized private branch exchange (PBX) switching system to control servers (i.e., nodes) that are linked over two fiber optic network rings. The PTN is comprised of two primary nodes and two redundant secondary nodes that are each capable of controlling the entire PBX network if a control server in the network fails. The fiber optic rings are independent from the plant computer local area network (LAN) and provide two separate redundant paths in the event that one section of network is inoperable.

Telephone calls to and from the PTN are processed via tie trunks over two independent transmission systems. The first link is between the PTN and the company telephone network via a public switched telephone network (PSTN). The other link is via the company-owned and operated microwave system. In addition to these trunks, additional one-way tie trunks are provided to the PBX in the San Francisco Corporate Headquarters. These trunks provide direct dial access to the corporate telephone exchange, bypassing the normal dial traffic, and can be accessed only by high priority telephones. The trunks ensure calls by high-priority telephones can be made to selected Corporate Offices as well as providing an alternate access to the PSTN through San Francisco should the local PSTN Exchange in San Luis Obispo be congested. Also, off-premise extensions (i.e., plant telephones physically located off-site) located in the Corporate Offices provide unrestricted access to the plant PBX excluding the necessity of operating through the PBX in San Francisco.

The PTN has several built in conference call features to allow multiple callers to be connected to the same phone call. One such line is set aside for emergency use and is normally initiated following the sounding of the emergency signal or the fire alarm. Numerous personnel who pick up a company phone and dial a special conference call number will be included in the call.

There will be an available telephone line at the ISFSI to report any emergencies. During cask handling and transportation both security and operations personnel are present with plant radio systems. During normal storage conditions security in the vicinity of the ISFSI is equipped with plant radio systems.

7.2.2 Communication Interface with Public Switched Telephone Network (PSTN)

The DCPP Emergency Response Facilities are served by two trunk groups, the Administrative and Emergency.

The PTN has direct inward dial lines which allow direct access to plant extensions from the PSTN. These lines come in via two separate paths for redundancy. All service from the PSTN to the PTN is distributed among the two PBX nodes. Separate PSTN lines come into the plant for operational use. One line is mounted on the Senior Control Operator's desk in the Control Room to call out from the Control Room in an emergency. This number is unlisted to assure it will not be tied up. A second line runs to the site vice president's office, a third line to the Security Supervisor's office, a fourth line is dedicated to the Central Alarm Station (CAS) and the fifth goes to the Secondary Alarm Station (SAS).

7.2.3 Power Supplies

Power is provided by a battery charger where the charger supplies the load and float current for the batteries. The AC for the chargers for the primary and backup telephone system servers located in the Unit 1 communications room are supplied from redundant sources. The AC for the chargers for the primary and backup telephone system servers located in the Building 102 communications room are supplied from a single source. The battery chargers are load-sharing units. The mountain top repeater for the microwave systems are DC powered, employing AC powered battery chargers with batteries which float on the line. An automatic emergency generator at each repeater site supplies the charger if normal AC power is lost.

7.2.4 Control Room Telephone Communication

Numerous phone lines link the Control Room to the plant PBX nodes for redundancy.

In addition, there are several special provisions including:

1) Dedicated dispatch lines that link the Control Room to the Company San Francisco General Office.

2) Dedicated tie lines go from the Control Room and (TSC) Technical Support Center to NRC Headquarters in Bethesda, Maryland (NRC FTS telephone), California Office of Emergency Services (CA OES) located in Sacramento, the Emergency Operations Facility (EOF) and the Sheriff's Department in San Luis Obispo. In addition, there are dedicated tie lines from the Operational Support Center (OSC) and the TSC to the Control Room.

7.2.5 Telephone Communications for the Technical Support Center (TSC)

The TSC has numerous phone lines to the plant PBX network. Additional telephone communications for the TSC are provided by a PBX Attendant Console. From this console, all incoming calls to the plant emergency phone number can be answered and/or transferred to personnel designated for response. The console can also be used to obtain an outgoing trunk line for use by the TSC. The Attendant's Console will normally be shut-off except during an emergency.

The TSC has dedicated lines to the Control Room, Operational Support Center, Emergency Operations Facility, the San Luis Obispo County Sheriff's Department and the California Office of Emergency Services (CA OES). The TSC also has a standard unlisted telephone from the NRC FTS telephone system. This telephone provides direct access to an off-site location in the event the Company exchange system is not available.

7.2.6 Operational Support Center Telephone Communications

The Operational Support Center (OSC) has a PBX line and a dedicated auto-tie line to the Control Room and the TSC. In addition, the OSC has access to several telephone extensions installed for routine use.

7.2.7 Telephone Communication at the Emergency Operations Facility (EOF)

The Emergency Operations Facility (EOF) and County Emergency Operations Center (EOC) are co-located near the San Luis Obispo County Sheriff's Department. Included in the building is the County Sheriff's Dispatch Center, which has a dedicated tie line to the Control Room and TSC. This circuit is a common circuit to all these locations and can be accessed from each end.

There is an Off Premise Extension (OPX), in the EOC Command Center. This extension provides unrestricted access to the power plant, via company owned microwave paths, should the local PSTN be congested.

Communication circuits for the EOF include telephone lines from the power plant exchange and additional unlisted telephone lines from the PSTN Network. The NRC FTS telephone lines also tie into the EOF.

Communications between the plant and French Hospital, San Luis Obispo, can be channeled through the EOF. Normal communications will be via commercial telephone. Portable radios may also be used for emergency communications between French Hospital the Plant and EOF.

7.2.8 Data Communication System

The data communication system contains many dedicated circuits that are used in collecting and distributing information. The data network is divided into four areas: 1) records management, 2) time-share operation, 3) operational computer, and 4) health physics.

The majority of the data links radiate from the TSC, which has connectivity to the PG&E LAN/WAN for distribution to many locations in the PG&E network including the PG&E General Office in San Francisco and the EOF.

7.2.9 Nuclear Regulatory Commission Communication Lines

The Nuclear Regulatory Commission (NRC) installed a dedicated telephone system for their use at Diablo Canyon Power Plant.

This system, the Federal Telecommunications System (FTS), provides a separate government network for all the essential communications functions anticipated during an emergency. These essential functions are summarized as follows:

1) Emergency Notification System (ENS): Initial notification by the licensee, as well as ongoing information on plant systems, status, and parameters. The ENS telephones are located in the TSC, Control Room, and EOF.

2) Health Physics Network (HPN): Communication with the licensee on radiological conditions (in-plant and off-site) and meteorological conditions, as well as their assessments of trends and need for protective measures on-site and off-site. The HPN telephones are located in the TSC and EOF.

3) Reactor Safety Counterpart Link (RSCL): This is the channel by which the NRC Operations Center supports NRC reactor safety personnel at the site. In addition, this link may be also used for discussion between the Reactor Safety Team Director and licensee plant management at the site. The RSCL telephones are located in the TSC and EOF.

4) Protective Measures Counterpart Link (PMCL): This is the channel by which the NRC Operations Center supports NRC protective measures personnel at the site. In addition, this link may also be used for discussion between the Protective Measures Team Director and licensee plant management at the site. The PMCL telephones are located in the TSC and EOF.

5) Management Counterpart Link (MCL): Established for any internal discussions between the Executive Team Director or Executive Team members and the NRC Director of Site Operations or top-level licensee management at the site. The MCL telephone is located in the EOF.

6) Local Area Network (LAN) Access: Established for access to any of the products or services provided on the Operations Center's local area network. This includes technical projections, press releases, status reports, E-Mail, and various computerized analytical tools. The LAN line is located in the EOF.

7) Emergency Response Data System (ERDS): The ERDS application transmits plant data to the NRC during emergencies. This application runs on the redundant DMZ servers and is activated via remote login. The ERDS application connects to an NRC provided and owned Virtual Private Network (VPN) device via the redundant PDN firewall, the DCPP LAN and the PG&E LAN. Upon activation, ERDS transmits specific plant accident parameters as encrypted data to the NRC Emergency Response Center via the secure internet VPN connection.

7.2.10 Satellite Telephones

Satellite telephones are available for use for intercommunications between emergency response facilities, along with communicating to Field Monitoring Teams.

7.2.11 UHF and VHF Radio System

7.2.11.1 General

The plant has several voice radio systems available for emergency response use in the UHF (Ultrahigh Frequency) and the VHF (Very High Frequency) radio-frequency bands. In the shorter range UHF band, the plant has voice channels available for Plant Operations and Security use, so that personnel from each department can simultaneously utilize radio communications to perform their duties without interfering with or being interfered with by each other.

The Plant can also communicate by voice radio on VHF channels assigned for Marine use and VHF Aeronautical channel (122.9 MHz). A channel is also available for use by CAL FIRE/County Fire for firefighting.

7.2.11.2 Plant UHF Radio Systems

The DCPP UHF radio systems can maintain point-to-point communications between the Control Room, the San Luis Obispo Service Center, the PG&E Energy Education Center, the Port San Luis Gate, the San Luis Obispo County Sheriff's Dispatch Center, Technical Support Center, the Emergency Operations Facility, the Security Department, in addition to satellite telephones. Field Monitoring Teams have mobile radios and hand-held radios available for communication to the Emergency Operations Facility using the County Brown radio network.

The plant UHF radio system provides direct radio unit to radio unit usage around the Diablo Canyon site and between emergency response facilities which is independent of the telephone systems. The base station receivers located at the Emergency Operations Center, the PG&E Energy Education Center and San Luis Obispo Service Center are equipped for selective calling. The normally silenced receivers may be selectively keyed by the plant Control Room, TSC, or County EOC. This feature may be cut out on the base station receivers to permit continuous, unrestricted monitoring of all units during emergency situations.

The Communications Room base stations are powered from battery backed DC power supplies which are fed from plant vital AC power. The radio system power supply is independent of all other non-vital 48 VDC fed equipment in the room.

Control consoles for this system are located in the Control Room, Technical Support Center, and Emergency Operations Facility.

Additionally, in-plant antenna arrays on radio systems make portable radio communications possible throughout the plant.

7.2.11.3 VHF Systems

The VHF radio system is the Company's Los Padres District Commercial operating network that covers from King City in the north to Solvang in the south. District Company radio-equipped vehicles within the district are normally dispatched by one of the several base stations in this network. The Control Room, TSC, and EOF are equipped with VHF radio consoles that can also be used for dispatch.

7.2.12 Joint Information Center

Telephone service for the Joint Information Center is provided primarily by the PSTN Company with some service from the PG&E network.

7.2.13 News Services Office San Francisco

Telephone service in the News Services Office in San Francisco is provided primarily by the PSTN Company.

7.3 ON-SITE SIGNALS AND ALARMS

Several signals and alarms are provided to alert plant personnel to a possible emergency situation. These include:

7.3.1 Site Emergency Signal

The site emergency signal is a very loud sound produced by electronic warblers placed at numerous locations throughout the plant. The site emergency signal and containment evacuation signal are the only plant signals that are produced by an electronic warbler. The site emergency signal sound is a rapid rise in pitch followed by a slower drop. The cycle repeats itself as long as the signal is energized.

The site emergency signal is initiated manually by the Control Room Operator. Control switches are provided at the Control Room Consoles and the Hot Shutdown Panels for Units 1 and 2. Once initiated, the signal will continue until it is manually turned off.

Due to high background noise levels, flashing red lights as well as a warbler are included in the containment buildings and in some locations of the turbine and auxiliary buildings.

The response of on-site personnel to the site emergency signal, other signals and alarms is discussed in Section 6 of the Emergency Plan.

7.3.2 Fire Signal

The fire signal is produced by sirens placed at numerous locations throughout the plant. The fire signal is a steady tone for thirty seconds.

The fire signal may be initiated from any PG&E dial telephone in the plant. A three-digit number is dialed to actuate the signal. The caller is routed to the Control Room where the Unit 1 operator can filter the call and verify the need to sound the Fire Signal. If the operator is delayed from answering, the caller will route to the Emergency Bridge after four rings. The Fire Signal is actuated as soon as the call enters the Bridge and sounds for 30 seconds.

The bridge has multiple ports on the initiation side that will allow multiple callers the ability to report a fire or other emergency. The answer side of the bridge has multiple ports so that Operations, Fire and Medical personnel can listen in to see if they need to respond to the fire/emergency.

7.3.3 Criticality Monitor Signal

The criticality monitors are area monitors over the spent fuel pool and the new fuel storage area. These instruments generate an evacuation signal if radiation levels exceed the setpoint value.

The criticality monitor signal consists of horns mounted so that they are audible throughout the fuel handling building and in the hot shop area as well as flashing red lights which are mounted near the doors to the fuel handling building on the +85', +91', and +115' elevations. Flashing red lights over the doors in the hot shop indicate which fuel handling building has been alarmed. Units 1 and 2 have similar systems.

7.3.4 Containment Evacuation Signal

The containment evacuation signal utilizes the same signaling equipment within the containment as is used for the site emergency signal. The electronic warbler on the +140' elevation and flashing red lights on the +91' and +115' elevations are utilized. In addition, a flashing red light is located at the entrance to each personnel airlock.

The containment evacuation alarm is manually actuated from the control console, or from switches mounted in the containment by each airlock. This signal is independent for each unit. The containment evacuation alarm will continue until manually reset in the Control Room.

7.4 OFF-SITE EARLY WARNING SYSTEM

An Early Warning System (EWS) is installed to provide prompt alerting of the public in the event of a major emergency at Diablo Canyon Power Plant. The EWS, used in conjunction with radio and TV broadcasts, allows instructions, information, and necessary actions to be immediately communicated to the general public.

The EWS is designed to meet the requirements of NUREG-0654/FEMA-REP-1 and employs guidelines set forth in FEMA REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants."

The EWS design objective specified in Appendix 3 of NUREG-0654 is to provide an alert signal within 15 minutes. This signal is initiated in conjunction with broadcasts providing notification and informational or instructional messages to the population on an area-wide basis throughout the NRC minimum ten-mile radius EPZ. The initial alerting system is designed to assure direct coverage of essentially 100 percent of the population within five miles of the plant site. The SLO County/Cities Nuclear Power Plant Emergency Response Plan provides arrangements to assure 100 percent coverage of the population within the NRC designated plume exposure EPZ.

7.4.1 Outdoor Warning

The portion of the EWS providing initial outdoor alerting for the public to turn on their radios consists primarily of a siren system. Alerting provisions for groups that require special contact arrangements and for craft-at-sea are included in the SLO County/Cities Nuclear Power Plant Emergency Response Plan.

The approach taken in designing the siren system is based on the criteria set forth in documents noted above and on substantial practical field experience by the manufacturer. Because of the many factors that can greatly alter sound propagation from a warning device toward a potential listener, the design criteria set forth in the documents identified above are conservative in theoretical terms.

The system employs several siren sizes to attain the desired coverage. Choice of smaller sirens is often dictated by terrain or sparsely populated or isolated areas.

The number of sirens employed in the system was determined by choosing the siren providing the desired radius of coverage deemed necessary to achieve an adequate dissonant alerting signal level.

7.4.2 Indoor Warning

Large groups of people may be gathered together inside structures. Such structures may preclude detection of the warning provided by the outdoor warning system or may present particular response problems. The Emergency Alert System (EAS) is the primary means of providing indoor warning to residents of the DCPP Emergency Planning Zone.

San Luis Obispo Country also has approximately 100 tone alert monitor receivers in schools, hospitals, special care facilities, and other institutions to alert them with special instructions. No tone alert monitor receivers are distributed to residential members of the public. Control consoles for activation of these receivers are located in the Sheriff's Dispatch Center in the EOC/EOF Building.

Pagers have been assigned to key county emergency response personnel including governmental officials and to members of the Environmental Health field monitoring teams. The pagers are activated from the Sheriff's Dispatch Center or via any telephone system.

7.4.3 Early Warning System-Area of Coverage

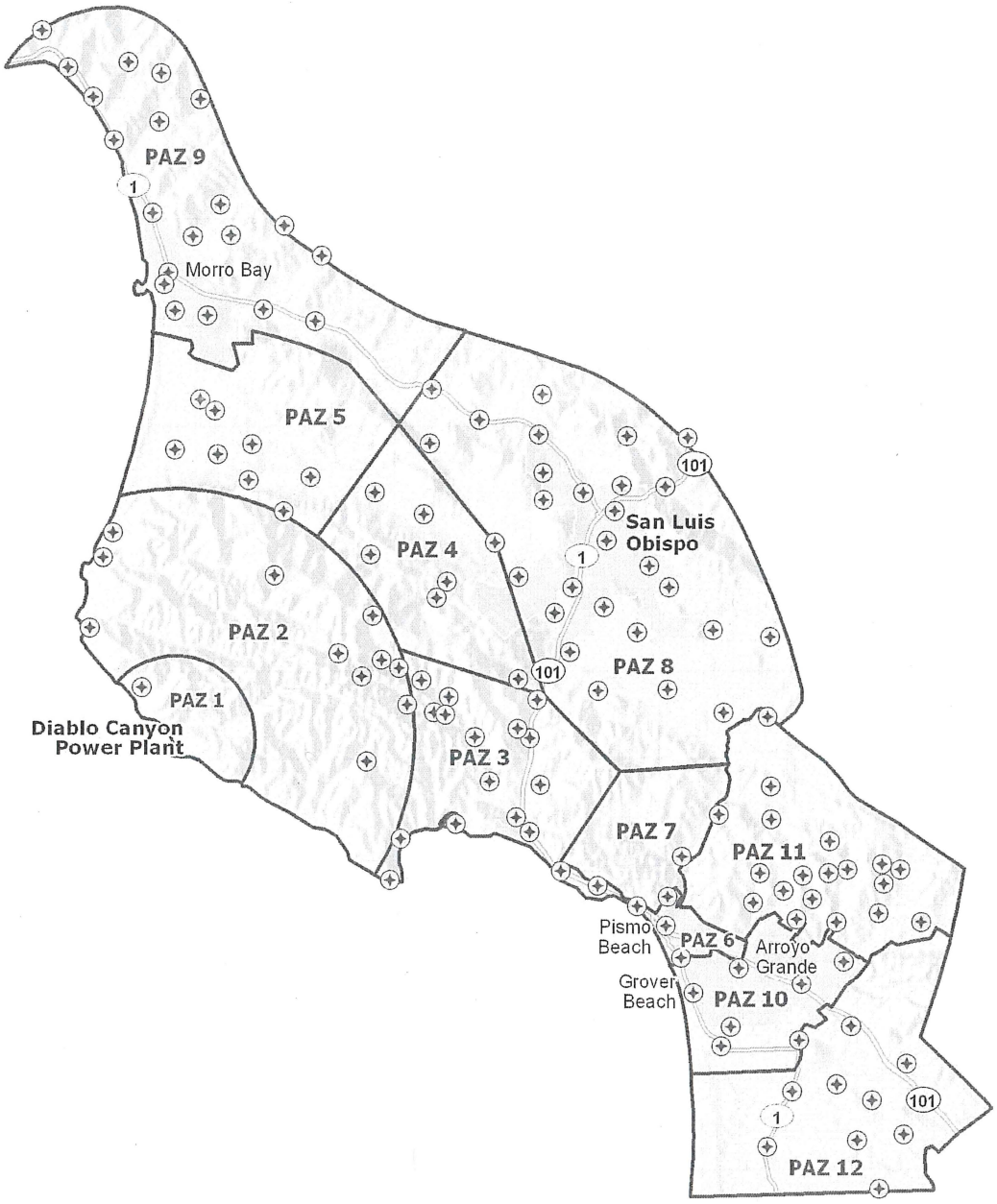
The coverage area of the EWS has been extended beyond the ten-mile radius to include the approximately 18 miles north and 22 miles south of the plant. The design coverage objective is based on the following assumptions:

1) All populated areas within the outdoor siren coverage range will be alerted with a 60 dB or greater siren signal.

2) All public institutions and business operations will have and use means for communicating specific instructions to their personnel when they hear the siren signal.

   The large area within the five-mile radius of the plant has limited siren sites since it is rugged wilderness and, largely, inaccessible to the public. A portion is identified as a state park with jeep trails. The County Emergency Plan provides special notification arrangements in this area.

There are 131 area sirens of various sizes used in the EWS. The siren locations and approximate areas of coverage are illustrated below.



7.4.4 Siren Location

The location of each siren was determined in accordance with ambient noise measurements and other considerations.

A site survey to measure ambient noise levels was made in the general area of each proposed siren site. These measurements, the topography, the terrain coverage and the population density formed the basis for choosing the siren setting. A substantial portion of the population covered by each siren will be in a sound field that is 10 dB above the average daytime ambient background noise. Each siren site was chosen to minimize the biological, cultural and human impacts consistent with proper acoustic coverage.

7.4.5 Early Warning System Activation

The EWS sirens are activated by a Supervisory Control and Data Acquisition (SCADA) control system with primary and backup activation centers. San Luis Obispo County Emergency Operations Center personnel are responsible for system activation. The SCADA control system sends commands to and receives data from the sirens via radio signals from radio base stations such as Tassajera, Black Butte, Davis Peak, and Arroyo Grande Hill. Most of the sirens can be reached from at least two of the base stations.

The SLO County Sheriff Watch Commander, is responsible for EWS activation upon authorization as described in the SLO County/Cities Nuclear Power Plant Emergency Response Plan. The sirens can be activated simultaneously, individually or in designated groups. Security provisions against inadvertent operation of the EWS are built into the SCADA control system.

Should any siren fail to activate, physical means for backup alert and notification are available as described in the FEMA approved alert and notification design report.

7.5 ON-SITE ASSESSMENT SYSTEMS AND EQUIPMENT

7.5.1 Seismic Monitoring System (SMS)

In the event of an earthquake, the mitigating actions required are determined by the magnitude of the earthquake. The seismic instrumentation, as described in Section 3 of the FSAR, includes the equipment used as the primary means for timely determination of the magnitude of an earthquake. Emergency classification is based on the earthquake magnitude displayed on the Earthquake Force Monitor (EFM) located in the control room. In the event of an earthquake measuring greater than 0.01 g on the acceleration recorder at 89' elevation of the Unit 1 containment structure, or on the free-field acceleration recorder located north of Unit 1 containment, an annunciator will alert the control room operators and peak ground acceleration (g) values from the seismic monitors will be displayed on the EFM. The Unit 1 acceleration recorders represent on-site ground motion for both Units 1 and 2.

7.5.2 Meteorological Systems

7.5.2.1 Measurement Systems

As shown in FSAR Figure 2.3-4, there are two meteorological (Met) towers located on-site and seven supplemental Met towers that are located off-site within the vicinity of the plant. The seven supplemental (10-meter) Met towers (Pt. Buchon, Los Osos, Foothill, Service Center, Information Center, Grover Beach, and Davis Peak) have meteorological instrumentation run exclusively for DCPP by PG&E. In addition, two other off-site Met locations (Templeton and Santa Maria) are run by PG&E for other projects, but have data available for emergency response. Also available are two 10-meter tower sites (Morro Bay and Grover Beach) that are operated by the San Luis Obispo County Air Pollution Control District and the aviation weather observations at the county airport.

The seven supplemental PG&E surface (10-meter) Met towers provide consecutive 15-minute averages of wind speed, wind direction and wind direction standard deviation (sigma theta) based on a 1-2 second sampling interval. The APCD 10-meter sites provide hourly averages of wind speed and direction based on a 1-second sampling interval at Grover Beach and Morro Bay. The Weather Service/Airport site provides standard airways sequence data. All data from the PG&E sites are available in real time at the EOF by PG&E Wide Area Network and dial-up modem.

Site meteorological conditions are monitored continuously by the two on-site meteorological towers that are in close proximity to the plant structures. A primary 76-meter tower system is located about 200 meters SSW of the plant structures. Measurements have been taken and used from this site since July 1967. The following data are provided:

- Wind speed, wind direction, wind direction standard deviation at the 10-meter and 76-meter levels
- Temperature at 10-meters, 46-meters, and 76-meters
- Temperature difference (delta T) between 10-meter and 46-meter and between 10-meter and 76-meter levels
- Precipitation and dew point near the tower base
- 10-meter, 46-meter and 76-meter aspirator frequency

Meteorological data at the primary site is recorded continuously on a multi-point recorder and digitized electronically at least once every two-seconds. A primary meteorological digital processor is located in the primary meteorological facility that communicates data to redundant meteorological computers located in the Technical Support Center (TSC) (FSAR 2.3.4). Fifteen-minute mean values are computed from the transmitted data by the TSC meteorological computers.

The redundant TSC meteorological computers provide data to redundant meteorological data servers which provide Unit 1 & 2 network communication of the 15 minute values to the Plant Data Network (PDN), the Emergency Assessment and Response System (EARS), the Plant Process Computers (PPC) and select meteorological parameters to the Emergency Response Data System (ERDS). The meteorological data are also available to the Emergency Operations Facility and the Technical Support Center via EARS, PPC, and the PDN Server.

Thirty (30) days of the most recent 15 minute mean values are archived and is maintained on-line for ready access at all times on the EARS computer in the TSC on both the Unit 1 and Unit 2 PPCs. Archives are made approximately every 2 weeks so data from December, 1993 on will always be available.

A backup 60-meter tower system is located about 1.2 KM ESE of the primary tower with two levels of measurement at 10-meters and 60-meters. Measurement, reduction, storage, recording and transmission of backup tower data are continuous with and similar to that of the primary system. The backup Met system measures (FSAR 2.3.4):

- Aspirator frequency.
- Battery condition.
- Temperature difference (delta T) between 10-meter and 60-meter.

It does not measure temperature at the intermediate level and the measurement of precipitation and dew point are available only at the primary site.

A backup meteorological digital processor is located in the backup meteorological facility that communicates data to redundant meteorological computers located in the TSC (FSAR 2.3.4). Failure of either the primary or backup systems will be shown on both the Unit 1 and Unit 2 PPC alarm screens and alarm printers. Power for the primary system is derived from the Unit 1 480 volt non vital bus with automatic switching in the event of failure to the Unit 2 480 volt bus. The primary microprocessor and meteorological sensors are backed up by an 8-hour battery source. The backup meteorological system is supplied AC power from the underground 12kV startup bus with backup power in the form of a one-week battery source.

In the event of failure of both the primary and backup electronic measurement systems, a portable weather instrumentation package is available for deployment. This instrumentation package is battery powered for independent operation and provides recording of wind speed, wind direction and ambient temperature, which can be used to estimate off-site effects through manual calculation procedures in the event of failure of the automated assessment process. Should its use be required, X/Q would be determined by using wind speed and a stability category based on wind direction range. (See App. 2.3l of Reference 3)

These measurement systems have been upgraded continually and currently satisfy all requirements of NUREG-0737, NUREG-0654 and Regulatory Guide 1.23 of the NRC.

7.5.2.2 Modeling Systems

Dispersion modeling software is operational on the Meteorological tower on-site computer systems to provide required inputs to the Dose Calculation Methodology. The model in use is consistent with characteristics of a Class A model as required by NUREG-0654 and 0737. Normalized ground level plume centerline concentration (dilution) values (X/Q) are computed by the model as 15-minute means for ten downwind distances ranging from 0.8 to 100 kilometers. Lateral and vertical plume dimension (sigma y and sigma z) are also provided for each of the same downwind distances. Concentration and plume dimension data generated by the model provide the necessary relationships between effluent monitor readings and off-site exposure and contamination levels. These data are distributed to recipients in the same manner specified earlier for meteorological measurement data.

Additional details on the meteorological measurement and modeling systems are provided in Section 2.3 of Reference 3.

7.5.3 Area Radiation Monitoring System

The area radiation monitoring system is a system of permanently installed radiation monitoring detectors located throughout the plant. Monitors and locations are listed below. The purpose is to measure the ambient radiation level in each monitored area. Such information is used both for personnel radiation protection purposes and to alert personnel to the release of radioactive materials within a plant structure.

This system includes G-M or Ion chamber detectors that are permanently mounted. Each of these instruments has a readout at the detector and in the Control Room, except as noted below. If an adjustable high radiation setpoint is reached, audible and visual alarms are sounded both at the detector and in the Control Room. The GM detector instruments are calibrated in mR/hr and have a range of 0.1 up to 10,000 mR/hr. The instruments will remain pegged full scale at radiation levels beyond the full-scale value. These instruments are powered from emergency power sources and would be available for post-accident use (except as noted below).

Additional detectors have been added to augment the original system of GM detectors in order to provide area monitoring where new spaces or specialized equipment have been added. The additional areas where these detectors have been added are in the Technical Support Center (G-M Type), and in the Containment Structures (Ion-Chamber Type).

Detector Number	Location	Remarks
U-1 & 2 R-1	Control Room	
U1-R-2 U2-R-2	Containment operating deck (140' elevation) near personnel access hatch.	Not designed to withstand post loss-of-coolant-accident containment temperature.
U1-R-4 U2-R-4	Charging pump room (73' elevation in Auxiliary Building).	
U1-R-6 U2-R-6	NSSS Sampling room (100' elevation in Auxiliary Building).	
U1-R-7 U2-R-7	Incore seal table area (103' elevation in containment).	Not designed to withstand post loss-of-coolant-accident containment temperature.
U-1 & 2 R-10	Auxiliary Building control board (85' elevation in Auxiliary Building).	
U1-R-30 U1-R-31 U2-R-30 U2-R-31	Containment high range radiation (140' elevation in containment).	Designed to withstand post loss-of-coolant-accident (LOCA) conditions in containment.
U1-R-34 U2-R-34	85' Plant Vent RMS Room (ALARA)	
U1-R-48 U2-R-48	HRSS (Sentry) Post Accident Sampling Room	Non-vital power supply Local readout only
U1-R-58 U2-R-58 U1-R-59 U2-R-59	Spent Fuel Pool Storage Area New Fuel Storage Area	
U-1 & 2 R-60 U-1 & 2 R-61 U-1 & 2 R-62 U-1 & 2 R-63 U-1 & 2 R-64 U-1 & 2 R-65	TSC Office Area TSC Operations Area TSC Computer Area TSC NRC Office Area TSC HVAC Equipment Area TSC Lab Area	Local readout only Normal power is from non-vital supply, but can be aligned to vital buses from Switchgear room.

7.5.4 Process Radiological Monitoring System

Several liquid and gaseous plant process streams are continuously monitored for radioactivity to provide an indication of equipment performance and provide a record of radioactivity releases to the environment. The important process monitors from the standpoint of potential usefulness in emergency situations are listed below.

Detector	Process & Location	Type	Range (CPM)	Remarks
1-R-11 2-R-11	Containment air particulate (100' penetration area GE)	Gamma scintillation	10^1 to 10^6 cpm	Continuous sample drawn from containment, passed through moving filter, returned to containment. Detector looks at filter. Sample lines are automatically isolated by R-44A/B in event of major accident in containment.
1-R-12 2-R-12	Containment air gas (100' penetration area GE)	G-M	10^1 to 10^6 cpm	Detector looks at sample flow downstream of particulate monitor. Sample lines are automatically isolated by R-44 A/B in event of major accident in containment.
1-R-13 2-R-13	RHR exhaust duct air particulate (100' Aux. Building)	Gamma scintillation	10^1 to 10^6 cpm	Detector looks at air particulate sample on moving filter.
1-R-14/14 R 2-R-14/14 R	Plant Vent gas (85' area L)	Beta scintillation	10^1 to 5 x 10^6 cpm read out in µCi/cc	Detector looks at pressurized sample flow downstream of iodine and particulate monitors.
1-R-15/15 R 2-R-15/15 R	Condenser air ejector gas (104' Turbine Building)	Beta scintillation	10^1 to 5 x 10^6 cpm	Detector looks at air ejector off-gas.
1-R-17A, B 2-R-17A, B	Component Cooling Water (73' Aux. Building)	Gamma scintillation	10^1 to 10^6 cpm	Detector looks at sample off CCW discharge header. High alarm isolates CCW surge tank vent.
R-18	Liquid radioactive waste system effluent line to ocean (54' Aux. Building)	Gamma scintillation	10^1 to 10^6 cpm	Looks at waste stream prior to dilution in outfall. High alarm closes waste discharge valve and diverts to EDR.

(continued on next page)

Detector	Process & Location	Type	Range (CPM)	Remarks
1-R-19 2-R-19	Steam generator blowdown liquid (100' Aux. Building penetration area GE)	Gamma scintillation	10^1 to 10^6 cpm	Detector looks at combined blowdown from 4 steam generators. Can be valved to look at each steam generator individually. High alarm will isolate Stm. Gen blowdown tank inlet and overboard lines.
R-3	Oily water separator effluent (85' Turbine Building)	Gamma scintillation	10^1 to 10^6 cpm	
1-R-22 2-R-22	Gas decay tank discharge gas (54' Aux. Building)	G-M	10^1 to 10^6 cpm	Detector looks at gas decay tank discharge line and isolates it on high alarm.
1-R-23 2-R-23	Steam generator blowdown to discharge tunnel (100' Aux. Building penetration area GW)	Gamma scintillation	10^0 to 10^6 cpm	Detector looks at liquid blowdown. 10-7 µCi/cc is the detectable level. High alarm will isolate Stm. Gen blowdown tank inlet and overboard lines.
1-R-24/24R 2-R-24/24R	Plant Vent iodine (85' area L)	Gamma scintillation	10^1 to 5 x 10^6 cpm (readout in µCi/cc)	Detector looks at plant vent I-131. Sensitivity based on I-131. Continuous sample is drawn through fixed particulate prefilter and silver zeolite cartridge in series. Detector looks at silver zeolite cartridge.
1-R-25 2-R-25 1-R-26 2-R-26	Control room ventilation supply (160' Aux. Building)	Gamma scintillation	10^{-2} to 10^3 mR/hr	Detector looks at Control Room ventilation intake to supply duct. High activity will transfer ventilation system to pressurization mode. (MODE 4)

(continued on next page)

Detector	Process & Location	Type	Range (CPM)	Remarks
1-R-28/28R 2-R-28/28R	Plant Vent particulate (85' area L)	Beta scintillation	10^1 to 5 x 10^6 cpm (readout in µCi/cc)	Continuous sample drawn from plant vent is drawn through fixed filter and detector looks at filter
1-R-29 2-R-29	Plant Vent high range gross gamma (outside PV on 155' lvl)	Ion-chamber	10^{-1} to 10^7 mR/hr	Detector monitors plant vent gross gamma by using a shielded detector with a wedge shaped "view window" aimed at the plant vent.
1-R-41 1-R-42 1-R-43 2-R-41 2-R-42 2-R-43	Gas decay tanks (64' Aux Building).	Ion-chamber	10^0 mR/hr to 10^4 mR/hr	Readout is at the Aux. Building Control Panel only. Well mounted with view ports directed at each tank.
R-51 R-52 R-53 R-54	Control room pressurization system inlet (140' Turbine Building)	G-M	10^{-2} to 10^4 cpm	Detector measures gross activity in the intake line. High alarm switches intake to opposite end of Turbine Building.
R-71 R-72 R-73 R-74	Steam lines downstream of containment penetration (130' pipe racks)	G-M	10 to 10^6 cpm	Detector measures gross gamma activity in steam line, including Nitrogen-16.
1-R-44A & 44B 2-R-44A & 44B	Containment Purge Exhaust (100' penetration area L)	Beta-scintillation	10 to 5 x 10^6 cpm	Containment purge exhaust. High alarm causes CVI.
R-66 R-68	TSC HVAC Duct TSC Lab	Beta scintillation	10 to 10^6 cpm	Particulate Monitor
R-67 R-69	TSC HVAC Duct TSC Lab	Beta scintillation	10 to 10^6 cpm	Noble Gas Monitor
R-82 R-83	TSC HVAC Duct TSC Lab	Gamma scintillation	10 to 10^6 cpm	Iodine Monitor
1-R-87 2-R-87	Plant Vent extended range gas (85' area L)	Beta scintillation	10^{-3} to 10^5 µCi/cc	Extended Range Plant Vent Noble Gas Monitor
1-RF-87A & 87B 2-RF-87A & 87B	Plant Vent Sample (85' area L)	Sampler only	N/A	Iodine Grab Sample (High Range)