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CONSUMERS POWER COMPANY

PALISADES PLANT

Emergency Preparedness Exercise Manual

PALEX '86

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2.0 SCOPE AND OBJECTIVES

2.1 SCOPE

A simulated abnormal radiological incident at the Palisades Plant will escalate to a General Emergency and will involve planned response and recovery actions that include emergency classification, notification of offsite organizations and plant personnel, simulated actions to correct the emergency conditions and initiation of accident assessment and protective actions, as necessary, to cope with the accident. The emergency will then de-escalate, the recovery phase will be initiated and this will terminate the exercise. The exercise will simulate an emergency that results in offsite radiological releases which require response by offsite emergency response organizations.

2.2 OBJECTIVES

The major objective of the exercise is to evaluate the integrated capability and a major portion of the basic elements of the onsite and offsite emergency plans and the emergency response organizations. Specific objectives of the exercise to be demonstrated in various phases are listed below. The "free play" aspect of the exercise will be emphasized where practical. The exercise will demonstrate:

1. Adequacy of the Site Emergency Plan and the Site Emergency Plan Implementing Procedures to ensure compliance with 10 CFR 50.47 and NUREG-0654

2. Activation, staffing and operation of Emergency Response Facilities

3. Effective interface between CP Co Emergency Response Facilities in the assessment and mitigation of an accident, both operationally and radiologically

4. Effective transfer of responsibilities from the Control Room to the Technical Support Center to the Emergency Operations Facility

5. Recognition, classification and trending of emergency conditions

6. Site assembly and accountability of personnel within about 30 minutes

7. Notification of Federal, State, local, Corporate and plant personnel within specified time constraints

8. Coordination with State of Michigan and Nuclear Regulatory Commission emergency response organizations*

* Both the State and NRC will participate on a full-scale basis. The State will supply personnel in the EOF while the NRC will send players to all CPCo Emergency Response Facilities.

9. Access control of Emergency Response Facilities and the plant under emergency conditions

10. Mobilization and capabilities of onsite and offsite radiological monitoring teams

11. Ability to monitor, assess and trend radiological field data.

12. Ability to formulate timely and appropriate protective actions based on Protective Action Guides and postulated event conditions

13. Capability to collect and analyze a post-accident primary coolant sample

14. Ability of CP Co controller organization to effectively control and evaluate exercise performance.

3.0 EXERCISE INFORMATION

3.1 EXERCISE PARTICIPANTS

The participants in the exercise will include the following:

1. Consumers Power Company (CP Co)

   a. Control Room, TSC, OSC, EOF and JPIC personnel

   b. Emergency Response Teams

      (1) Onsite/offsite monitoring

      (2) Emergency maintenance

      (3) Security force

      (4) Post-accident sampling personnel

2. Agencies/Organization (Non-CP Co)

   a. Federal

      Nuclear Regulatory Commission (NRC)

   b. State of Michigan

      Michigan Department of State Police Emergency Services SIBO Division (MSP-ESD) (Lansing, Michigan), which coordinates all State activities.

   c. Local

      Allegan, Berrien and Van Buren Counties

   d. Indiana and Michigan Electric Company will conduct an independent review of CP Co emergency program.

3.2 EXERCISE ORGANIZATION

The exercise organization for this exercise will consist of the Exercise Coordinator, controllers, players and observers.

The Exercise Coordinator will coordinate exercise preparations including the development of the scenario and controller input messages. He will control all aspects of the conduct of the exercise.

Controllers are Consumers Power (CP Co) or other qualified personnel who may be selected to deliver "exercise messages" to designated players at various times and places during the exercise; inject or deliver additional messages to initiate the appropriate player response and keep the

exercise action moving according to the scenario and exercise objectives; observe and evaluate the exercise at their assigned locations; and submit written recommendations on corrective actions to the Exercise Coordinator prior to the scheduled critique. Controllers judge the effectiveness of selected organizations, personnel, functions and activities in response to the simulated emergency situation. Selection of controllers is based on their expertise and qualifications to evaluate an assigned activity or area. They will evaluate exercise performance on the basis of standards or requirements contained in the SEP, SEP Implementing Procedures and exercise messages. They will take steps, whenever possible, to collect data on the time and motion aspects of the activity observed for postexercise use in designating and implementing system improvements. Section 6.0, Controller Information, provides evaluation guidance. Controllers will be identified by wearing "controller" armbands.

The Players include Palisades, General Office and other CP Co personnel assigned to perform emergency functions, as described in the SEP and SEP Implementing Procedures. Players from offsite organizations include personnel from Allegan, Berrien and Van Buren Counties, the State of Michigan and the Nuclear Regulatory Commission (NRC).

The success of the exercise is largely dependent upon player reaction, player knowledge of the SEP and SEP Implementing Procedures, and an understanding of the exercise objectives. A set of hypothetical initial conditions will be provided to players at the time the exercise begins. Thereafter, most of the elements of the exercise play will be introduced through the use of scenario messages. Players are responsible for initiating actions during the exercise in accordance with SEP Implementing Procedures and other Operating Procedures, as appropriate. Players will advise controllers prior to performing required emergency actions during simulated activities to ensure that credit for actions is given. Players are instructed not to be excessively concerned with the mechanics of the exercise scenario. Additionally, the exercise is a training vehicle for CP Co personnel functioning in a simulated emergency environment. Players may suggest improvements based on their response during the exercise and submit them to the appropriate controller at the conclusion of the exercise. Players will be identified by wearing "player" armbands.

Observers from CP Co and other organizations may be authorized to participate in the exercise. They will be provided with orientation information and appropriate exercise publications. Observer activity will be limited solely to observation. Observers will be identified by wearing "observer" armbands.

3.3 EMERGENCY RESPONSE FACILITIES

During the exercise, several facilities will be activated for the simulated emergency situation to manage, assess and support emergency response.

1. Control Room (CR)

The CR contains instrumentation for monitoring and controlling the plant operating and safety systems. Emergency response measures will be exercised from the CR under the direction of the Site Emergency Director (Shift Engineer, until relieved by the Plant General Manager or designee).

2. Technical Support Center (TSC)

When emergency conditions escalate to an Alert status or higher, coordination for emergency response will shift from the Control Room to the TSC, located inside the Protected Area (see Figure 3.1). The Plant General Manager or his designee relieves the Shift Engineer as Site Emergency Director and directs activities from the TSC. The TSC is the location from which technical management personnel utilize information on plant status provided in the TSC to support actions being performed in the Control Room. The TSC serves as the primary communication source to the NRC, OSC, EOF and offsite agencies, and will perform the functions of the EOF until the EOF is fully activated. The NRC will supply representatives to the TSC.

3. Operational Support Center (OSC)

The OSC provides a location where emergency response teams can be assembled and coordinated during an emergency (see Figure 3.2). The OSC will be activated for emergency conditions classified as an Alert or higher, and may be activated for an Unusual Event at the discretion of the Site Emergency Director.

4. Emergency Operations Facility (EOF)

The EOF, located in the South Haven Conference Center, 9.1 miles from the plant (see Figure 3.4), will be staffed for emergency conditions classified as a Site Area Emergency or General Emergency. The EOF is the command post for coordination of response measures with offsite organizations, assessment of radiological and environmental conditions, determination of recommended protective actions for the public, and management of recovery operations under the direction of the Recovery Manager. The NRC and State of Michigan will send representatives to the EOF.

5. Joint Public Information Center (JPIC)

The JPIC, located at the Lake Michigan Community College (see Figure 3.5), provides coordinated releases of news and information to the news media, general public, CP Co employees and special interest groups. The JPIC is staffed by CP Co, local, State and Federal officials, and will be activated for emergency conditions classified as a Site Area Emergency or General Emergency, or upon declaration of a Disaster by the Governor.

3.4 EXERCISE CONDUCT

The exercise will simulate a radiological incident at the Palisades Plant which will escalate to a General Emergency.

Emergency response actions during the simulated emergency will include: recognition and reclassification of emergency conditions; assessment of onsite/offsite radiological consequences; notification and mobilization of emergency response organizations; implementation of in-plant corrective actions; activation/operation of emergency response facilities and equipment; preparation of reports, messages and record keeping; and recommendation of protective actions. (See Figure 3.10 for Emergency Organization Interfaces.)

The conduct of the exercise will demonstrate the effectiveness of selected organizations, personnel, functions and the SEP and SEP Implementing Procedures. The simulated emergency will then de-escalate. The Recovery Phase will be initiated and demonstrated administratively before the exercise is terminated.

Controllers will be stationed in the CR, OSC, TSC and EOF. Controllers will issue exercise messages and contingency messages, as necessary, to ensure that the exercise objectives are met.

The CR will be the central point for organization of exercise messages and is the key to ensuring that the exercise progresses on schedule (see Figure 3.7). Simulated plant parameters will be provided to the Control Room operators using plant data and status sheets. Since it is required that the emergency escalate to the General Emergency level in order to exercise offsite activities, it may be necessary to postulate low-probability situations. The operators should accept the exercise messages as written. If corrective actions are postulated that would terminate the exercise prematurely, they should be brought to the attention of the Lead Controller, who may elect to negate those actions, so that the exercise will progress as designed.

The TSC will be the coordination point for onsite emergency response activities. TSC personnel will also coordinate offsite emergency response activities until activation of the EOF. TSC and EOF personnel (see Figures 3.8 and 3.9) will be aware that offsite activities are to be exercised and that it may be necessary to postulate low-probability situations to ensure that various aspects of the onsite and offsite emergency response organizations are tested. TSC and EOF personnel will accept exercise messages as written. If corrective actions are postulated that would terminate the exercise prematurely, they should be brought to the attention of the Lead Controller, who may elect to negate those actions so that the exercise will progress as designed.

All players are expected to demonstrate "free play" during the exercise to the extent practical. Notifications of supervisors, Plant Management and offsite agencies should be made in accordance with the SEP

Implementing Procedures. The scenario is designed to activate and test onsite and offsite emergency response capabilities.

3.5 EVALUATION AND CRITIQUE

The exercise will be graded by controllers who are qualified to assess the activity in their assigned locations. Controllers will grade exercise performance on the basis of requirements contained in the SEP and SEP Implementing Procedures. Controllers will prepare evaluations and forward recommendations on corrective actions to the Exercise Coordinator.

After the exercise is completed, the Exercise Coordinator will conduct a postexercise critique, which includes CP Co and NRC representatives. Deficiencies in the SEP, the SEP Implementing Procedures, or facilities and equipment will be identified through the critique process. The deficiencies will be documented by the Exercise Coordinator and corrected by assigned individuals.

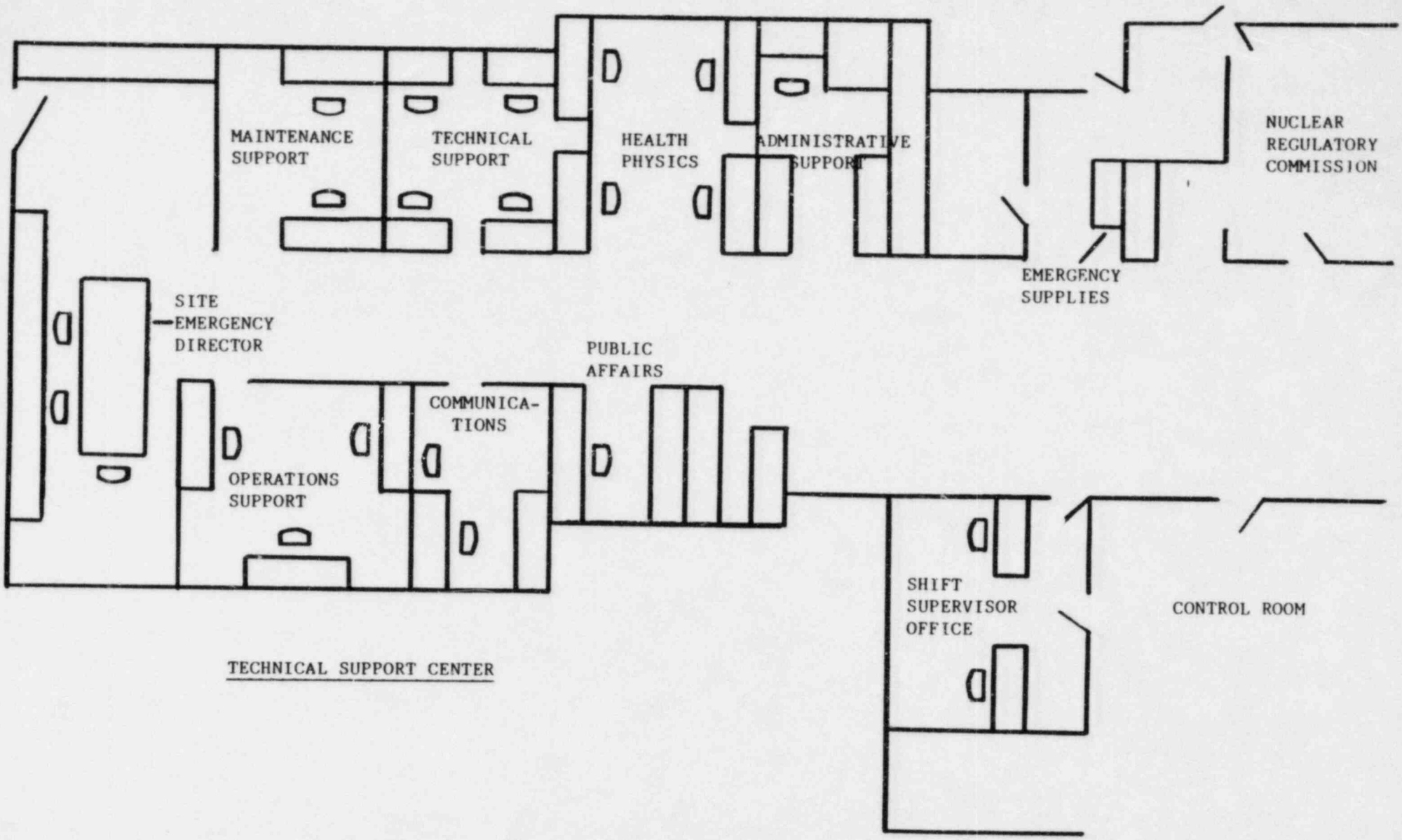

MAINTENANCE SUPPORT
TECHNICAL SUPPORT
HEALTH PHYSICS
ADMINISTRATIVE SUPPORT
NUCLEAR REGULATORY COMMISSION
EMERGENCY SUPPLIES
SITE EMERGENCY DIRECTOR
PUBLIC AFFAIRS
COMMUNICA-TIONS
OPERATIONS SUPPORT
SHIFT SUPERVISOR OFFICE
CONTROL ROOM
TECHNICAL SUPPORT CENTER

FIGURE 3.1

OPERATIONAL SUPPORT CENTER

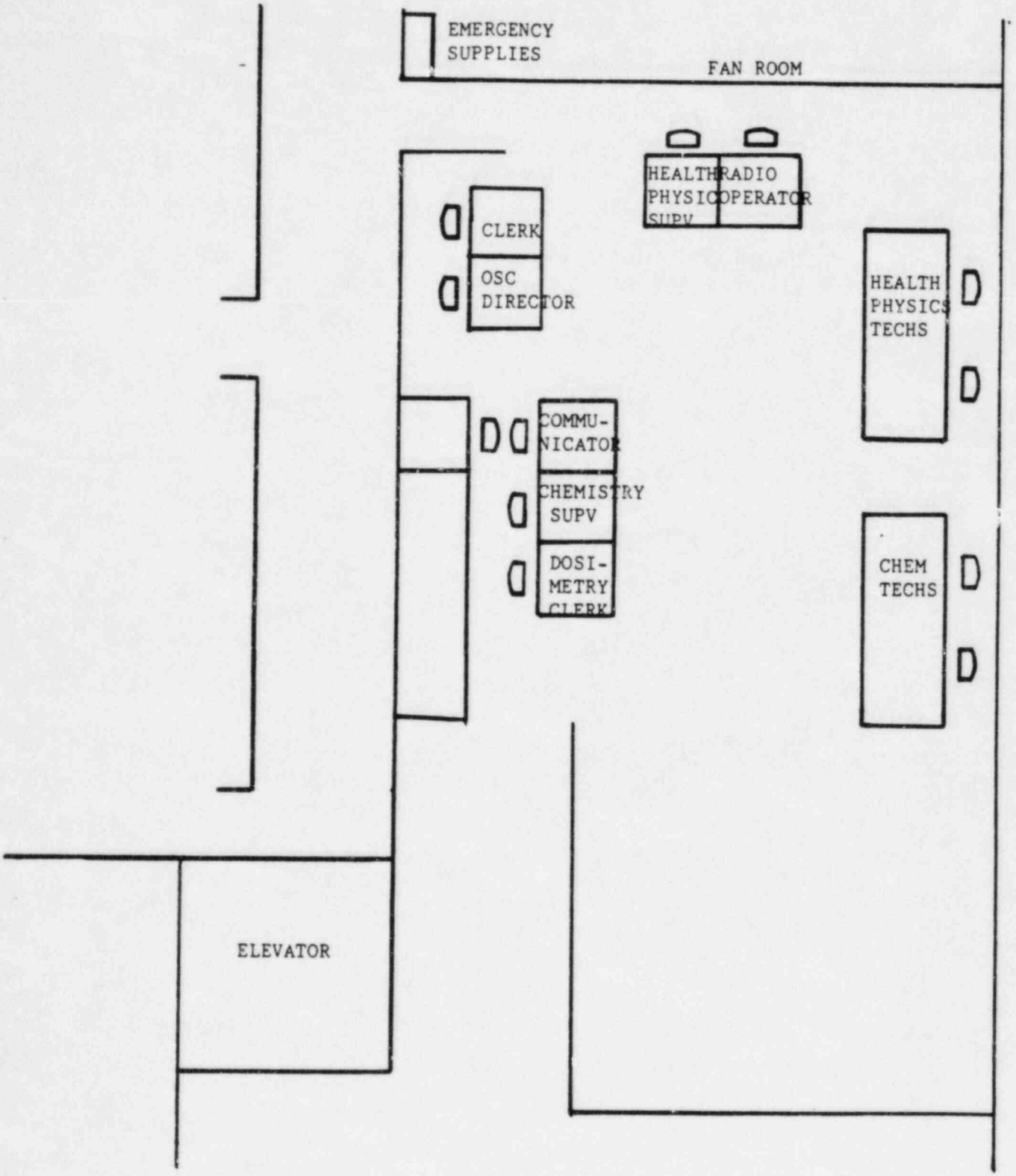


FIGURE 3.2

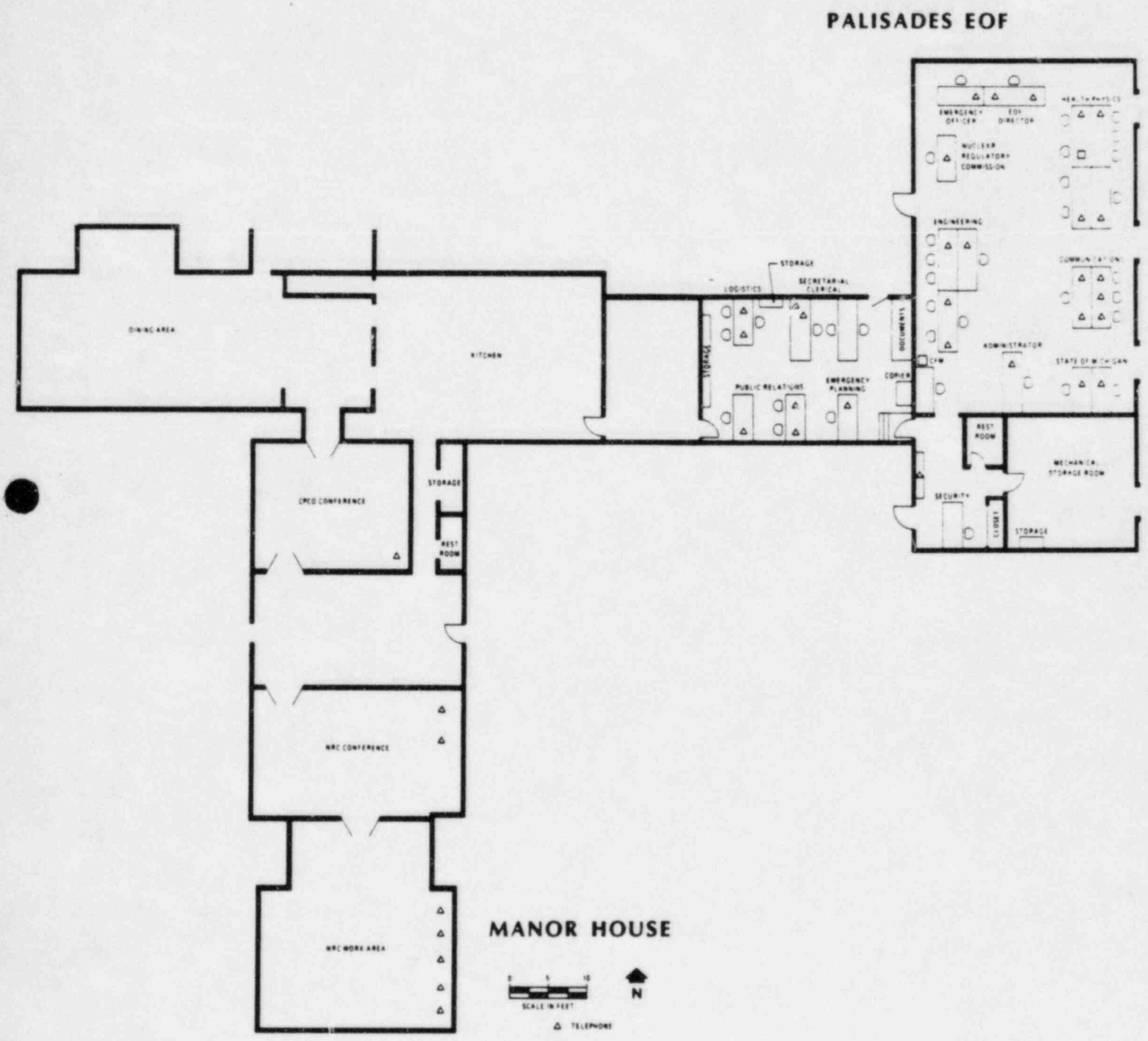

PALISADES EOF
DINING AREA
KITCHEN
STORAGE
LOGISTICS
SECRETARIAL CLERICAL
DOCUMENTS
STORAGE
PUBLIC RELATIONS
EMERGENCY PLANNING
COPIER
EMERGENCY OFFICER
EOF DIRECTOR
HEALTH PHYSICS
NUCLEAR REGULATORY COMMISSION
ENGINEERING
COMMUNICATION
ADMINISTRATOR
CPM
STATE OF MICHIGAN
REST ROOM
MECHANICAL STORAGE ROOM
SECURITY
STORAGE
CMCO CONFERENCE
STORAGE
REST ROOM
NRC CONFERENCE
NRC WORK AREA
MANOR HOUSE
0 5 10
SCALE IN FEET
N
TELEPHONE

FIGURE 3.3

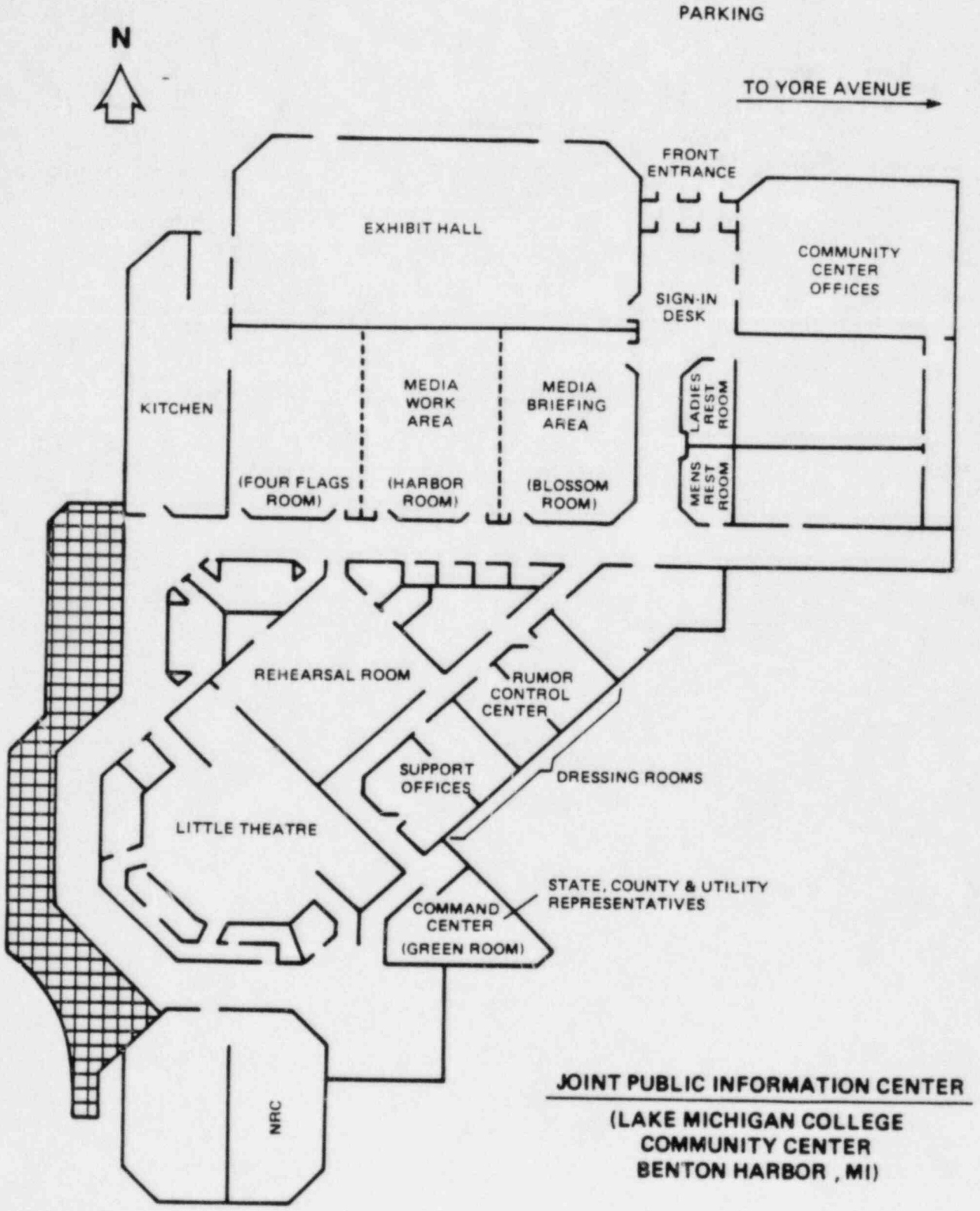

PARKING
N
TO YORE AVENUE
FRONT ENTRANCE
EXHIBIT HALL
COMMUNITY CENTER OFFICES
SIGN-IN DESK
KITCHEN
MEDIA WORK AREA
MEDIA BRIEFING AREA
LADIES REST ROOM
MENS REST ROOM
(FOUR FLAGS ROOM)
(HARBOR ROOM)
(BLOSSOM ROOM)
REHEARSAL ROOM
RUMOR CONTROL CENTER
SUPPORT OFFICES
DRESSING ROOMS
LITTLE THEATRE
STATE, COUNTY & UTILITY REPRESENTATIVES
COMMAND CENTER (GREEN ROOM)
NRC
JOINT PUBLIC INFORMATION CENTER
(LAKE MICHIGAN COLLEGE COMMUNITY CENTER BENTON HARBOR , MI)

FIGURE 3.4

5.0 REFERENCES/ABBREVIATIONS/DEFINITIONS

5.1 REFERENCES

1. Palisades Site Emergency Plan (SEP) - Consumers Power Company
2. Site Emergency Plan Implementing Procedures
3. State of Michigan Emergency Preparedness Plan
4. Allegan County Emergency Services Plan
5. Berrien County Emergency Operations Plan
6. Van Buren County Emergency Operations Plan
7. 10 CFR Part 5047 and 10 CFR Part 50, Appendix E
8. NUREG-0654 FEMA-REP-1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
9. NUREG-0696, Functional Criteria for Emergency Response Facilities
10. 44 CFR 350.9, Federal Emergency Management Agency Emergency Planning Requirements

5.2 LIST OF ABBREVIATIONS

CP Co - Consumers Power Company

CR - Control Room

DOE - Department of Energy

EAL - Emergency Action Level

EMD - Emergency Management Division

ENS - Emergency Notification System

EOC - Emergency Operations Center

EOF - Emergency Operations Facility

EPA - Environmental Protection Agency

EPZ - Emergency Planning Zone

ERF - Emergency Response Facility

FEMA - Federal Emergency Management Agency

FRRP - Federal Radiological Response Plan

INPO - Institute of Nuclear Power Operations

JPIC - Joint Public Information Center

MEPP - Michigan Emergency Preparedness Plan

MSP-EMD - Michigan Department of State Police - Emergency Management Division

NRC - Nuclear Regulatory Commission

OSC - Operational Support Center

PASM - Post-Accident Sample Monitoring System

PRC - Plant Review Committee

SED - Site Emergency Director

SEP - Site Emergency Plan

TSC - Technical Support Center

5.3 DEFINITIONS

Activated - Status of an Emergency Response Facility following decision to staff it, but prior to being operational.

Alert - Events are in progress or have occurred which involve an actual or potential degradation of the level of safety of the plant.

Assessment Actions - Actions taken during or after an accident to obtain and process information to implement emergency measures.

Control Room (CR) - Onsite location from which the reactor is controlled, and from which initial emergency direction and control is given. The CR is located in the Auxiliary Building.

Controller - Exercise member designated to pass scenario messages to players, resolve scenario discrepancies, supervise and evaluate action of the players.

Emergency Action Levels (EALs) - Specified threshold conditions for initiating emergency measures.

Emergency Operations Center (EOC) - Emergency Response Facility from which government officials exercise direction and control in an emergency.

Emergency Operations Facility (EOF) - Emergency Response Facility from which the offsite emergency support activities are coordinated and overall emergency management provided.

Emergency Planning Zones (EPZs) - Areas in which protective actions may be implemented on the basis of plume or ingestion exposure to protect the public in the event of a nuclear plant accident.

Emergency Response Facility - Any of several onsite and offsite centers which are activated to coordinate emergency actions. These include the Control Room, Technical Support Center, Operational Support Center, Emergency Operations Facility, Joint Public Information Center, and State and local Emergency Operations Centers.

Exclusion Area - The area surrounding the plant in which CP Co has the authority to determine all activities, including exclusion or removal of persons and property from the area during accident conditions.

Exercise - An event which tests the overall functions and capabilities of organizations involved in responding to an emergency situation. An exercise simulates an emergency that results in offsite radiological releases which require response by offsite authorities.

General Emergency - Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity.

Ingestion Exposure Pathway - Area within 50 miles of the Palisades Plant, 30 miles at Big Rock. Planning based on exposure from ingestion of contaminated water or foods, such as milk or fresh vegetables. The time of potential exposure could range in length from hours to months.

Joint Public Information Center (JPIC) - An offsite emergency response facility which is staffed by CP Co, local, State, NRC and FEMA officials. The JPIC provides coordinated releases of news and information to the news media, public, CP Co employees, and special interest groups.

Observer - An individual from Consumers Power, other utilities, local/State/Federal government, and/or other organizations, who is authorized to observe an exercise.

Offsite - All land and water areas outside the owner-controlled area.

On-Scene State Emergency Operations Center (OSEOC) - An offsite emergency response facility which accommodates State personnel who coordinate State and direct local emergency response.

Onsite - All land and water areas within the owner-controlled area, use of which must be authorized by CP Co.

Operational - Status of an Emergency Response Facility following assumption of intended functions and responsibilities.

Operational Support Center (OSC) - An onsite Emergency Response Facility which provides a location where emergency response teams are assembled and coordinated during an emergency. The OSC is located in the machine shop/lunchroom area of the Administration and Services Building.

Owner-Controlled Area - The area around the plant that is owned and the access controlled by CP Co.

Participant - An individual who has part in an exercise as an evaluator, controller, player or observer.

Players - Exercise participants who are assigned to perform functions of the emergency response organization, as described in the SEP and SEP Implementing Procedures.

Plume Exposure Pathway - Planning based on (1) whole body external exposure to gamma radiation from the plume and from deposited material, and (2) inhalation exposure from the passing radioactive plume. The time of potential exposure could range from hours to days.

Protected Area - The fenced area immediately surrounding the Palisades Plant, access to which is controlled in accordance with the Site Security Plan.

Protective Actions - Measures taken to prevent or minimize radiological exposure.

Protective Action Guides (PAGs) - Predetermined limits of projected or actual radiological dose which warrant issuance of protective action recommendations.

Radiological Monitoring Teams - Two-person teams responsible for monitoring radiation levels in the environment.

Site Area Emergency - Events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. Any releases of radioactive material are not expected to exceed Protective Action Guide (PAG) exposure levels, except within the site boundary.

Site Emergency Director - Plant Manager or designated alternate who is responsible for all onsite actions during an emergency.

Technical Support Center (TSC) - An onsite Emergency Response Facility outside the Control Room which accommodates personnel who will provide Plant Management and technical support to plant operation personnel during an emergency.

Unusual Event - Events which are in progress or have occurred which indicate a potential degradation of the level of safety of the plant.

6.0 CONTROLLER INFORMATION

6.1 CONTROLLER ORGANIZATION(1)

1. Exercise Coordinator

   a. Approves major deviations from exercise scenario.

   b. Approves exercise termination.

   c. Conducts the preexercise controller briefing.

   d. Conducts the postexercise NRC/CP Co critique.

2. Lead Onsite Controller

   a. Approves deviations from exercise scenario.

   b. Conducts the postexercise CP Co critique.

3. Lead Facility Controller

   a. Conducts postexercise facility critique.

   b. Addresses all scenario-related questions from controllers/players.

   c. Presents facility observation in both CP Co and NRC/CP Co critiques.

4. Controller

   a. Evaluates player performance at assigned location.

   b. Refers player inquiries on scenario/response activities to Lead Facility Controller.

   c. Distributes scenario messages and data sheets to players assigned.

   d. Presents observations orally during facility critique and submits written summary to Lead Facility Controller.

6.2 CONTROLLER CONDUCT

1. Controllers will report to assigned locations prior to exercise activity in assigned area.

(1)An organizational diagram is provided in Figure 6.1.

2. Lead Controllers will test communications between facilities prior to exercise commencement.

3. All controllers will comply with Lead Controller/Exercise Coordinator instructions.

4. Each controller shall be provided a copy of the exercise manual. Each shall be familiar with the general sequence of events and with scenario specifics directly related to area controlled. Each should be familiar with exercise objectives.

5. Controllers shall not prompt players on proper course of action. Players are to exercise judgement in determining appropriate actions and resolving problems.

6. Selected controllers will be assigned to distribute scenario messages and data sheets. No other individuals shall release scenario information to players unless authorized by Facility Lead Controller.

7. Each controller shall:

   a. Evaluate player performance based on personal expertise and guidelines provided in Sections 6.3-6.10.

   b. Submit a written summary of observations to the Lead Facility Controller at the conclusion of the exercise.

8. Each Lead Controller shall submit all Controller summaries of observations to the Exercise Coordinator.

6.3 CONTROL ROOM EVALUATION GUIDANCE

1. Activation

   a. Were emergency response teams (if applicable) activated at the appropriate time?

      (1) Fire brigade

      (2) Emergency maintenance team

      (3) Onsite monitoring team

      (4) Offsite monitoring team

   b. Were emergency OSC and TSC put on standby or activated at the appropriate times?

2. Procedures

a. Were Control Room staff members familiar with appropriate emergency procedures?

b. Did the Shift Supervisor (acting as SED) perform or ensure the performance of notifications?

c. Did the Shift Supervisor (acting as SED) focus on the overall control of emergency response?

d. Was adequate consideration given to the decision to authorize emergency radiation exposure in excess of normal 10 CFR 20 limits?

e. Did the Shift Supervisor (acting as SED) adequately supervise and coordinate onsite emergency response activities?

f. Were plant damage and hazardous conditions adequately assessed?

g. Were plant personnel kept informed concerning the plant radiological conditions?

h. Did the Shift Supervisor ensure that the actions of off normal and Emergency Operating Procedures were performed?

i. Were notifications made in a timely manner?

j. Was the emergency classified correctly and promptly?

k. Were dose assessment and projections performed?

l. Were onsite protective/corrective actions considered/ordered at the appropriate times?

m. Were radiological assessment and offsite protective action recommendations performed?

n. Were personnel exposure records maintained?

o. Was record keeping performing timely and accurately.

p. Was documentation properly controlled?

q. Was the transfer of emergency response functions to the TSC performed?

r. Were emergency fire/medical services (if appropriate) requested at the appropriate time?

s. Was Security notified of:

(1) Emergency classification

(2) Support organizations reporting onsite

(3) Number of personnel and vehicles reporting onsite

(4) Owner-controlled access gate to be used

(5) Scene of the emergency

t. Was emergency classification:

(1) Reviewed at frequent intervals.

(2) Upgraded at appropriate time.

u. Were dose assessment personnel familiar with dose assessment methods and procedures?

v. Was adequate consideration given to personnel safety?

w. Was emergency information promptly and correctly assessed?

3. Communications

a. Were communications equipment tested and operable?

b. Was a sufficient number of communicators available to support communications demand?

c. Were correct communications procedures and techniques utilized?

d. Was the information flow between the Control Room staff adequate?

e. Was the information flow between the emergency response facilities adequate?

f. Were offsite plant, corporate and government notifications, and information updates performed?

g. Was appropriate information requested in a timely manner by the Shift Supervisor?

4. Equipment

a. Were Control Room supplies adequately stocked?

b. Were Control Room staff members familiar with emergency equipment which they were responsible for operating?

6.4 OPERATIONS SUPPORT CENTER EVALUATION GUIDANCE

1. Activation

   a. Time of arrival for:

      (1) OSC Director

      (2) Chemistry Supervisor

      (3) Rad Pro Supervisor

   b. Time (NA if team not activated at OSC):

      (1) Emergency maintenance team

      (2) Onsite monitoring team

      (3) Offsite monitoring team

   c. Did the OSC Director inform the SED that the OSC was activated?

   d. Were additional support personnel available in the OSC to support the designated emergency response team personnel?

2. Procedures

   a. Were OSC personnel familiar with the OSC activation procedure?

   b. Was an individual assigned to perform radiological surveys in the OSC?

   c. Were communications tested?

   d. Were OSC personnel familiar with their duties and responsibilities?

   e. Was adequate consideration given to personnel exposure control?

   f. Was adequate consideration given to personnel safety?

   g. Was backup assistance requested at the appropriate time?

3. Communications

   a. Was the OSC Director briefed by the SED or a designee?

b. Were correct communications procedures and techniques utilized?

c. Was the OSC Director kept informed by the OSC personnel?

d. Did the OSC Director keep the SED informed?

e. Did the OSC Director brief the OSC personnel on the emergency conditions?

f. Was the information flow between the OSC staff adequate?

g. Was the information flow to other emergency response facilities adequate?

4. Equipment

a. Was appropriate protective equipment used?

b. Was the emergency equipment in the OSC in operable condition?

c. Were special tools available or obtained in a timely manner?

6.5 EMERGENCY MAINTENANCE TEAM EVALUATION GUIDANCE

1. At what time was the emergency maintenance team notified?

2. How much time elapsed between the time the team was dispatched until the team arrived at the scene?

3. At what time were emergency repairs completed?

4. Organization

a. Did the OSC Supervisor brief Maintenance?

b. Did the OSC Assistant Supervisor, Maintenance, brief the team members on the information received from the OSC Supervisor?

c. Were potential causes of the problem identified?

d. Did planning provide a systematic approach to finding the problem and then correcting it?

5. Equipment and Documentation

a. Was the necessary equipment for each team member available?

b. Were reference documents available to team members?

c. Was the Plant Engineering Technician utilized properly in obtaining necessary reference documentation and information?

d. Were procedures (maintenance, tag out, etc) utilized properly?

6. Radiological Controls

a. Were team members briefed on potential radiological hazards?

b. Were quarterly exposure records available and used in determining stay times?

c. Were necessary surveys taken for access to affected area?

7. Communications

a. Was the OSC Supervisor kept adequately informed by the OSC Assistant Supervisor, Maintenance?

(1) Frequency

(2) Information content

b. Were communications (face to face and radio) adequate?

8. General

a. Was damage assessment performed quickly and properly?

b. Did team members periodically check their pocket dosimeters?

c. Were team members aware of and did they check for potential hazards?

d. Were repairs conducted quickly and, where applicable, per procedure?

e. Was equipment tagged out as necessary?

6.6 FIRE BRIGADE EVALUATION GUIDANCE

1. Activation

a. Was the alarm promptly and accurately sounded?

b. Was the Fire Brigade promptly notified and dispatched?

c. Did the Fire Brigade Leader assemble and brief the Brigade?

d. Was Fire Brigade staffing adequate?

e. Did Brigade members arrive on scene promptly?

f. Did personnel arrive properly equipped - ready for duties?

g. Was Health Physics support adequate?

h. Was first-aid assistance available, if necessary?

2. Procedures

a. Did personnel know and carry out proper fire fighting tactics and strategy?

b. Did Fire Brigade Leader exercise direction and control?

c. Were fire fighting procedures available and followed?

d. Was adequate consideration given to personnel safety?

e. Was offsite fire fighting assistance requested at the appropriate time, if necessary.

f. Were the efforts of the Fire Brigade and offsite Fire Department adequately coordinated?

g. Was Security notified that offsite fire fighting assistance was requested?

h. Were responding offsite Fire Department personnel admitted to the site properly (ie, issued dosimetry and logged in) and in a timely manner?

3. Communications

a. Was adequate communications equipment available (ie, radios or accessible/operable plant communications equipment)?

b. Were correct communications procedures and techniques used?

c. Was the Plant Supervisor/Site Emergency Director kept informed?

4. Equipment

a. Was appropriate protective equipment used?

b. Was appropriate fire fighting equipment used?

c. Was the equipment used during Fire Brigade operations in operable condition?

d. Were special tools available or obtained in a timely manner, if necessary?

6.7 ONSITE/OFFSITE MONITORING TEAM EVALUATION GUIDANCE

1. Activation

   a. Time team left assembly point.

   b. Time the first survey results were reported.

   c. Was a member designated as the Team Leader?

   d. Did the OSC Director brief the teams?

   e. Did the members arrive at the scene properly equipped?

2. Procedures

   a. Did members use the appropriate procedures?

   b. Did the Team Leader exercise direction and control?

   c. Was adequate consideration given to personnel exposure control?

   d. Were the appropriate radiological surveys/samples performed?

   e. Were survey records and maps accurately maintained?

   f. Were proper radiological control practices used?

   g. Were personnel checked for contamination before they left a controlled area?

   h. Were survey/sample results accurately and promptly reported?

   i. Were survey meters checked?

   j. Were air samples saved and identified correctly?

   k. Was the airflow direction properly indicated on iodine cartridges?

   l. Was personnel dosimetry checked frequently?

   m. Were proper decontamination methods used?

3. Communications

   a. Was adequate communications equipment available?

   b. Was an individual designated as communicator?

c. Were correct communications procedures and techniques used?

d. Were information updates frequent enough?

4. Equipment

a. Were emergency equipment kits available at the scene?

b. Were emergency equipments kits inventoried?

c. Were emergency equipment kits completely and adequately stocked?

d. Were the items in the emergency equipment kits usable/operable?

e. Was damaged/missing equipment repaired/replaced, as appropriate?

f. Were missing or deficient items reported to appropriate personnel?

5. For Onsite Teams Only

a. Were other emergency response team members at the scene apprised of the radiological conditions.

b. Did team members properly coordinate with other emergency response teams?

c. Did team members appropriately identify themselves to other emergency response teams?

d. Was the SED/OSC Director kept informed?

6. For Offsite Teams Only

a. Time environmental samples were delivered to the EOF.

b. Was transportation readily available to all activated teams?

c. Was the EOF kept informed of team operations and survey/sample results?

d. Were the proper techniques for approaching and tracking the plume utilized?

e. Were team members proficient in utilizing the Environmental Monitoring Mapping System?

f. Were TLDs and environmental samples identified properly?

g. Were environmental samples checked for gross contamination?

6.8 TECHNICAL SUPPORT CENTER EVALUATION GUIDANCE

1. Activation

a. Time TSC Staff Arrived

(1) Site Emergency Director

(2) Tech Group Leader

(3) Chem/Health Physics Group Leader

(4) Communications Group Leader

(5) Maintenance Support Group Leader

(6) Administrative Support Group Leader

b. Time TSC Fully Functional

c. Were emergency response teams activated at the appropriate time?

(1) Fire Brigade

(2) Emergency maintenance team

(3) Onsite monitoring team

(4) Offsite monitoring team

d. Was the EOF put on standby/activated at the appropriate time?

2. Procedures

a. Was the radiation level in the TSC checked?

b. Was the airborne radioactivity level in the TSC checked?

c. Were TSC staff members familiar with appropriate emergency procedures?

d. Did the SED perform or ensure the performance of notifications?

e. Did the SED focus the overall control of emergency response?

f. Was adequate consideration given to the decision to authorize emergency radiation exposure in excess of normal 10 CFR 20 limits?

g. Did the SED adequately supervise and coordinate TSC activities?

h. Did the Tech Group Leader adequately assess plant damage and make appropriate and timely recommendations?

i. Did the HP Group keep the TSC staff informed concerning the radiological environment?

j. Were radiological assessment and offsite protective action recommendations performed?

k. Were personnel exposure records maintained?

l. Was record keeping performed timely and accurately?

m. Was documentation properly controlled?

n. Was a contamination control station established in the TSC?

o. Were TSC status boards maintained?

p. Was the transfer of TSC functions to other emergency response facilities performed?

q. Was Security notified of:

   (1) Emergency classification

   (2) Supporting organization reporting onsite

   (3) Number of personnel and vehicles reporting onsite

   (4) Owner-controlled access gate to be used

   (5) Scene of the emergency

r. Was emergency classification:

   (1) Reviewed at frequent intervals.

   (2) Upgraded at appropriate time.

s. Were dose assessment personnel familiar with dose assessment methods and procedures?

t. Was adequate consideration given to personnel safety?

u. Were onsite protective/corrective actions considered/ordered at the appropriate times?

v. Was emergency information promptly and correctly assessed?

3. Communications

a. Were communications equipment tested and operable?

b. Was a sufficient number of communicators available to support communications demand?

c. Were correct communications procedures and techniques utilized?

d. Was the information flow between the TSC staff adequate?

e. Was the information flow between the emergency response facilities adequate?

f. Were offsite plant, corporate and government notifications and information updates performed?

4. Equipment

a. Were TSC supples adequately stocked?

b. Were TSC staff members familiar with TSC equipment which they were responsible for operating?

6.9 EMERGENCY OPERATIONS FACILITY EVALUATION GUIDANCE

1. Activation

a. Time of Staff Arrival

(1) Emergency Officer

(2) Director

(3) Administrator

(4) Secretarial/Clerical Support Team Leader

(5) Communications Support Team Leader

(6) Reactor Engineering Support Team Leader

(7) Health Physics Support Team Leader

(8) Plant Support Team Leader

(9) Public Affairs Support Team Leader

(10) Logistics Support Team Leader

b. Time fully functional

c. Was EOF activated at the appropriate time?

d. Did EOF activate sufficient team members to man the facility?

e. Was the EOF set up for operation within sixty (60) minutes?

2. Procedures

a. Were staff members familiar with the appropriate Emergency Plan Implementing Procedures?

b. Was the transfer of emergency response functions from the TSC to EOF performed adequately?

c. Did the Emergency Officer assure use of full resources of CP Co and external organizations for the emergency response?

d. Were Assistance Request Checklists used to request assistance from other organizations when applicable?

e. Did the EOF Director adequately supervisor and coordinate activities?

f. Did the Engineering Support Team Leader adequately review all engineering recommendations and calculations made?

g. Were offsite radiological assessments and protective action recommendations performed?

h. Did the Health Physics Support Team Leader keep the Director apprised of the radiological consequences and assessments during the emergency?

i. Were emergency support services requested at the appropriate time?

j. Was record keeping performed timely and accurately?

k. Was documentation properly controlled?

l. Were status boards maintained current?

m. Was the emergency classification:

(1) Reviewed at frequent intervals.

(2) Upgraded at the appropriate time.

(3) Downgraded at the appropriate time.

n. Were dose assessment personnel familiar with dose assessment methods and procedures and the available data?

o. Was adequate consideration given to personnel safety?

p. Was emergency information promptly and correctly assessed?

3. Communications

a. Was communications equipment tested and operable?

b. Was a sufficient number of communicators available to support the communications demand?

c. Were correct communications procedures and techniques utilized?

d. Was the information flow between EOF staff adequate?

e. Was the information flow between emergency response facilities adequate?

f. Were offsite corporate, government, and industry notifications and information updates performed?

g. Was appropriate information requested by EOF personnel in a timely manner?

h. Was the information exchange with the Site Emergency Director adequate?

4. Equipment

a. Was equipment tested to be operational, as applicable.

b. Were staff members familiar with the equipment which they were responsible for operating?

c. Were EOF supplies adequately stocked?

6.10 JOINT PUBLIC INFORMATION CENTER EVALUATION GUIDANCE

1. Activation

a. Time JPIC Director arrived

b. Time communications manned

c. Time JPIC fully functional

d. Was the JPIC activated at the appropriate time?

2. Procedures

   a. Were JPIC staff members familiar with JPIC Operating Guidelines and Procedures?

   b. Did the JPIC Director maintain overall control of information released to the media (public) through the JPIC?

   c. Was the dissemination of information to the media adequate?

   d. Was rumor control in the JPIC adequate?

   e. Did the JPIC Director ensure smooth operation of the JPIC-EOF communications link and that the media services were properly handled?

   f. Were news releases prepared?

   g. Were news releases approved prior to release?

   h. Was the media briefing schedule adequate?

   i. Was security enforced properly at the JPIC?

   j. Was record keeping performed?

   k. Was documentation properly controlled?

   l. Were JPIC status boards maintained?

3. Communications

   a. Was communications equipment tested and operable?

   b. Was a sufficient number of communicators available to support communications demand?

   c. Were correct communications procedures and techniques utilized?

4. Equipment

   a. Were JPIC supplies adequately stocked?

   b. Was JPIC equipment tested to be operational, as applicable?

   c. Were JPIC staff members familiar with the equipment which they were responsible for operating?

   d. Was sufficient space and equipment provided for local, State, and Federal government officials and local media?

6.11 PASM EVALUATION GUIDANCE

1. O.S.C. Supervisor

   A. Were arrangement made for habitability surveys (PASM Room, Hot Lab, Hallways, etc.)?

   B. Were arrangement for special dosimetry (TLD's for wrists, ring TLD, etc.) made?

   C. Did the O.S.C. Supervisor have I&C jumper CV-1910 and CV-1911?

   D. Was Jackson Lab called into do the chloride analysis on the PASM sample?

   E. Were the technician kept informed and given directions?

   F. Were communication maintained between the O.S.C. Chemistry Supervisor and the technician?

2. Pre-sampling and Analysis Preparation

A. Was the proper dress worn (Anti-C, gloves, fish skin, etc.)?

B. Was dosimetry placed properly (wrists, finger, chest, etc.)?

C. Did the technician know where to get SCBA, how to use it, and was technician SCBA training up-to-date?

D. Did the Health Physics technician have the proper instrument (air sampler, survey meter, etc.)?

E. Were all instrument calibration date checked, were they functional checked?

F. Did the Health Physics technician given direction on dress requirements and radiation condition in the sampling and analysis area?

3. At the PASM Panel

A. Was the proper pre-sampling preparation followed?

B. Were purges and flushes times followed? Were proper flows used?

C. Were valve lineup done properly?

D. Were all recording taken (temperature pressure, time, etc.)?

E. Were the proper samples obtained?

F. Did the equipment function properly (PASM panel, lab instruments)?

G. Were the technician aware of dose rate and stay times? Did they read their dosimeters?

H. Did they undress properly? Did they frisk upon leaving?

I. Did the technician keep the O.S.C. Supervisor informed?

J. Was ALARA followed?

K. Was there to much simulation?

L. Did the Health Physics technician calculate dose rate and stay times?

M. Did the Health Physics technician take radiation reading of samples and panel during sample collection?

N. Did the Health Physics technician identify boundary?

4. A. Was the proper shielding used?

B. Was ALARA used?

C. Was there a sample storage area?

D. Were samples disposed of properly?

E. Did analysis compared to NSSS?

F. Was proper dress used?

G. Was the three hours sampling and analysis time met?

H. Were samples labeled (date, time, etc.)?

I. Was the proper data recorded (sample results, functional check, etc.)?

J. Did the technician read their dosimeters?

K. Did Health Physics technician calculate dose rate and stay times?

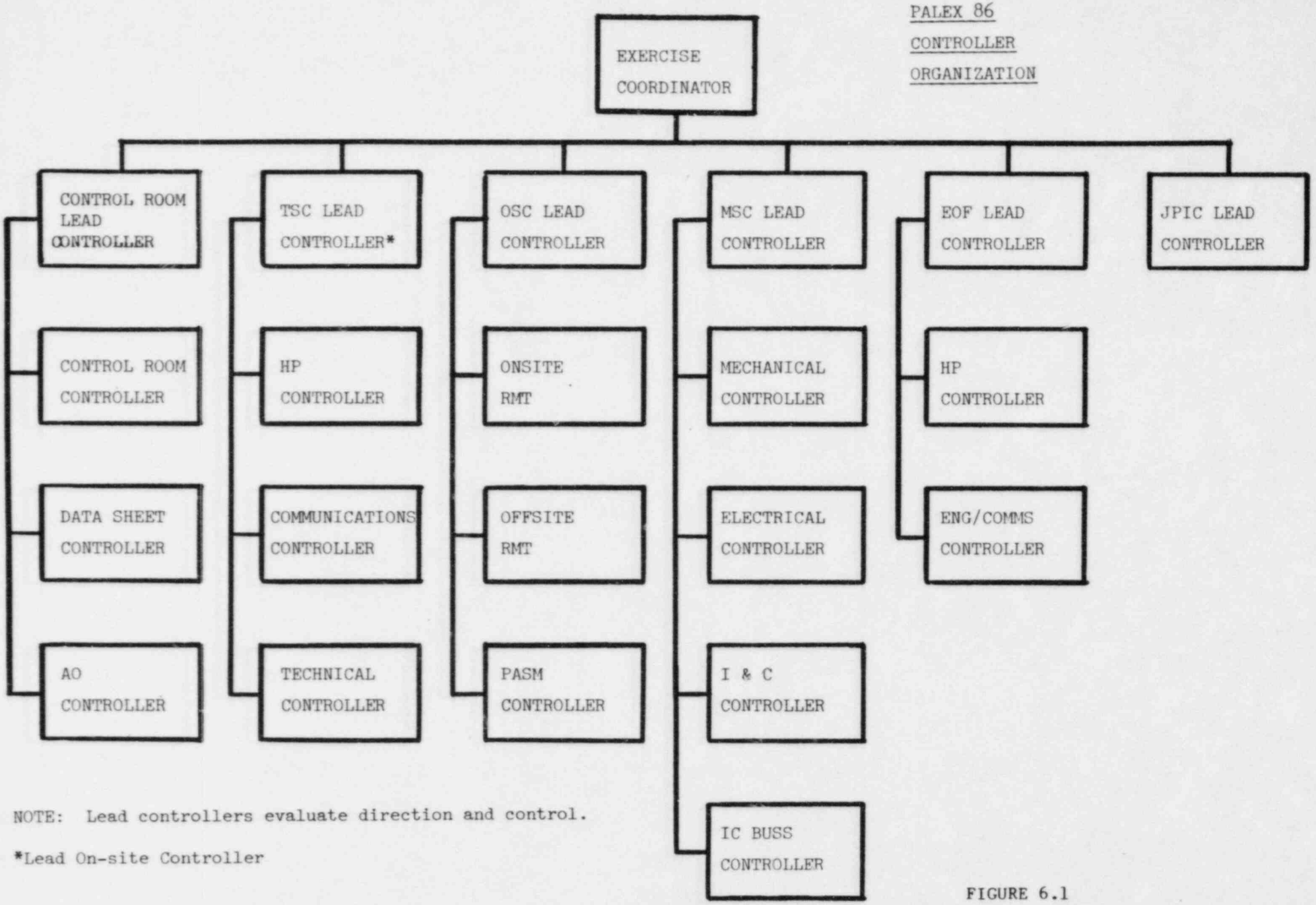
L. Were general area survey up dated? Were air samples taken?

M. Were the technician given direction by the O.S.C. Chemistry Supervisor?

PALEX 86

CONTROLLER

ORGANIZATION



NOTE: Lead controllers evaluate direction and control.

*Lead On-site Controller

FIGURE 6.1

7.0 EXERCISE SCHEDULE

August 18, 1986

1400 NRC entrance meeting attended by CP Co lead facility controllers and scenario writers

August 19, 1986

0815 Initial conditions provided to players

8045 First exercise message

1400-1600 Exercise ends; CP Co facility critiques immediately follow.

August 20, 1986

0900 CP Co lead controller critique

1300 CP Co formal critique/NRC exit comments

8.0 NARRATIVE

The plant is at full power, 98-100%, at the middle of core life. Bus 13 and 14 are cross-tied in preparation for resetting the "taps" on station power transformer 13. Bus 77 and 78 are also cross-tied as the supply breaker to transformer 13 also feeds transformer 77. Boric Acid pump P-56A will not run due to solidified boric acid. Spray pump P-54A has been disassembled following a seal failure. HPSI motor-operated valve MO-3007 is out of service and blocked open. Service water pump P-7A basket strainer is clogged with debris and marine life causing intermittent Hi-DP alarm.

It is partly cloudy and cool. Forecasts call for a clearing trend with a 40% chance of showers in the morning.

At 0845, primary coolant pump P-50B shears, stopping the impeller. In the subsequent reactor trip, Control Rod 34 fails to insert. It remains fully withdrawn and fuel damage occurs. The primary coolant pump failure was chosen to provide a single initiation which could fail two fission product barriers.

Following the turbine trip, both diesel generators start. One trips immediately on overcurrent.

A loose section of Bus 1C enclosure cabinet is jarred by cycling breakers during fast transfer and falls against the bus bars causing both phase-to-phase and phase-to-ground faults. The following equipment is lost: Auxiliary feedwater pump P-8A, LPSI pump P-67B, Service Water Pump P-7B, HPSI pump P-66B, Containment Spray Pumps P-52A and C, Station Power Transformers 11, 13 and 19, and the Meteorological Tower.

The primary coolant pump failure was chosen to provide a single initiation which could fail two fission product barriers.

The failure of Bus 1C removes any possibility of operating the train of Emergency Core Cooling Systems powered by that bus, irrespective of diesel generator operability or availability of offsite power. Lost are the two additional spray pumps, the effective containment air cooler, and the operable boric acid pump. Thus, containment pressure will increase with even a moderate primary coolant system leak and no method of boration is available from the control room.

The Site Emergency Director (SED) may immediately elect to declare an Unusual Event based on the existence of plant conditions which warrant increased awareness of plant staff or due to an abnormal trip.

At 0855, the failed fuel monitor responds to fuel damage. The SED may elect to classify the situation as an Alert based on "coolant pump seizure leading to fuel failure." He may elect to wait for confirmation via sample analysis.

At 0915, the upper seal on P-50B fails, leaking 60 gpm to containment. The situation warrants Alert declaration according to procedure. It is, however, possible that the SED may elect to escalate to Site Area Emergency based on loss of two fission product barriers.

The Alert (or higher) declaration brings personnel accountability and activation of the Technical Support Center (TSC) and Operational Support Center.

The Site Emergency Director may elect to activate the Emergency Operations Facility (EOF) at the Alert Classification.

Following completion of accountability, the Lead Security Controller, in conjunction with the Lead Onsite Controller, will initiate a security plan activation sequence. A bomb threat is received with bomb location and detonation time provided. The bomb will explode and result in damage to the warehouse. No personnel will be injured. The warehouse is outside the protected area. The bomb is not a threat to plant operation. No change in emergency classification is warranted by procedure.

At 1045, P-50B seal fails completely, resulting in a LOCA of 1000 gpm. If not already classified, a Site Area Emergency should be declared based on LOCA greater than charging pump capacity. As containment pressure increases rapidly, stack monitor readings climb accordingly. A release begins through faulty purge valves to the stack. Noting this, the SED may opt to declare a General Emergency. He may, however, elect to wait for confirmation by monitoring teams prior to declaration of General Emergency.

At 1050, Primary Coolant System pressure is dropping rapidly. The Safety Injection System actuates, resulting in E Bus opening and subsequent loss of Fire System Jockey pump and Fire Pump 9A, Pressurizer Heater Transformer 15, the meteorological tower, half of the lights and all wall outlets in the TSC. The computer used for dose calculations in the TSC is rendered inoperable. Based on anticipated operator actions, full TSC power should be restored in about five minutes.

Palisades personnel reporting to the EOF will be allowed access upon arrival. General Office Response Team (GORT) will be allowed entry sixty minutes after the decision to activate the EOF. Remaining General Office personnel will be granted access thirty minutes after arrival of the GORT.

There are three foreseen methods of terminating the release: 1) repair of spray pump P-54A, 2) repair of Bus 1C, 3) plugging of release path through purge line. In any case, the earliest permissible repair is at 1400. Items (1) and (2) employ spray pumps to condense steam, reduce pressure, and thereby halt the release. Item (3) requires physical plugging of the line. Reentry and recovery will be demonstrated administratively through development of a recovery plan.

The exercise, or portions thereof, will be terminated by the Exercise Coordinator in conjunction with Lead Controllers and State and Federal officials.

9.0 SEQUENCE OF EVENTS

Drill Time	Clock Time	Event
-0:30	0815	Initial Conditions - Normal Full Power
		Bus 13 and 14 cross-tied, Bus 77 and 78 cross-tied. Spray Pump A and Boric Acid Pump A out of service. Light NW breeze; 58°F Containment Air Temp 135°F
0:00	0845	Loss of Flow Reactor Trip
		P-50B shaft parted, Rod #34 stuck out Bus 1C lost - phase-to-phase fault P-50B lower and middle seals damaged
		Possible Unusual Event - Miscellaneous Category, SED Opinion
+0:10	0855	Failed Fuel Monitor Off Scale High
		First indication of fuel damage
		Possible Alert* - Coolant pump trip and failed fuel indication
+0:30	0915	P-50B Upper Seal Fails
		LOCA - 60 gpm to containment
		Alert conditions, 60 gpm LOCA. Possible Site Area Emergency** on loss of 2 of 3 fission product barriers.
+0:35	0920	Containment Humidity and Rad Levels Increase
+0:40	0925	Containment Hi Radiation/Containment Isolation
+0:50	0930	Containment Sump Hi Level Alarm
Variable	Variable	Bomb Threat & Ignition in Warehouse
		Will occur after Accountability at discretion of Lead Security Contoller and Lead Onsite Controller

+2:00	1045	P-50B Vapor Seal Fails SIS, CHP (no spray pumps) LOCA - 1000 gpm to containment Containment pressure increases Stack monitor readings increase Site Area Emergency condition, LOCA. General Emergency may be declared at SED discretion, must be declared when monitoring teams confirm magnitude of release.
+5:15	1400	Recovery (3 possible methods) Bus 1C repair Spray pump A repair Plug release path
+5:30	1415	Release terminated
by +7:15	by 1600	Exercise terminated at discretion of Exercise Coordinator.

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* TSC is staffed at Alert Classification, EOF may be activated at discretion of SED.

** EOF is activated at Site Area Emergency declaration.

Scenario No: PALEX-86 Time = 0815

Message No: 1 T = -30

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Initial Conditions Sheet and Data Sheets

Message: Announce the following over the Plant's Public Address System:

"Attention all personnel. The annual emergency exercise will commence shortly. All announcements related to the exercise will be preceded and followed by the statement, 'This is a Drill.' Only drill participants are to respond to drill announcements."

For Controller Use Only

Controller Notes: See Controller Sheet for Initial Conditions

Action Expected: Operators should familiarize themselves with the simulated conditions as indicated on the data sheets.

PALISADES SEP EVALUATED EXERCISE

INITIAL CONDITIONS

1. The plant is at full power, 98% to 100% power, at middle of core life. (5.8 GWD/MTU)

2. The following operating conditions exist:

   a. Bus 13 and Bus 14 are cross-tied in preparation for resetting the "taps" on station power transformer 13. Work has not started.

      1. 2400 Volt breaker 152-110, the supply to transformers 13 and 77, is racked out and red tagged.
      2. 480 Volt breaker 52-1302, the supply to Bus 13 from transformer 13, is racked out and red tagged.

   b. Bus 77 and Bus 78 are cross-tied since the supply breaker to transformer 13 also feeds transformer 77.

      1. 480 Volt breaker 52-7701, the supply to Bus 77 from transformer 77, is racked out and red tagged.

   c. Boric Acid Pump P-56A will not run.

      1. It is thought to be bound-up with solidified boric acid.
      2. Its breaker is open and caution tagged. Work order written, but not yet processed.
      3. It was declared "INOPERABLE" yesterday at 0103 hours.

   d. Spray Pump P-54A is out of service.

      1. The pump is disassembled following a seal failure.
      2. The manufacturer's representative is due in tomorrow.
      3. She is bring an improved design seal with her.
      4. The pump was declared inoperable two days ago at 1317 hours.

   e. HPSI MOV MO-3007 is out of service and blocked open.

   f. The "SERVICE WATER PUMP P-7A BASKET STRAINER HI dP" alarm has been intermittent since last evening.

      1. A maintenance order has been written for cleaning the strainer.
      2. P-7B strainer was cleaned last week. It was partially plugged with debris and marine life.
         (a) A DR has been written and is being resolved.
         (b) The marine life may have been Asiatic Clams.

PALISADES SEP EVALUATED EXERCISE

INITIAL CONDITIONS (CONTINUED)

3. The following equipment is in service:

   a. Service Water Pumps P-7A and B
      1. P-7C is in standby
   b. CCW Pumps P-52A and B
      1. P-52C is in standby
   c. Battery Chargers #1 and #2
   d. Main Exhaust Fan V-6A
   e. Switchyard Station Power Transformers #1 and #2

4. The meteorological conditions are as follows:

   a. It is partly cloudy and cool with forecasts for a general clearing trend throughout the morning, but a 40% chance of rain. The Met Tower indicates the following (10 meters):
      1. Wind speed: 9.7 mph
      2. Wind direction: 320°
      3. Stability: C (based on dt)
      4. Ambient Temperature: 58°F

5. Primary and secondary chemistry is stable at the following conditions:

   a. Primary System Chemistry
      1. ph: 6.7
      2. Boron: 500 ppm
      3. Dissolved O_2: less than .02 ppm
      4. H_2: 24.8 cc/Kg
      5. Total Beta Gamma activity: 1.58 uCi/ml
      6. Iodine Dose Equivalent: 2.5E-2 uci/mi
      7. Total PCS gas activity: 4.33 uCi/ml

   b. Secondary System Chemistry
      1. Primary to secondary leak rate: .001 gpm
      2. Offgas Xe133: 2.95E-6 uci/ml
      3. Condenser Air in Leakage: 5.0 cfm
      4. A and B S/G Gross Gama activity: less than 5.6 E-6 uci/ml

   c. For additional information, see data sheets in the Chemistry section.

LIMITING CONDITIONS FOR OPERATION

MESSAGE: 1 TIME= 0815 T= -30 SCENARIO PALEX 86

COMPONENT	INITIATED DATE	INITIATED TIME	FINISH BY DATE	FINISH BY TIME	APPLICABLE TECH SPEC	COMMENTS
P-56A (Boric Acid Pump)	8/18/86	0103	----	----	3.2.3	No LCO as long as P-56B operable
P-54A (Cont Spray Pump)	8/17/86	1317	8/24/86	1317	3.4.1	
MO-3007 (HPSI Train 1)	1/1/86	0000	------	------	3.3	No LCO as long as valve blocked open

Message: 1

Time: 0815 T: -30 min.

Scenario: PALEX 1986

C-08

SW Pumps Run P-7A Run P-7B ___ P-7C
CCW Pumps Run P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps ____ P-66A ____ P-66B
(24) LPSI Pumps ____ P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
O CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp	175	°F
Charging Line Temp	400	°F
Letdown Line Temp	230	°F
SDCS from PCS (R)	-	°F
SDCS to PCS (R)	-	°F

C-02

(10) VCT Temp	120	°F
(10) VCT Press	22	psi
(10) VCT Level	72	%
PCP Control Bleedoff Press	80	psig
(26) Letdown Flow	36	GPM
(26) Charging Flow	40	GPM
(9) Quench Tank Temp	115	°F
(9) Quench Tank Press	0.5	psig
(9) Quench Tank Level	75	%
(7) Pzr Press (R)	2010	psia
(8) Pzr Level (R) LRC-0101A	57	%
LRC-0101B	57	%

(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A ___ P55B ___ P55C
(6) PCPs Run P50A Run P50B Run P50C Run P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 562 °F
Loop 2 (TR-0121) 562 °F
(25) Reactor Power Level
NI-1 ___ - cps NI-3 100 % NI-7 100 %
NI-2 ___ - cps NI-4 100 % NI-8 100 %
NI-5 100 % NI-9 100 %
NI-6 100 % NI-10 100 %

C-01

MFP Suction Press	370	psig
MFP A Dsch Press	940	psig
MFP B Dsch Press	940	psig
AFW Pump 8C Amperes	-	amps
AFW Pump 8C Disch Press	-	psig
AFW Pump 8A Amperes	-	amps
AFW Pump 8B Steam Press	-	psig
AFW Pumps 8A & 8B Disch Press	-	psig
Moisture Sep Dr Tank	64	%
Condenser Hotwell Level	65	%
Condenser Vacuum	27	in hg.
Gland Seal Cond Vacuum	18	in hg.
Atm. Stm. Dumps	Closed	

AFW Feed Pumps ___ P8A ___ P8B ___ P8C
Heater Drain Pumps Run P10A Run P10B
Condensate Pumps Run P2A Run P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 800
Net MW 760
(28) Control Rod Position
GP1 132 GP2 132 GP3 132 GP4 132
GP 5(P) 132 GP 6(A) 132 GP 7(B) 132
Stuck Rods ___ Yes X No # ___
(4) Core Exit Temp 590 °F

Messag. 1 Time: 0815 T: -30 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 80 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.3 psig
(16) S/G A Compartment Temp 130 °F
S/G A Compartment Humidity 0 %
(16) S/G B Compartment Temp 135 °F
S/G B Compartment Humidity 0 %
(16) Dome Temp 140 °F
(11) SIRWT Level 99 %
(15) WR Containment Press (R) 15.0 psia
(14) Containment Sump Level 0 %
(14) Containment Water Level (R) 0 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS ___ Yes X No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
___ Yes X No

C-12

Conc. Boric Acid Tank Levels
T53A 98 %
T53B 98 %
Reactor Vessel DP 48 psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 620 amps B 630 amps
C 625 amps D 620 amps
(6) PCS Flow 75 %
(3) T_H Loop 1 587 °F
Loop 2 587 °F
(2) T_c Loop 1 537 °F
Loop 2 537 °F
T_c WR(R) Loop 1 535 °F
Loop 2 535 °F
(5) Subcooling 49 °F 600 psig
(7) PCS WR Press (R) 2010 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 70 %
(30) S/G A Level (R) 70 %
(30) S/G A Press 700 psia
S/G A Steam Flow (R) 5.6 X10^6PPH
S/G A Feed Flow (R) 5.6 X10^6PPH
(30) S/G B Level WR 70 %
(30) S/G B Level (R) 70 %
(30) S/G B Press 700 psia
S/G B Steam Flow (R) 5.6 X10^6PPH
S/G B Feed Flow (R) 5.6 X10^6PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 0 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 0 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 1 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 ___
(32) 1C Buss Volts 2400 Amps OK
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

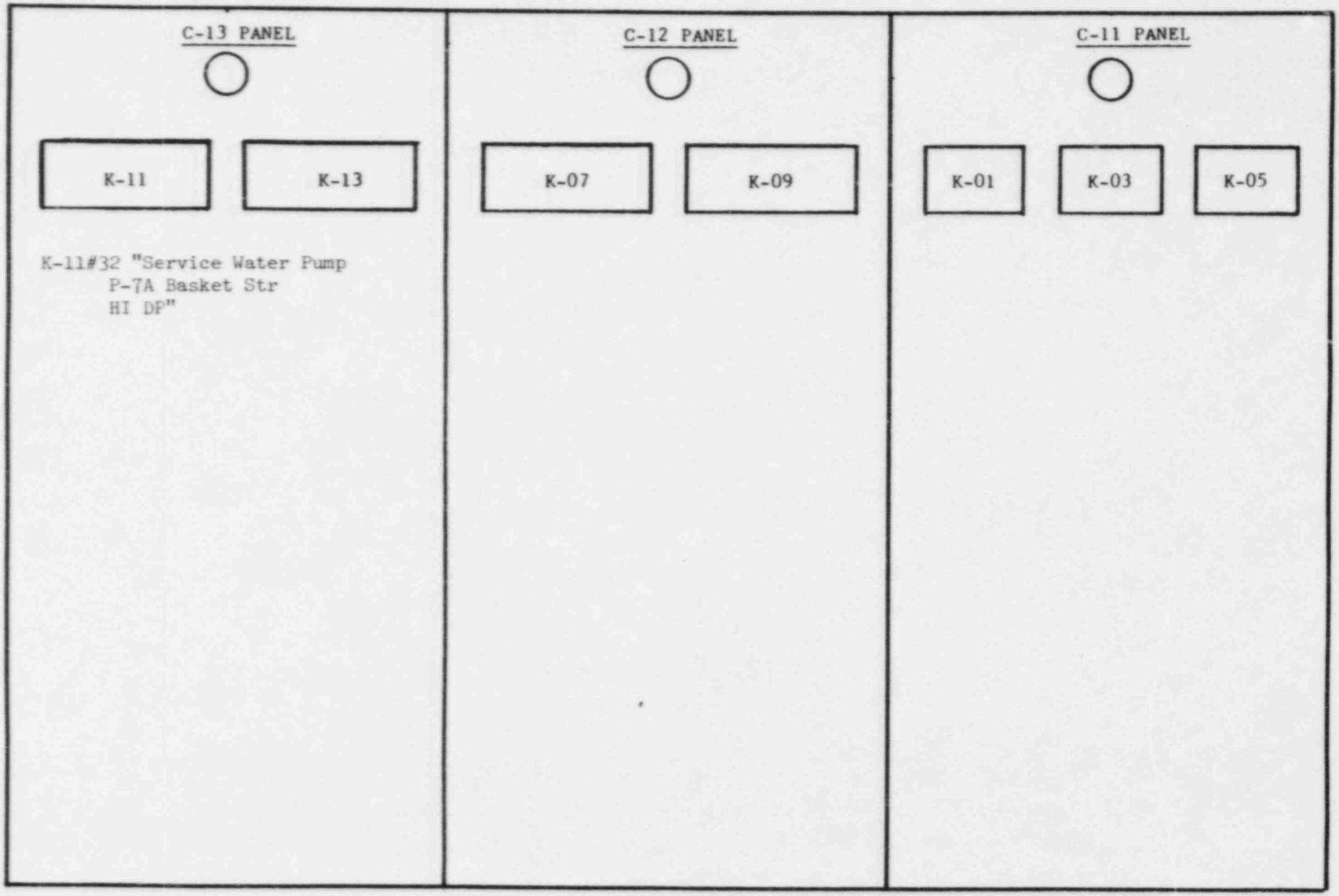
(17) Containment Area Monitors
RIA 1805 .02 R/Hr RIA 1806 .02 R/Hr
RIA 1807 0.2 R/Hr RIA 1808 0.1 R/Hr
(17) High Range Containment Monitors
RIA 2321 1.01 R/Hr RIA 2322 1.01 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

CONTROL ROOM ALARMS

MESSAGE: 1 TIME: 0815 T= -30 SCENARIO: PALEX 86



INITIAL CONDITIONS INFORMATION

FOR CONTROLLER USE ONLY

The following information will be supplied to the players at the players' request:

1. Containment Temperatures one week ago:

Reactor Cavity:	125
Dome:	128
S/G A Compt:	120
S/G B Compt:	122

2. Outside air temperatures for the past week have been relatively constant.

Scenario No: PALEX-86 Time = 0845

Message No: 2 T = 0

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets and Alarm Sheets

Message:

For Controller Use Only

Controller Notes: See 0845 Controller Notes sheet.

Action Expected: See 0845 Summary of Expected Action sheet.

0845 CONTROLLER NOTES

I. CONTROL ROOM CONTROLLER NOTES

1. Loss of flow trip all four channels (due to P-50B shaft failure)
   a. Flow instrument readings imply no flow in Loop 1B
      1) FI 0102A-D: approx 55
      2) PDI 01122AA-AD: approx 39
      3) PDI 0112BA-BD: approx 6
      4) PDI 0122CA-CD: approx 54
      5) PDI 0122DA-DD: approx 55
         a) Readings 2 - 5 Controller supplied on request.

   b. Primary Coolant Pump P-50B ammeter reads lower than others.
      1) P-50A: 635A
      2) P-50B: 165A
      3) P-50C: 630A
      4) P-50D: 625A

   c. P-50B seal conditioning are abnormal
      1) Leak off flow is 3 gmp
      2) Middle seal inlet pressure is 2K psi
      3) Upper seal inlet pressure is oscillating 800-1600 psi
      4) Vapor seal inlet pressure is 100 psi
      5) Temperature indications are normal
      6) Items 2 - 5 are Controller supplied on request.

   d. The following control room alarms come in:
      1) PCP VIBRATION ALERT
      2) PCP VIBRATION DANGER
      3) PCP P-50B SEAL PRESSURE OFF NORMAL
      4) PCP P-50B SEAL HX HI TEMP LEAKAGE HI FLOW

   E. The P-50B vibration monitor reads full scale at 30 mils.
      1) Item e is Controller supplied on request.

2. Control Rod 34 fails to insert.
   a. All other rods insert normally.
   b. Primary and secondary rod position show Rod 34 fully withdrawn.
   c. Neither rod rundown circuit nor operator actions (if taken) cause insertion.
   d. The following alarms occur:
      1) ROD POSITION 4" DEVIATION
      2) ROD POSITION 8" DEVIATION

0845 CONTROLLER NOTES (CONTINUED)

II. CONTROL ROOM CONTROLLER AND BUS 1C CONTROLLER NOTES:

1. Turbine and generator trip

   a. Normal trips
   b. Both diesel generators start
   c. Diesel Generator 1-1 trips immediately
      1) The Diesel Generator breaker 152-107 has tripped on overcurrent.

2. Lockout relay 187-107 picks up on an overcurrent trip and must be reset before engine will start or breaker will reclose.
   a) To reset relay 187-107 either the control room or local hand switch for breaker 152-107 must be put to TRIP.

3. Controller is at Bus 1C to inform operator that there are targets showing on two phases of the time-overcurrent relay.

4. The following control room alarms are on:
   a) D/G BREAKER 152-107 TRIP
   b) D/G 1-1 START SIGNAL BLOCKED
   c) D/G 1-1 and 1-2 OVERLOAD

2. Bus 1C is lost
   a. A loose section of the bus enclosure cabinet is jarred by the cycling of the 152-105 and 152-106 breakers during fast transfer and falls against the bus bars. This causes both phase-to-hase and phase-to-ground faults.
   b. Startup power breaker 152-106 has tripped.
      1) Two phases show flags on the time-overcurrent relays.
      2) Controller at Bus 1C to inform operator of indications.
      3) Breaker will close if tried from control room, but will trip again.
   c. The following major equipment is lost with Bus 1C
      1) AFW P-8A
      2) LPSI P-67B
      3) Service Water P-7B
      4) HPSI P-66B
      5) CCW P-52A and C
      6) Spray P-54B and C
      7) Station Power Transformer 11
         a) Bus 11 (can be X-tied to Bus 12)
            1) Chg P-55C
            2) Instrument Air Comp C-2A and C
            3) Main Exh Fan V-6B
            4) Cont Recirc Fan V-4A

0845 CONTROLLER NOTES (CONTINUED)

c. One boric pump is powered from Bus 1C, the other was made inoperable in the initial conditions; both boric acid gravity valves are powered from Bus 1C.

1) Failure of a control rod to insert on a scram requires emergency boration. No method of boration is available from the control room.
2) An operator will have to be sent to open the gravity feed valves by hand.
3) This pump failure may provide an additional maintenance project.

0845 CONTROLLER NOTES (CONTINUED)

8. Station Power Transformer 19
   a) MCC 1
      1) Battery Chargers #1 and #4
      2) HPSI MOVs 3007, 3009, 3011, and 3013
      3) LPSI MOVs 3008 and 3010
      4) Boric Acid Pump P-56B
         a) P-56A is inoperative, see Initial Conditions
      5) Boric Acid Gravity Feed Valves MO 2169 and 2170
      6) VCT outlet valve MO-2087
      7) Emergency Bearing Oil Pump P-27
      8) Emergency Air Side Backup P-24
      9) Normal supply to Y-01
         a) Y-01 auto transfers to MCC 3, fed from Bus 13, which has been tied to Bus 14. See Initial Conditions.
   b) Control room HVAC, one train

9. Switchyard Transformer #2 and 240V Bus #2
   a) Meteorological Tower lost
   b) Can cross-connect to Bus #1 at Switchyard.

10. Station Power Transformer 13
   a) Electrically isolated and tagged, See Initial Conditions.

III. GENERAL INFORMATION

1. The PCP shaft failure event was chosen to provide a single initiator which could, by only slightly stretching the facts, fail two of the three boundaries to fission product release.

2. The failure of Bus 1C due to a phase-to-phase fault removes any possibility of operating the train of ECCS powered by that bus (regardless of diesel generator operability or off-site power availability).

   a. Two containment spray pumps are powered from Bus 1C, the third was made inoperable in the initial conditions.
      1) The inoperable spray pump provides a mechanical maintenance project.
   b. One containment air cooler is powered from Bus 1C. It may be recovered with Bus 11. The running coolers are assumed to be ineffective due to fouling by Asiatic Clams.
      1) Evidenced by high containment temperature and service water basket strainer note in initial data.
      2) With neither sprays nor air coolers, containment pressure will increase with even a moderate PCS leak.
         a) A leak through faulty purge valve is assumed.
      3) Repair of the inoperable spray pump or repair of Bus 1C, allowing use of the other spray pumps, will provide a method to quickly reduce containment pressure.

0845 SUMMARY OF EXPECTED ACTIONS

1. Normal Post Trip actions

2. Trip P-50B
   a. Vibration reading alone requires trip

3. Attempt to insert Rod #34
   a. Manual trip
      1) Two places
   b. Rod drop switches
   c. Manual insertion
   d. Open RPS breakers 42-1 and 42-2 in Cable Spreading Room

4. Investigate loss of Bus 1C
   a. Controller stationed at Bus 1C with information
   b. Some possible actions (1, 2 and 3 are futile)
      1) Try to reclose startup power breaker 152-106
         a) Breaker would not close unless the "ITC switch" has been placed to CUT OUT, AND the generator trip relay 386-C has been reset.
         b) If closed, prior to repairing bus fault, the breaker would immediately trip on overcurrent.
      2) Try to use Diesel Generator 1-1.
         a) Engine would not start until relay 187-107 is reset.
         b) Breaker would immediately trip on overcurrent.
      3) Backfeed Bus 1C through main transformers.
         a) Generator disconnect links must be opened which would take a minimum of three hours.
         b) If station power breaker 152-105 is closed, it would immediately trip on overcurrent. (Unless bus has been repaired).
      4) Inspect and repair bus work
         a) After repair of fault, any of the above 3 methods will restore power to the bus and allow use of two spray pumps.
         b) Earliest permissible repair 1410 hours.

5. Send operator to open Boric Acid Gravity Feed valves.
   a. Stuck rod on trip requires emergency boration.
   b. Both Boric Acid pumps disabled.
   c. Power to gravity valves lost with Bus 1C.

0845 SUMMARY OF EXPECTED ACTIONS (CONTINUED)

6. Cross tie Bus 11 to Bus 12
   a. Regain vital loads
      1) Chg P-55C
      2) Instrument Air Comp C-2A and C
      3) Exh Fan V-6B
      4) Containment Fan V-4A
   b. Regain "Left" half of TSC lighting.

7. Send operator to switchyard to cross tie 240V Bus 2 to Bus 1
   a. Regain Meteorological Tower

8. Switch from battery charger #1 to #3.

Messa... 2 Time: 0845 T: 0 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 80 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.3 psig
(16) S/G A Compartment Temp 130 °F
S/G A Compartment Humidity 0 %
(16) S/G B Compartment Temp 135 °F
S/G B Compartment Humidity 0 %
(16) Dome Temp 140 °F
(11) SIRWT Level 99 %
(15) WR Containment Press (R) 15.0 psia
(14) Containment Sump Level 0 %
(14) Containment Water Level (R) 0 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS ___ Yes X No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
___ Yes X No

C-12

Conc. Boric Acid Tank Levels
T53A 99 %
T53B 99 %
Reactor Vessel DP 40 psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 635 amps B 165 amps
C 630 amps D 625 amps
(6) PCS Flow 55 %
(3) T_H Loop 1 ↓ 558 °F
Loop 2 ↓ 558 °F
(2) T_c Loop 1 ↓ 538 °F
Loop 2 ↓ 538 °F
T_c WR(R) Loop 1 ↓ 535 °F
Loop 2 ↓ 535 °F
(5) Subcooling 70 °F 785 psig
(7) PCS WR Press (R) 1900 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR ↓ 25 %
(30) S/G A Level (R) ↓ 25 %
(30) S/G A Press 900 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR ↓ 25 %
(30) S/G B Level (R) ↓ 25 %
(30) S/G B Press 900 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B - gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B - gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 3 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 Trip D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 .02 R/Hr RIA 1806 .02 R/Hr
RIA 1807 0.2 R/Hr RIA 1808 0.1 R/Hr
(17) High Range Containment Monitors
RIA 2321 1.01 R/Hr RIA 2322 1.01 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Message: 2 Time: 0845 T: 0 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps ___ P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A ___ V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps _____ P-66A _____ P-66B
(24) LPSI Pumps _____ P-67A _____ P-67B
(18) Containment Spray Pumps
_____ P-54A _____ P-54B _____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
O CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp	175 °F
Charging Line Temp	400 °F
Letdown Line Temp	230 °F
SDCS from PCS (R)	- °F
SDCS to PCS (R)	- °F

C-02

(10) VCT Temp	120 °F
(10) VCT Press	22 psi
(10) VCT Level	71 %
PCP Control Bleedoff Press	80 psig
(26) Letdown Flow	0 GPM
(26) Charging Flow	93 GPM
(9) Quench Tank Temp	115 °F
(9) Quench Tank Press	0.5 psig
(9) Quench Tank Level	75 %
(7) Pzr Press (R)	↓1900 psia
(8) Pzr Level (R) LRC-0101A	↓ 40 %
LRC-0101B	↓ 40 %

(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B ___ P55C
(6) PCPs Run P50A Run P50B Run P50C Run P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 548 °F↓
Loop 2 (TR-0121) 548 °F↓
(25) Reactor Power Level
NI-1 ___ - cps NI-3 10 % NI-7 10 %
NI-2 ___ - cps NI-4 10 % NI-8 10 %
NI-5 10 % NI-9 10 %
NI-6 10 % NI-10 10 %
All↓

C-01

MFP Suction Press	- psig
MFP A Dsch Press	- psig
MFP B Dsch Press	- psig
AFW Pump 8C Amperes	85 amps
AFW Pump 8C Disch Press	1600 psig
AFW Pump 8A Amperes	- amps
AFW Pump 8B Steam Press	- psig
AFW Pumps 8A & 8B Disch Press	- psig
Moisture Sep Dr Tank	64 %
Condenser Hotwell Level	65 %
Condenser Vacuum	27 in hg.
Gland Seal Cond Vacuum	18 in hg.
Atm. Stm. Dumps	Open

AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps Run P10A Run P10B
Condensate Pumps Run P2A Run P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 132 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 560 °F

CONTROL ROOM ALARMS

MESSAGE: 2 TIME: 0845 T= 0 SCENARIO: PALEX 86

C-13 PANEL

K-11 | K-13

C-12 PANEL

K-07 | K-09

K-07 #53 & 54 - "Pzr Press Off-Norm Hi-Lo"
K-07 #61 - "Pzr Level Hi-Lo"
K-09 #11 - "Rod 4 Inch Deviation"
K-09 #12 - "Rod 8 Inch Deviation"
K-09 #13 - "PCP Vibration Alert"
K-09 #14 - "PCP Vibration Danger"
K-09 #18 - "Auto Rod Withdrawal Prohibit"
K-09 #23,24,29,30,35,36,41 & 42 - "Rod PPDIL/PDIL Alarms"
K-09 #48 - "Dropped Rod"
K-09 #50 - "P-50B Seal Press Off Normal"
K-09 #56 - "P-50B Seal HX Hi Temp/ Leakage Hi Flow"
K-09 #62 - "E-50A Low Level"
K-09 #64 - "E-50B Low Level"
K-09 #68 - "#1 Rx Reg Gross Deviation"
K-09 #69 - "#2 Rx Reg Gross Deviation"
K-09 #72 - "Reactor Trip"

C-11 PANEL

K-01 | K-03 | K-05

K-01 #1 - "Turbine Trip"
K-01 #12 - "Relatch Turbine and Vacuum"
K-03 #1 - "Generator Trip"
K-03 #7 - "Generator ACB Trip"
K-03 #33 - "SWYD 125VDC/240VAC Trouble"
K-05 #3 - "Bus 1C BRK 152-105 Trip"
K-05 #6 - "SWYD BRK 152-108 Trip"
K-05 #9 - "Bus 1C BKR 152-106 Trip"
K-05 #15 - "Bus 1C/1D Undervoltage"
K-05 #18 - "Bus 1C/1D/1E Ground"
K-05 #22 - "Bus Fail to Transfer"
K-05 #41 - "Battery Charger Power Off"
K-05 #49 - "D/G KBR 152-107 Trip"
K-05 #51 - "D/G 1-1 Trouble"
K-05 #52 - "D/G 1-1 Start Signal Blocked"
K-05 #53 - "D/G's 1-1/1-2 Overload"

CONTROL ROOM ALARMS

MESSAGE: 2 TIME: 0845 T= 0 SCENARIO: PALEX 86

C-06 PANEL

A RACK	B RACK	C RACK	D RACK

Rack A

#3 - "Low Flow Channel Trip"
#7 - "Low Flow Channel Pretrip"

Rack C

#7 - "Dropped Rod"

C-106 PANEL

K-33

C-126 PANEL

K-35

C-11A PANEL

K-02

Scenario No: PALEX-86 Time = 0845

Message No: 2a T = 0

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Operators and/or Maintenance Repair Team

Simulated Plant Conditions: Unable to operate Bus 1C

Message: Start-up power breaker 152-106 and diesel generator breaker 152-107 have tripped.
Two phases show flags on the time-overcurrent relays.

For Controller Use Only

Controller Notes: A loose section of the bus enclosure cabinet was jarred by the cycling of the 152-105 and 152-106 breakers during fast transfer and falls against the bus bars. This causes both phase-to-phase and phase-to-ground faults.

Action Expected: Investigate loss of Bus 1C.
Some possible actions (1, 2 and 3 are futile).

1. Try to reclose start-up power breaker 152-106.
   a. Breaker would not close unless the "ITC switch" has been placed to CUT OUT, AND the generator trip relay 386-C has been reset.
   b. If closed, prior to repairing bus fault, the breaker would immediately trip on overcurrent.
2. Try to use Diesel Generator 1-1.
   a. Engine would not start until relay 187-107 is reset.
   b. Breaker would immediately trip on overcurrent.
3. Backfeed Bus 1C through main transformers.
   a. Generator disconnect links must be opened which would take a minimum of three hours.
   b. If station power breaker 152-105 is closed, it would immediately trip on overcurrent (unless bus has been repaired).
4. Inspect and repair bus work.
   a. After repair of fault, any of the above three methods will restore power to the bus and allow use of two spray pumps.

Earliest permissible repair, 1410 hours.

Scenario No: PALEX-86 Time = 0845

Message No: 2b T = 0

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Maintenance Teams

Simulated Plant Conditions: Spray pump P-54A out of service

Message: As required by Controller either verbal or written

For Controller Use Only:

Controller Notes: Spray Pump P-54A is out of service.
1. The pump is disassembled following a seal failure.
2. The manufacturer's representative is due in tomorrow.
3. She is bringing an improved design seal with her.
4. The pump was declared inoperable two days ago at 1317 hours.

Action Expected:
1. Locate a spare seal using appropriate methods a spare seal from the Stockroom-simulate transporting to Safeguards Room.
2. Locate appropriate tools to effect repair (may already be at jobsite).
3. Simulate repair.
4. Cannot be repaired before 1410.

Parts Needs:
1. Seal stock No 37-44059

Scenario No: PALEX-86 Time = 0845

Message No: 2c T = 0

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Maintenance Teams

Simulated Plant Conditions: Service water basket strainer P-7A high D/P.

Message: As required by Controller either verbal or written.

For Controller Use Only:

Controller Notes: The "SERVICE WATER PUMP P-7A BASKET STRAINER HI dP" alarm has been intermittent since last evening.

1. A maintenance order has been written for cleaning the strainer.
2. P-7B strainer was cleaned last week. It was partially plugged with debris and marine life.
   a. A DR has been written and is being resolved.
   b. The marine life may have been Asiatic Clams.

Action Expected:

1. If the Technical Support Center wants this work performed the maintenance teams shall perform all necessary steps to setup for basket strainer cleaning, ie, valving clearance, tools in area, etc.
2. Simulate the actual work of disassembly of strainer and valving.
3. This work will take two hours to complete.
4. Will require taking pump out of service resulting in less water to containment air coolers.

Scenario No: PALEX-86 Time = 0845

Message No: 2d T = 0

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Maintenance Teams

Simulated Plant Conditions: Boric Acid Pump P-56A will not run

Message: As required by Controller either verbal or written

For Controller Use Only:

Controller Notes: Boric Acid Pump P-56A will not run.

1. It is thought to be bound up with solidified boric acid.
2. Its breaker is open and caution tagged. Work order written, but not yet processed.
3. It was declared "INOPERABLE" yesterday at 0103 hours.

Action Expected:

1. Inspect and troubleshoot pump. (This may require Anti 'C's) depending on requirement for BA Room.
2. Pump will have to be torn apart. (Simulate at site.)
3. Involve Electrical and/or I&C to remove heat trace and instruments.
4. Find spare pump (motor good, pump bad) using all appropriate methods.
5. This pump will take eight hours to rebuild.

Scenario No: PALEX-86 Time = 0845

Message No: 2e T = 0

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Maintenance Team

Simulated Plant Conditions: Control Rod No 34 stuck full out.

Message: As required by Controller either verbal or written.

For Controller Use Only:

Controller Notes: Control Rod No 34 fails to insert.

1. All other rods insert normally.
2. Primary and secondary rod position show Rod No 34 fully withdrawn.
3. Neither rod rundown circuit nor operator actions (if taken) cause insertion.
4. The following alarms occur:
   a. ROD POSITION 4" DEVIATION
   b. ROD POSITION 8" DEVIATION

Action Expected:

1. All attempts to insert this rod by maintenance teams fail.
2. This rod will be stuck for the duration of the scenario.
3. Possible action that may be demonstrated (simulate) to remove all power/or drive rod in from C-15 Panel.

   Attempt to insert Rod No 34
   a. Manual trip
      (1) Two places
   b. Rod drop switches
   c. Manual insertion
   d. Open RPS breakers 42-1 and 42-2 in Cable Spreading Room

Scenario No: PALEX-86 Time = 0855

Message No: 3 T = +10 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets and Alarm Sheet

Message:

For Controller Use Only

Controller Notes: Failed Fuel Monitor Responds to Fuel Damage

A. Both gross Gamma and single channel go off scale high.

B. NSSS sample panel area, high radiation.

C. Letdown path and charging pump areas, high radiation.

Action Expected: A. Per fuel cladding failure procedure ONP 11.

B. Possibly declare Alert prior to receipt of sample analysis results.

Message: 3 Time: 0855 T: 10 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps ___ P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A ___ V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps ____ P-66A ____ P-66B
(24) LPSI Pumps ____ P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
O CV-3057 (SIRWI) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWI) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp 175 °F
Charging Line Temp 400 °F
Letdown Line Temp 230 °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 18 psi
(10) VCT Level 48 %
PCP Control Bleedoff Press 80 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 93 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) ↑ 1800 psia
(8) Pzr Level (R) LRC-0101A ↑ 36 %
LRC-0101B ↑ 36 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B ___ P55C
(6) PCPs Run P50A ___ P50B Run P50C Run P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 532 °F
Loop 2 (TR-0121) 532 °F
(25) Reactor Power Level
NI-1 ___ - cps NI-3 10^{-2} % NI-7 ___ - %
NI-2 ___ - cps NI-4 10^{-2} % NI-8 ___ - %
NI-5 ___ - % NI-9 ___ - %
NI-6 ___ - % NI-10 ___ - %

C-01

MFP Suction Press ____ - psig
MFP A Dsch Press ____ - psig
MFP B Dsch Press ____ - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes ____ - amps
AFW Pump 8B Steam Press ____ - psig
AFW Pumps 8A & 8B Disch Press ____ - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ____ P8A ____ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 132 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 535 °F

Messa_ 3 Time: 0855 T: 10 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 79 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.3 psig
(16) S/G A Compartment Temp 130 °F
S/G A Compartment Humidity 0 %
(16) S/G B Compartment Temp 135 °F
S/G B Compartment Humidity 0 %
(16) Dome Temp 140 °F
(11) SIRWT Level 99 %
(15) WR Containment Press (R) 15.0 psia
(14) Containment Sump Level 0 %
(14) Containment Water Level (R) 0 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS ___ Yes X No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
___ Yes X No

C-12

Conc. Boric Acid Tank Levels
T53A 97 %
T53B 97 %
Reactor Vessel DP 40 psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 635 amps B 0 amps
C 630 amps D 625 amps
(6) PCS Flow 55 %
(3) T_H Loop 1 532 °F
Loop 2 532 °F
(2) T_C Loop 1 532 °F
Loop 2 532 °F
T_C WR(R) Loop 1 530 °F
Loop 2 530 °F
(5) Subcooling 89 °F 900 psig
(7) PCS WR Press (R) 1800 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 25 %
(30) S/G A Level (R) 25 %
(30) S/G A Press 900 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 25 %
(30) S/G B Level (R) 25 %
(30) S/G B Press 900 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 3 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

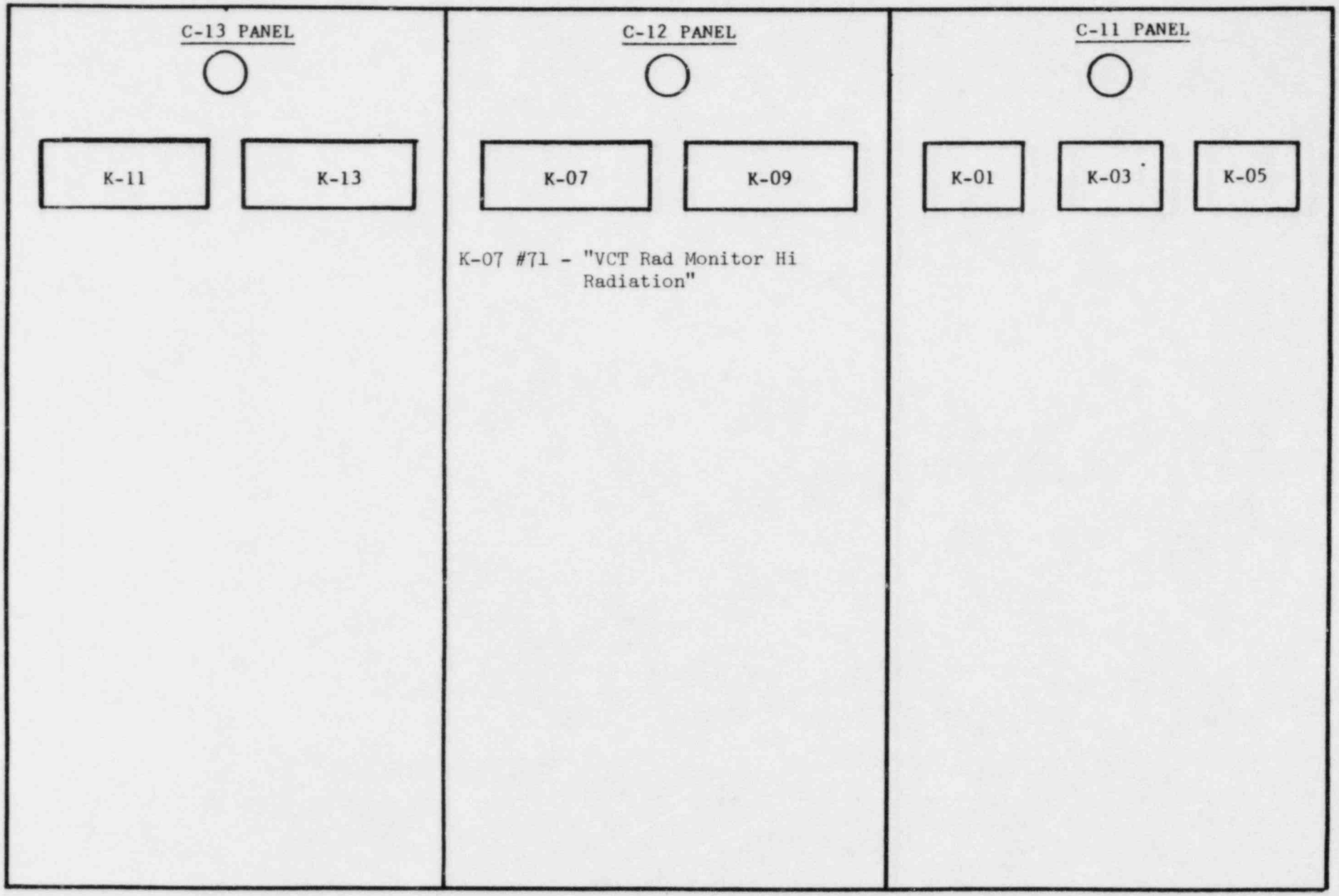
(17) Containment Area Monitors
RIA 1805 .02 R/Hr RIA 1806 .02 R/Hr
RIA 1807 2.7 R/Hr RIA 1808 2.7 R/Hr
(17) High Range Containment Monitors
RIA 2321 1.01 R/Hr RIA 2322 1.01 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

CONTROL ROOM ALARMS

MESSAGE: 3 TIME: 0855 T= +10 min SCENARIO: PALEX 86



Scenario No: PALEX-86 Time = 0900

Message No: 4 (Contingency Message) T = 15 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions:

Message: A Reactor Operator has called and requested that Exhaust Fan V-6B and Charging Pump P-55C be returned to service immediately.

For Controller Use Only

Controller Notes: Submit this message only if action has not been initiated to cross tie Buses 11 and 12 which restores the following equipment:

A. P-55C (Charging Pump)
B. C-2A and C-2C (Instrument Air Compressors)
C. V-6B (Main Exhaust Fan)
D. V-4A (Containment Vent Fan)

Action Expected: Cross tie Buses 11 and 12.

Scenario No: PALEX-86 Time = 0905

Message No: 5 T = +20 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 5 Time: 0905 T: 20 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps _____ P-66A _____ P-66B
(24) LPSI Pumps _____ P-67A _____ P-67B
(18) Containment Spray Pumps
_____ P-54A _____ P-54B _____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp	175	°F
Charging Line Temp	400	°F
Letdown Line Temp	230	°F
SDCS from PCS (R)	-	°F
SDCS to PCS (R)	-	°F

C-02

(10) VCT Temp	120	°F
(10) VCT Press	18	psi
(10) VCT Level	50	%
PCP Control Bleedoff Press	80	psig
(26) Letdown Flow (Diverting)	40	GPM
(26) Charging Flow	93	GPM
(9) Quench Tank Temp	115	°F
(9) Quench Tank Press	0.5	psig
(9) Quench Tank Level	75	%
(7) Pzr Press (R)	↑ 1900	psia
(8) Pzr Level (R) LRC-0101A	42	%
LRC-0101B	42	%

(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B ___ P55C
(6) PCPs Run P50A ___ P50B Run P50C Run P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 532 °F
Loop 2 (TR-0121) 532 °F
(25) Reactor Power Level
NI-1 10^4 cps NI-3 10^{-5} % NI-7 - %
NI-2 10^4 cps NI-4 10^{-5} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press	-	psig
MFP A Dsch Press	-	psig
MFP B Dsch Press	-	psig
AFW Pump 8C Amperes	85	amps
AFW Pump 8C Disch Press	1600	psig
AFW Pump 8A Amperes	-	amps
AFW Pump 8B Steam Press	-	psig
AFW Pumps 8A & 8B Disch Press	-	psig
Moisture Sep Dr Tank	64	%
Condenser Hotwell Level	65	%
Condenser Vacuum	27	in hg.
Gland Seal Cond Vacuum	18	in hg.
Atm. Stm. Dumps	Closed	

AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 132 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 535 °F

Mess. 5 Time: 0905 T: 20 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 78 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.3 psig
(16) S/G A Compartment Temp 130 °F
S/G A Compartment Humidity 0 %
(16) S/G B Compartment Temp 135 °F
S/G B Compartment Humidity 0 %
(16) Dome Temp 140 °F
(11) SIRWT Level 99 %
(15) WR Containment Press (R) 15.0 psia
(14) Containment Sump Level 0 %
(14) Containment Water Level (R) 0 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS ___ Yes X No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
___ Yes X No

C-12

Conc. Boric Acid Tank Levels
T53A 90 %
T53B 90 %
Reactor Vessel DP 40 psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 635 amps B 0 amps
C 630 amps D 625 amps
(6) PCS Flow 55 %
(3) T_H Loop 1 532 °F
Loop 2 532 °F
(2) T_c Loop 1 532 °F
Loop 2 532 °F
T_c WR(R) Loop 1 530 °F
Loop 2 530 °F
(5) Subcooling 96 °F 1000 psig
(7) PCS WR Press (R) ↑1900 psia
(7) PCS NR Press (R) ↑1900 psia
(30) S/G A Level WR 26 %
(30) S/G A Level (R) 26 %
(30) S/G A Press 900 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 26 %
(30) S/G B Level (R) 26 %
(30) S/G B Press 900 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 3 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 .02 R/Hr RIA 1806 .02 R/Hr
RIA 1807 3.8 R/Hr RIA 1808 3.3 R/Hr
(17) High Range Containment Monitors
RIA 2321 1.01 R/Hr RIA 2322 1.01 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 0915

Message No: 6 T = +30 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:
1. P-50B upper seal fails, vapor seal is leaking to containment (60 gpm).
2. P-50B seal inlet pressures go to PCS pressure.
3. P-50B lower seal temperature is off scale high.
4. Primary Coolant drain tank level and temperature will start to increase slowly.
5. Pressurizer level is decreasing at approximately 1% every 6 minutes (assumes P-55A & B running, 40 gpm letdown, 60 gpm leak)

Action Expected:
A. Per "Primary Coolant Leak" Procedure ONP 23.1
B. Possible declaration of Site Area Emergency (SED opinion)

Message: 6 Time: 0915 T: 30 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps ____ P-66A ____ P-66B
(24) LPSI Pumps ____ P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
O CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp 175 °F
Charging Line Temp 400 °F
Letdown Line Temp 230 °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 18 psi
(10) VCT Level 52 %
PCP Control Bleedoff Press 80 psig
(26) Letdown Flow (Diverting) 40 GPM
(26) Charging Flow 93 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 2010 psia
(8) Pzr Level (R) LRC-0101A 42 %
LRC-0101B 42 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B ___ P55C
(6) PCPs Run P50A ___ P50B Run P50C Run P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 532 °F
Loop 2 (TR-0121) 532 °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 132 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 535 °F

Messag 6 Time: 0915 T: 30 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 77 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.3 psig
(16) S/G A Compartment Temp 130 °F
S/G A Compartment Humidity 0 %
(16) S/G B Compartment Temp 135 °F
S/G B Compartment Humidity 0 %
(16) Dome Temp 140 °F
(11) SIRWT Level 99 %
(15) WR Containment Press (R) 15.0 psia
(14) Containment Sump Level 0 %
(14) Containment Water Level (R) 0 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS ___ Yes X No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
___ Yes X No

C-12

Conc. Boric Acid Tank Levels
T53A 82 %
T53B 82 %
Reactor Vessel DP 40 psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 635 amps B 0 amps
C 630 amps D 625 amps
(6) PCS Flow 55 %
(3) T_H Loop 1 532 °F
Loop 2 532 °F
(2) T_c Loop 1 532 °F
Loop 2 532 °F
T_c WR(R) Loop 1 530 °F
Loop 2 530 °F
(5) Subcooling 104 °F 1110 psig
(7) PCS WR Press (R) 2010 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 26 %
(30) S/G A Level (R) 26 %
(30) S/G A Press 900 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 26 %
(30) S/G B Level (R) 26 %
(30) S/G B Press 900 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 .02 R/Hr RIA 1806 .02 R/Hr
RIA 1807 4.3 R/Hr RIA 1808 3.8 R/Hr
(17) High Range Containment Monitors
RIA 2321 1.01 R/Hr RIA 2322 1.01 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 0920

Message No: 7 T = +35 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:
a. With letdown isolated, pzr level will increase at approximately ½% per minute (assumes charging flow at approximately 93 gpm, leak from P-50B seal at approximately 60 gpm).
b. With letdown in service, pzr level will decrease approximately 1% every 6 minutes (same assumptions as (a) above plus 40 gpm letdown).

Action Expected: Per ONP 23.1.

Message: 7 Time: 0920 T: 35 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps ____ P-66A ____ P-66B
(24) LPSI Pumps ____ P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp 175 °F
Charging Line Temp 400 °F
Letdown Line Temp 230 °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 19 psi
(10) VCT Level 53 %
PCP Control Bleedoff Press 80 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 93 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 2010 psia
(8) Pzr Level (R) LRC-0101A ↑ 43 %
LRC-0101B ↑ 43 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B ___ P55C
(6) PCPs Run P50A ___ P50B Run P50C Run P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 532 °F
Loop 2 (TR-0121) 532 °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 132 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 535 °F

Messa_ 7 Time: 0920 T: 35 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 76 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.4 psig
(16) S/G A Compartment Temp 132 °F
S/G A Compartment Humidity 10 %
(16) S/G B Compartment Temp 135 °F
S/G B Compartment Humidity 0 %
(16) Dome Temp 140 °F
(11) SIRWT Level 99 %
(15) WR Containment Press (R) 15.1 psia
(14) Containment Sump Level 1 %
(14) Containment Water Level (R) 0 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS ___ Yes X No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
___ Yes X No

C-12

Conc. Boric Acid Tank Levels
T53A 79 %
T53B 79 %
Reactor Vessel DP 40 psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 635 amps B 0 amps
C 630 amps D 625 amps
(6) PCS Flow 55 %
(3) T_H Loop 1 532 °F
Loop 2 532 °F
(2) T_c Loop 1 532 °F
Loop 2 532 °F
T_c WR(R) Loop 1 530 °F
Loop 2 530 °F
(5) Subcooling 104 °F 1110 psig
(7) PCS WR Press (R) 2010 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 27 %
(30) S/G A Level (R) 27 %
(30) S/G A Press 900 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 27 %
(30) S/G B Level (R) 27 %
(30) S/G B Press 900 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 .02 R/Hr RIA 1806 .02 R/Hr
RIA 1807 4.5 R/Hr RIA 1808 4 R/Hr
(17) High Range Containment Monitors
RIA 2321 1.01 R/Hr RIA 2322 1.01 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 0925

Message No: 8 T = +40 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets and Alarm Sheet

Message:

For Controller Use Only

Controller Notes: a. Sample line valves CV-1910 and CV-1911 will be closed by CHR signal. Will not be able to sample PCS until appropriate jumpers are placed per EI-7.1.

b. Letwodn also isolated on CHR signal.

Action Expected: Verify CHR isolation.

Message: 8 Time: 0925 T: 40 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps ____ P-66A ____ P-66B
(24) LPSI Pumps ____ P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 150 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 19 psi
(10) VCT Level 53 %
PCP Control Bleedoff Press 80 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 93 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 2010 psia
(8) Pzr Level (R) LRC-0101A ↑ 45 %
LRC-0101B ↑ 45 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B ___ P55C
(6) PCPs Run P50A ___ P50B Run P50C Run P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 532 °F
Loop 2 (TR-0121) 532 °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 -, % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 132 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 535 °F

Mes. #: 8 Time: 0925 T: 40 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 76 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.5 psig
(16) S/G A Compartment Temp 136 °F
S/G A Compartment Humidity 20 %
(16) S/G B Compartment Temp 136 °F
S/G B Compartment Humidity 5 %
(16) Dome Temp 141 °F
(11) SIRWT Level 99 %
(15) WR Containment Press (R) 15.2 psia
(14) Containment Sump Level 2 %
(14) Containment Water Level (R) 0 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS ___ Yes X No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 71 %
T53B 71 %
Reactor Vessel DP 40 psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 635 amps B 0 amps
C 630 amps D 625 amps
(6) PCS Flow 55 %
(3) T_H Loop 1 532 °F
Loop 2 532 °F
(2) T_c Loop 1 532 °F
Loop 2 532 °F
T_c WR(R) Loop 1 530 °F
Loop 2 530 °F
(5) Subcooling 104 °F 1110 psig
(7) PCS WR Press (R) 2010 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 27 %
(30) S/G A Level (R) 27 %
(30) S/G A Press 900 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 27 %
(30) S/G B Level (R) 27 %
(30) S/G B Press 900 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

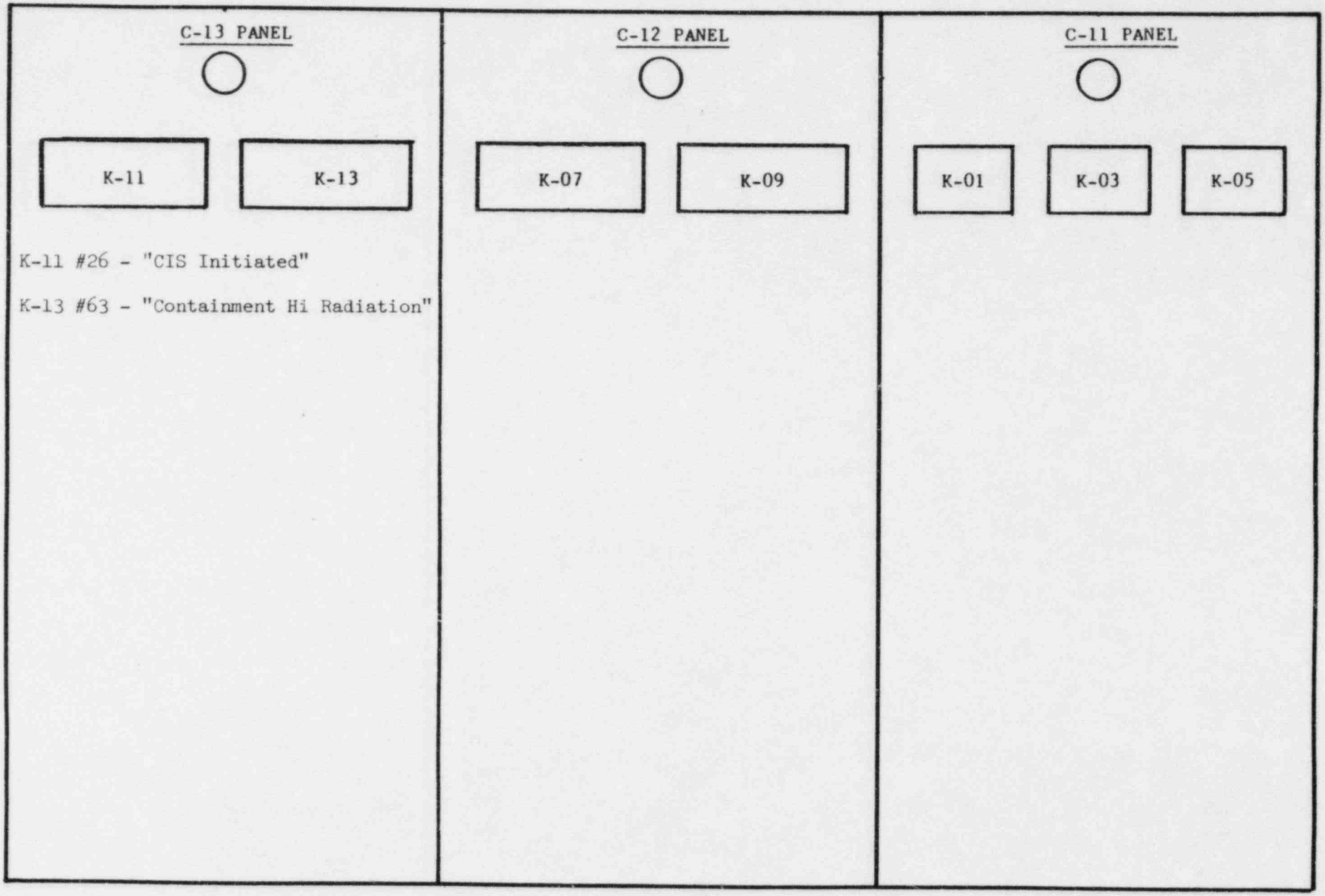
(17) Containment Area Monitors
RIA 1805 0.1 R/Hr RIA 1806 0.2 R/Hr
RIA 1807 5 R/Hr RIA 1808 4.8 R/Hr
(17) High Range Containment Monitors
RIA 2321 1.2 R/Hr RIA 2322 1.8 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

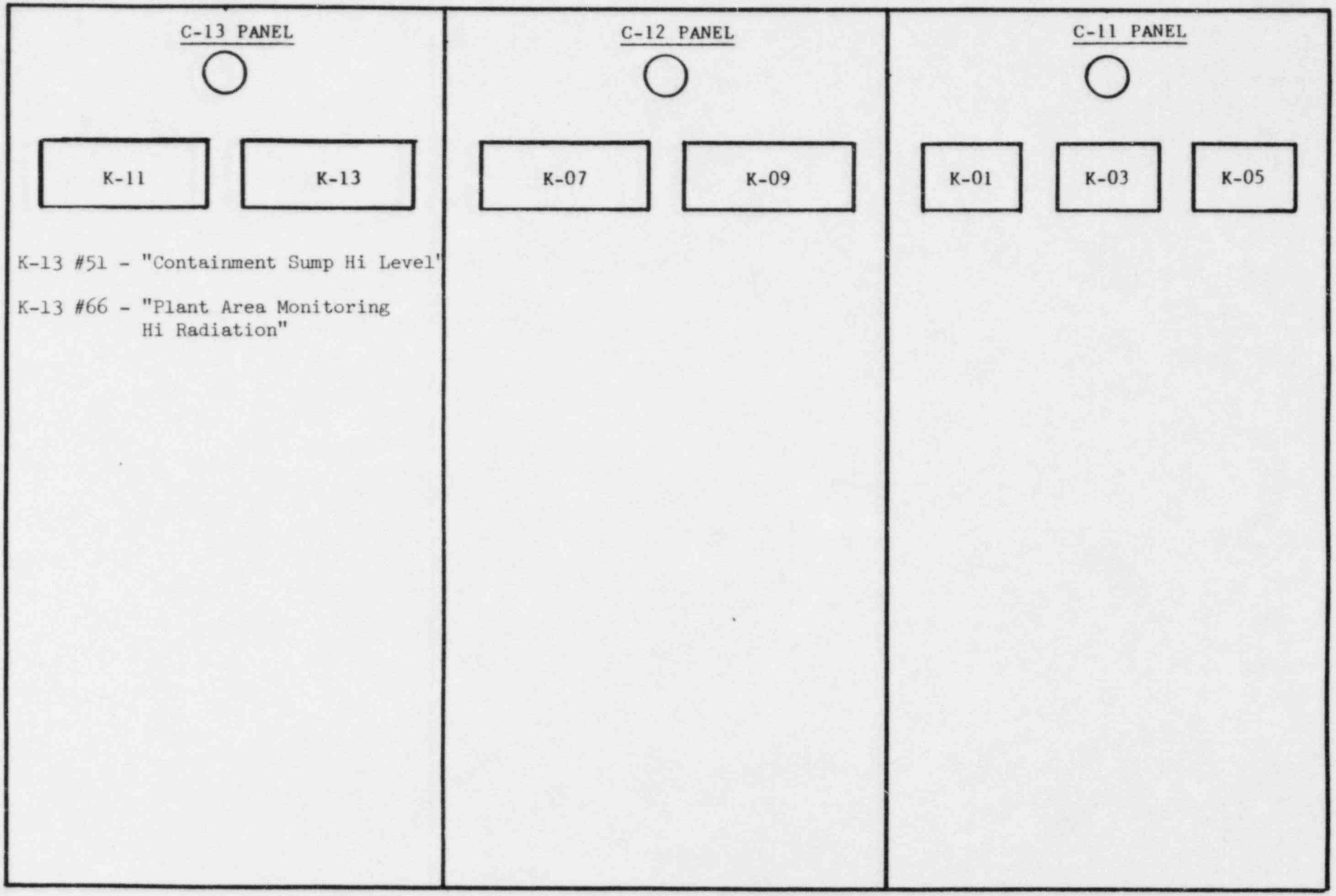
CONTROL ROOM ALARMS

MESSAGE: 8 TIME: 0925 T= +40 min SCENARIO: PALEX 86



CONTROL ROOM ALARMS

MESSAGE: 9 TIME: 0930 T= +45 min SCENARIO: PALEX 86



Scenario No: PALEX-86 Time = 0930

Message No: 9 T = 45 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets and Alarm Sheet

Message:

For Controller Use Only

Controller Notes: Operators should be reducing PCS pressure (via normal pzr spray) in attempt to reduce leak rate out of P-50B seal. (Operators should block SIAS while pressure is being reduced).

Action Expected: The SED should classify an Alert based on 60 gpm LOCA.

Message: 9 Time: 0930 T: 45 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps _____ P-66A _____ P-66B
(24) LPSI Pumps _____ P-67A _____ P-67B
(18) Containment Spray Pumps
_____ P-54A _____ P-54B _____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
O CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 150 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 19 psi
(10) VCT Level 54 %
PCP Control Bleedoff Press 80 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 93 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 1980 psia
(8) Pzr Level (R) LRC-0101A ↑ 47 %
LRC-0101B ↑ 47 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B ___ P55C
(6) PCPs Run P50A ___ P50B Run P50C Run P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 532 °F
Loop 2 (TR-0121) 532 °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 132 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 535 °F

Messa_ 9 Time: 0930 T: 45 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 75 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.6 psig
(16) S/G A Compartment Temp 140 °F
S/G A Compartment Humidity 30 %
(16) S/G B Compartment Temp 137 °F
S/G B Compartment Humidity 10 %
(16) Dome Temp 142 °F
(11) SIRWT Level 99 %
(15) WR Containment Press (R) 15.3 psia
(14) Containment Sump Level 4 %
(14) Containment Water Level (R) 0 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS ___ Yes X No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 68 %
T53B 68 %
Reactor Vessel DP 40 psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 635 amps B 0 amps
C 630 amps D 625 amps
(6) PCS Flow 55 %
(3) T_H Loop 1 532 °F
Loop 2 532 °F
(2) T_C Loop 1 532 °F
Loop 2 532 °F
T_C WR(R) Loop 1 530 °F
Loop 2 530 °F
(5) Subcooling 102 °F 1080 psig
(7) PCS WR Press (R) 1980 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 28 %
(30) S/G A Level (R) 28 %
(30) S/G A Press 900 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 28 %
(30) S/G B Level (R) 28 %
(30) S/G B Press 900 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 .15 R/Hr RIA 1806 .35 R/Hr
RIA 1807 5.5 R/Hr RIA 1808 5 R/Hr
(17) High Range Containment Monitors
RIA 2321 1.5 R/Hr RIA 2322 2.0 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

THREAT REPORT GUIDE

INSTRUCTIONS: BE CALM. BE COURTEOUS. LISTEN, DO NOT INTERRUPT THE CALLER. SIGNAL A SECOND PERSON TO LISTEN TO THE CONVERSATION, IF POSSIBLE.

Date 8/19/86 Time _____

Exact Words of Person Placing Call: There is a pipe bomb in the warehouse set to go off in 15 minutes. I don't want anyone to get hurt except the power company. I couldn't get one into the plant or else I would have planted it there. (Then hung up)

SAMPLE QUESTIONS TO ASK:

Bomb Threats

1. When is the bomb going to explode? 15 minutes
2. Where is the bomb right now? Warehouse
3. What kind of a bomb is it? Pipe
4. What does it look like? _____
5. Why did you place the bomb? _____
6. How much explosive in the bomb? _____

Hostage/Kidnap/Extortion

1. Where is the person now? _____
2. When will he be released? _____
3. Who do you represent? _____
4. Where can you be contacted? _____
5. What do you want? _____

Scenario No: PALEX-86

Time = 0930

Message No: 10A

T = 45 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Property Protection Supervisor or Designate

Simulated Plant Conditions: Simulated call from switchboard/simulated device

Message: See attached

For Controller Use Only

Controller Notes: To be initiated by lead security controller in conjunction with lead onsite controller.

Action Expected:

- Procedures in SCP-1 should be followed.
- Building should be evacuated.
- Actions as determined by the PPS for owner controlled area bomb threat.

Threats of Attacks

1. What objective do you hope to gain? _____
2. What is the size of the attack force? _____
3. How do you plan to attack? _____
4. What group do you represent? _____
5. When will the attack take place? _____

_____

TRY TO DETERMINE THE FOLLOWING (CIRCLE AS APPROPRIATE):

Caller's Identity: (Male) Female Adult Juvenile Age 30-40 Years

Voice: (Loud) Soft High Pitch Deep Raspy Pleasant

Intoxicated Other _____

Accent: (Local) Not Local Foreign Region

Speech: (Fast) Slow Distinct Distorted Stutter Nasal

Slurred Lisp

Language: Excellent Good (Fair) Poor Foul Other

Manner: Calm (Angry) Rational Irrational Coherent

Incoherent (Deliberate) Emotional Righteous Laughing

Intoxicated

Background Noises: Office Machines Factory Machines Bedlam Trains

Animals Music Quiet Voices Mixed

Airplanes (Street Traffic) Party Atmosphere

Scenario No: PALEX-86 Time = 0930

Message No: 10b T = 45 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Site Emergency Director/Property Protection Supervisor

Simulated Plant Conditions:

Message: Do not perform a second accountability.

For Controller Use Only:

Controller Notes: This message will be issued only in the event that accountability is being ordered due to the bomb sequence.

Action Expected:

Scenario No: PALEX-86

Time = 0945

Message No: 10C

T = 1 hr

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Officers on Scene

Simulated Plant Conditions: Simulated explosion

Message: Device has exploded. Extensive damage to the west side of the warehouse.

- There is no fire
- There are no suspects

For Controller Use Only

Controller Notes: Security phase terminated upon discretion of lead security controller in conjunction with lead onsite controller.

Action Expected: Actions in SCP-8 should be followed.
Action as determined by the PPS for owner controlled area explosion.

Scenario No: PALEX-86 Time = 0945

Message No: 11 T = 1 hr

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 11 Time: 0945 T: 1 hr. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps ____ P-66A ____ P-66B
(24) LPSI Pumps ____ P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
O CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 150 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 19 psi
(10) VCT Level 55 %
PCP Control Bleedoff Press 80 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 93 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 1550 psia
(8) Pzr Level (R) LRC-0101A ↑ 55 %
LRC-0101B ↑ 55 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B ___ P55C
(6) PCPs Run P50A ___ P50B Run P50C Run P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 532 °F
Loop 2 (TR-0121) 532 °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 132 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 535 °F

Messa$_b$ 11 Time: 0945 T: 1 hr. Scenario: PALEX 1986

C-13

CST Level (T-2) 74 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.7 psig
(16) S/G A Compartment Temp 142 °F
S/G A Compartment Humidity 50 %
(16) S/G B Compartment Temp 139 °F
S/G B Compartment Humidity 20 %
(16) Dome Temp 145 °F
(11) SIRWT Level 99 %
(15) WR Containment Press (R) 15.4 psia
(14) Containment Sump Level 7 %
(14) Containment Water Level (R) 0 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS ___ Yes X No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 57 %
T53B 57 %
Reactor Vessel DP 40 psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 635 amps B 0 amps
C 630 amps D 625 amps
(6) PCS Flow 55 %
(3) T_H Loop 1 532 °F
Loop 2 532 °F
(2) T_C Loop 1 532 °F
Loop 2 532 °F
T_C WR(R) Loop 1 530 °F
Loop 2 530 °F
(5) Subcooling 67 °F 650 psig
(7) PCS WR Press (R) 1550 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 28 %
(30) S/G A Level (R) 28 %
(30) S/G A Press 900 psia
S/G A Steam Flow (R) - X10^{6}PPH
S/G A Feed Flow (R) - X10^{6}PPH
(30) S/G B Level WR 28 %
(30) S/G B Level (R) 28 %
(30) S/G B Press 900 psia
S/G B Steam Flow (R) - X10^{6}PPH
S/G B Feed Flow (R) - X10^{6}PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 .27 R/Hr RIA 1806 .55 R/Hr
RIA 1807 7.5 R/Hr RIA 1808 6.5 R/Hr
(17) High Range Containment Monitors
RIA 2321 10 R/Hr RIA 2322 16 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86

Time = 1000

Message No: 12

T = 1 hr 15 min
(or sooner if requested)

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Health Physics Team Leader

Simulated Plant Conditions: Power has been lost to the Met Tower.

Message:

For Controller Use Only

Controller Notes: Submit this message only if action has not been initiated to cross tie the 240V switchyard buses. The Health Physics Team should check into the lack of met data prior to issuance of this message. The message may be issued prior to 1000, if clarification is requested by the HP Team.

Action Expected:

Scenario No: PALEX-86 Time = 1000

Message No: 13 T = 1 hr 15 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets and Alarm Sheet

Message:

For Controller Use Only

Controller Notes: Operators stabilize PCS pressure at 1200 psia and await sufficient boron injection prior to commencing cooldown.

Action Expected:

Message: 13 Time: 1000 T: 1 hr., 15 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps _____ P-66A _____ P-66B
(24) LPSI Pumps _____ P-67A _____ P-67B
(18) Containment Spray Pumps
_____ P-54A _____ P-54B _____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
O CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 150 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 19 psi
(10) VCT Level 56 %
PCP Control Bleedoff Press 80 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 93 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 1200 psia
(8) Pzr Level (R) LRC-0101A ↑ 63 %
LRC-0101B ↑ 63 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A ___ P55B ___ P55C
(6) PCPs Run P50A ___ P50B Run P50C Run P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 532 °F
Loop 2 (TR-0121) 532 °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 132 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 535 °F

Mess. : 13 Time: 1000 T: 1 hr., 15 min. Scenario: HALEX 1986

C-13

CST Level (T-2) 72 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.8 psig
(16) S/G A Compartment Temp 149 °F
S/G A Compartment Humidity 65 %
(16) S/G B Compartment Temp 140 °F
S/G B Compartment Humidity 29 %
(16) Dome Temp 150 °F
(11) SIRWT Level 99 %
(15) WR Containment Press (R) 15.5 psia
(14) Containment Sump Level 10 %
(14) Containment Water Level (R) 0 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS ___ Yes X No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP 40 psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 635 amps B 0 amps
C 630 amps D 625 amps
(6) PCS Flow 55 %
(3) T_H Loop 1 532 °F
Loop 2 532 °F
(2) T_c Loop 1 532 °F
Loop 2 532 °F
T_c WR(R) Loop 1 530 °F
Loop 2 530 °F
(5) Subcooling 35 °F 300 psig
(7) PCS WR Press (R) 1200 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 29 %
(30) S/G A Level (R) 29 %
(30) S/G A Press 900 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 29 %
(30) S/G B Level (R) 29 %
(30) S/G B Press 900 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/C 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

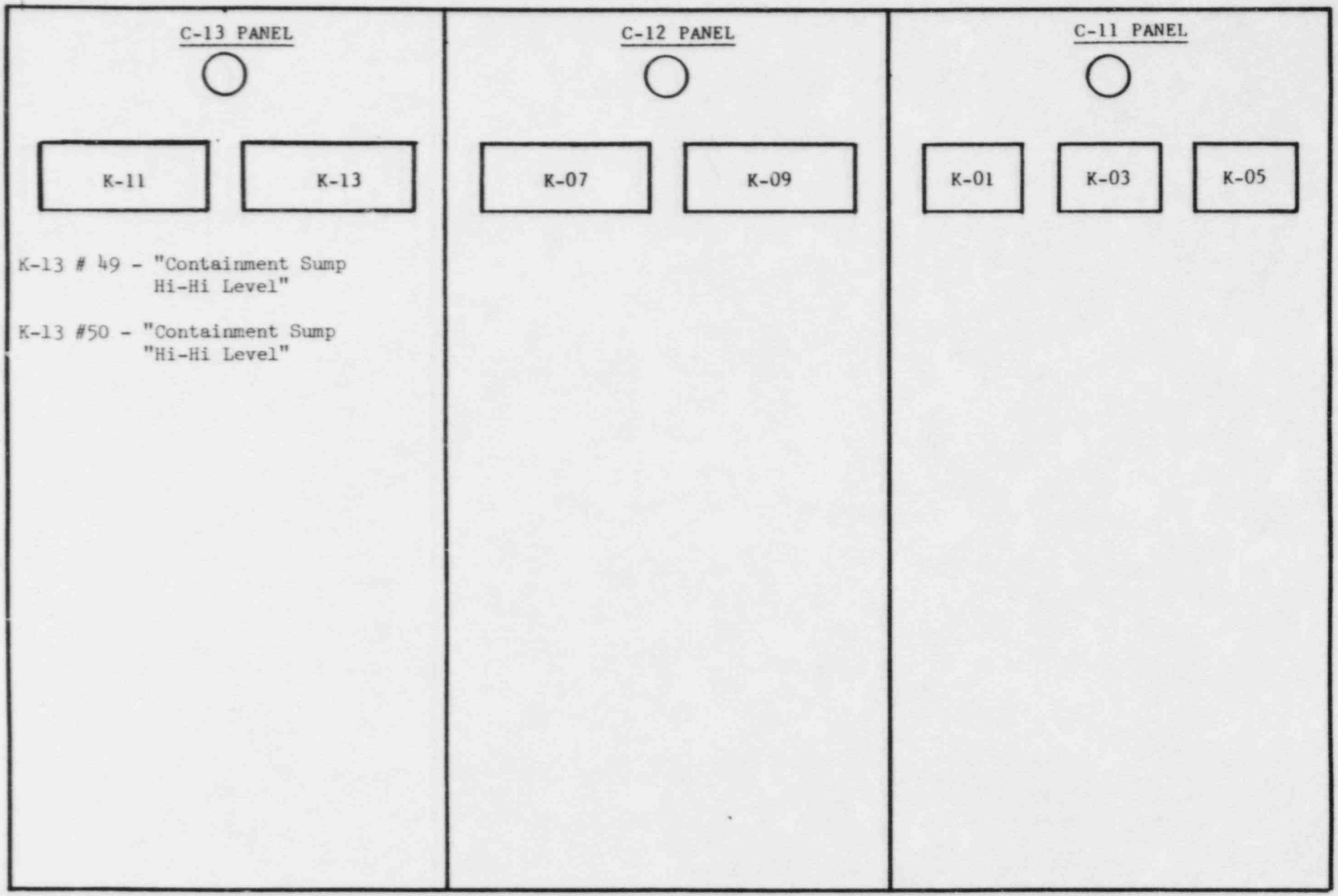
(17) Containment Area Monitors
RIA 1805 2 R/Hr RIA 1806 4.1 R/Hr
RIA 1807 9 R/Hr RIA 1808 8 R/Hr
(17) High Range Containment Monitors
RIA 2321 20 R/Hr RIA 2322 25 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

CONTROL ROOM ALARMS

MESSAGE: 13 TIME: 1000 T= 1 hr 15 min SCENARIO: PALEX 86



Scenario No: PALEX-86 Time = 1015

Message No: 14 T = 1 hr 30 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes: Operators should commence orderly cooldown after verification (by sample or calculation) that sufficient boron has been injected to PCS.

Action Expected:

Message: 14 Time: 1015 T: 1 hr., 30 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps _____ P-66A _____ P-66B
(24) LPSI Pumps _____ P-67A _____ P-67B
(18) Containment Spray Pumps
_____ P-54A _____ P-54B _____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
O CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 19 psi
(10) VCT Level 57 %
PCP Control Bleedoff Press 80 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 53 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 1200 psia
(8) Pzr Level (R) LRC-0101A 61 %
LRC-0101B 61 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A ___ P55B ___ P55C
(6) PCPs Run P50A ___ P50B Run P50C ___ P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 532 °F
Loop 2 (TR-0121) 532 °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 132 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 535 °F

Messa_ 14 Time: 1015 T: 1 hr., 30 min. Scenario: PALEX 1986

C-13

	CST Level (T-2)	71 %
	Instrument Air Press	105 psig
(15)	Containment Building Press	0.9 psig
(16)	S/G A Compartment Temp	155 °F
	S/G A Compartment Humidity	85 %
(16)	S/G B Compartment Temp	142 °F
	S/G B Compartment Humidity	35 %
(16)	Dome Temp	158 °F
(11)	SIRWT Level	99 %
(15)	WR Containment Press (R)	15.6 psia
(14)	Containment Sump Level	12 %
(14)	Containment Water Level (R)	0 %
(22)	SI Tank Level (%) A 48 B 48 C 48 D 48	
	SI Tank Press (psig) A 210 B 210 C 210 D 210	
(21)	SIAS ___ Yes X No	

Panel K-13

(20) Containment High Pressure
___ Yes X No

(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels

	T53A	46 %
	T53B	46 %
	Reactor Vessel DP	35 psid
(12)	PORV Discharge Temp	115 °F
(13)	Pzr Safety Valve Dsch Temp	
	RV-1039	115 °F
	RV-1040	115 °F
	RV-1041	115 °F

C-12

PCP Current
A 640 amps B 0 amps
C 640 amps D 0 amps

(6)	PCS Flow	50 %
(3)	T_H Loop 1	532 °F
	Loop 2	532 °F
(2)	T_c Loop 1	532 °F
	Loop 2	532 °F
	T_c WR(R) Loop 1	530 °F
	Loop 2	530 °F
(5)	Subcooling 35 °F	300 psig
(7)	PCS WR Press (R)	1200 psia
(7)	PCS NR Press (R)	- psia
(30)	S/G A Level WR	30 %
(30)	S/G A Level (R)	30 %
(30)	S/G A Press	900 psia
	S/G A Steam Flow (R)	- $X10^6$PPH
	S/G A Feed Flow (R)	- $X10^6$PPH
(30)	S/G B Level WR	30 %
(30)	S/G B Level (R)	30 %
(30)	S/G B Press	900 psia
	S/G B Steam Flow (R)	- $X10^6$PPH
	S/G B Feed Flow (R)	- $X10^6$PPH

C-11

(31)	AFW Flow to SGA	
	From P8A&B 0 gpm From P8C 150 gpm	
(31)	AFW Flow to SGB	
	From P8A&B 0 gpm From P8C 150 gpm	
	Condenser Vacuum (R)	27 in hg.
	PCP A Leak-off Flow (R)	1 GPM
	PCP B Leak-off Flow (R)	0 GPM
	PCP C Leak-off Flow (R)	1 GPM
	PCP D Leak-off Flow (R)	1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 5.5 R/Hr RIA 1806 5.5 R/Hr
RIA 1807 11 R/Hr RIA 1808 9.5 R/Hr

(17) High Range Containment Monitors
RIA 2321 29 R/Hr RIA 2322 34 R/Hr

(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %

(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1030

Message No: 15 T = 1 hr 45 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 15 Time: 1030 T: 1 hr., 45 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
Run V1B Run V2B Run V3B Run V4B

C-03

(23) HPSI Pumps ____ P-66A ____ P-66B
(24) LPSI Pumps ____ P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
O CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 20 psi
(10) VCT Level 58 %
PCP Control Bleedoff Press 80 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 53 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 1200 psia
(8) Pzr Level (R) LRC-0101A 59 %
LRC-0101B 59 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A ___ P55B ___ P55C
(6) PCPs Run P50A ___ P50B Run P50C ___ P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 530 °F
Loop 2 (TR-0121) 530 °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 533 °F

Mess...: 15 Time: 1030 T: 1 hr., 45 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 70 %
Instrument Air Press 105 psig
(15) Containment Building Press 1.0 psig
(16) S/G A Compartment Temp 159 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 145 °F
S/G B Compartment Humidity 40 %
(16) Dome Temp 160 °F
(11) SIRWT Level 98 %
(15) WR Containment Press (R) 15.7 psia
(14) Containment Sump Level 15 %
(14) Containment Water Level (R) 0 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS ___ Yes X No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP 35 psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 640 amps B 0 amps
C 640 amps D 0 amps
(6) PCS Flow 50 %
(3) T_H Loop 1 530 °F
Loop 2 530 °F
(2) T_C Loop 1 530 °F
Loop 2 530 °F
T_C WR(R) Loop 1 530 °F
Loop 2 530 °F
(5) Subcooling 35 °F 300 psig
(7) PCS WR Press (R) 1200 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 31 %
(30) S/G A Level (R) 31 %
(30) S/G A Press 900 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 31 %
(30) S/G B Level (R) 31 %
(30) S/G B Press 900 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 7 R/Hr RIA 1806 6 R/Hr
RIA 1807 12 R/Hr RIA 1808 10 R/Hr
(17) High Range Containment Monitors
RIA 2321 30 R/Hr RIA 2322 35 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 40 cpm
S/G B RIA 2323 30 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1045

Message No: 16 T = 2 hr

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes: LOCA (approximately 1000 gpm) has started due to P-50B seal complete failure.

Action Expected: Per EOP 8.1 (LOCA Procedure)

Message: 16 Time: 1045 T: 2 hr., 5 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
O CV-3057 (SIRWI) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWI) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp ___ °F
Charging Line Temp 100 °F
Letdown Line Temp ___ °F
SDCS from PCS (R) ___ °F
SDCS to PCS (R) ___ °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 20 psi
(10) VCT Level 59 %
PCP Control Bleedoff Press 80 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 93 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) ↓ 1100 psia
(8) Pzr Level (R) LRC-0101A ↓ 47 %
LRC-0101B ↓ 47 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B ___ P55C
(6) PCPs Run P50A ___ P50B Run P50C ___ P50D
Pzr Htr Amps L.C. 15 130 L.C. 16 130
(1) PCS T_{ave} (R) Loop 1 (TR-0111) 515 °F
Loop 2 (TR-0121) 515 °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 ___ %
NI-2 10 cps NI-4 10^{-8} % NI-8 ___ %
NI-5 ___ % NI-9 ___ %
NI-6 ___ % NI-10 ___ %

C-01

MFP Suction Press ____ psig
MFP A Dsch Press ____ psig
MFP B Dsch Press ____ psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes ____ amps
AFW Pump 8B Steam Press ____ psig
AFW Pumps 8A & 8B Disch Press ____ psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 518 °F

Messa_ 16 Time: 1045 T: 2 hr., 5 min. Scenario: PALEX 1986

C-13

	CST Level (T-2)	69 %
	Instrument Air Press	105 psig
(15)	Containment Building Press	↑ 1.5 psig
(16)	S/G A Compartment Temp	↑ 160 °F
	S/G A Compartment Humidity	100 %
(16)	S/G B Compartment Temp	148 °F
	S/G B Compartment Humidity	50 %
(16)	Dome Temp	162 °F
(11)	SIRWT Level	98 %
(15)	WR Containment Press (R)	↑ 16.2 psia
(14)	Containment Sump Level	↑ 20 %
(14)	Containment Water Level (R)	0 %
(22)	SI Tank Level (%) A 48 B 48 C 48 D 48	
	SI Tank Press (psig) A 210 B 210 C 210 D 210	
(21)	SIAS ___ Yes X No	

Panel K-13

(20) Containment High Pressure
___ Yes X No

(20) Containment High Radiation
X Yes ___ No

C-12

	Conc. Boric Acid Tank Levels	
	T53A	46 %
	T53B	46 %
	Reactor Vessel DP	35 psid
(12)	PORV Discharge Temp	115 °F
(13)	Pzr Safety Valve Dsch Temp	
	RV-1039	115 °F
	RV-1040	115 °F
	RV-1041	115 °F

C-12

PCP Current
A 640 amps B 0 amps
C 640 amps D 0 amps

(6)	PCS Flow	50 %
(3)	T_H Loop 1	515 °F
	Loop 2	515 °F
(2)	T_c Loop 1	515 °F
	Loop 2	515 °F
	T_c WR(R) Loop 1	515 °F
	Loop 2	515 °F
(5)	Subcooling - °F	- psig
(7)	PCS WR Press (R)	↓ 1100 psia
(7)	PCS NR Press (R)	- psia
(30)	S/G A Level WR	32 %
(30)	S/G A Level (R)	32 %
(30)	S/G A Press	885 psia
	S/G A Steam Flow (R)	- X10^{6}PPH
	S/G A Feed Flow (R)	- X10^{6}PPH
(30)	S/G B Level WR	32 %
(30)	S/G B Level (R)	32 %
(30)	S/G B Press	885 psia
	S/G B Steam Flow (R)	- X10^{6}PPH
	S/G B Feed Flow (R)	- X10^{6}PPH

C-11

(31)	AFW Flow to SGA	
	From P8A&B 0 gpm From P8C 150 gpm	
(31)	AFW Flow to SGB	
	From P8A&B 0 gpm From P8C 150 gpm	
	Condenser Vacuum (R)	27 in hg.
	PCP A Leak-off Flow (R)	1 GPM
	PCP B Leak-off Flow (R)	0 GPM
	PCP C Leak-off Flow (R)	1 GPM
	PCP D Leak-off Flow (R)	1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 100 R/Hr RIA 1806 200 R/Hr
RIA 1807 300 R/Hr RIA 1808 300 R/Hr

(17) High Range Containment Monitors
RIA 2321 1000 R/Hr RIA 2322 1000 R/Hr

(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %

(30) Main Steam Gamma
S/G A RIA 2324 100 cpm
S/G B RIA 2323 150 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1045

Message No: 16a T = 2 hr

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Maintenance Team

Simulated Plant Conditions: Purge Valve Failure

Message: Verbal or written as required by Controller

For Controller Use Only:

Controller Notes:

1. Purge Valves CV-1807 and CV-1808 have experienced an internal failure of their elastomer seats.
2. There are no external signs of damage or failure.
3. There are no normal maintenance procedures which will stop the leak.
4. The dose rates on contact with the purge line is 20-30 R/hr and 8-10 R/hr at 18 inches. The leaky valves cannot be identified by differing radiation levels due to the proximity of the two lines. These radiation levels will severely impede any work efforts.
5. None of the repair efforts may be successful until 14:15.

Action Expected:

1. Inspect outside of purge lines, valves, etc, for damage.
2. Determine damage is internal and that the valves cannot be repaired externally.
3. Possible repairs:
   a. Inject a suitable plugging material into the leak rate test tap between the two leaking valves.
   b. Remove the valves and blind flange the pipe end. (This is very unlikely due to dose rates and the resulting airborne that would be released).

Scenario No: PALEX-86 Time = 1050

Message No: 17 T = 2 hr 5 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: All TSC Players

Simulated Plant Conditions:

Message: "You have lost one-half of TSC lighting and all wall receptacles. Turn all computers off until instructed that power has been restored."

For Controller Use Only

Controller Notes: Regaining bus 1E will restore power to TSC lighting and receptacles. Control Room Controller will advise when power is restored.

Action Expected:

Scenario No: PALEX-86 Time = 1050

Message No: 18 T = 2 hr 5 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets and Alarm Sheet

Message "CRDM Matrix on C-12 panel is dark (ie, no lights are lit)"

For Controller Use Only

Controller Notes:
A. See 1050 Controller Notes Sheet.
B. Operators should have manually initiated SIAS upon detecting LOCA conditions.
C. Data sheets reflect loss of instrumentation on loss of Y-01 (due to loss of Bus 1E on SIAS).

Action Expected:
A. Per EOP 8.1.
B. Definite Site Area Emergency, possible declaration of General Emergency (SED opinion).

1050 CONTROLLER NOTES

1. PSC pressure continues to drop rapidly.
   a. Safety Injection Actuation Signal:
   b. E-Bus trips
      1) Normal action on SIS actuation.
      2) Generator trip relay 386-C (on back of C-04) must be reset before E-Bus breaker 152-303 will reclose.
      3) The following significant loads are lost until E-Bus re-energized.
         a) Fire System Jockey Pump and Fire Pump P-9A
            1) Diesel Fire Pump starts
         b) Pressurizer Heater Transformer 15
         c) Switchyard 240V Bus 1
            1) Bus 2 (possibly X-tied to Bus 1) supplies the Meteorological Tower
         d) Instrument AC Bus Y-01
            1) This bus is being supplied by its alternate feed from MCC-3, which is fed from load center 13, which is X-tied to load center 14, which is fed from the 1E Bus.
            2) Normal Y-01 feed is (indirectly) from Bus 1C.
            3) A list of Y-01 loads can be found on electrical drawing E-29.
         e) "Right" half of TSC lights and all TSC receptacles.

3. Containment pressure increases rapidly.
   a) Temperature and rad data up also
   b) CHP occurs at 4 psi
      1) No spray pumps available
   c) Fan coolers ineffective
      1) Low service water flow due to cooler coils plugging with Asiatic Clams.

4. Stack Monitor readings increase with containment pressure.
   a) Release is <u>through</u> faulty purge valves to stack.

Message: 18 Time: 1050 T: 2 hr., 5 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp ___ - °F
Charging Line Temp Fail Low ___ - °F
Letdown Line Temp ___ - °F
SDCS from PCS (R) ___ - °F
SDCS to PCS (R) ___ - °F

C-02

(10) VCT Temp (No Green Light) 120 °F
(10) VCT Press Fail Low ___ - psi
(10) VCT Level Fail Low ___ - %
PCP Control Bleedoff Press 65 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow Fail Low ___ - GPM
(9) Quench Tank Temp Fail Low ___ - °F
(9) Quench Tank Press Fail Low ___ - psig
(9) Quench Tank Level Fail Low ___ - %
(7) Pzr Press (R) ↓ 890 psia
(8) Pzr Level (R) LRC-0101A ↓ 5 %
LRC-0101B ↓ 5 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B Run P55C
(6) PCPs Run P50A ___ P50B Run P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) ___ - °F
Loop 2 (TR-0121) ___ - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 ___ - %
NI-2 10 cps NI-4 10^{-8} % NI-8 ___ - %
NI-5 ___ - % NI-9 ___ - %
NI-6 ___ - % NI-10 ___ - %

C-01

MFP Suction Press ___ - psig
MFP A Dsch Press ___ - psig
MFP B Dsch Press ___ - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes ___ - amps
AFW Pump 8B Steam Press ___ - psig
AFW Pumps 8A & 8B Disch Press ___ - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 513 °F

Messa 18 Time: 1050 T: 2 hr., 5 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 69 %
Instrument Air Press 105 psig
(15) Containment Building Press ↑ 4.3 psig
(16) S/G A Compartment Temp Fail Low °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp Fail Low °F
S/G B Compartment Humidity 75 %
(16) Dome Temp Fail Low °F
(11) SIRWT Level 97 %
(15) WR Containment Press (R) ↑ 19.0 psia
(14) Containment Sump Level ↑ 50 %
(14) Containment Water Level (R) 590.25 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A Fail Low - %
T53B Fail Low - %
Reactor Vessel DP 35 psid
(12) PORV Discharge Temp Fail Low - °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 Fail Low - °F
RV-1040 Fail Low - °F
RV-1041 Fail Low - °F

C-12

PCP Current
A 640 amps B 0 amps
C 640 amps D 0 amps
(6) PCS Flow 50 %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_C Loop 1 - °F
Loop 2 - °F
T_C WR(R) Loop 1 Fail Low - °F
Loop 2 Fail Low - °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 890 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 32 %
(30) S/G A Level (R) 32 %
(30) S/G A Press 740 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 32 %
(30) S/G B Level (R) 32 %
(30) S/G B Press 740 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) Fail Low - in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 350 R/Hr RIA 1806 600 R/Hr
RIA 1807 500 R/Hr RIA 1808 500 R/Hr
(17) High Range Containment Monitors
RIA 2321 3500 R/Hr RIA 2322 3500 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 400 cpm
S/G B RIA 2323 300 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

CONTROL ROOM ALARMS

MESSAGE: 18 TIME: 1050 T= 2 hr 5 min SCENARIO: PALEX 86

C-13 PANEL

K-11 | K-13

K-11 #50 - "Containment Recirc Fans Trip"

K-11 #65 - "Non-Critical SW Lo Pressure"

K-13 #40 - "Safety Injection Signal A'

K-13 #41 - "Safety Injection Signal B'

K-13 #42 - "Safety Injection Initiated"

K-13 #61 - "Containment Hi Press"

K-13 #62 - "Containment Hi Press"

K-13 #64 - "Gaseous Waste Monitoring Hi Radiation"

C-12 PANEL

K-07 | K-09

K-07 #61 - "Pzr Level Hi-Lo"

K-07 #63 - "Pzr Level Lo-Lo Channel 'A' "

K-07 #64 - "Pzr Level Lo-Lo Channel 'B' "

C-11 PANEL

K-01 | K-03 | K-05

K-05 #11 - "Bus 1E BKR 152-303 Trip"

K-07 #17 - "Bus 1E Undervoltage"

K-03 #33 - "SWYD 125VDC/240VAC Trouble"

K-05 #12 - "SWYD Aux Pwr/Sta Pwr XFMR 78 152-306 Trip"

CONTROL ROOM ALARMS

MESSAGE: 18 TIME: 1050 T= 2 hr 5 min SCENARIO: PALEX 86

C-06 PANEL	C-106 PANEL	C-126 PANEL	C-11A PANEL
A RACK / B RACK / C RACK / D RACK	K-33	K-35	K-02
			#1 "Cont Gamma RIA-2321 High"
			#2 "Cont Gamma RIA-2322 High"
			#5 "Main Steam E-50B RIA-2323 High"
			#6 "Main Steam E-50A RIA-2324 High"
			#13 "Cont Gamma RIA-2321 Alert"
			#14 "Cont Gamma RIA-2322 Alert"
			#17 "Main Steam E-50B RIA-2323 Alert"
			#18 "Main Steam E-50A RIA-2324 Alert"
			#7 "Stack Eff Rad C-169 High"
			#19 "Stack Eff Rad C-169 Alert"

Scenario No: PALEX-86 Time = 1100

Message No: 19 T = 2 hr 15 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets and Alarm Sheet

Message:

For Controller Use Only

Controller Notes: Bus 1E is assumed to have been restored thereby restoring Y-01 (Instrument AC Bus)

Action Expected:

Message: 19 Time: 1100 T: 2 hr., 15 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 20 psi
(10) VCT Level 61 %
PCP Cont... Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 133 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 800 psia
(8) Pzr Level (R) LRC-0101A 0 %
LRC-0101B 0 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B Run P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ____ P8A ____ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 513 °F

Messa 19 Time: 1100 T: 2 hr., 15 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 68 %
Instrument Air Press 105 psig
(15) Containment Building Press 4.9 psig
(16) S/G A Compartment Temp 185 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 165 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 170 °F
(11) SIRWT Level 96 %
(15) WR Containment Press (R) 19.6 psia
(14) Containment Sump Level ↑ 53 %
(14) Containment Water Level (R) 590.3 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_c Loop 1 - °F
Loop 2 - °F
T_c WR(R) Loop 1 510 °F
Loop 2 510 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 800 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 33 %
(30) S/G A Level (R) 33 %
(30) S/G A Press 740 psia
S/G A Steam Flow (R) - X10^6PPH
S/G A Feed Flow (R) - X10^6PPH
(30) S/G B Level WR 33 %
(30) S/G B Level (R) 33 %
(30) S/G B Press 740 psia
S/G B Steam Flow (R) - X10^6PPH
S/G B Feed Flow (R) - X10^6PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

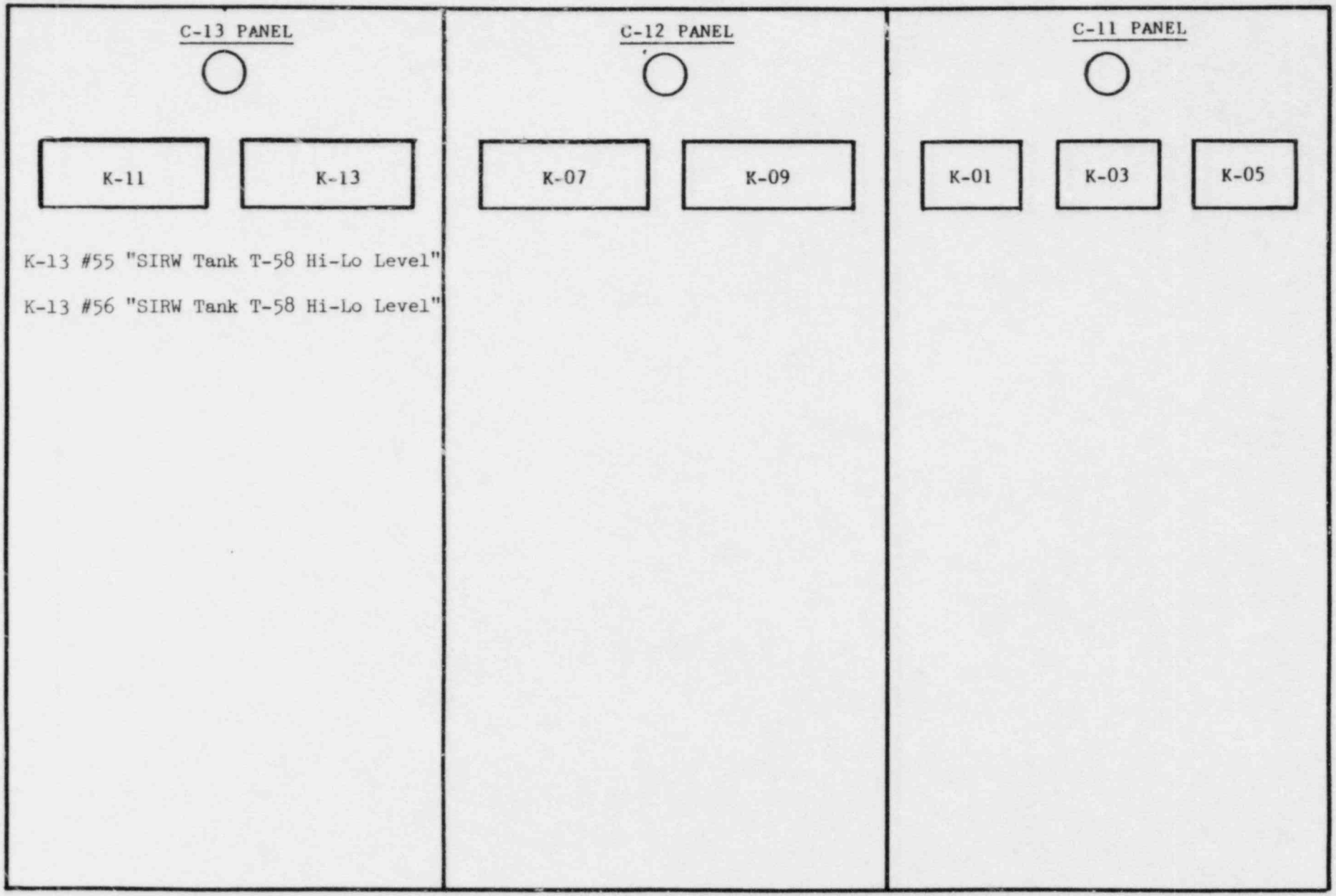
(17) Containment Area Monitors
RIA 1805 540 R/Hr RIA 1806 900 R/Hr
RIA 1807 770 R/Hr RIA 1808 770 R/Hr
(17) High Range Containment Monitors
RIA 2321 5400 R/Hr RIA 2322 5400 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 500 cpm
S/G B RIA 2323 400 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

CONTROL ROOM ALARMS

MESSAGE: 19 TIME: 1100 T= 2 hr 15 min SCENARIO: PALEX 86



Scenario No: PALEX-86 Time = 1115

Message No: 20 T = 2 hr 30 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 20 Time: 1115 T: 2 hr., 30 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 21 psi
(10) VCT Level 62 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 133 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 750 psia
(8) Pzr Level (R) LRC-0101A 0 %
LRC-0101B 0 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B Run P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 513 °F

Message: 20 Time: 1115 : 2 hr., 30 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 67 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 194 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 172 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 175 °F
(11) SIRWT Level 94 %
(15) WR Containment Press (R) 20.2 psia
(14) Containment Sump Level 55 %
(14) Containment Water Level (R) 590.5 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_c Loop 1 - °F
Loop 2 - °F
T_c WR(R) Loop 1 510 °F
Loop 2 510 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 750 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 34 %
(30) S/G A Level (R) 34 %
(30) S/G A Press 740 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 34 %
(30) S/G B Level (R) 34 %
(30) S/G B Press 740 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 460 R/Hr RIA 1806 820 R/Hr
RIA 1807 660 R/Hr RIA 1808 660 R/Hr
(17) High Range Containment Monitors
RIA 2321 4400 R/Hr RIA 2322 4400 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 800 cpm
S/G B RIA 2323 700 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1130

Message No: 21 T = 2 hr 45 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 21 Time: 1130 T: 2 hr., 45 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 21 psi
(10) VCT Level 64 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 133 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 700 psia
(8) Pzr Level (R) LRC-0101A 0 %
LRC-0101B 0 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B Run P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 513 °F

Message: 21 Time: 1130 : 2 hr., 45 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 66 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 202 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 180 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 185 °F
(11) SIRWT Level 92 %
(15) WR Containment Press (R) 20.7 psia
(14) Containment Sump Level 56 %
(14) Containment Water Level (R) 590.6 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_C Loop 1 - °F
Loop 2 - °F
T_C WR(R) Loop 1 510 °F
Loop 2 510 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 700 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 35 %
(30) S/G A Level (R) 35 %
(30) S/G A Press 740 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 35 %
(30) S/G B Level (R) 35 %
(30) S/G B Press 740 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 CPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 400 R/Hr RIA 1806 660 R/Hr
RIA 1807 570 R/Hr RIA 1808 570 R/Hr
(17) High Range Containment Monitors
RIA 2321 4000 R/Hr RIA 2322 4000 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 800 cpm
S/G B RIA 2323 700 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86

Time = 1145

Message No: 22

T = 3 hr

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes: Operators should recommence cooldown of PCS per EOP 8.1.

Action Expected:

Message: 22 Time: 1145 T: 3 hr. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 21 psi
(10) VCT Level 65 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 133 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 675 psia
(8) Pzr Level (R) LRC-0101A 0 %
LRC-0101B 0 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B Run P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Closed
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 513 °F

Message: 22 Time: 1145 : 3 hr. Scenario: PALEX 1986

C-13

CST Level (T-2) 65 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 210 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 186 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 192 °F
(11) SIRWT Level 90 %
(15) WR Containment Press (R) 21.3 psia
(14) Containment Sump Level 57 %
(14) Containment Water Level (R) 590.7 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_c Loop 1 - °F
Loop 2 - °F
T_c WR(R) Loop 1 510 °F
Loop 2 510 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 675 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 36 %
(30) S/G A Level (R) 36 %
(30) S/G A Press 740 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 36 %
(30) S/G B Level (R) 36 %
(30) S/G B Press 740 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 400 R/Hr RIA 1806 650 R/Hr
RIA 1807 565 R/Hr RIA 1808 555 R/Hr
(17) High Range Containment Monitors
RIA 2321 3900 R/Hr RIA 2322 3900 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 650 cpm
S/G B RIA 2323 550 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86

Time = 1200

Message No: 23

T = 3 hr 15 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 23 Time: 1200 T: 3 hr., 15 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 21 psi
(10) VCT Level 67 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 133 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 650 psia
(8) Pzr Level (R) LRC-0101A 0 %
LRC-0101B 0 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B Run P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 515 °F

Message: 23 Time: 1200 : 3 hr., 15 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 64 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 215 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 190 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 199 °F
(11) SIRWT Level 88 %
(15) WR Containment Press (R) 21.9 psia
(14) Containment Sump Level 58 %
(14) Containment Water Level (R) 590.8 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_C Loop 1 - °F
Loop 2 - °F
T_C WR(R) Loop 1 490 °F
Loop 2 490 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 650 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 37 %
(30) S/G A Level (R) 37 %
(30) S/G A Press 620 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 37 %
(30) S/G B Level (R) 37 %
(30) S/G B Press 620 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 390 R/Hr RIA 1806 650 R/Hr
RIA 1807 560 R/Hr RIA 1808 560 R/Hr
(17) High Range Containment Monitors
RIA 2321 3900 R/Hr RIA 2322 3900 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 600 cpm
S/G B RIA 2323 500 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1215

Message No: 24 T = 3 hr 30 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 24 Time: 1215 T: 3 hr., 30 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 21 psi
(10) VCT Level 68 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 133 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 625 psia
(8) Pzr Level (R) LRC-0101A 0 %
LRC-0101B 0 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B Run P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 505 °F

Message: 24 Time: 1215 . 3 hr., 30 min. Scenario: PAEX 1986

C-13

CST Level (T-2) 63 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 220 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 195 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 204 °F
(11) SIRWT Level 86 %
(15) WR Containment Press (R) 22.5 psia
(14) Containment Sump Level 59 %
(14) Containment Water Level (R) 590.9 %
(22) SI Tank Level (%) A 48 B 48 C 4_ D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_c Loop 1 - °F
Loop 2 - °F
T_c WR(R) Loop 1 470 °F
Loop 2 470 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 625 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 38 %
(30) S/G A Level (R) 38 %
(30) S/G A Press 515 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 38 %
(30) S/G B Level (R) 38 %
(30) S/G B Press 515 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 460 R/Hr RIA 1806 760 R/Hr
RIA 1807 680 R/Hr RIA 1808 690 R/Hr
(17) High Range Containment Monitors
RIA 2321 4100 R/Hr RIA 2322 4100 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 600 cpm
S/G B RIA 2323 500 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or In Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86

Time = 1230

Message No: 25

T = 3 hr 45 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes: Pressurizer starts to refill since injection flow has overcome leak flow.

Action Expected:

Message: 25 Time: 1230 T: 3 hr., 45 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Sprsy A Suction
O CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 21 psi
(10) VCT Level 70 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 133 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 600 psia
(8) Pzr Level (R) LRC-0101A ↑ 1 %
LRC-0101B ↑ 1 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B Run P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 485 °F

Message: 25 Time: 1230 3 hr., 45 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 62 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 225 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 200 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 209 °F
(11) SIRWT Level 84 %
(15) WR Containment Press (R) 23.1 psia
(14) Containment Sump Level 60 %
(14) Containment Water Level (R) 591 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_c Loop 1 - °F
Loop 2 - °F
T_c WR(R) Loop 1 450 °F
Loop 2 450 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 600 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 39 %
(30) S/G A Level (R) 39 %
(30) S/G A Press 422 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 39 %
(30) S/G B Level (R) 39 %
(30) S/G B Press 422 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 530 R/Hr RIA 1806 880 R/Hr
RIA 1807 760 R/Hr RIA 1808 760 R/Hr
(17) High Range Containment Monitors
RIA 2321 4400 R/Hr RIA 2322 4400 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 700 cpm
S/G B RIA 2323 600 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1245

Message No: 26 T = 4 hr

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 26 Time: 1245 T: 4 hr. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 22 psi
(10) VCT Level 71 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 133 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 580 psia
(8) Pzr Level (R) LRC-0101A ↑ 30 %
LRC-0101B ↑ 30 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B Run P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 465 °F

Message: 26 Time: 1245 4 hr. Scenario: PALEX 1986

C-13

CST Level (T-2) 61 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 230 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 205 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 214 °F
(11) SIRWT Level 82 %
(15) WR Containment Press (R) 23.7 psia
(14) Containment Sump Level 61 %
(14) Containment Water Level (R) 591.1 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_C Loop 1 - °F
Loop 2 - °F
T_C WR(R) Loop 1 430 °F
Loop 2 430 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 580 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 40 %
(30) S/G A Level (R) 40 %
(30) S/G A Press 343 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 40 %
(30) S/G B Level (R) 40 %
(30) S/G B Press 343 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 555 R/Hr RIA 1806 915 R/Hr
RIA 1807 785 R/Hr RIA 1808 785 R/Hr
(17) High Range Containment Monitors
RIA 2321 4800 R/Hr RIA 2322 4800 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 850 cpm
S/G B RIA 2323 750 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1300

Message No: 27 T = 4 hr 15 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 27 Time: 1300 T: 4 hr., 15 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 22 psi
(10) VCT Level 73 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 133 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 560 psia
(8) Pzr Level (R) LRC-0101A ↑ 60 %
LRC-0101B ↑ 60 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B Run P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ F10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 445 °F

Message: 27 Time: 1300 Δ: 4 hr., 15 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 60 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 232 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 210 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 219 °F
(11) SIRWT Level 80 %
(15) WR Containment Press (R) 24.3 psia
(14) Containment Sump Level 62 %
(14) Containment Water Level (R) 591.2 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_C Loop 1 - °F
Loop 2 - °F
T_C WR(R) Loop 1 410 °F
Loop 2 410 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 560 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 41 %
(30) S/G A Level (R) 41 %
(30) S/G A Press 276 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 41 %
(30) S/G B Level (R) 41 %
(30) S/G B Press 276 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 540 R/Hr RIA 1806 900 R/Hr
RIA 1807 770 R/Hr RIA 1808 770 R/Hr
(17) High Range Containment Monitors
RIA 2321 5300 R/Hr RIA 2322 5300 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 900 cpm
S/G B RIA 2323 800 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1315

Message No: 28 T = 4 hr 30 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes: Operators should start to secure charging pumps as pressurizer level approaches 100%.

Action Expected:

Message: 28 Time: 1315 T: 4 hr., 30 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
O CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
O CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 22 psi
(10) VCT Level 74 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 133 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 540 psia
(8) Pzr Level (R) LRC-0101A ↑ 90 %
LRC-0101B ↑ 90 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A Run P55B Run P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 425 °F

Message: 28 Time: 1315 4 hr., 30 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 59 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 234 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 215 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 225 °F
(11) SIRWT Level 78 %
(15) WR Containment Press (R) 24.9 psia
(14) Containment Sump Level 63 %
(14) Containment Water Level (R) 591.3 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_c Loop 1 - °F
Loop 2 - °F
T_c WR(R) Loop 1 390 °F
Loop 2 390 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 540 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 42 %
(30) S/G A Level (R) 42 %
(30) S/G A Press 220 psia
S/G A Steam Flow (R) - X10^6PPH
S/G A Feed Flow (R) - X10^6PPH
(30) S/G B Level WR 42 %
(30) S/G B Level (R) 42 %
(30) S/G B Press 220 psia
S/G B Steam Flow (R) - X10^6PPH
S/G B Feed Flow (R) - X10^6PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 540 R/Hr RIA 1806 900 R/Hr
RIA 1807 770 R/Hr RIA 1808 770 R/Hr
(17) High Range Containment Monitors
RIA 2321 5350 R/Hr RIA 2322 5350 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 1000 cpm
S/G B RIA 2323 900 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1330

Message No: 29 T = 4 hr 45 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 29 Time: 1330 T: 4 hr., 45 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 23 psi
(10) VCT Level 76 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 43 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 520 psia
(8) Pzr Level (R) LRC-0101A 100 %
LRC-0101B 100 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps Run P55A ___ P55B ___ P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 410 °F

Message: 29 Time: 1330 4 hr., 45 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 58 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 236 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 220 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 230 °F
(11) SIRWT Level 76 %
(15) WR Containment Press (R) 25.5 psia
(14) Containment Sump Level 64 %
(14) Containment Water Level (R) 591.4 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_C Loop 1 - °F
Loop 2 - °F
T_C WR(R) Loop 1 375 °F
Loop 2 375 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 520 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 43 %
(30) S/G A Level (R) 43 %
(30) S/G A Press 184 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 43 %
(30) S/G B Level (R) 43 %
(30) S/G B Press 184 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 540 R/Hr RIA 1806 900 R/Hr
RIA 1807 770 R/Hr RIA 1808 770 R/Hr
(17) High Range Containment Monitors
RIA 2321 5400 R/Hr RIA 2322 5400 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 1000 cpm
S/G B RIA 2323 900 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1345

Message No: 30 T = 5 hr

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 30 Time: 1345 T: 5 hr. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
____ P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 23 psi
(10) VCT Level 77 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 0 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 500 psia
(8) Pzr Level (R) LRC-0101A 100 %
LRC-0101B 100 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps ___ P55A ___ P55B ___ P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

P1P

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 395 °F

Message: 30 Time: 1345 5 hr. Scenario: PALEX 1986

C-13

CST Level (T-2) 57 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 237 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 225 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 235 °F
(11) SIRWT Level 74 %
(15) WR Containment Press (R) 26.1 psia
(14) Containment Sump Level 65 %
(14) Containment Water Level (R) 591.5 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_c Loop 1 - °F
Loop 2 - °F
T_c WR(R) Loop 1 360 °F
Loop 2 360 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 500 psia
(7) PCS NR Press (R) - psia
(30) S/G A Level WR 44 %
(30) S/G A Level (R) 44 %
(30) S/G A Press 153 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 44 %
(30) S/G B Level (R) 44 %
(30) S/G B Press 153 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts 0 Amps 0
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 540 R/Hr RIA 1806 900 R/Hr
RIA 1807 770 R/Hr RIA 1808 770 R/Hr
(17) High Range Containment Monitors
RIA 2321 5250 R/Hr RIA 2322 5250 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 1000 cpm
S/G B RIA 2323 900 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1400

Message No: 31 T = 5 hr 15 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes: A. Three Foreseen Methods for Accident Recovery

1. Repair of Spray Pump P-54A
   a. 1400 earliest permissible repair
2. Bus 1C repair
   a. 1410 earliest permissible repair
      1) Relay 386-C must be reset for breaker 152-106 to reclose.
      2) ITC switch must be placed in cutout for breaker to reclose.
3. Plug Release Path (purge line)
   a. 1415 earliest permissible repair.

Action Expected:

Message: 31 Time: 1400 T: 5 hr., 15 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Rwn P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
Rwn P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 23 psi
(10) VCT Level 79 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 0 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 480 psia
(8) Pzr Level (R) LRC-0101A 100 %
LRC-0101B 100 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps ___ P55A ___ P55B ___ P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 380 °F

Message: 51 Time: 1400 5 hr., 15 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 56 %
Instrument Air Press 105 psig
(15) Containment Building Press 5(P.H.) psig
(16) S/G A Compartment Temp 238 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 230 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 240 °F
(11) SIRWT Level 72 %
(15) WR Containment Press (R) 26.7 psia
(14) Containment Sump Level 66 %
(14) Containment Water Level (R) 591.6 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
X Yes ___ No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

RCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_c Loop 1 - °F
Loop 2 - °F
T_c WR(R) Loop 1 345 °F
Loop 2 345 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 480 psia
(7) PCS NR Press (R) 480 psia
(30) S/G A Level WR 45 %
(30) S/G A Level (R) 45 %
(30) S/G A Press 126 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 45 %
(30) S/G B Level (R) 45 %
(30) S/G B Press 126 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts ___ Amps ___
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 510 R/Hr RIA 1806 850 R/Hr
RIA 1807 720 R/Hr RIA 1808 720 R/Hr
(17) High Range Containment Monitors
RIA 2321 5100 R/Hr RIA 2322 5100 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 900 cpm
S/G B RIA 2323 800 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86

Time = 1415

Message No: 32

T = 5 hr 30 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 32 Time: 1415 T: 5 hr., 30 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
Run P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 23 psi
(10) VCT Level 80 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 0 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 460 psia
(8) Pzr Level (R) LRC-0101A 100 %
LRC-0101B 100 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps ___ P55A ___ P55B ___ P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 365 °F

Message: 32 Time: 1415 5 hr., 30 min. Scenario: PALEX 1986

C-13

	CST Level (T-2)	55 %
	Instrument Air Press	105 psig
(15)	Containment Building Press	↓ 2.9 psig
(16)	S/G A Compartment Temp	235 °F
	S/G A Compartment Humidity	100 %
(16)	S/G B Compartment Temp	225 °F
	S/G B Compartment Humidity	100 %
(16)	Dome Temp	235 °F
(11)	SIRWT Level	63 %
(15)	WR Containment Press (R)	↓ 17.6 psia
(14)	Containment Sump Level	6.8 %
(14)	Containment Water Level (R)	591.8 %
(22)	SI Tank Level (%) A 48 B 48 C 48 D 48	
	SI Tank Press (psig) A 210 B 210 C 210 D 210	
(21)	SIAS X Yes ___ No	

Panel K-13

(20) Containment High Pressure
X Yes ___ No

(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels

	T53A	46 %
	T53B	46 %
	Reactor Vessel DP	- psid
(12)	PORV Discharge Temp	115 °F
(13)	Pzr Safety Valve Dsch Temp	
	RV-1039	115 °F
	RV-1040	115 °F
	RV-1041	115 °F

C-12

PCT Current
A 0 amps B 0 amps
C 0 amps D 0 amps

(6)	PCS Flow	- %
(3)	T_H Loop 1	- °F
	Loop 2	- °F
(2)	T_c Loop 1	- °F
	Loop 2	- °F
	T_c WR(R) Loop 1	330 °F
	Loop 2	330 °F
(5)	Subcooling - °F	- psig
(7)	PCS WR Press (R)	460 psia
(7)	PCS NR Press (R)	460 psia
(30)	S/G A Level WR	46 %
(30)	S/G A Level (R)	46 %
(30)	S/G A Press	103 psia
	S/G A Steam Flow (R)	- $X10^6$PPH
	S/G A Feed Flow (R)	- $X10^6$PPH
(30)	S/G B Level WR	46 %
(30)	S/G B Level (R)	46 %
(30)	S/G B Press	103 psia
	S/G B Steam Flow (R)	- $X10^6$PPH
	S/G B Feed Flow (R)	- $X10^6$PPH

C-11

(31)	AFW Flow to SGA	
	From P8A&B 0 gpm	From P8C 150 gpm
(31)	AFW Flow to SGB	
	From P8A&B 0 gpm	From P8C 150 gpm
	Condenser Vacuum (R)	27 in hg.
	PCP A Leak-off Flow (R)	1 GPM
	PCP B Leak-off Flow (R)	0 GPM
	PCP C Leak-off Flow (R)	1 GPM
	PCP D Leak-off Flow (R)	1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts ___ Amps ___
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 500 R/Hr RIA 1806 800 R/Hr
RIA 1807 700 R/Hr RIA 1808 700 R/Hr

(17) High Range Containment Monitors
RIA 2321 5000 R/Hr RIA 2322 5000 R/Hr

(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %

(30) Main Steam Gamma
S/G A RIA 2324 400 cpm
S/G B RIA 2323 300 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1430

Message No: 33 T = 5 hr 45 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 33 Time: 1430 T: 5 hr., 45 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
Run P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp	- °F
Charging Line Temp	100 °F
Letdown Line Temp	- °F
SDCS from PCS (R)	- °F
SDCS to PCS (R)	- °F

C-02

(10) VCT Temp	120 °F
(10) VCT Press	23 psi
(10) VCT Level	82 %
PCP Control Bleedoff Press	40 psig
(26) Letdown Flow	0 GPM
(26) Charging Flow	0 GPM
(9) Quench Tank Temp	115 °F
(9) Quench Tank Press	0.5 psig
(9) Quench Tank Level	75 %
(7) Pzr Press (R)	440 psia
(8) Pzr Level (R) LRC-0101A	100 %
LRC-0101B	100 %

(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps ___ P55A ___ P55B ___ P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press	- psig
MFP A Dsch Press	- psig
MFP B Dsch Press	- psig
AFW Pump 8C Amperes	85 amps
AFW Pump 8C Disch Press	1600 psig
AFW Pump 8A Amperes	- amps
AFW Pump 8B Steam Press	- psig
AFW Pumps 8A & 8B Disch Press	- psig
Moisture Sep Dr Tank	64 %
Condenser Hotwell Level	65 %
Condenser Vacuum	27 in hg.
Gland Seal Cond Vacuum	18 in hg.
Atm. Stm. Dumps	Open

AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 360 °F

Message: 53 Time: 1430 5 hr., 45 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 54 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.3 psig
(16) S/G A Compartment Temp 230 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 220 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 230 °F
(11) SIRWT Level 55 %
(15) WR Containment Press (R) 15.0 psia
(14) Containment Sump Level 70 %
(14) Containment Water Level (R) 592 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_c Loop 1 - °F
Loop 2 - °F
T_c WR(R) Loop 1 325 °F
Loop 2 325 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 440 psia
(7) PCS NR Press (R) 440 psia
(30) S/G A Level WR 47 %
(30) S/G A Level (R) 47 %
(30) S/G A Press 90 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 47 %
(30) S/G B Level (R) 47 %
(30) S/G B Press 90 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts ___ Amps ___
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 500 R/Hr RIA 1806 800 R/Hr
RIA 1807 700 R/Hr RIA 1808 700 R/Hr
(17) High Range Containment Monitors
RIA 2321 5000 R/Hr RIA 2322 5000 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 100 cpm
S/G B RIA 2323 100 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1445

Message No: 34 T = 6 hrs

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 34 Time: 1445 T: 6 hr. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
Run P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 24 psi
(10) VCT Level 83 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 0 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 420 psia
(8) Pzr Level (R) LRC-0101A 100 %
LRC-0101B 100 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps ___ P55A ___ P55B ___ P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 355 °F

Message: 34 Time: 1445 + 6 hr. Scenario: PALEX 1986

C-13

CST Level (T-2) 53 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.3 psig
(16) S/G A Compartment Temp 225 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 215 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 225 °F
(11) SIRWT Level 47 %
(15) WR Containment Press (R) 15.0 psia
(14) Containment Sump Level 72 %
(14) Containment Water Level (R) 592.2 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_C Loop 1 - °F
Loop 2 - °F
T_C WR(R) Loop 1 320 °F
Loop 2 320 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 420 psia
(7) PCS NR Press (R) 420 psia
(30) S/G A Level WR 48 %
(30) S/G A Level (R) 48 %
(30) S/G A Press 80 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 48 %
(30) S/G B Level (R) 48 %
(30) S/G B Press 80 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts ___ Amps ___
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 500 R/Hr RIA 1806 800 R/Hr
RIA 1807 700 R/Hr RIA 1808 700 R/Hr
(17) High Range Containment Monitors
RIA 2321 5000 R/Hr RIA 2322 5000 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 100 cpm
S/G B RIA 2323 100 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86 Time = 1500

Message No: 35 T = 6 hrs 15 min

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Control Room Operators

Simulated Plant Conditions: See Data Sheets

Message:

For Controller Use Only

Controller Notes:

Action Expected:

Message: 35 Time: 1500 T: 6 hr., 15 min. Scenario: PALEX 1986

C-08

SW Pumps Run P-7A ___ P-7B Run P-7C
CCW Pumps ___ P-52A Run P-52B ___ P-52C
FPC Pumps Run P-51A ___ P-51B

Containment Cooler Recirc Fans
Run V1A Run V2A Run V3A Run V4A
___ V1B ___ V2B ___ V3B ___ V4B

C-03

(23) HPSI Pumps Run P-66A ____ P-66B
(24) LPSI Pumps Run P-67A ____ P-67B
(18) Containment Spray Pumps
Run P-54A ____ P-54B ____ P-54C
(27) HPSIA, LPSIA, Spray A Suction
0 CV-3057 (SIRWT) C CV-3029 (Sump)
(27) HPSIB, LPSIB, Spray B Suction
0 CV-3031 (SIRWT) C CV-3030 (Sump)

C-02

Intermediate Press Letdown Temp - °F
Charging Line Temp 100 °F
Letdown Line Temp - °F
SDCS from PCS (R) - °F
SDCS to PCS (R) - °F

C-02

(10) VCT Temp 120 °F
(10) VCT Press 24 psi
(10) VCT Level 85 %
PCP Control Bleedoff Press 40 psig
(26) Letdown Flow 0 GPM
(26) Charging Flow 0 GPM
(9) Quench Tank Temp 115 °F
(9) Quench Tank Press 0.5 psig
(9) Quench Tank Level 75 %
(7) Pzr Press (R) 400 psia
(8) Pzr Level (R) LRC-0101A 100 %
LRC-0101B 100 %
(12) PORV PRV-1042B C 1043B C
(12) Block MO-1042A C 1043A C
Charging Pumps ___ P55A ___ P55B ___ P55C
(6) PCPs ___ P50A ___ P50B ___ P50C ___ P50D
Pzr Htr Amps L.C. 15 0 L.C. 16 0
(1) PCS T_{ave} (R) Loop 1 (TR-0111) - °F
Loop 2 (TR-0121) - °F
(25) Reactor Power Level
NI-1 10 cps NI-3 10^{-8} % NI-7 - %
NI-2 10 cps NI-4 10^{-8} % NI-8 - %
NI-5 - % NI-9 - %
NI-6 - % NI-10 - %

C-01

MFP Suction Press - psig
MFP A Dsch Press - psig
MFP B Dsch Press - psig
AFW Pump 8C Amperes 85 amps
AFW Pump 8C Disch Press 1600 psig
AFW Pump 8A Amperes - amps
AFW Pump 8B Steam Press - psig
AFW Pumps 8A & 8B Disch Press - psig
Moisture Sep Dr Tank 64 %
Condenser Hotwell Level 65 %
Condenser Vacuum 27 in hg.
Gland Seal Cond Vacuum 18 in hg.
Atm. Stm. Dumps Open
AFW Feed Pumps ___ P8A ___ P8B Run P8C
Heater Drain Pumps ___ P10A ___ P10B
Condensate Pumps Run P2A ___ P2B

PIP

(Demand Log + Constant, Rod, or Flux/Temp)
Gross MW 0
Net MW 0
(28) Control Rod Position
GP1 0 GP2 0 GP3 132 GP4 0
GP 5(P) 0 GP 6(A) 0 GP 7(B) 0
Stuck Rods X Yes ___ No # 34
(4) Core Exit Temp 350 °F

Message: 35 Time: 1500 6 hr., 15 min. Scenario: PALEX 1986

C-13

CST Level (T-2) 52 %
Instrument Air Press 105 psig
(15) Containment Building Press 0.3 psig
(16) S/G A Compartment Temp 220 °F
S/G A Compartment Humidity 100 %
(16) S/G B Compartment Temp 210 °F
S/G B Compartment Humidity 100 %
(16) Dome Temp 220 °F
(11) SIRWT Level 39 %
(15) WR Containment Press (R) 15.0 psia
(14) Containment Sump Level 74 %
(14) Containment Water Level (R) 592.4 %
(22) SI Tank Level (%) A 48 B 48 C 48 D 48
SI Tank Press (psig) A 210 B 210 C 210 D 210
(21) SIAS X Yes ___ No

Panel K-13

(20) Containment High Pressure
___ Yes X No
(20) Containment High Radiation
X Yes ___ No

C-12

Conc. Boric Acid Tank Levels
T53A 46 %
T53B 46 %
Reactor Vessel DP - psid
(12) PORV Discharge Temp 115 °F
(13) Pzr Safety Valve Dsch Temp
RV-1039 115 °F
RV-1040 115 °F
RV-1041 115 °F

C-12

PCP Current
A 0 amps B 0 amps
C 0 amps D 0 amps
(6) PCS Flow - %
(3) T_H Loop 1 - °F
Loop 2 - °F
(2) T_c Loop 1 - °F
Loop 2 - °F
T_c WR(R) Loop 1 315 °F
Loop 2 315 °F
(5) Subcooling - °F - psig
(7) PCS WR Press (R) 400 psia
(7) PCS NR Press (R) 400 psia
(30) S/G A Level WR 49 %
(30) S/G A Level (R) 49 %
(30) S/G A Press 75 psia
S/G A Steam Flow (R) - $X10^6$PPH
S/G A Feed Flow (R) - $X10^6$PPH
(30) S/G B Level WR 49 %
(30) S/G B Level (R) 49 %
(30) S/G B Press 75 psia
S/G B Steam Flow (R) - $X10^6$PPH
S/G B Feed Flow (R) - $X10^6$PPH

C-11

(31) AFW Flow to SGA
From P8A&B 0 gpm From P8C 150 gpm
(31) AFW Flow to SGB
From P8A&B 0 gpm From P8C 150 gpm
Condenser Vacuum (R) 27 in hg.
PCP A Leak-off Flow (R) 1 GPM
PCP B Leak-off Flow (R) 0 GPM
PCP C Leak-off Flow (R) 1 GPM
PCP D Leak-off Flow (R) 1 GPM

C-04

(32) D/G 1-1 ___ D/G 1-2 Run
(32) 1C Buss Volts ___ Amps ___
(32) 1D Buss Volts 2400 Amps OK

C-11 Back C-11A

(17) Containment Area Monitors
RIA 1805 500 R/Hr RIA 1806 800 R/Hr
RIA 1807 700 R/Hr RIA 1808 700 R/Hr
(17) High Range Containment Monitors
RIA 2321 5000 R/Hr RIA 2322 5000 R/Hr
(19) Containment H_2 Concentration
AI 2401 R - %
AI 2401 L - %
(30) Main Steam Gamma
S/G A RIA 2324 100 cpm
S/G B RIA 2323 100 cpm

Equipment Status:

1. Significant Equipment Outages (Inoperable Equipment)
2. Surveillance Due or in Progress
3. Abnormal Electrical Lineups or Outages

Scenario No: PALEX-86

Time =

Message No: 36

T =

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE MESSAGE FORM

Message for: Site Emergency Director

Simulated Plant Conditions:

Message: Announce the following over the plant public address system:

"Attention all personnel. The annual emergency exercise has been terminated as of _____. All drill participants may resume normal work activities."

For Controller Use Only

Controller Notes: Issue this message upon termination of the exercise.

Action Expected:

11.0 MAINTENANCE

Expected maintenance actions are detailed in Messages 2a, 2b, 2c, 2d, 2e and 16a. Messages will be issued as deemed necessary by the Maintenance Controller. Times listed on messages indicate the earliest time of issuance. Message content and form will be determined by the Controller at the time of issuance based on exercise actions and conditions.

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE INFORMATION

CHEMISTRY AND RADIO-CHEMISTRY DATA

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE INFORMATION

Initial Chemistry Condition

The Plant is at full power, primary and secondary chemistry are stable. The last sampling of the PCS was at 0805 on August 18, 1986. (See attached Data Sheets) The last sampling of the Secondary System was at 0030 on August 19, 1986. (See attached Data Sheet) While setting up the NSSS panel for routine chemistry sampling, a chemistry technician notices a abnormally high radiation level when opening PCS sample point SX-1023. The chemistry technician then closes the sample point and at 0900 on August 19, 1986 calls the control room to report a high radiation level of 200 mr/hr at the NSSS panel.

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE INFORMATION

PASM Data for PALEX '86

1.0 pH

1.1 pH is a function of ppm boron if there is no LiOH in the sample, LiOH and boron concentration will depend on what water is added to the PCS during the accident. (SIRW, SI Bottles, BAST, etc.)

1.2 If accident progress to the point where LPSI pumps are drawing suction from containment sump and containment spray has been activated pH of PCS will be approximately 8.00 due to hydrazine and NaOH in containment spray.

1.3 pH should be determined by the Chemistry Controller based on accident condition and operator action. Table 1.1 and 1.2 maybe used as aid to determining pH.

2.0 Boron

2.1 Boron should be determined by the control room Controller based on operator action and boronmeter readings. PASM boron analysis is to be used as verification of those readings.

2.2 Chemistry Controller should converse with control room Controller to determine boron ppm value for reporting during exercise.

3.0 Chlorides

3.1 Chloride analysis is to be done within four days of the accident. Data will not be available during the course of the drill.

3.2 OSC Supervisor shall request Trail Street Lab to bring their Ion Chromatograph to the Plant within four days to do chloride analysis.

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE INFORMATION

4.0 Dissolved oxygen

4.1 Dissolved oxygen is not required until 30 days after accident if dissolved hydrogen and chloride data are available.

4.2 Oxygen is not mandatory unless chloride exceeds 0.15 ppm. A measurement of dissolved hydrogen residual of greater than 10 cc/kg is acceptable verification for up to 30 days.

4.3 Therefore dissolved oxygen data will not be available during the course of the drill.

5.0 Dissolved Hydrogen

5.1 Dissolved hydrogen in PCS during the accident will be 18 cc/kg a reduction from normal due to H_2 escaping from 1,000 gpm leak.

5.2 Percent hydrogen in containment air will be higher than normal due to H_2 production from the reaction of steam with galvanizing and paint. Also, H_2 will be increased as a result of the 1,000 gpm leak. Percent oxygen in containment air will be normal.

6.0 Radionuclide Concentration for Gross Activity and Gamma Spectrum

6.1 See Table for Containment Atmosphere

6.2 See Table for Sump Liquid Activity

6.3 See Table for Primary Coolant Liquid

6.4 See Table for A & B S/G Liquid Activity

7.0 Dose Rate and Radiation Levels

7.1 Dose rate and radiation levels around the PASM Panel, NSSS Panel, Hot Lab, and hallways are listed in the inplant radiation data section.

7.2 Areas monitors readings are listed in the area monitors section.

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE INFORMATION

Table 1.1

Variation of pH with Lithium and Boron Concentrations

B, ppm\Li, ppm

	0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4
0	7.0	9.46	9.76	9.94	10.06	10.16	10.24	10.30	10.36	10.41	10.46	10.50	10.54
50	5.78	7.03	7.34	7.51	7.64	7.74	7.82	7.89	7.95	8.01	8.06	8.10	8.14
100	5.63	6.73	7.03	7.20	7.33	7.43	7.51	7.58	7.64	7.69	7.74	7.78	7.82
150	5.54	6.54	6.84	7.02	7.14	7.24	7.32	7.39	7.45	7.50	7.55	7.59	7.63
200	5.47	6.41	6.70	6.88	7.00	7.10	7.18	7.25	7.31	7.36	7.41	7.45	7.49
250	5.41	6.30	6.59	6.77	6.89	6.99	7.07	7.14	7.20	7.25	7.30	7.34	7.38
300	5.37	6.20	6.50	6.67	6.80	6.90	6.97	7.04	7.10	7.15	7.20	7.24	7.28
350	5.32	6.12	6.41	6.59	6.71	6.81	6.89	6.96	7.02	7.07	7.11	7.16	7.19
400	5.28	6.04	6.33	6.51	6.63	6.73	6.80	6.88	6.94	6.99	7.04	7.08	7.12
450	5.25	5.97	6.26	6.44	6.56	6.66	6.74	6.81	6.86	6.92	6.96	7.0	7.04
500	5.21	5.91	6.20	6.37	6.49	6.59	6.67	6.74	6.80	6.85	6.89	6.94	6.97
550	5.18	5.85	6.13	6.31	6.43	6.53	6.64	6.67	6.73	6.78	6.83	6.87	6.91
600	5.15	5.79	6.07	6.24	6.37	6.46	6.54	6.61	6.67	6.72	6.77	6.81	6.85
650	5.12	5.73	6.01	6.18	6.31	6.41	6.49	6.55	6.61	6.66	6.71	6.75	6.79
700	5.09	5.68	5.96	6.13	6.25	6.35	6.43	6.50	6.55	6.61	6.65	6.69	6.73
750	5.07	5.63	5.90	6.07	6.20	6.29	6.37	6.44	6.50	6.55	6.60	6.64	6.68
800	5.04	5.58	5.85	6.02	6.14	6.24	6.32	6.39	6.45	6.50	6.54	6.59	6.62
850	5.01	5.53	5.80	5.97	6.09	6.19	6.27	6.34	6.39	6.45	6.49	6.53	6.57
900	4.99	5.48	5.75	5.92	6.04	6.14	6.22	6.29	6.34	6.40	6.44	6.48	6.52
950	4.96	5.44	5.70	5.87	5.99	6.09	6.17	6.24	6.30	6.35	6.39	6.43	6.47
1000	4.94	5.40	5.66	5.83	5.95	6.04	6.12	6.19	6.25	6.30	6.35	6.39	6.43

NOTE: 1. Numbers contained in above table are approximation for exercise purposes only.
2. If boron concentration are above 1,000 ppm use Table 1.2.

PALISADES NUCLEAR PLANT

EMERGENCY PREPAREDNESS EXERCISE INFORMATION

Table 1.2

Variation of pH with Boron Concentration

ppm Boron	pH	LiOH ppm
1000	5.0	<.02
1100	5.0	<.02
1200	4.9	<.02
1300	4.9	<.02
1400	4.8	<.02
1500	4.8	<.02
1600	4.7	<.02
1700	4.7	<.02
1800	4.6	<.02
1900	4.6	<.02
2000	4.5	<.02

NOTE: 1. Numbers contained in above Table are approximation for exercise purposes only.

PCS CHEMISTRY ANALYSIS
(Power Operations)

Week of 3-18-86 to 3-24-86
Approved [signature] 3/31/86

Proc No. CH 1.5
Attachment 3
Revision 1

			Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Date			3-18-86						
Day			Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time			0805						
Reactor Power	%		97.0						
PCS Pressure	Psig		2009						
PCS T avg	°F		560.8						
Boronometer	PPM		260						
Parameter	Limit								
Sample Temp °C		D/NR	26						
pH		D/NR	6.7						
Conductivity	µmho/cm	D/NR	20.0						
Boron (ppm)		D/2	500						
Chloride (ppm)	<0.12	4/3	<.02						
Dissolved O_2 (ppm)	<0.1	4/3	<.02						
Fluoride (ppm)	<0.1	1/M							
Lithium (ppm)	0.1 < Li < 2.0	D/NR	1.50						
Sodium (ppm)		D/NR	.185						
Suspended Solids (ppm)	<0.5	1/NR	—						
PCS Gas Expansion (in ml)			17.7						
% Hydrogen Gas			93.6						
% Nitrogen Gas			5.0						
Hydrogen cc/kg			24.80						
Nitrogen cc/kg			1.33						
Total Gas cc/kg			26.5						
Analysis by			J&F						
Senior Technician Review			TCA						
Lab Supervisor Review			C Smith						

Remarks

PCS GAS ACTIVITY

Week of 8-18-86 to 8-24-86

Approved [signature] 5-14-85

Proc No. CH 1.5
Attachment 6
Revision 1
Page 1 of 2

Sample PT SX 023

Day	Monday	Tuesday	Wednesd	Thursday	Friday	Saturday	Sunday
Date	3/18/86						
Time	0850						
Total Gas cc/kg	26.5						
Volume Counted	.10						
Isotope µCi/cc							
Ar41	2.9E-1						
Kr85M	2.4E-1						
Kr87	3.0E-1						
Kr88	3.5E-1						
Xe131M	NONE DET.						
Xe133	2.2						
Xe133M	5.7E-2						
Xe135	8.9E-1						
Xe135M	NONE DET						
Total Isotope µCi/cc Note 3	4.33						
Delta Volume (A-B) (cc)	17.7						
PCS Gas Xe133 (µCi/cc)	2.19						
PCS Liquid Xe133 (µCi/mL)	1.11E-1						
PCS Total X 33 (µCi/kg) Note 1	1.35E-2						
Off Gas Xe133 (microcuries/cc)	2.95E-6						
Condenser Air in Leakage (Cfm)	5.0						
Primary to Secondary Leak (Gpm) Note 2	.0010						
Analysis by	JEF						
Senior Technician Review	TCA						
Lab Supervisor Review	CSmith						

Note

1 Determine the total microcuries/kg of any isotope or sums of isotopes by summing gaseous and liquid activity components of samples gathered from the same sample stream with the following formula:

Specific isotope activity (μCi/kg) =

$$\frac{\underset{(\mu Ci/cc)}{\text{PCS gas activity}} \times \underset{(cc)}{(A - B - C_w)} + \underset{(\mu Ci/mL)}{\text{PCS liquid activity}} \; (1000\ mL + C_w)}{\left[1.0 + \frac{C_w}{1000}\right] kg}$$

Where C_w is the compressibility of water from Procedure CH 4.26.

Where A and B are burette levels from Procedure CH 4.26.

2 Determine primary to secondary leak rate:

$$\text{Leak rate (gpm)} = \frac{\underset{(\mu Ci/cc)}{\text{off gas } Xe^{133}} \times \underset{\text{leakage (cfm)}}{\text{condenser air}} \times 7.48E3 \left(\frac{\text{cc-gal}}{\text{Cuft-kg}}\right)}{\text{Specific isotope activity } Xe^{133} \left(\frac{\mu Ci}{kg}\right)}$$

Leak rate limit is 0.3 gpm by Technical Specifications.

3 The total isotope μCi/cc value is not directly representative of the specific activity of the primary coolant system.

PCS ACTIVITY ANALYSIS

Week of 8-18-86 to 8-24-86

Approved Stanley Burns 5-14-85

Proc No. CH 1.5
Attachment 4
Revision 1
Page 1 of 1

Day	Date	Time	Gross Gamma: Gross Well Bkg	Gross Gamma: Gross cpm	Gross Gamma: Vol ml	Gross Gamma: Eff cpd	Gross Gamma: Gamma microcuries/ml	Gross Beta: Bkg cpm	Gross Beta: Gross cpm	Gross Beta: Vol ml	Gross Beta: Eff cpd	Gross Beta: Beta microcuries/ml	Total Beta and Gamma
M	8/18	0805	192	62316	.10	.2387	1.17	30	32721	.10	.356	.41	1.58
T													
W													
T													
F													
S													
S													

	Iodine by Spectral Analysis: I 131	I 132	I 133	I 134	I 135	I 131 / I 133	Total Gross microcuries/ml	Iodine Dose Equivalent See Note 2	Liquid N_2 Dewar Filled by	Analysis: Technician	Analysis Review: Sr Tech	Lab Supvr
M	4.5E-3	5.5E-2	3.8E-2	9.3E-2	7.4E-2	.12	.27	2.5E-2	FBS	JEF	TCA	CSmith
T												
W												
T												
F												
S												
S												

Activated Corrosion Products by Multichannel Analysis
Date of Analysis: _____

Isotopes	≤.22 Microns	> .22 Microns
Cr-51		
Mn-54		
Mn-56		
Fe-59		
Co-58		
Co-60		
Ni-65		
Zr-95		
Mo-99		
W-187		
Total microcuries/ml		

$\bar{E}$ Date 6-23-86 $\bar{E}$ Next Due 12-23-86

$\bar{E}$ Value 1.12 mev

PCS Activity Limit 89.3 μci/ml

PCS Activity at Last $\bar{E}$ 3.12 μci/ml

Remarks

Tritium, H^3 1 per Week: Day	Net c/m	Vol	% Eff	μci/ml

PCS ACTIVITY ANALYSIS

Week of 8-18-86 to 8-24-86

Approved Kirby Pierce 5-14-85

Proc No. CH 1.5
Attachment 4
Revision 1
Page 1 of 1

Day	Date	Time	Gross Gamma: Gross Well Bkg	Gross Gamma: Gross cpm	Gross Gamma: Vol ml	Gross Gamma: Eff cpd	Gross Gamma: Gamma microcuries/ml	Gross Beta: Bkg cpm	Gross Beta: Gross cpm	Gross Beta: Vol ml	Gross Beta: Eff cpd	Gross Beta: Beta microcuries/ml	Total Beta and Gamma
M	8/18	0805	192	62316	.10	.2387	1.17	30	32721	.10	.356	.41	1.58
T													
W													
T													
F													
S													
S													

	Iodine by Spectral Analysis: I 131	I 132	I 133	I 134	I 135	I 131 / I 133	Total Gross microcuries/ml	Iodine Dose Equivalent See Note 2	Liquid N_2 Dewar Filled by	Analysis: Technician	Analysis Review: Sr Tech	Analysis Review: Lab Supvr
M	4.5E-3	5.5E-2	3.8E-2	9.3E-2	7.4E-2	.12	.27	2.5E-2	FBS	JEF	TCA	CSmith
T												
W												
T												
F												
S												
S												

Activated Corrosion Products by Multichannel Analysis
Date of Analysis: _____

Isotopes	<.22 Microns	>.22 Microns
Cr-51		
Mn-54		
Mn-56		
Fe-59		
Co-58		
Co-60		
Ni-65		
Zr-95		
Mo-99		
W-187		
Total microcuries/ml		

$\bar{E}$ Date 6-23-85 $\bar{E}$ Next Due 12-23-86

$\bar{E}$ Value 1.12 mev

PCS Activity Limit 89.3 µci/ml

PCS Activity at Last $\bar{E}$ 3.12 µci/ml

Remarks

Tritium, H^3 t per Week

Day	Net c/m	Vol	% Eff	µci/ml

WEEKLY RADIOCHEMISTRY

Week of 8-18-86 to 8-24-86

Approved [signature] 5-14-85

Proc No. CH 1.5
Attachment 7
Revision 1

System	SIRW	Fuel Pool	CCW	T-90	T-91	'A' BAST	'B' BAST	RBAT
Tank Level	96 %			41 %	23 %	100 %	98 %	90 %
Day	Mon.	Mon.	Mon.	Mon.	Mon.	Tue.	Mon.	Mon.
Date	8-18-86	8-18-86	8-18-86	8-18-86	8-18-86	8-18-86	8-18-86	8-18-86
Time	0855	1020	0840	0835	0835	0200	2325	1630
Sample Temp °C	25	26	27	27	25	28	28	28
pH	6.1	4.6	9.0	6.9	5.7	3.3	3.3	3.5
Conductivity	48.5	9.7	1350	0.87	<3.0	97	97.5	90.5
Boron, Note 1	1864	1982		5.0	7.0	13,670	12,400	12,200
Chloride	<.02	<.02		<.02	<.02	<.02	<.02	<.02
Fluoride	<.05	<.05		<.05	<.05	<.05	<.05	<.05
Lithium	.012	.005				.014	.014	.016
Chromate			633					
Sodium	9.28	<.005	.053	<.0007	.009	.086	.032	.028
Activity Analysis								
Gross Gamma								
Gross c/m	70,501	66,927	730	313	205	4817	23,185	18,127
Bkg c/m	194	194	194	194	194	186	186	186
ml	4	4	4	4	4	4	4	4
Inst Eff	.2387	.2387	.2387	.2387	.2387	.2387	.2387	.2387
microcuries/ml	3.3E-2	3.1E-2	1.7E-5	5.6E-5	<7.9E-6	2.2E-3	1.1E-2	8.5E-3
Gross Beta								
Gross c/m	8264	7063	82	153	79	—	—	—
Bkg c/m	43	43	43	43	43	—	—	—
Vol ml	1	1	10	10	10	—	—	—
Inst Eff	.356	.356	.356	.356	.356	—	—	—
microcuries/ml	1.0E-2	8.9E-3	4.9E-6	1.4E-5	4.6E-6	—	—	—
Tritium								
Net cpm	34719	45866		23264	17410	—	—	—
Vol ml	1	1		1	1	—	—	—
Inst Eff	.3374	.3374		.3374	.3374	—	—	—
μ Ci/ml	4.6E-2	6.1E-2		3.1E-2	2.3E-2	—	—	—

Remarks

Analysis by JEF

Sr Tech Review TCA

Laboratory Supvr Review C. Smith

Note

1	Fuel Pool Boron	1720 ppm minimum
	SIRW Tank Boron	1720 ppm to 2000 ppm

PLANT SECONDARY CHEMISTRY ANALYSIS, POWER OPERATIONS

Date 8/19/86 Time 0030

Approved by Stanley Burke 5-14-85

Proc No. CH 1.5
Attachment 10
Revision 1
Page 1 of 1

		A S/G	B S/G	CPD	Feed Train	HDP	A Tower	B Tower	CST	T104
	Rx Power 97.6 %									
	Blowdown	18K pph	18K pph	NR	NR	NR	20K gpm	9K gpm	NR	56 gpm
	Sample Temp °C	24	24	26	24		25	25		
	pH	9.10 / 8.4	9.07 / 7.15	9.25 / 9.25	9.22 / 9.00		7.65 / 7.70	8.58 / 8.50		
	Specific Conductivity µmhos/cm	— / 4.0	— / 3.6	5.3 / 0.0.2	— / 5.5		360 / 540	350 / 540	/	/ .03
All results as noted	Cation Conductivity µmhos/cm	— / .60	— / .66	— / .38	— / .18	NR	NR	NR	NR	NR
	Chloride mg/l					Not Sampled	NR	NR	Not Sampled	
	Morpholine mg/l						NR	NR		
	Ammonia mg/l						NR	NR		
	Hydrazine mg/l	.015	.013	.030 / —	.015		NR	NR		
	Dissolved Oxygen mg/l			.010 / .010	<.005 / .006		NR	NR	NR	NR
	Alkalinity mg/l	NR	NR	NR	NR	NR	81	140	NR	NR
	Langelier's Index	NR	NR	NR	NR	NR	+.13	+1.35	NR	NR
	SiO_2 mg/l									
	SO_4 mg/l									
	PO_4 mg/l			NR	NR	NR	NR	NR	NR	NR
	Fluoride mg/l			NR	NR	NR	NR	NR	NR	NR
	Sodium ppb	3.5 /	4.2 /	— / .28	/					Blank
	Calcium ppb						52	48		
	Magnesium ppb			<.05						
	Copper ppb									
	Iron ppb					↓			↓	

Gross Gamma Activity	Gross cpm	190	192	Condenser Xe-133 Activity (µCi/gm)	—
	Bkg cpm	193	193		
	Inst Eff	.2397	.2387	Condenser Air In-Leakage (SCFM)	—
	Vol ml	4	4		
	Gross Activity µCi/ml	<5.6E-6	<5.6E-6		
	Iodine Dose Equivalent µCi/gm	—	—		

B C/T acid pump out of service.

Remarks

KEY: grab / process monitor reading

DCC 26*03/50 Yr

Analysis by	Sr Tech Review	Lab Supervisor Review
DLC	JKK	S.J. Jones

PALEX-86 RELEASE RATES

TIME	NOBLE GAS (CI/SEC)	IODINE(DE I-131) (CI/SEC)
10:30	0	0.00000
10:45	99	0.00080
11:00	163	0.00163
11:15	147	0.00197
11:30	139	0.00188
11:45	137	0.00184
12:00	146	0.00210
12:15	158	0.00203
12:30	181	0.00195
12:45	206	0.00190
13:00	228	0.00183
13:15	254	0.00180
13:30	255	0.00177
13:45	251	0.00149
14:00	20	0.00000
14:15	0	0.00000

No particulates (other than noble gas daughters) are released

RELEASE ISOTOPICS

Nuclide	1045	1100	1200	1400
I-131	1.25E-01	1.37E-01	1.70E-01	2.27E-01
I-132	1.81E-01	1.78E-01	1.67E-01	1.23E-01
I-133	2.08E-01	2.22E-01	2.72E-01	3.40E-01
I-134	2.71E-01	2.37E-01	1.36E-01	3.60E-02
I-135	2.15E-01	2.26E-01	2.54E-01	2.75E-01
Total	1.00E+00	1.00E+00	1.00E+00	1.00E+00

RELEASE ISOTOPICS

Nuclide	1045	1100	1200	1400
Kr-83m	1.31E-02	1.61E-02	1.47E-02	7.81E-03
Kr-85m	2.83E-02	3.63E-02	4.15E-02	3.41E-02
Kr-85	1.31E-03	1.75E-03	2.32E-03	2.60E-03
Kr-87	5.05E-02	5.97E-02	4.46E-02	1.69E-02
Kr-88	7.60E-02	9.19E-02	9.81E-02	6.71E-02
Kr-89	8.98E-02	4.41E-03	1.25E-08	0.00E+00
Xe-131m	7.60E-02	1.01E-01	1.34E-01	1.53E-01
Xe-133m	8.29E-02	1.15E-01	1.47E-01	1.63E-01
Xe-133	2.49E-01	3.26E-01	4.37E-01	4.87E-01
Xe-135m	7.60E-02	5.05E-02	4.91E-03	0.00E+00
Xe-135	4.29E-02	5.51E-02	6.69E-02	6.80E-02
Xe-137	2.07E-02	1.79E-02	4.46E-07	0.00E+00
Xe-138	1.94E-01	1.24E-01	8.92E-03	0.00E+00
Total	1.00E+00	1.00E+00	1.00E+00	1.00E+00

METEOROLOGICAL DATA

At 0845, electric power to the met tower is lost. Met tower function can be regained if the appropriate electrical crosstie is made in the switchyard. Until that crosstie is made, no met tower data will be available. It is estimated that this should take 30 minutes; therefore, 3 intervals of data are not supplied. The data from 0930 on should not be given out until the met tower power is regained.

At 1045, when the 1E bus is shed by the DBA sequencer, the met tower will again be lost. The 1E bus should be recovered in approximately five minutes, at which time the met tower will be available again. Therefore, only one 15-minute interval of data is lost.

Results of WSI forecasts requested prior to 1000:

+ - MOSPAL
Interpolated MOS for PAL (4219N, 8619W) using ORD, SBN and GRR:

Date/GMT	19/06	19/12	19/18	20/00	20/06	20/12	20/18	21/00
Date/EST	19/01	19/07	19/13	19/19	20/01	20/07	20/13	20/19
Wind-mph	3210	0107	0110	3408	3005	2705	2008	1805
Clds-.1	2	10	10	8	6	2	1	1
Hgt-ft	7200	800	800	1500	2000	> 7500	> 7500	> 7500
PAS	E	D	C	D	E	E	E	E

+ LOGOUT

Results of WSI forecasts requested after 1000:

+ - MOSPAL
Interpolated MOS for PAL (4219N, 8619N) using ORD, SBN, GRR:

Date/GMT	19/12	19/18	20/00	20/06	20/12	20/18	21/00	21/06
Date/EST	19/07	19/13	19/19	20/01	20/07	20/13	20/19	21/01
Wind-MPH	0207	0210	0020	3415	3010	2710	2705	2703
Clds-.1	10	10	10	8	6	2	2	1
Hgt-ft	500	500	500	2000	5000	7000	> 7500	> 7500
PAS	D	C	C	C	D	D	D	E

+ LOGOUT

Results of hourly meteorological data at Benton Harbor:

Station Name	Time	Wind	PS
Benton Harbor, Michigan	0800	NW12	C
	0900	NNW10	C
	1000	N10	C
	1100	NNE08	D
	1200	NNE07	E
	1300	NNE06	E
	1400	NNE05	E
	1500	NNE05	D

Results of hourly meteorological data at Muskegon:

Station Name	Time	Wind	PS
Muskegon, Michigan	0800	NNW15	C
	0900	NNW12	C
	1000	N10	C
	1100	NNE10	D
	1200	NNE12	C
	1300	NNE08	D
	1400	NNE08	E
	1500	NNE07	E

PALEX-86
Meteorological Tower Data

08/19/86	0800	15-Minute Averages								
Parameter		Temp	Stab	DT	WS10	WD10	SIG1	WS60	WD60	SIG6
Units		C	PASQ	C	MPH	Deg	Deg	MPH	Deg	Deg
08/19/86	0800	18.1	C	-0.79	10.10	321.	13.8	13.10	323.	15.1
Status 00			DT	0	0	0	0	0	0	0
08/19/86	0815	18.3	C	-0.77	9.70	320.	14.2	12.60	321.	15.2
Status 00			DT	0	0	0	0	0	0	0
08/19/86	0830	18.4	C	-0.75	9.10	325.	13.0	11.80	328.	13.4
Status 00			DT	0	0	0	0	0	0	0
08/19/86	0845	NA	NA	NA	NA	NA	NA	NA	NA	NA
Status 00										
08/19/86	0900	NA	NA	NA	NA	NA	NA	NA	NA	NA
Status 00										
08/19/86	0915	NA	NA	NA	NA	NA	NA	NA	NA	NA
Status 00										
08/19/86	0930	19.3	D	-0.73	7.80	346.	11.8	10.10	350.	12.1
Status 00			DT	0	0	0	0	0	0	0
08/19/86	0945	19.5	D	-0.71	7.60	351.	12.2	9.90	354.	12.1
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1000	19.7	C	-0.76	8.90	358.	14.2	11.60	0	15.3
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1015	19.9	D	-0.64	7.60	2.	10.1	9.90	5.	12.0
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1030	20.1	D	-0.50	7.10	7.	11.2	9.20	10.	11.8
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1045	NA	NA	NA	NA	NA	NA	NA	NA	NA
Status 00										
08/19/86	1100	20.4	D	-0.30	7.80	15.	8.2	10.10	17.	9.3
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1115	20.8	E	-0.24	6.50	17.	7.0	8.40	19.	7.1
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1130	21.2	D	-0.30	7.20	18.	8.3	9.40	20.	9.6
Status 00			DT	0	0	0	0	0	0	0

08/19/86	1145	15-Minute Averages								
Parameter		Temp	Stab	DT	WS10	WD10	SIG1	WS60	WD60	SIG6
Units		C	PASQ	C	MPH	Deg	Deg	MPH	Deg	Deg
08/19/86	1145	21.6	D	-0.28	6.80	20.	10.7	8.80	21.	9.3
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1200	22.1	E	-0.22	5.80	21.	5.6	7.50	21.	6.3
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1215	22.7	E	-0.20	5.60	19.	7.2	7.30	20.	6.5
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1230	23.4	E	-0.20	5.60	20.	6.7	7.40	21.	6.5
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1245	24.2	D	-0.26	6.50	22.	8.9	8.40	23.	10.6
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1300	25.1	D	-0.28	6.20	20.	9.3	8.10	21.	8.6
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1315	25.8	D	-0.27	5.80	18.	7.7	7.50	20.	8.3
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1330	26.6	E	-0.23	5.00	19.	6.6	6.50	21.	6.8
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1345	26.7	E	-0.20	5.20	16.	6.3	6.80	18.	7.1
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1400	26.6	E	-0.21	5.40	18.	6.3	7.00	20.	7.0
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1415	25.9	D	-0.26	5.90	20.	7.8	7.70	18.	8.3
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1430	25.7	D	-0.28	5.70	19.	9.4	7.40	20.	10.7
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1445	25.7	D	-0.25	5.50	17.	10.5	7.10	19.	9.6
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1500	25.3	E	-0.23	5.10	18.	5.3	6.60	19.	6.6
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1515	25.1	D	-0.26	5.40	16.	8.4	7.00	17.	9.3
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1530	24.8	E	-0.23	5.10	18.	6.1	6.60	18.	5.7
Status 00			DT	0	0	0	0	0	0	0

08/19/86	1545	15-Minute Averages								
Parameter		Temp	Stab	DT	WS10	WD10	SIG1	WS60	WD60	SIG6
Units		C	PASQ	C	MPH	Deg	Deg	MPH	Deg	Deg
08/19/86	1545	24.6	E	-0.20	5.10	17.	7.1	6.60	19.	6.8
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1600	24.3	E	-0.22	8.00	16.	6.9	10.40	18.	5.8
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1615	24.1	D	-0.26	9.00	15.	8.6	11.70	17.	8.8
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1630	23.5	D	-0.70	10.00	12.	9.3	13.00	14.	10.4
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1645	22.9	C	-0.80	12.00	10.	13.1	15.60	12.	14.8
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1700	22.3	C	-0.84	15.00	10.	14.2	19.50	12.	15.7
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1715	22.1	B	-0.87	20.00	10.	18.3	26.00	13.	19.7
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1730	22.0	B	-0.92	20.00	10.	19.2	27.00	11.	21.3
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1745	19.9	B	-0.94	20.00	10.	19.5	25.00	12.	18.7
Status 00			DT	0	0	0	0	0	0	0
08/19/86	1800	19.9	B	-0.91	20.00	10.	21.3	26.50	10.	19.2
Status 00			DT	0	0	0	0	0	0	0

AREA RAD MONITORS
(Panel 1)

Monitor	Alarm Time	Reset/Clear Time
2300	1050	NA
2301	0830	NA
2302	0840	NA
2303	1050	NA
2304	NA	NA
2305	1100	NA
2306	0850	NA
2307	1100	NA
2308	1100	NA
2309	1100	NA
2310	1100	NA
2311	1050	NA
2312	1100	NA
2313	1100	NA
2314	0930	NA
2315	0930	NA
1805	1020	NA
1806	1020	NA
1807	0925	NA
1808	0925	NA

PROCESS RAD MONITORS
(Panel 2)

Monitor	Alarm Time	Reset/Clear Time
0833	NA	NA
0707	NA	NA
0915	NA	NA
1323	NA	NA
1049	NA	NA

PROCESS RAD MONITORS
(Panel 3)

Monitor	Alarm	Reset/Clear
2318	NA	NA
2319	NA	NA
1809	0830	Will reset if scale changed to x4.
1810	1050	Will reset if scale changed to x4.
1811	NA	NA
1817	0930	NA
1113	NA	NA
0631	NA	NA
2320	1050	Will reset if scale changed to x4.

AREA AND PROCESS RAD MONITORS
(Panel 4)

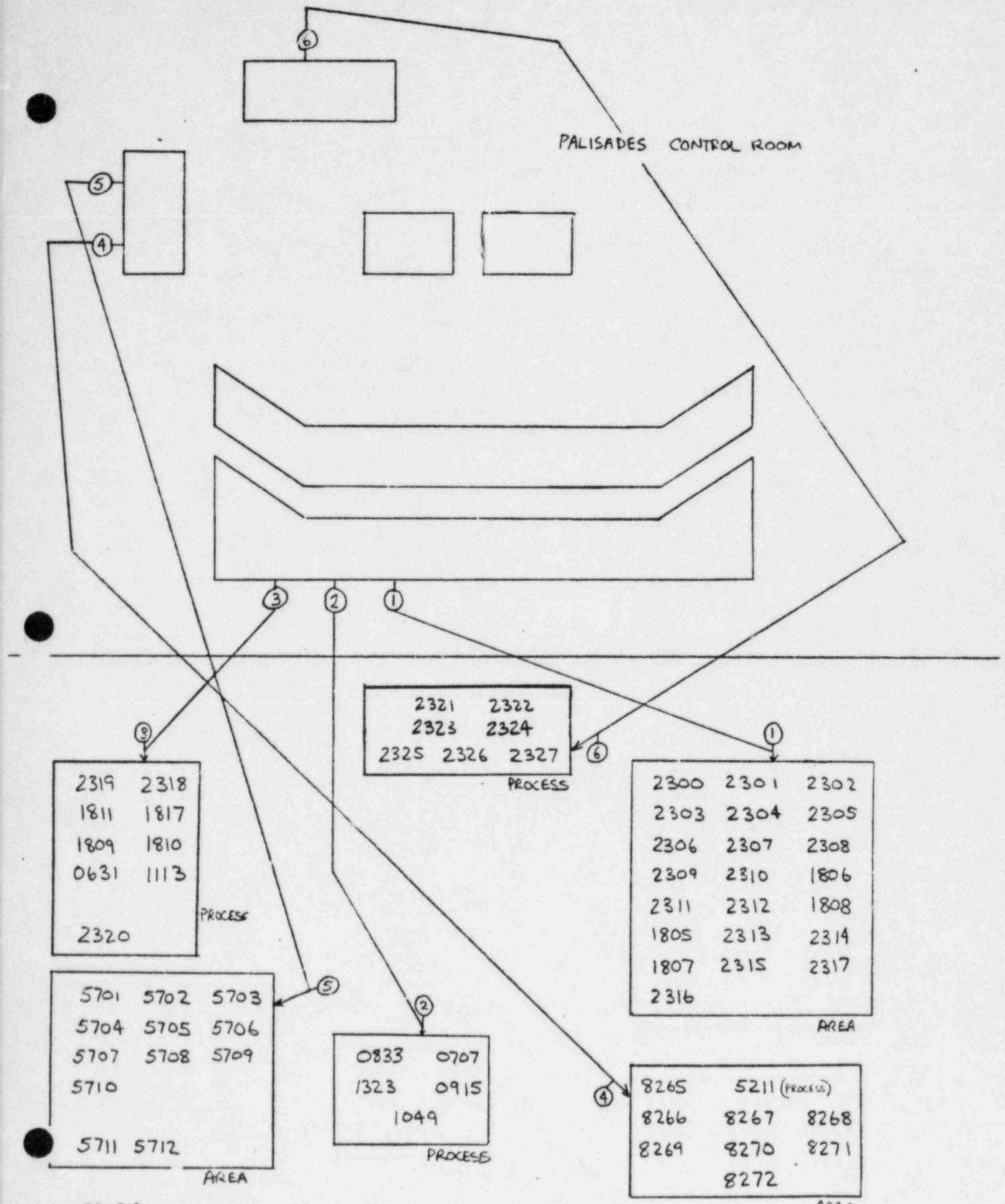
Monitor	Alarm Time	Reset/Clear
5211	NA	NA
8265	NA	NA
8266	NA	NA
8267	NA	NA
8268	NA	NA
8269	NA	NA
8270	NA	NA
8271	NA	NA
8272	NA	NA

AREA AND PROCESS RAD MONITORS
(Panel 5)

Monitor	Alarm Time	Reset/Clear
5701	1050	NA
5702	NA	NA
5703	NA	NA
5704	NA	NA
5705	NA	NA
5706	NA	NA
5707	NA	NA
5708	NA	NA
5709	NA	NA
5710	0950	NA
5711	NA	NA
5712	NA	NA

AREA AND PROCESS RAD MONITORS
(Panel 6)

Monitor	Alarm Time	Reset/Clear
2325	NA	NA
2326	1050	1415
2327	1050	1415
2323	1050	NA
2324	1050	NA
2321	1050	NA
2322	1050	NA



0202A
0202B READ OUT ON C40 PANEL IN AUX BUILDING 590' ELEV

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

TITLE: ALL MONITOR RESPONSES IN MR/HR EXCEPT 1805-1808 WHICH ARE R/HR | AUTHORS: PANEL 1 | COMPLETED | REVISED | SYSTEM | TYPE | SERIAL | PAGE OF

CHART

TIME	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2313	2314	2315	1805	1806	1807	1808	2312
0800	30	1.0	0.5	1.0	0.5	0.5	1.0	0.5	0.2	0.5	0.10	0.8	1.0	10	10	0.02	0.02	0.20	0.10	0.5
10	30	1.0	0.5	1.0	0.5	0.5	1.0	0.5	0.2	0.5	0.10	0.8	1.0	10	10	0.02	0.02	0.20	0.10	0.5
20	30	1.0	0.5	1.0	0.5	0.5	1.0	0.5	0.2	0.5	0.10	0.8	1.0	10	10	0.02	0.02	0.20	0.10	0.5
0830		1.0	0.5				1.0							10	10	0.02	0.02	0.20	0.10	
40		1.0	0.5				1.0							10	10	0.02	0.02	0.20	0.10	
50		5	0.5				5.0							10	10	0.02	0.02	0.20	0.10	
0900		10	0.5				10.0											2.5	2.5	
10		20	10				20.0											3.5	3.0	
20		30	20															4.0	3.5	
0930		40	50															4.5	4.0	
40		50	200											120	100	0.15	0.35	5.5	5.0	
50							50.0							200	150	0.25	0.50	7.0	6.0	
1000														240	250	0.30	0.60	8.0	7.0	
10														1600	1500	2.0	4.1	9.0	8.0	
20														3200	3500	4.0	5.0	10.0	9.0	
1030														5600	6000	7.0	6.0	12.0	10.0	
40																				
50	60			50	2.0	10.0	50,000	100	50	50	20	900	15	80,000	180,000	350	600	500	500	40
1100	60			50	2.0	20.0		100	50	50	20	1500	15	800,000	270,000	540	900	770	770	50
10												1500		700,000	240,000	490	790	700	700	60
20												1400		680,000	220,000	440	880	630	630	
1130												1300		660,000	200,000	400	660	570	570	
40												1200		650,000	190,000	400	650	570	580	
50												1100		650,000	190,000	400	650	560	560	
1200												1500		650,000	190,000	390	650	580	560	
10												1800		720,000	210,000	450	720	640	650	
20												2000		800,000	240,000	480	800	700	710	
1230							30,000					2500		880,000	270,000	530	880	760	760	
40												2400		910,000	280,000	560	920	790	790	
50												2300		910,000	280,000	550	910	780	780	
1300												2200		900,000	270,000	540	900	770	770	
10												2000								
20												1800								
1330	50											2000								
40												2000								
50												2000								
1400												2000		850,000	260,000	510	850	730	730	

1.6.8

15.5

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

TITLE: ALL MONITOR RESPONSES IN MR/HR EXCEPT 1805-1808 WHICH ARE R/HR

AUTHORIZ: PANEL 1 | COMPLETED | REVISED | SYSTEM | TYPE | SERIAL | PAGE OF

CHART

TIME	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	1805	1806	1807	1808
1400	50	50	200	50	2.0	20	30,000	100	50	50	20	2000	60	15	850,000	260,000	510	850	730	730
10		40	100			10		50	50	20	10	1000	50	15	800,000	250,000	500	800	700	700
20		30							10			20	10							
1430		20							1.0			1.0	1.0							
40		10																		
50																				
1500																				
10																				
20																				
1530																				
40																				
50																				
1600																				
10																				
20																				
1630																				
40																				
50																				
1700																				
10																				
20																				
1730																				
40																				
50																				
1800																				

15:10

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

TITLE: ALL MONITOR RESPONSES IN CPM	AUTHORIS): PENGEL Z	COMPLETED	REVISED	SYSTEM TYPE SERIAL	PAGE OF

CHART

TIME	0833	0707	0915	1323	1049
0800	400	3000	5000	500	100,000
10					
20					
0830					
40					
50					
0900					
10					
20					
0930					
40					
50					
1000					
10					
20					
1030					
40					
50	800	5000	7000	1000	100,000
1100					
10					
20					
1130					
40					
50					
1200					
10					
20					
1230					
40					
50					
1300					
10					
20					
1350					
40					
50					
1400	800	5000	7000	1000	100,000

J-11

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

TITLE: ALL MONITOR RESPONSES IN CPM

AUTHORIZ: PANEL 2

COMPLETED | REVISED | SYSTEM | TYPE | SERIAL | PAGE OF

CHART

TIME	0833	0707	0915	1323	1049
1400	800	5000	7000	1000	100,000
10	800	5000	7000	1000	
20	400	3000	5000	500	
1430					
40					
50					
1500					
10					
20					
1530					
40					
50					
1600					
10					
20					
1630					
40					
50					
1700					
10					
20					
1730					
40					
50					
1800					

11.91

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

TITLE: ALL MONITOR RESPONSES IN CPM | AUTHORIZ: PANEL 3 | COMPLETED | REVISED | SYSTEM | TYPE | SERIAL | FAILS OF

CHART

TIME	2318	2319	1809	1810	1811	1817	1113	0631	2320
0800	005	005	550	300	500	10,000	2,000	400	3000
10									
20									
0830									
40									
50			1000	600	1000	20,000	2000	500	3000
0900						50,000			
10						60,000			
20						70,000			
0930						100,000			
40						200,000			
50						400,000			
1000						800,000			
10						OSH			
20									
1030									
40									
50			2000	1500	2000	OSH	4000	2500	6000
1100									
10									
20									
1130									
40									
50									
1200									
10									
20									
1230									
40									
50									
1300									
10									
20									
1330									
40									
50									
1400									

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

TITLE: ALL MONITOR RESPONSES IN CPM

AUTHORIZ: PANEL 3 | COMPLETED | REVISED | SYSTEM | TYPE | SERIAL | PAGE OF

CHART

TIME	2318	2319	1809	1810	1811	1817	1113	0631	2320
1400	005	005	20000	15000	20000	05M	40000	25000	60000
10			10000	8000	10000		40000	20000	60000
20			6000	3000	5000		20000	10000	30000
1430								5000	
40									
50									
1500									
10									
20									
1530									
40									
50									
1600									
10									
20									
1630									
40									
50									
1700									
10									
20									
1730									
40									
50									
1800									

15-I

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

TITLE	AUTHORIS	COMPLETED	REVISED	SYSTEM	TYPE	SERIAL	PAGE
ALL MONITOR RESPONSES IN MR/HR EXCEPT 5211 AND 8265 WHICH ARE CPM	PANEL 4						OF

CHART

TIME	5211	8265	8266	8267	8268	8269	8270	8271	8272
0800	800	200	0.1	0.1	0.1	0.5	0.1	0.1	0.1
10									
20									
0830									
40									
50									
0900									
10									
20									
0930									
40									
50									
1000									
10									
20									
1030									
40									
50	1000	300	25	25	25	25	25	25	25
1100									
10									
20									
1130									
40									
50									
1200									
10									
20									
1230									
40									
50									
1300									
10									
20									
1330									
40									
50									
1400									

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

TITLE: ALL MONITOR RESPONSES IN MR/HR EXCEPT 5211 AND 8265 WHICH ARE CPM

CHART

AUTHORIZ: PANEL 4

COMPLETED | REVISED | SYSTEM | TYPE | SERIAL | PAGE OF

TIME	5211	8265	8266	8267	8268	8269	8270	8271	8272
1400	1000	300	25	25	25	25	25	25	25
10	900	200	10	10	10	10	10	10	10
20	800		1.0	1.0	1.0	1.0	1.0	1.0	1.0
1430									
40									
50									
1500									
10									
20									
1530									
40									
50									
1600									
10									
20									
1630									
40									
50									
1700									
10									
20									
1730									
40									
50									
1800									

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

TITLE: ALL MONITOR RESPONSES IN MR/HR EXCEPT 5711 AND 5712 WHICH ARE CPM | AUTHORIZED: PANEL 6 | COMPLETED | REVISED | SYSTEM | TYPE | SERIAL | PAGE OF

CHART

TIME	5701	5702	5703	5704	5705	5706	5707	5708	5709	5710	5711	5712
0800	1.0	0.8	10.0	0.2	0.2	0.2	0.1	1.0	1.0	1.5	400	300
10												
20												
0830												
40												
50												
0900												
10												
20												
0930										2.0		
40										3.0		
50										4.0		
1000										5.0		
10										7.0		
20										9.0		
1050										10.0		
40										6,000		
50	30	1.0				1.0				11,000	300	600
1100										16,000		
10										16,000		
20										15,000		
1130										14,000		
40										14,000		
50										14,000		
1200										15,000		
10										16,000		
20										17,000		
1230										18,000		
40										19,000		
50										21,000		
1300										23,000		
10										24,000		
20										25,000		
1330										26,000		
40										25,000		
50										25,000		
1400										19,000		

15.3

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

TITLE: ALL MONITOR READINGS IN MR/HR EXCEPT 5711 AND 5712 WHICH ARE CPM

CHART | AUTHORIZ: PANEL 5 | COMPLETED | REVISED | SYSTEM | TYPE | SERIAL | PAGE OF

TIME	5701	5702	sh03	5704	sh05	5706	5707	sh08	sh09	sh10	5711	5712
1400	30	1.0	10.0	0.2	0.2	1.0	0.1	1.0	1.0	10,000	800	600
10										2,000	600	400
20										1,000	400	300
1430										500		
40												
50												
1500												
10												
20												
1530												
40												
50												
1600												
10												
20												
1630												
40												
50												
1700												
10												
20												
1730												
40												
50												
1800												

15.18

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

2321/2322 WHICH ARE R/HR

TITLE: ALL MONITOR RESPONSES IN CPM EXCEPT 2327 WHICH IS MR/HR

AUTHORIS: PANEL 6 | COMPLETED | REVISED | SYSTEM | TYPE | SERIAL | PAGE OF

CHART TIME	CPM 2325	CPM 2326	MR/HR 2327	CPM 2323	CPM 2324	R/HR 2321	R/HR 2322	C/sec 2326	C/sec 2327
0800	400	100	0.4	30	40	1.01	1.01	4.0 -5	4.0 -5
10									
20									
0830									
40									
50									
0900									
10									
20									
0930	400	150	0.4	30	40	1.5	2.0	6.0 -5	4.0 -5
40		200				5.0	8.0	8.0 -5	7.0 -5
50						15	20		
1000						20	25		
10						24	28		
20						28	32		
1030						30	35		
40						50	70		
50	2000	OSH	100	300	400	3500	3500	OSH	
1100			200	400	500	5400	5400		90
10			200	600	700	4700	4700		90
20			200	800	900	4200	4200		90
1130			150	700	800	4000	4000		85
40			150	600	700	3900	3900		85
50			150	500	600	3900	3900		85
1200			150	500	600	3900	3900		85
10			150	500	600	4000	4000		85
20			150	500	600	4200	4200		85
1230			200	600	700	4400	4400		90
40			200	700	800	4700	4700		90
50			200	800	900	5000	5000		90
1300			200	800	900	5300	5300		90
10			200	900	1000	5300	5300		90
20			200	900	1000	5400	5400		90
1350			200	900	1000	5400	5400		90
40			200	900	1000	5300	5300		90
50			200	900	1000	5200	5200		90
1400			200	800	900	5100	5100		90

15.19

CONSUMERS POWER COMPANY SYSTEM DOCUMENTATION

TITLE: ALL MONITOR RESPONSES IN CPM EXCEPT 2327 WHICH IS MR/HR AND 2321/2322: R/HR

AUTHORIS: PANEL 6 | COMPLETED | REVISED | SYSTEM | TYPE | SERIAL | PAGE OF

CHART TIME	2325 CPM	2326 CPM	2327 MR/HR	2323 CPM	2324 CPM	2321 R/hr	2322 R/hr	2326 C/sec	2327 C/sec
1400	2000	OSH	200	800	900	5100	5100	OSH	90
10		OSH	20	600	500	5000	5000	OSH	10
20		1.0+6	2.0	100	100			0.4	0.4
1430		1.0+3							
40		500							
50									
1500									
10									
20									
1550									
40									
50									
1600									
10									
20									
1630									
40									
50									
1700									
10									
20									
1730									
40									
50									
1800									

CFM DATA

The monitor responses on the CFM data sheets denoted by asterisks are dependent on the decade selected on the monitor itself in the control room. Presented values assume that the decade selection is such that the monitor reads out in the first significant figure (ie, 0.100, not 0.010). If it becomes obvious to a controller that monitor decade selection by a player is not being adequately considered, the monitor responses can be changed appropriately.

DAT 1/19/86

TIME 0800

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
0.5500 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	2.000 -2	R/HR
RIA-1806	2.000 -2	R/HR
RIA-1807	2.000 -1	R/HR
RIA-1808	1.000 -1	R/HR
HI RANGE L	1.010 +0	R/HR
HI RANGE R	1.010 +0	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.000 +2 CPM

RIA2327 4.000 -1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000 -1 MR/HR

COND OFF GAS
4.000 +2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.3000 CPM

*WESG RAD
0.5000 CPM

RAD WASTE VENT
5.500+2 CPM

SFP NORTH
5709 1.000 +0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DAT 3/17/86

TIME 0810

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

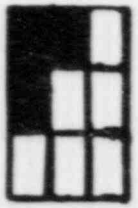
*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
0.5500 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION



FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	2.000-2	R/HR
RIA-1806	2.000-2	R/HR
RIA-1807	2.000-1	R/HR
RIA-1808	1.000-1	R/HR
HI RANGE L	1.010+0	R/HR
HI RANGE R	1.010+0	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000-1 MR/HR

COND OFF GAS
4.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.3000 CPM

*WESG RAD
0.5000 CPM

RAD WASTE VENT
5.500+2 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DAT 8/17/86

TIME 0820

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER
0833
4.000+2 CPM

RAD WASTE DISCHG
1049
1.000+5 CPM

STM GEN BLOWDOWN
0707
3.000+3 CPM

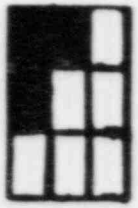
*MIXING BASIN
1323
0.5000 CPM

*FAILED FUEL
0202A
0.5500 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION



FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	2.000-2	R/HR
RIA-1806	2.000-2	R/HR
RIA-1807	2.000-1	R/HR
RIA-1808	1.000-1	R/HR
HI RANGE L	1.010+0	R/HR
HI RANGE R	1.010+0	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000-1 MR/HR

COND OFF GAS
4.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.3000 CPM

*WESG RAD
0.5000 CPM

RAD WASTE VENT
5.500+2 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DAT 8/19/86

TIME 0830

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
0.5500 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	2.000-2	R/HR
RIA-1806	2.000-2	R/HR
RIA-1807	2.000-1	R/HR
RIA-1808	1.000-1	R/HR
HI RANGE L	1.010+0	R/HR
HI RANGE R	1.010+0	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000-1 MR/HR

COND OFF GAS
4.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.3000 CPM

*WESG RAD
0.5000 CPM

RAD WASTE VENT
5.500+2 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DAT 9/17/86

TIME 0840

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

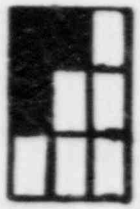
*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
0.5500 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION



FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	2.000-2	R/HR
RIA-1806	2.000-2	R/HR
RIA-1807	2.000-1	R/HR
RIA-1808	1.000-1	R/HR
HI RANGE L	1.010+0	R/HR
HI RANGE R	1.010+0	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000-1 MR/HR

COND OFF GAS
4.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.3000 CPM

*WESG RAD
0.5000 CPM

RAD WASTE VENT
5.500+2 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DAT 3/17/86

TIME 0850

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.000 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	2.000-2	R/HR
RIA-1806	2.000-2	R/HR
RIA-1807	2.500+0	R/HR
RIA-1808	2.500+0	R/HR
HI RANGE L	1.010+0	R/HR
HI RANGE R	1.010+0	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000-1 MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.6000 CPM

*WESG RAD
1.0000 CPM

RAD WASTE VENT
1.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
23 3 1.000+0 MR/HR

DAT 3/17/86

TIME 0900

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	2.000 -2	R/HR
RIA-1806	2.000 -2	R/HR
RIA-1807	3.500 +0	R/HR
RIA-1808	3.000 +0	R/HR
HI RANGE L	1.010 +0	R/HR
HI RANGE R	1.010+0	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000-1 MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.6000 CPM

*WESG RAD
1.0000 CPM

RAD WASTE VENT
1.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DAT 8/17/86

TIME 0910

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	2.000-2	R/HR
RIA-1806	2.000-2	R/HR
RIA-1807	4.000+0	R/HR
RIA-1808	3.500+0	R/HR
HI RANGE L	1.010+0	R/HR
HI RANGE R	1.010+0	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000-1 MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.6000 CPM

*WESG RAD
1.0000 CPM

RAD WASTE VENT
1.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DAT 3/17/86

TIME 0920

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
4000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	2.000-2	R/HR
RIA-1806	2.000-2	R/HR
RIA-1807	4.500+0	R/HR
RIA-1808	4.000+0	R/HR
HI RANGE L	1.010+0	R/HR
HI RANGE R	1.010+0	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000-1 MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.6000 CPM

*WESG RAD
1.0000 CPM

RAD WASTE VENT
1.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.00+0 MR/HR

DAT 1/17/86

TIME 0930

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	1.500 -1	R/HR
RIA-1806	3.500 -1	R/HR
RIA-1807	5.500 +0	R/HR
RIA-1808	5.000 +0	R/HR
HI RANGE L	1.500 +0	R/HR
HI RANGE R	2.000 +0	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.500+2 CPM

RIA2327 4.000 -1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000 -1 MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.6000 CPM

*WESG RAD
1.0000 CPM

RAD WASTE VENT
1.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DATE 9/17/86

TIME 0940

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	2.500-1	R/HR
RIA-1806	5.000-1	R/HR
RIA-1807	7.000+0	R/HR
RIA-1808	6.000+0	R/HR
HI RANGE L	5.000+0	R/HR
HI RANGE R	8.000+0	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 2.000+0 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000-1 MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.6000 CPM

*WESG RAD
1.0000 CPM

RAD WASTE VENT
1.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DAT 8/17/86

TIME 0950

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

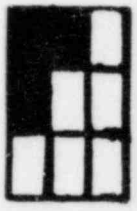
*MIXING BASIN 1323
0.5000 CPM

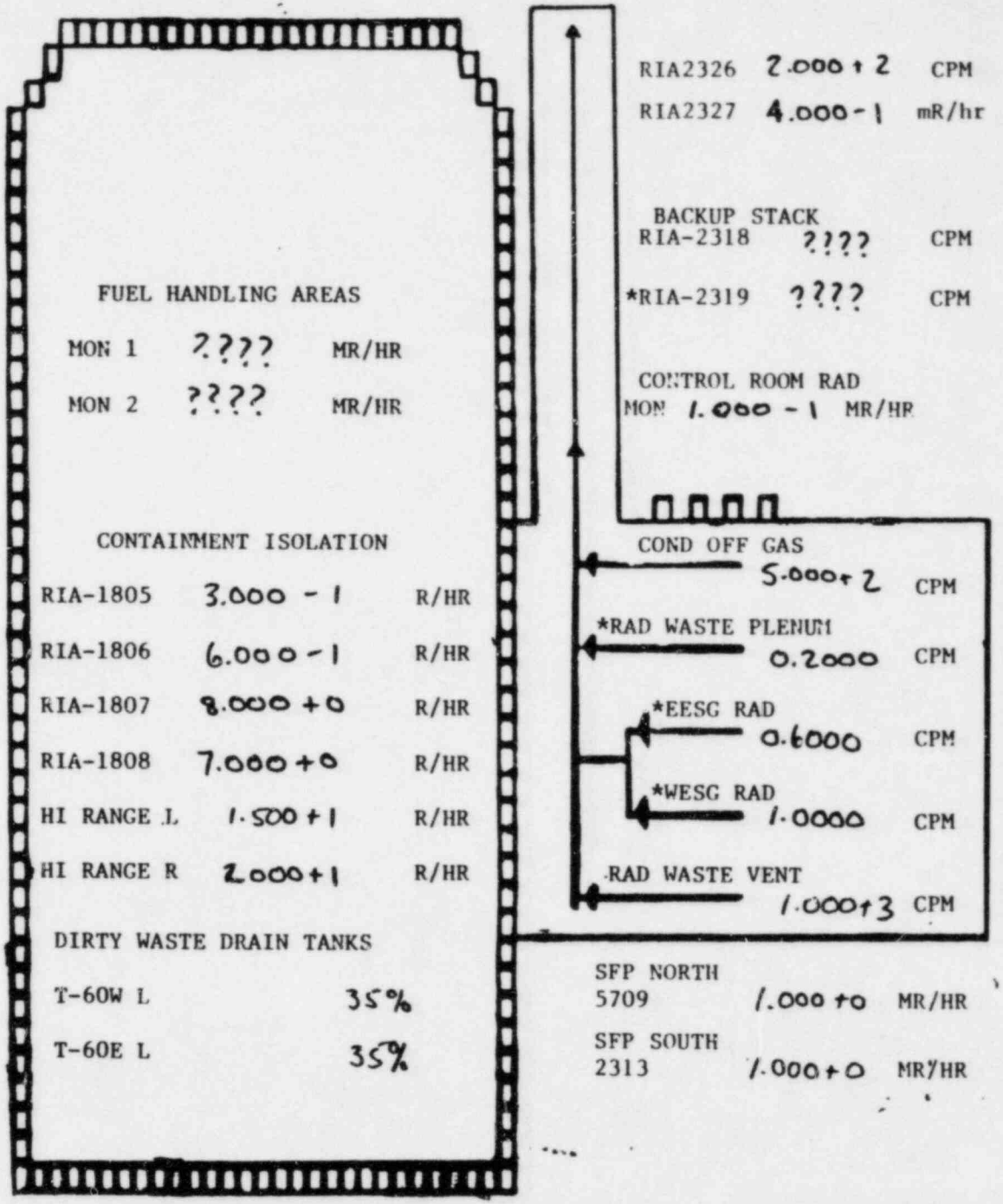
*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION





DAT 8/17/86

TIME 1000

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	2.000+0	R/HR
RIA-1806	4.100+0	R/HR
RIA-1807	9.000+0	R/HR
RIA-1808	8.000+0	R/HR
HI RANGE L	2.000+1	R/HR
HI RANGE R	2.500+1	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 2.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.6000 CPM

*WESG RAD
1.0000 CPM

RAD WASTE VENT
1.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DATE 8/19/86

TIME 1010

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER
0833 4.000+2 CPM

RAD WASTE DISCHG
1049
1.000+5 CPM

STM GEN BLOWDOWN
0707
3.000+3 CPM

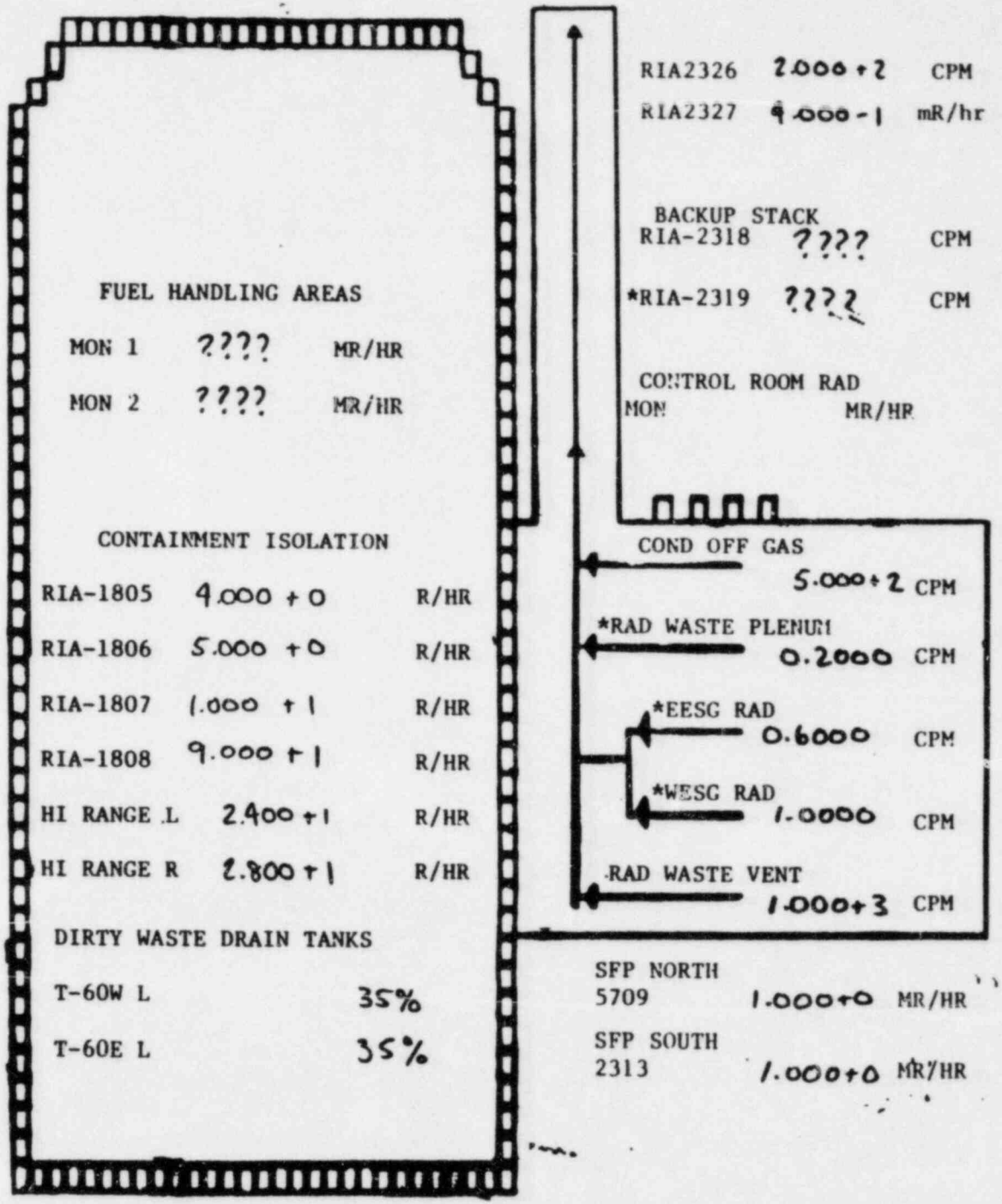
*MIXING BASIN
1323
0.5000 CPM

*FAILED FUEL
0202A
1.0000 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION



DATE 8/19/86

TIME 1020

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	7.000+0	R/HR
RIA-1806	6.000+0	R/HR
RIA-1807	1.200+1	R/HR
RIA-1808	1.000+1	R/HR
HI RANGE L	2.800+1	R/HR
HI RANGE R	3.200+1	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2323 2.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.6000 CPM

*WESG RAD
1.0000 CPM

RAD WASTE VENT
1.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DATE 8/19/86

TIME 1030

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	7.000+0	R/HR
RIA-1806	6.000+0	R/HR
RIA-1807	1.200+1	R/HR
RIA-1808	1.000+1	R/HR
HI RANGE L	3.000+1	R/HR
HI RANGE R	3.500+1	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 2.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.6000 CPM

*WESG RAD
1.0000 CPM

RAD WASTE VENT
1.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DAT 9/17/86

TIME 1040

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER
0833 4.000+2 CPM

RAD WASTE DISCHG
1049
1.000+5 CPM

STM GEN BLOWDOWN
0707
3.000+3 CPM

*MIXING BASIN
1323
0.5000 CPM

*FAILED FUEL
0202A
1.0000 CPM

MAIN STEAM A 2324
4.000+1 CPM

MAIN STEAM B 2323
3.000+1 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	7.000+0	R/HR
RIA-1806	6.000+0	R/HR
RIA-1807	1.200+1	R/HR
RIA-1808	1.000+1	R/HR
HI RANGE L	5.000+1	R/HR
HI RANGE R	7.000+1	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 2.000+2 CPM

RIA2327 4.000-1 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.6000 CPM

*WESG RAD
1.0000 CPM

RAD WASTE VENT
1.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.000+0 MR/HR

DAT 8/17/86

TIME 1050

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
4.000+2 CPM

MAIN STEAM B 2323
3.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	3.500 +2	R/HR
RIA-1806	6.000 +2	R/HR
RIA-1807	5.000 +2	R/HR
RIA-1808	5.000+2	R/HR
HI RANGE L	3.500+3	R/HR
HI RANGE R	3.500+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.000+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/17/86

TIME 1100

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
5.000+2 CPM

MAIN STEAM B 2323
4.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	5.400 + 2	R/HR
RIA-1806	9.000 + 2	R/HR
RIA-1807	7.700 + 2	R/HR
RIA-1808	7.700 + 2	R/HR
HI RANGE L	5.400+3	R/HR
HI RANGE R	5.400+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 2.000 + 2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/19/86

TIME 1110

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
7.000+2 CPM

MAIN STEAM B 2323
6.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	4.900+2	R/HR
RIA-1806	7.900+2	R/HR
RIA-1807	7.000+2	R/HR
RIA-1808	7.000+2	R/HR
HI RANGE L	4.700+3	R/HR
HI RANGE R	4.700+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.700+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/17/86

TIME 1120

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
9.000+2 CPM

MAIN STEAM B 2323
8.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	4.400+2	R/HR
RIA-1806	8.800+2	R/HR
RIA-1807	6.300+2	R/HR
RIA-1808	6.300+2	R/HR
HI RANGE L	4.200+3	R/HR
HI RANGE R	4.200+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.850+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/17/86

TIME 1130

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
8.000+2 CPM

MAIN STEAM B 2323
7.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	4.000+2	R/HR
RIA-1806	6.600+2	R/HR
RIA-1807	5.700+2	R/HR
RIA-1808	5.700+2	R/HR
HI RANGE L	4.000+3	R/HR
HI RANGE R	4.000+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.600+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/19/86

TIME 1140

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
7.000+2 CPM

MAIN STEAM B 2323
6.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	4.000+2	R/HR
RIA-1806	6.500+2	R/HR
RIA-1807	5.700+2	R/HR
RIA-1808	5.600+2	R/HR
HI RANGE L	3.900+3	R/HR
HI RANGE R	3.900+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.550+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/17/86

TIME 1150

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
6.000+2 CPM

MAIN STEAM B 2323
5.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805 4.000+2 R/HR

RIA-1806 6.500+2 R/HR

RIA-1807 5.600+2 R/HR

RIA-1808 5.600+2 R/HR

HI RANGE L 3.900+3 R/HR

HI RANGE R 3.900+3 R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.550+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/19/86

TIME 1200

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
6.000+2 CPM

MAIN STEAM B 2323
5.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	3.900+2	R/HR
RIA-1806	6.500+2	R/HR
RIA-1807	5.600+2	R/HR
RIA-1808	5.600+2	R/HR
HI RANGE L	3.900+3	R/HR
HI RANGE R	3.900+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.580+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 9/17/86

TIME 1210

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
6.000+2 CPM

MAIN STEAM B 2323
5.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805 4.500+2 R/HR

RIA-1806 7.200+2 R/HR

RIA-1807 6.400+2 R/HR

RIA-1808 6.500+2 R/HR

HI RANGE L 4.000+3 R/HR

HI RANGE R 4.000+3 R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.620+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/17/86

TIME 1220

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
6.000+2 CPM

MAIN STEAM B 2323
5.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	4.800+2	R/HR
RIA-1806	8.000+2	R/HR
RIA-1807	7.000+2	R/HR
RIA-1808	7.100+2	R/HR
HI RANGE L	4.200+3	R/HR
HI RANGE R	4.200+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.720+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/17/86

TIME 1230

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
7.000+2 CPM

MAIN STEAM B 2323
6.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	5.300+2	R/HR
RIA-1806	8.800+2	R/HR
RIA-1807	7.600+2	R/HR
RIA-1808	7.600+2	R/HR
HI RANGE L	4.400+3	R/HR
HI RANGE R	4.400+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.800+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 .000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/19/86

TIME 1240

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+? CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
8.000+2 CPM

MAIN STEAM B 2323
7.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	5.600+2	R/HR
RIA-1806	9.200+2	R/HR
RIA-1807	7.900+2	R/HR
RIA-1808	7.900+2	R/HR
HI RANGE L	4.700+3	R/HR
HI RANGE R	4.700+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.500+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/17/86

TIME 1250

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
9.000+2 CPM

MAIN STEAM B 2323
8.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	5.500 +2	R/HR
RIA-1806	9.100 +2	R/HR
RIA-1807	7.800+2	R/HR
RIA-1808	7.800+2	R/HR
HI RANGE L	5.000+3	R/HR
HI RANGE R	5.000+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 2.050 +2mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/17/86

TIME 1300

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
9.000+2 CPM

MAIN STEAM B 2323
8.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805 5.400+2 R/HR

RIA-1806 9.000+2 R/HR

RIA-1807 7.700+2 R/HR

RIA-1808 7.700+2 R/HR

HI RANGE L 5.300+3 R/HR

HI RANGE R 5.300+3 R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 2.150+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/19/86

TIME 1310

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
1.000+3 CPM

MAIN STEAM B 2323
9.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805 5.400+2 R/HR

RIA-1806 9.000+2 R/HR

RIA-1807 7.700+2 R/HR

RIA-1808 7.700+2 R/HR

HI RANGE L 5.300+3 R/HR

HI RANGE R 5.300+3 R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 2.220+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/17/86

TIME 1320

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
1.000+3 CPM

MAIN STEAM B 2323
9.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	5.400+2	R/HR
RIA-1806	9.000+2	R/HR
RIA-1807	7.700+2	R/HR
RIA-1808	7.700+2	R/HR
HI RANGE L	5.400+3	R/HR
HI RANGE R	5.400+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 2.270+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 .500+1 MR/HR

DATE 8/19/86

TIME 1330

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
1.000+3 CPM

MAIN STEAM B 2323
9.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	5.400+2	R/HR
RIA-1806	9.000+2	R/HR
RIA-1807	7.700+2	R/HR
RIA-1808	7.700+2	R/HR
HI RANGE L	5.400+3	R/HR
HI RANGE R	5.400+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 2.250+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/19/86

TIME 1340

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

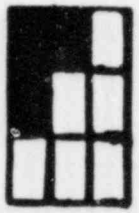
*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
1.000+3 CPM

MAIN STEAM B 2323
9.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION



FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805 5.400+2 R/HR

RIA-1806 9.000+2 R/HR

RIA-1807 7.700+2 R/HR

RIA-1808 7.700+2 R/HR

HI RANGE L 5.300+3 R/HR

HI RANGE R 5.300+3 R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 2.200+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 3/19/86

TIME 1350

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
1.000+3 CPM

MAIN STEAM B 2323
9.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	5.400+2	R/HR
RIA-1806	9.000+2	R/HR
RIA-1807	7.700+2	R/HR
RIA-1808	7.700+2	R/HR
HI RANGE L	5.200+3	R/HR
HI RANGE R	5.200+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 2.080+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 2/19/86

TIME 1400

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
9.000+2 CPM

MAIN STEAM B 2323
8.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	5.100+2	R/HR
RIA-1806	8.500+2	R/HR
RIA-1807	7.300+2	R/HR
RIA-1808	7.300+2	R/HR
HI RANGE L	5.100+3	R/HR
HI RANGE R	5.100+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 ???? CPM

RIA2327 1.800+2 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 2.000+1 MR/HR

COND OFF GAS
2.500+3 CPM

*RAD WASTE PLENUM
0.4000 CPM

*EESG RAD
0.1500 CPM

*WESG RAD
0.2000 CPM

RAD WASTE VENT
2.000+3 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DAT 8/17/86

TIME 1410

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.7000 CPM

SERVICE WATER 0833
8.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
5.000+3 CPM

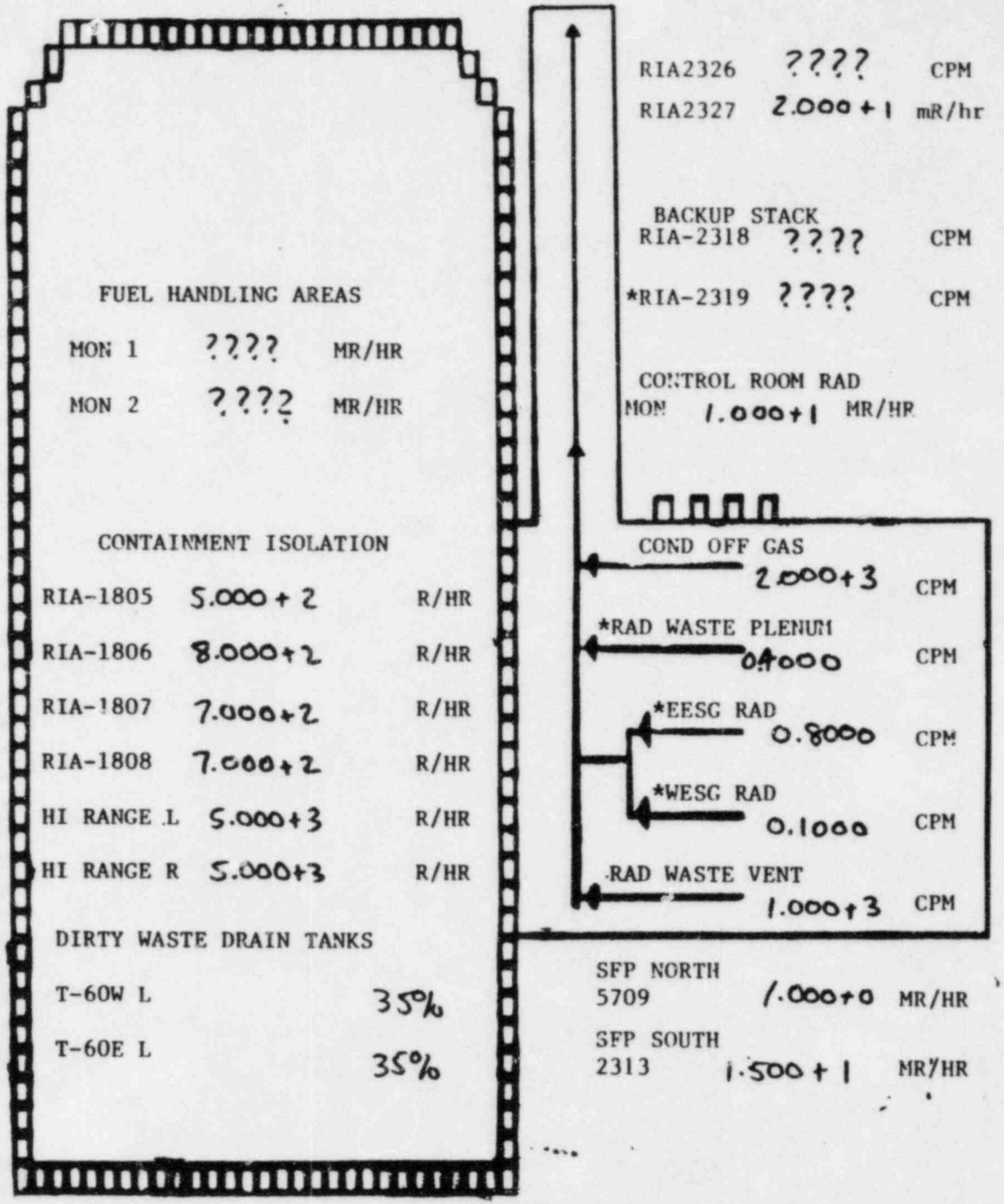
*MIXING BASIN 1323
1.0000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
5.000+2 CPM

MAIN STEAM B 2323
6.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION



DAT 8/19/86

TIME 1420

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

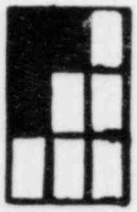
*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.000+0 CPM

MAIN STEAM A 2324
1.000+2 CPM

MAIN STEAM B 2323
1.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION



FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	5.000+2	R/HR
RIA-1806	8.000+2	R/HR
RIA-1807	7.000+2	R/HR
RIA-1808	7.000+2	R/HR
HI RANGE L	5.000+3	R/HR
HI RANGE R	5.000+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.000+6 CPM

RIA2327 1.000+0 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000+0 MR/HR

COND OFF GAS
1.000+3 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.3000 CPM

*WESG RAD
0.5000 CPM

RAD WASTE VENT
6.000+2 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DAT 8/17/86

TIME 1430

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
1.000+2 CPM

MAIN STEAM B 2323
1.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	5.000+2	R/HR
RIA-1806	8.000+2	R/HR
RIA-1807	7.000+2	R/HR
RIA-1808	7.000+2	R/HR
HI RANGE L	5.000+3	R/HR
HI RANGE R	5.000+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 1.000+3 CPM

RIA2327 1.000+0 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000+1 MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.3000 CPM

*WESG RAD
0.5000 CPM

RAD WASTE VENT
6.000+2 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/19/86

TIME 1490

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
1.000+2 CPM

MAIN STEAM B 2323
1.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805 5.000+2 R/HR

RIA-1806 8.000+2 R/HR

RIA-1807 7.000+2 R/HR

RIA-1808 7.000+2 R/HR

HI RANGE L 5.000+3 R/HR

HI RANGE R 5.000+3 R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 5.000+2 CPM

RIA2327 1.000+0 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000+1 MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.3000 CPM

*WESG RAD
0.5000 CPM

RAD WASTE VENT
6.000+2 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DATE 8/17/86

TIME 1450

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
1.000+2 CPM

MAIN STEAM B 2323
1.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION

FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805	5.000+2	R/HR
RIA-1806	8.000+2	R/HR
RIA-1807	7.000+2	R/HR
RIA-1808	7.000+2	R/HR
HI RANGE L	5.000+3	R/HR
HI RANGE R	5.000+3	R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 5.000+2 CPM

RIA2327 1.000+0 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000+1 MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.3000 CPM

*WESG RAD
0.5000 CPM

RAD WASTE VENT
6.000+2 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

DAT 8/17/86

TIME 1500

RADIOLOGICAL

LIQUID RADIATION MONITORS

*COMPONENT COOLING WATER 0915
0.5000 CPM

SERVICE WATER 0833
4.000+2 CPM

RAD WASTE DISCHG 1049
1.000+5 CPM

STM GEN BLOWDOWN 0707
3.000+3 CPM

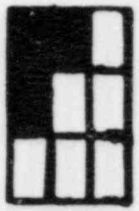
*MIXING BASIN 1323
0.5000 CPM

*FAILED FUEL 0202A
1.0000 CPM

MAIN STEAM A 2324
1.000+2 CPM

MAIN STEAM B 2323
1.000+2 CPM

*DECADE DEPENDENT ON CR SWITCH POSITION



FUEL HANDLING AREAS

MON 1 ???? MR/HR

MON 2 ???? MR/HR

CONTAINMENT ISOLATION

RIA-1805 5.000+2 R/HR

RIA-1806 8.000+2 R/HR

RIA-1807 7.000+2 R/HR

RIA-1808 7.000+2 R/HR

HI RANGE L 5.000+3 R/HR

HI RANGE R 5.000+3 R/HR

DIRTY WASTE DRAIN TANKS

T-60W L 35%

T-60E L 35%

RIA2326 5.000+2 CPM

RIA2327 1.000+0 mR/hr

BACKUP STACK
RIA-2318 ???? CPM

*RIA-2319 ???? CPM

CONTROL ROOM RAD
MON 1.000+1 MR/HR

COND OFF GAS
5.000+2 CPM

*RAD WASTE PLENUM
0.2000 CPM

*EESG RAD
0.3000 CPM

*WESG RAD
0.5000 CPM

RAD WASTE VENT
6.000+2 CPM

SFP NORTH
5709 1.000+0 MR/HR

SFP SOUTH
2313 1.500+1 MR/HR

To get dose rate in mR/hr from PASM samples:

CONT ATM

$$\text{Total Conc } (\mu Ci/gm) \times 0.23 \frac{mR\text{-}cm^3}{\mu Ci\text{-}hr} = \text{Dose Rate}$$

PCS/LPSI/SUMP - UNDILUTED LIQUID

$$\text{Total Conc } (\mu Ci/gm) \times 40 \frac{mR\text{-}gm}{\mu Ci\text{-}hr} = \text{Dose Rate}$$

PCS/LPSI/SUMP - DILUTED LIQUID

$$\text{Total Conc } (\mu Ci/gm) \times 0.05 \frac{mR\text{-}gm}{\mu Ci\text{-}hr} = \text{Dose Rate}$$

PCS/LPSI/SUMP - DILUTED OFF GAS

$$\text{Total Conc } (\mu Ci/gm) \times 0.005 \frac{mR\text{-}gm}{\mu Ci\text{-}hr} = \text{Dose Rate}$$

All dose rates are at 1 inch.

Contact on the shielded transfer cask is ~ 1/1000 that of the sample.

PASM PANEL DOSE RATES

When the panel is in use, the contact dose rates at the front of the panel will rise to ~ 5,000 mR/hr and ~ 500 mR/hr at 3 feet. After the panel is flushed, the dose rates can be reduced to 100 mR/hr and 10 mR/hr, respectively. (Back of the PASM panel is essentially the same as the front.)

'ontainment Atmosphere Concentration: Senario Time

microcuries per cubic centimeter (UNDILUTED)

Nuclide	0800	0815	0845	0900	1000	1045	1100	1200	1300
Kr-83m	2.00E-10	2.00E-10	1.90E-03	1.90E-02	1.90E-01	1.90E+00	3.50E+00	3.30E+00	3.70E+00
Kr-85m	3.00E-10	3.00E-10	4.10E-03	4.10E-02	4.10E-01	4.10E+00	7.90E+00	9.30E+00	1.30E+01
Kr-85	5.00E-11	5.00E-11	1.90E-04	1.90E-03	1.90E-02	1.90E-01	3.80E-01	5.20E-01	8.50E-01
Kr-87	6.70E-09	6.70E-09	7.30E-03	7.30E-02	7.30E-01	7.30E+00	1.30E+01	1.00E+01	9.50E+00
Kr-88	5.40E-09	5.40E-09	1.10E-02	1.10E-01	1.10E+00	1.10E+01	2.00E+01	2.20E+01	2.80E+01
Kr-89	7.80E-09	7.80E-09	1.30E-02	1.30E-01	1.30E+00	1.30E+01	9.60E-01	2.80E-06	9.60E-12
Xe-131m	1.60E-10	1.60E-10	1.10E-02	1.10E-01	1.10E+00	1.10E+01	2.20E+01	3.00E+01	5.00E+01
Xe-133m	3.90E-10	3.90E-10	1.20E-02	1.20E-01	1.20E+00	1.20E+01	2.50E+01	3.30E+01	5.40E+01
Xe-133	8.90E-09	8.90E-09	3.60E-02	3.60E-01	3.60E+00	3.60E+01	7.10E+01	9.80E+01	1.60E+02
Xe-135m	1.10E-09	1.10E-09	1.10E-02	1.10E-01	1.10E+00	1.10E+01	1.10E+01	1.10E+00	1.50E-01
Xe-135	4.30E-10	4.30E-10	6.20E-03	6.20E-02	6.20E-01	6.20E+00	1.20E+01	1.50E+01	2.40E+01
Xe-137	8.40E-10	8.40E-10	3.00E-03	3.00E-02	3.00E-01	3.00E+00	3.90E+00	1.00E-04	3.20E-09
Xe-138	9.10E-10	9.10E-10	2.80E-02	2.80E-01	2.80E+00	2.80E+01	2.70E+01	2.00E+00	1.70E-01
Total	3.32E-08	3.32E-08	1.45E-01	1.45E+00	1.45E+01	1.45E+02	2.18E+02	2.24E+02	3.43E+02
I-131	2.00E-12	2.00E-12	1.80E-07	1.80E-06	1.80E-05	1.03E-03	1.96E-03	2.37E-03	2.09E-03
I-132	4.00E-11	4.00E-11	2.60E-07	2.60E-06	2.60E-05	1.48E-03	2.54E-03	2.32E-03	1.52E-03
I-133	8.00E-11	8.00E-11	3.00E-07	3.00E-06	3.00E-05	1.71E-03	3.18E-03	3.78E-03	3.23E-03
I-134	2.10E-11	2.10E-11	3.90E-07	3.90E-06	3.90E-05	2.22E-03	3.39E-03	1.89E-03	7.22E-04
I-135	6.00E-11	6.00E-11	3.10E-07	3.10E-06	3.10E-05	1.77E-03	3.23E-03	3.53E-03	2.81E-03
Total	2.03E-10	2.03E-10	1.44E-06	1.44E-05	1.44E-04	8.21E-03	1.43E-02	1.39E-02	1.04E-02

rimar. Coolant Liquid Activity: Senario Time

microcuries per gram (UNDILUTED)

Nuclide	0800	0815	0845	0900	1000	1045	1100	1200	1300
I-130	0.00E+00	0.00E+00	2.10E+01	2.07E+01	1.96E+01	1.88E+01	1.85E+01	1.75E+01	1.66E+01
I-131	6.80E-02	6.80E-02	3.00E+04	3.00E+04	2.99E+04	2.98E+04	2.98E+04	2.97E+04	2.95E+04
I-132	2.20E-01	2.20E-01	4.33E+04	4.02E+04	2.98E+04	2.38E+04	2.21E+04	1.63E+04	1.21E+04
I-133	2.10E-01	2.10E-01	5.00E+04	4.96E+04	4.79E+04	4.68E+04	4.64E+04	4.48E+04	4.33E+04
I-134	3.30E-01	3.30E-01	6.50E+04	5.35E+04	2.45E+04	1.37E+04	1.12E+04	5.15E+03	2.36E+03
I-135	3.00E-01	3.00E-01	5.17E+04	5.03E+04	4.51E+04	4.16E+04	4.05E+04	3.64E+04	3.26E+04
I-136	0.00E+00	0.00E+00	2.50E+04	1.61E+01	2.74E-12	7.27E-22	4.67E-25	7.96E-38	1.36E-50
Total	1.13E+00	1.13E+00	2.65E+05	2.24E+05	1.77E+05	1.56E+05	1.50E+05	1.32E+05	1.20E+05
Cs-134m	1.13E-07	1.13E-07	1.00E+03	9.42E+02	7.41E+02	6.19E+02	5.83E+02	4.58E+02	3.61E+02
Cs-134	2.40E-07	2.40E-07	3.10E+03	3.10E+03	3.10E+03	3.10E+03	3.10E+03	3.10E+03	3.10E+03
Cs-137	3.80E-07	3.80E-07	7.50E+03	7.50E+03	7.50E+03	7.50E+03	7.50E+03	7.50E+03	7.50E+03
Cs-138	3.30E-01	3.30E-01	1.20E+05	5.18E+05	1.38E+05	5.14E+04	3.69E+04	9.87E+03	2.64E+03
Cs-139	0.00E+00	0.00E+00	9.60E+04	4.01E+04	1.95E+04	1.14E+04	9.50E+03	4.62E+03	2.25E+03
Rb-88	2.00E+00	2.00E+00	1.70E+03	1.04E+04	1.00E+03	1.74E+02	9.67E+01	9.31E+00	8.97E-01
Rb-89	3.70E+00	3.70E+00	2.30E+03	8.20E+03	5.51E+02	7.27E+01	3.70E+01	2.49E+00	1.67E-01
Rb-90	0.00E+00	0.00E+00	4.10E+03	3.84E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	3.80E-08	3.80E-08	3.80E-08	3.80E-08	3.80E-08	3.80E-08	3.80E-08	3.80E-08	3.80E-08
Ru-103	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08
Te-132	7.60E-08	7.60E-08	7.60E-08	7.60E-08	7.60E-08	7.60E-08	7.60E-08	7.60E-08	7.60E-08
Mn-54	2.60E-05	2.60E-05	2.60E-05	2.60E-05	2.60E-05	2.60E-05	2.60E-05	2.60E-05	2.60E-05
Mn-56	3.10E-02	3.10E-02	3.10E-02	3.10E-02	3.10E-02	3.10E-02	3.10E-02	3.10E-02	3.10E-02
Cr-51	1.60E-02	1.60E-02	1.60E-02	1.60E-02	1.60E-02	1.60E-02	1.60E-02	1.60E-02	1.60E-02
Co-58	4.10E-03	4.10E-03	4.10E-03	4.10E-03	4.10E-03	4.10E-03	4.10E-03	4.10E-03	4.10E-03
Co-60	5.40E-05	5.40E-05	5.40E-05	5.40E-05	5.40E-05	5.40E-05	5.40E-05	5.40E-05	5.40E-05
Total	6.08E+00	6.08E+00	2.36E+05	5.88E+05	1.71E+05	7.42E+04	5.78E+04	2.56E+04	1.58E+04

Primary Coolant Liquid Activity: Senario Time

microcuries per gram (UNDILUTED)

Nuclide	0800	0815	0845	0900	1000	1045	1100	1200	1300
Kr-83m	9.40E-01	9.40E-01	4.10E+03	3.36E+03	1.62E+03	6.14E+02	5.59E+02	3.86E+02	2.66E+02
Kr-85m	3.80E-01	3.80E-01	8.90E+03	7.70E+03	4.61E+03	2.05E+03	1.97E+03	1.69E+03	1.44E+03
Kr-85	9.80E-03	9.80E-03	4.70E+02	4.23E+02	2.96E+02	1.48E+02	1.48E+02	1.48E+02	1.48E+02
Kr-87	3.50E-01	3.50E-01	2.40E+04	1.88E+04	7.64E+03	2.54E+03	2.21E+03	1.28E+03	7.43E+02
Kr-88	4.50E-01	4.50E-01	3.20E+04	2.71E+04	1.48E+04	6.16E+03	5.80E+03	4.53E+03	3.54E+03
Kr-89	3.40E-01	3.40E-01	4.70E+04	1.56E+03	2.02E-03	5.07E-08	1.87E-09	0.00E+00	0.00E+00
Xe-131m	1.30E-02	1.30E-02	3.00E+02	2.70E+02	1.88E+02	9.40E+01	9.40E+01	9.37E+01	9.35E+01
Xe-133m	8.70E-02	8.70E-02	3.50E+03	3.14E+03	2.17E+03	1.07E+03	1.07E+03	1.06E+03	1.04E+03
Xe-133	3.70E+00	3.70E+00	1.10E+05	9.89E+04	6.88E+04	3.43E+04	3.42E+04	3.40E+04	3.38E+04
Xe-135m	4.10E-01	4.10E-01	4.10E+04	1.86E+04	6.84E+02	5.83E+01	2.97E+01	2.00E+00	1.34E-01
Xe-135	7.50E+00	7.50E+00	3.60E+04	3.18E+04	2.06E+04	9.70E+03	9.51E+03	8.80E+03	8.14E+03
Xe-137	9.40E+00	9.40E+00	8.50E+04	5.84E+04	1.39E+04	3.09E+03	2.36E+03	8.00E+02	2.72E+02
Xe-138	1.10E+01	1.10E+01	8.10E+04	3.50E+04	1.29E+03	7.13E+01	3.42E+01	1.81E+00	9.56E-02
Total	3.46E+01	3.46E+01	4.73E+05	3.05E+05	1.37E+05	5.99E+04	5.80E+04	5.28E+04	4.95E+04

Dumb Liquid Activity Generic Time

microcuries per gram (UNDILUTED)

Nuclide	0800	0815	0845	0900	1000	1045	1100	1200	1300
I-130	NO SAMP	NO SAMP	NO SAMP	NO SAMP	1.96E+01	1.88E+01	1.85E+01	1.75E+01	1.66E+01
I-131	NO SAMP	NO SAMP	NO SAMP	NO SAMP	2.99E+04	2.98E+04	2.98E+04	2.97E+04	2.96E+04
I-132	NO SAMP	NO SAMP	NO SAMP	NO SAMP	2.98E+04	2.38E+04	2.21E+04	1.64E+04	1.21E+04
I-133	NO SAMP	NO SAMP	NO SAMP	NO SAMP	4.79E+04	4.67E+04	4.63E+04	4.48E+04	4.33E+04
I-134	NO SAMP	NO SAMP	NO SAMP	NO SAMP	2.45E+04	1.36E+04	1.12E+04	5.15E+03	2.36E+03
I-135	NO SAMP	NO SAMP	NO SAMP	NO SAMP	4.51E+04	4.16E+04	4.05E+04	3.63E+04	3.26E+04
I-136	NO SAMP	NO SAMP	NO SAMP	NO SAMP	2.74E-12	7.27E-22	4.67E-25	7.97E-28	1.36E-30
Total	NO SAMP	NO SAMP	NO SAMP	NO SAMP	1.77E+05	1.56E+05	1.50E+05	1.32E+05	1.20E+05
Cs-134m	NO SAMP	NO SAMP	NO SAMP	NO SAMP	7.41E+02	6.19E+02	5.83E+02	4.59E+02	3.61E+02
Cs-134	NO SAMP	NO SAMP	NO SAMP	NO SAMP	3.10E+03	3.10E+03	3.10E+03	3.10E+03	3.10E+03
Cs-137	NO SAMP	NO SAMP	NO SAMP	NO SAMP	7.50E+03	7.50E+03	7.50E+03	7.50E+03	7.50E+03
Cs-138	NO SAMP	NO SAMP	NO SAMP	NO SAMP	1.38E+05	5.13E+04	3.69E+04	9.85E+03	2.63E+03
Cs-139	NO SAMP	NO SAMP	NO SAMP	NO SAMP	1.95E+04	1.14E+04	9.47E+03	4.62E+03	2.25E+03
Rb-88	NO SAMP	NO SAMP	NO SAMP	NO SAMP	1.00E+03	1.73E+02	9.63E+01	9.28E+00	8.94E-01
Rb-89	NO SAMP	NO SAMP	NO SAMP	NO SAMP	5.51E+02	7.27E+01	3.70E+01	2.49E+00	1.67E-01
Rb-90	NO SAMP	NO SAMP	NO SAMP	NO SAMP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	NO SAMP	NO SAMP	NO SAMP	NO SAMP	3.80E-08	3.80E-08	3.80E-08	3.80E-08	3.80E-08
Ru-103	NO SAMP	NO SAMP	NO SAMP	NO SAMP	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08
Te-132	NO SAMP	NO SAMP	NO SAMP	NO SAMP	7.60E-08	7.60E-08	7.60E-08	7.60E-08	7.60E-08
Mn-54	NO SAMP	NO SAMP	NO SAMP	NO SAMP	2.60E-08	2.60E-05	2.60E-05	2.60E-05	2.60E-05
Mn-56	NO SAMP	NO SAMP	NO SAMP	NO SAMP	3.10E-02	3.10E-02	3.10E-02	3.10E-02	3.10E-02
Cr-51	NO SAMP	NO SAMP	NO SAMP	NO SAMP	1.60E-02	1.60E-02	1.60E-02	1.60E-02	1.60E-02
Co-58	NO SAMP	NO SAMP	NO SAMP	NO SAMP	4.10E-03	4.10E-03	4.10E-03	4.10E-03	4.10E-03
Co-60	NO SAMP	NO SAMP	NO SAMP	NO SAMP	5.40E-05	5.40E-05	5.40E-05	5.40E-05	5.40E-05
Total	NO SAMP	NO SAMP	NO SAMP	NO SAMP	1.70E+05	7.41E+04	5.77E+04	2.55E+04	1.58E+04

"A" And "B" SG Liquid Activity: Scenario Time

microcuries per gram (UNDILUTED)

Nuclide	0800	0815	0845	0900	1000	1045	1100	1200	1300
I-131	6.20E-03	6.20E-05	6.20E-05	6.20E-04	6.20E-04	6.20E-04	6.20E-04	6.20E-04	6.20E-04
I-132	1.90E-04	1.90E-04	1.90E-04	1.90E-03	1.90E-03	1.90E-03	1.90E-03	1.90E-03	1.90E-03
I-133	3.67E-04	3.67E-04	3.67E-04	3.67E-03	3.67E-03	3.67E-03	3.67E-03	3.67E-03	3.67E-03
I-134	4.80E-04	4.80E-04	4.80E-04	4.80E-03	4.80E-03	4.80E-03	4.80E-03	4.80E-03	4.80E-03
I-135	4.20E-04	4.20E-04	4.20E-04	4.20E-03	4.20E-03	4.20E-03	4.20E-03	4.20E-03	4.20E-03
Total	1.52E-03	1.52E-03	1.52E-03	1.52E-02	1.52E-02	1.52E-02	1.52E-02	1.52E-02	1.52E-02
Cs-134m	0.00E+00	0.00E+00	2.34E-08	2.34E-08	2.34E-08	2.34E-08	2.34E-08	2.34E-08	2.34E-08
Cs-134	1.45E-08	1.45E-08	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06
Cs-137	2.90E-08	2.90E-08	2.90E-05	2.90E-05	2.90E-05	2.90E-05	2.90E-05	2.90E-05	2.90E-05
Cs-138	0.00E+00	0.00E+00	4.60E-04	4.60E-04	4.60E-04	4.60E-04	4.60E-04	4.60E-04	4.60E-04
Cs-139	0.00E+00	0.00E+00	5.10E-04	5.10E-04	5.10E-04	5.10E-04	5.10E-04	5.10E-04	5.10E-04
Rb-88	1.20E-08	1.20E-08	1.20E-05	1.20E-05	1.20E-05	1.20E-05	1.20E-05	1.20E-05	1.20E-05
Rb-89	1.60E-08	1.60E-08	1.60E-05	1.60E-05	1.60E-05	1.60E-05	1.60E-05	1.60E-05	1.60E-05
Rb-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	2.00E-09	2.00E-09	2.00E-09	2.00E-09	2.00E-09	2.00E-09	2.00E-09	2.00E-09	2.00E-09
Mn-54	1.70E-06	1.70E-06	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05
Mn-56	4.30E-05	4.30E-05	4.30E-04	4.30E-04	4.30E-04	4.30E-04	4.30E-04	4.30E-04	4.30E-04
Cr-51	2.20E-05	2.20E-05	2.20E-04	2.20E-04	2.20E-04	2.20E-04	2.20E-04	2.20E-04	2.20E-04
Co-58	2.30E-04	2.30E-04	2.30E-03	2.30E-03	2.30E-03	2.30E-03	2.30E-03	2.30E-03	2.30E-03
Co-60	1.00E-06	1.00E-06	1.00E-05	1.00E-05	1.00E-05	1.00E-05	1.00E-05	1.00E-05	1.00E-05
Fe-59	4.30E-07	4.30E-07	4.30E-06	4.30E-06	4.30E-06	4.30E-06	4.30E-06	4.30E-06	4.30E-06
Ni-65	2.10E-06	2.10E-06	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05
Zr-95	7.30E-01	7.30E-01	7.30E+00	7.30E+00	7.30E+00	7.30E+00	7.30E+00	7.30E+00	7.30E+00
Mo-99	4.70E-07	4.70E-07	4.70E-06	4.70E-06	4.70E-06	4.70E-06	4.70E-06	4.70E-06	4.70E-06
Total	7.30E-01	7.30E-01	7.30E+00	7.30E+00	7.30E+00	7.30E+00	7.30E+00	7.30E+00	7.30E+00

RGEM PARTICULATE FILTERS

The particulate filters have the iodine activity divided by ten.

The dose rates, count rates, etc, are also 1/10 the iodine values.

GEM Noble Gas Grab Sample: Senario Time

microcuries per cubic centimeter (UNDILUTED)

Nuclide	1045	1100	1200	1300	1400	
Kr-83m	2.84E-02	3.50E+00	3.30E+00	3.70E+00	2.22E-03	
Kr-85m	6.12E-02	7.90E+00	9.30E+00	1.30E+01	7.80E-03	
Kr-85	2.84E-03	3.80E-01	5.20E-01	8.50E-01	5.10E-04	
Kr-87	1.09E-01	1.30E+01	1.00E+01	9.50E+00	5.70E-03	
Kr-88	1.64E-01	2.00E+01	2.20E+01	2.80E+01	1.68E-02	
Kr-89	1.94E-01	9.60E-01	2.80E-06	9.60E-12	5.76E-15	
Xe-131m	1.64E-01	2.20E+01	3.00E+01	5.00E+01	3.00E-02	
Xe-133m	1.79E-01	2.50E+01	3.30E+01	5.40E+01	3.24E-02	
Xe-133	5.37E-01	7.10E+01	9.80E+01	1.60E+02	9.60E-02	
Xe-135m	1.64E-01	1.10E+01	1.10E+00	1.50E-01	9.00E-05	
Xe-135	9.25E-02	1.20E+01	1.50E+01	2.40E+01	1.44E-02	
Xe-137	4.48E-02	3.90E+00	1.00E-04	3.20E-09	1.92E-12	
Xe-138	4.18E-01	2.70E+01	2.00E+00	1.70E-01	1.02E-04	
Total	2.16E+00	2.18E+02	2.24E+02	3.43E+02	2.06E-01	
I-131	1.53E-05	1.96E-03	2.37E-03	2.09E-03	1.10E-06	
I-132	2.21E-05	2.54E-03	2.32E-03	1.52E-03	8.03E-07	
I-133	2.55E-05	3.18E-03	3.78E-03	3.65E-03	1.93E-06	
I-134	3.32E-05	3.39E-03	1.89E-03	8.17E-04	4.31E-07	
I-135	2.64E-05	3.23E-03	3.53E-03	3.18E-03	1.68E-06	
Total	1.23E-04	1.43E-02	1.39E-02	1.13E-02	5.95E-06	
Dose Rate	9.50E+02	1.60E+03	1.40E+03	2.20E+03	1.00E+01	mR/hr
5 cc serum	1.00E+02	1.50E+02	1.25E+02	2.50E+02	2.00E+00	mR/hr

The automatic grab taken at RGEM high alarm is the 1045 data

GEM Normal Range Filters: Senario Time

microcuries

Nuclide	1045	Nuclide	1045
I-131	1.37E+00	Rb-88	1.82E-01
I-132	3.42E+00	Rb-89	9.09E-02
I-133	3.94E+00	Cs-138	3.64E-01
I-134	5.13E+00	Cs-139	1.82E+01
I-135	4.08E+00		
Total	1.89E+01	Total	1.88E+01

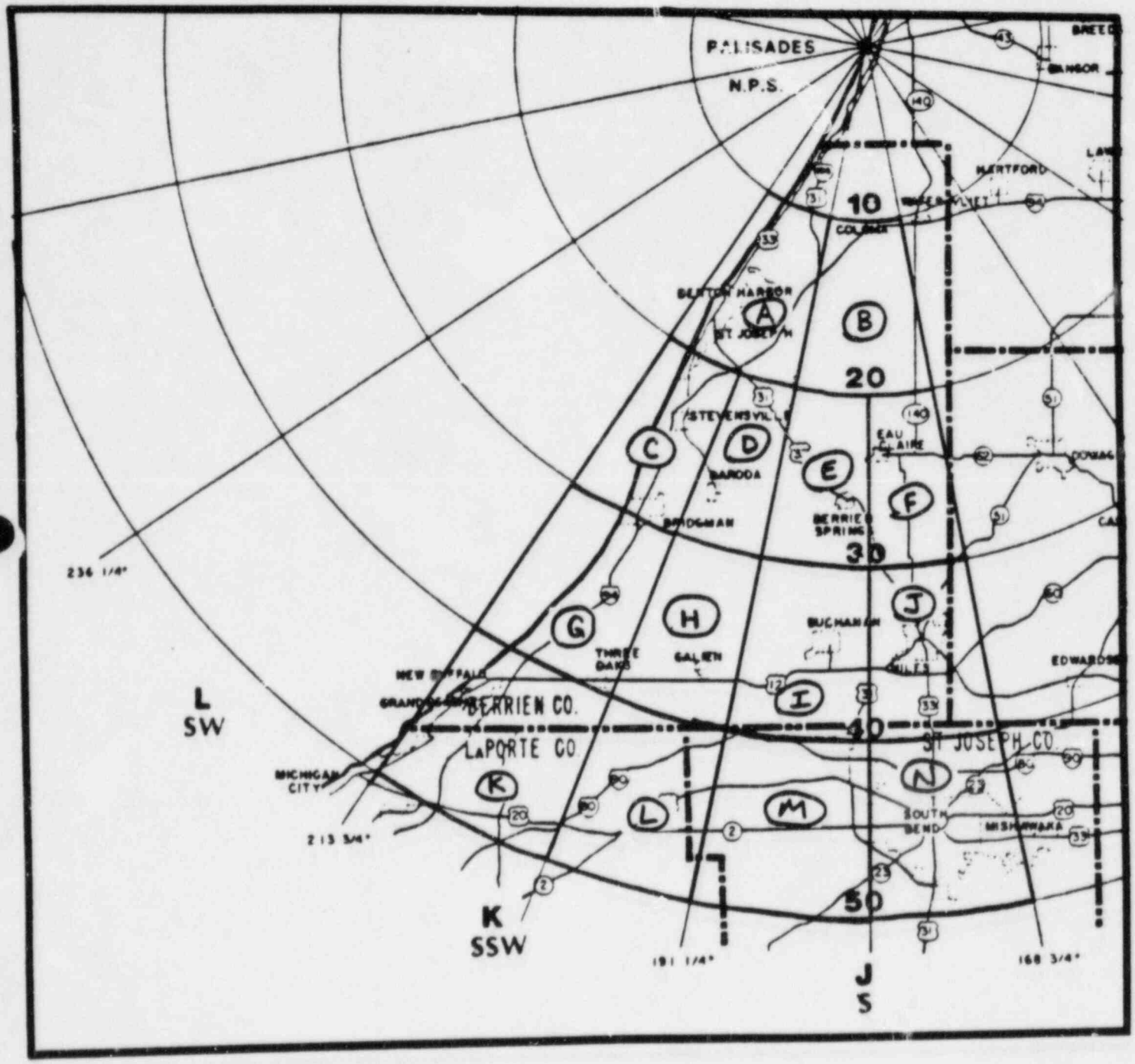
Dose Rate	1.09E+01 mR/hr	2.73E+01 mR/hr	
com	4.00E+04 com	8.73E+04 com	

;EM Accident Filters: Senario Time

microcuries deposited during any 15 minute period and cummulative curies

Nuclide	1045	Cum	1100	Cum	1200	Cum	1300	Cum
I-131	2.37E-02	2.37E-02	5.18E-02	7.98E-02	3.30E-02	1.94E-01	3.14E-02	3.45E-01
I-132	3.42E-02	3.42E-02	6.72E-02	1.03E-01	3.24E-02	1.90E-01	3.08E-02	3.39E-01
I-133	3.94E-02	3.94E-02	8.40E-02	1.29E-01	5.28E-02	3.12E-01	5.02E-02	5.52E-01
I-134	5.13E-02	5.13E-02	8.96E-02	1.38E-01	2.64E-01	1.55E+00	2.51E-01	2.76E+00
I-135	4.08E-02	4.08E-02	8.47E-02	1.30E-01	4.92E-02	2.89E-01	4.67E-02	5.14E-01
Total	1.89E-01	1.89E-01	3.77E-01	5.81E-01	4.31E-01	2.53E+00	4.10E-01	4.51E+00
mR/hr	6.00E-01		1.10E+00		1.20E+00		1.15E+00	
cpm	2.20E+03		4.00E+03		4.40E+03		4.20E+03	
Cum mR/hr		6.00E-01		1.70E+00		6.80E+00		1.19E+01
Cum cpm		2.20E+03		8.50E+03		3.40E+04		5.90E+04

0 - 50 Mi INGESTION PATHWAY MAP



RELEASE ISOTOPICS

DAY 1

Nuclide	0800	0815	0845	0900	1000	1045	1100	1200
I-131	9.85E-03	9.85E-03	1.25E-01	1.25E-01	1.25E-01	1.25E-01	1.37E-01	1.70E-01
I-132	1.97E-01	1.97E-01	1.81E-01	1.81E-01	1.81E-01	1.81E-01	1.78E-01	1.67E-01
I-133	3.94E-01	3.94E-01	2.08E-01	2.08E-01	2.08E-01	2.08E-01	2.22E-01	2.72E-01
I-134	1.03E-01	1.03E-01	2.71E-01	2.71E-01	2.71E-01	2.71E-01	2.37E-01	1.36E-01
I-135	2.96E-01	2.96E-01	2.15E-01	2.15E-01	2.15E-01	2.15E-01	2.26E-01	2.54E-01
Total	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00

DAY 1 | DAY 2

Nuclide	1400	1600	2000	0000	0400	0800	1200	1600
I-131	2.27E-01	2.68E-01	3.34E-01	3.90E-01	4.40E-01	4.83E-01	5.27E-01	5.66E-01
I-132	1.23E-01	8.02E-02	3.05E-02	1.09E-02	3.75E-03	1.26E-03	4.20E-04	1.38E-04
I-133	3.40E-01	3.79E-01	4.19E-01	4.33E-01	4.33E-01	4.24E-01	4.08E-01	3.89E-01
I-134	3.60E-02	9.02E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	2.75E-01	2.64E-01	2.17E-01	1.66E-01	1.24E-01	8.98E-02	6.42E-02	4.54E-02
Total	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00

10 to 50 Mile INGESTION PATHWAY DATA

Area A

TIME	100 cm^2 SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m^2)
12:30 - 13:00	1.0K to 20K	150 to 3K	0.2 to 1.2
13:00 - 13:30	2.0K to 30K	300 to 4.5K	0.9 to 2.0
13:30 - 14:00	2.0K to 45K	300 to 6.8K	1.0 to 3.0
14:00 - 14:30	2.0K to 60K	300 to 9K	1.0 to 4.0
14:30 - 15:00	2.5K to 78K	375 to 12K	1.0 to 5.0
15:00 - 15:30	2.8K to 90K	420 to 14K	1.0 to 6.0
15:30 - 16:00	2.8K to 90K	420 to 14K	1.0 to 6.0
16:00 - 16:30	2.8K to 90K	420 to 14K	1.0 to 6.0
16:30 - 17:00	2.8K to 90K	420 to 14K	1.0 to 6.0
17:00 +	2.8K to 90K	420 to 14K	1.0 to 6.0

$$\text{DIRECT SURVEY (mR/hr)} = \frac{\text{DIRECT FRISK (CPM)}}{5000}$$

10 to 50 Mile INGESTION PATHWAY DATA

Area B

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m²)
12:30 - 13:00	200 to 3K	300 to 450	0.001 to 0.2
13:00 - 13:30	200 to 3K	300 to 450	0.001 to 0.2
13:30 - 14:00	200 to 3K	300 to 450	0.001 to 0.2
14:00 - 14:30	200 to 3K	300 to 450	0.001 to 0.2
14:30 - 15:00	200 to 3K	300 to 450	0.001 to 0.2
15:00 - 15:30	200 to 4.7K	300 to 700	0.001 to 0.3
15:30 - 16:00	200 to 4.7K	300 to 700	0.001 to 0.3
16:00 - 16:30	200 to 4.7K	300 to 700	0.001 to 0.3
16:30 - 17:00	200 to 4.7K	300 to 700	0.001 to 0.3
17:00 +	200 to 4.7K	300 to 700	0.001 to 0.3

DIRECT SURVEY IS ALWAYS LESS THAN 0.1 mR/hr

10 to 50 Mile INGESTION PATHWAY DATA

Area C

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m²)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	60 to 450	Bkg to 100	0.001 to 0.03
14:00 - 14:30	100 to 2.8K	65 to 420	0.001 to 0.2
14:30 - 15:00	100 to 5.5K	6[illegible] to 820	0.001 to 0.3
15:00 - 15:30	350 to 7K	100 to 1K	0.02 to 0.5
15:30 - 16:00	630 to 9.7K	95 to 1.5K	0.04 to 0.6
16:00 - 16:30	630 to 9.7K	95 to 1.5K	0.05 to 0.7
[illegible]:30 - 17:00	630 to 9.7K	95 to 1.5K	0.05 to 0.7
17:00 +	630 to 9.7K	95 to 1.5K	0.05 to 0.7

10 to 50 Mile INGESTION PATHWAY DATA

Area D

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m²)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	400 to 1.5K	110 to 270	0.03 to 0.08
14:00 - 14:30	400 to 4.2K	110 to 680	0.1 to 0.3
14:30 - 15:00	3.5K to 8K	550 to 1.2K	0.1 to 0.3
15:00 - 15:30	4.7K to 11K	700 to 1.7K	0.3 to 0.5
15:30 - 16:00	6.6K to 14K	1K to 2K	0.4 to 0.6
16:00 - 16:30	6.6K to 14K	1K to 2K	0.5 to 0.7
16:30 - 17:00	6.6K to 14K	1K to 2K	0.5 to 0.7
17:00 +	6.6K to 14K	1K to 2K	0.5 to 0.7

10 to 50 Mile INGESTION PATHWAY DATA

Area E

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m²)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	70 to 100	Bkg to 65	0.001 to 0.008
14:00 - 14:30	100 to 400	65 to 110	0.001 to 0.07
14:30 - 15:00	100 to 500	65 to 125	0.01 to 0.04
15:00 - 15:30	200 to 1K	80 to 200	0.01 to 0.07
15:30 - 16:00	200 to 1.8K	80 to 320	0.09 to 0.4
16:00 - 16:30	200 to 1.8K	80 to 320	0.1 to 0.4
16:30 - 17:00	200 to 1.8K	80 to 320	0.1 to 0.4
17:00 +	200 to 1.8K	80 to 320	0.1 to 0.4

10 to 50 Mile INGESTION PATHWAY DATA

Area F

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m²)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	Bkg	Bkg	Bkg
14:00 - 14:30	Bkg	Bkg	0.0001 to 0.001
14:30 - 15:00	Bkg	Bkg	0.0001 to 0.001
15:00 - 15:30	Bkg	Bkg	0.0001 to 0.001
15:30 - 16:00	Bkg	Bkg	0.0001 to 0.004
16:00 - 16:30	Bkg	Bkg	0.0001 to 0.004
:30 - 17:00	Bkg	Bkg	0.0001 to 0.004
7:00 +	Bkg	Bkg	0.0001 to 0.004

10 to 50 Mile INGESTION PATHWAY DATA

Area G

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE .I-131 (uCi/m²)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	Bkg	Bkg	Bkg
14:00 - 14:30	Bkg	Bkg	Bkg
14:30 - 15:00	Bkg	Bkg	Bkg
15:00 - 15:30	Bkg	Bkg	Bkg
15:30 - 16:00	530 to 700	130 to 150	0.003 to 0.004
16:00 - 16:30	530 to 700	130 to 150	0.006 to 0.007
:30 - 17:00	2.1K to 3.3K	320 to 500	0.14 to 0.22
:00 +	3K to 6K	450 to 900	0.2 to 0.4

10 to 50 Mile INGESTION PATHWAY DATA

Area H

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (μCi/m²)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	Bkg	Bkg	Bkg
14:00 - 14:30	Bkg	Bkg	Bkg
14:30 - 15:00	Bkg	Bkg	Bkg
15:00 - 15:30	Bkg	Bkg	0.002 to 0.006
15:30 - 16:00	160 to 580	75 to 130	0.02 to 0.06
16:00 - 16:30	160 to 580	75 to 130	0.02 to 0.07
16:30 - 17:00	300 to 2.1K	95 to 350	0.02 to 0.14
17:00 +	300 to 4.5K	95 to 700	0.03 to 0.3

19.1

10 to 50 Mile INGESTION PATHWAY DATA

Area I

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m²)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	Bkg	Bkg	Bkg
14:00 - 14:30	Bkg	Bkg	Bkg
14:30 - 15:00	Bkg	Bkg	Bkg
15:00 - 15:30	Bkg	Bkg	Bkg
15:30 - 16:00	170 to 250	75 to 90	0.002 to 0.01
16:00 - 16:30	170 to 250	75 to 90	0.005 to 0.05
16:30 - 17:00	75 to 1.4K	100 to 250	0.005 to 0.09
:00 +	75 to 1.4K	100 to 250	0.005 to 0.09

10 to 50 Mile INGESTION PATHWAY DATA

Area J

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m²)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	Bkg	Bkg	Bkg
14:00 - 14:30	Bkg	Bkg	Bkg
14:30 - 15:00	Bkg	Bkg	Bkg
15:00 - 15:30	Bkg	Bkg	Bkg
15:30 - 16:00	Bkg	Bkg	0.001 to 0.01
16:00 - 16:30	Bkg	Bkg	0.001 to 0.01
:30 - 17:00	50 to 1.2K	Bkg to 230	0.003 to 0.08
17:00 +	50 to 1.2K	Bkg to 230	0.003 to 0.08

10 to 50 Mile INGESTION PATHWAY DATA

Area K

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m²)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	Bkg	Bkg	Bkg
14:00 - 14:30	Bkg	Bkg	Bkg
14:30 - 15:00	Bkg	Bkg	Bkg
15:00 - 15:30	Bkg	Bkg	Bkg
15:30 - 16:00	Bkg	Bkg	Bkg
16:00 - 16:30	Bkg	Bkg	Bkg
:30 - 17:00	300 to 450	95 to 130	0.02 to 0.03
17:00 +	1.2K to 2.3K	200 to 400	0.08 to 0.15

10 to 50 Mile INGESTION PATHWAY DATA

Area L

TIME	100 cm^2 SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m^2)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	Bkg	Bkg	Bkg
14:00 - 14:30	Bkg	Bkg	Bkg
14:30 - 15:00	Bkg	Bkg	Bkg
15:00 - 15:30	Bkg	Bkg	Bkg
15:30 - 16:00	Bkg	Bkg	Bkg
16:00 - 16:30	Bkg	Bkg	Bkg
16:30 - 17:00	50 to 300	Bkg to 100	0.002 to 0.02
17:00 +	50 to 300	Bkg to 100	0.002 to 0.02

19.4

10 to 50 Mile INGESTION PATHWAY DATA

Area M

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m²)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	Bkg	Bkg	Bkg
14:00 - 14:30	Bkg	Bkg	Bkg
14:30 - 15:00	Bkg	Bkg	Bkg
15:00 - 15:30	Bkg	Bkg	Bkg
15:30 - 16:00	Bkg	Bkg	Bkg
16:00 - 16:30	Bkg	Bkg	Bkg
16:30 - 17:00	50 to 450	Bkg to 110	0.0001 to 0.03
17:00 +	50 to 1.2K	Bkg to 110	0.001 to 0.03

19.15

10 to 50 Mile INGESTION PATHWAY DATA

Area N

TIME	100 cm² SMEAR (CPM)	DIRECT FRISK (CPM)	DE I-131 (uCi/m²)
12:30 - 13:00	Bkg	Bkg	Bkg
13:00 - 13:30	Bkg	Bkg	Bkg
13:30 - 14:00	Bkg	Bkg	Bkg
14:00 - 14:30	Bkg	Bkg	Bkg
14:30 - 15:00	Bkg	Bkg	Bkg
15:00 - 15:30	Bkg	Bkg	Bkg
15:30 - 16:00	Bkg	Bkg	Bkg
16:00 - 16:30	Bkg	Bkg	Bkg
:30 - 17:00	Bkg	Bkg	Bkg
7:00 +	Bkg	Bkg	Bkg

IN-PLANT DATA

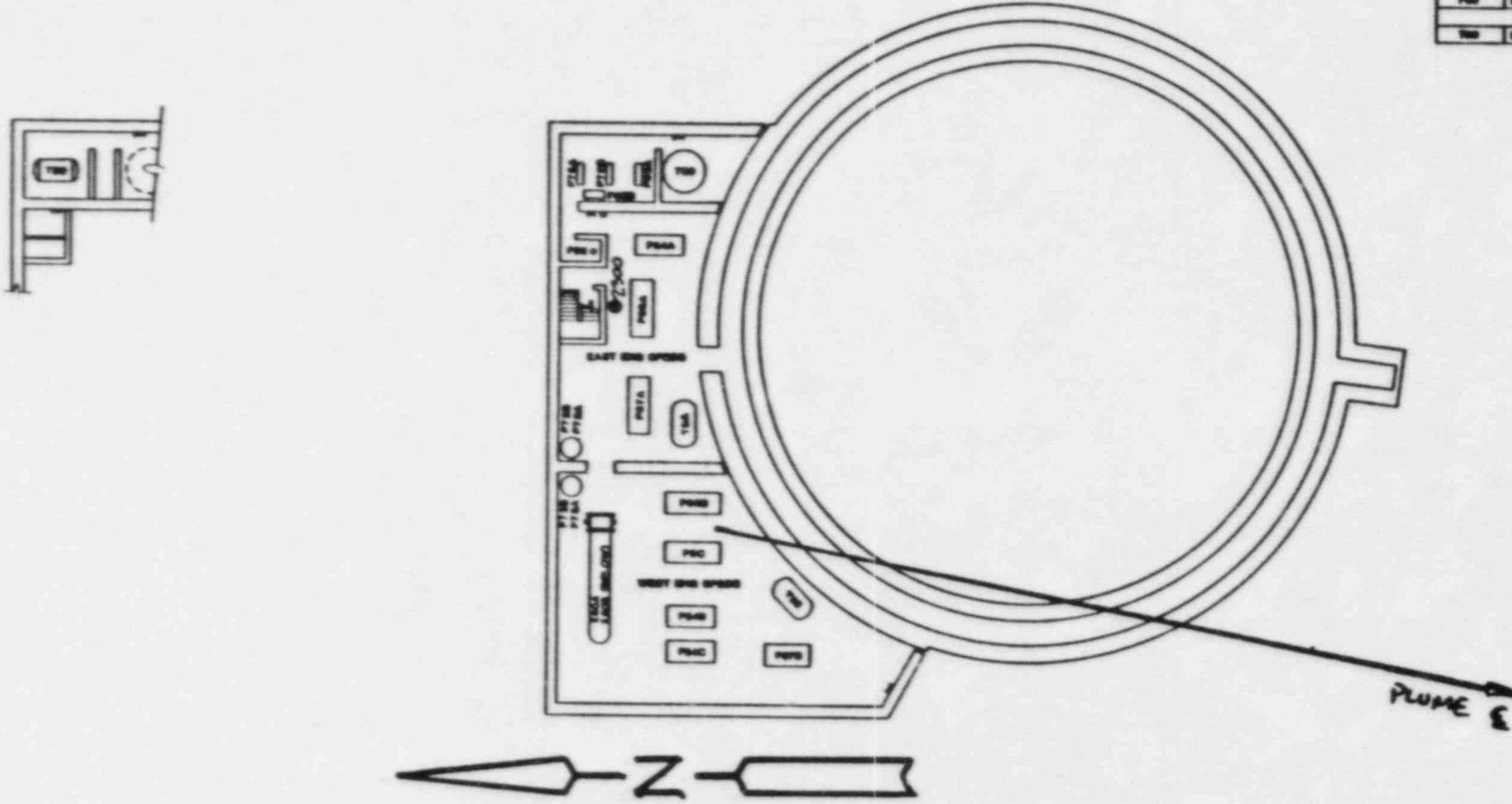
Only dose rates change within the plant. Smears, air samples, etc, results will be exactly what is measured normally.

Outside of the plant, smears, etc, in areas affected by the plume will be so hot as to be uncountable.

If any noble gas samples are taken in the plume onsite, use the RGEM data and divide by 100 for center line and more the farther from the center line.

Between 0800 and 0845, all radiological conditions in the plant are those normally encountered.

COMPONENT D[illegible]	
WEST ENG SPGDS	
[illegible]	SHUTDOWN COOLING HEAT EXCHANGERS
[illegible]	SUMP PUMPS
[illegible]	CTMT SPRAY PUMPS
[illegible]	HP SAFETY INJECTION PUMP
[illegible]	LP SAFETY INJECTION PUMP
[illegible]	AUX FEEDWATER PUMP
[illegible]	HP AIR RECEIVER
EAST ENG SPGDS	
[illegible]	SUMP PUMPS
[illegible]	LP SAFETY INJECTION PUMP
[illegible]	HP SAFETY INJECTION PUMP
[illegible]	CTMT SPRAY PUMP
[illegible]	HP AIR RECEIVERS
[illegible]	DIRTY WASTE DRAIN TANK PUMPS
[illegible]	EQUIPMENT DRAIN TANK PUMPS
[illegible]	DIRTY WASTE DRAIN TANK
[illegible]	EQUIPMENT DRAIN TANK FILTER
EL. 57[illegible]	
[illegible]	EQUIPMENT DRAIN TANK



ALL CONDITIONS NORMAL

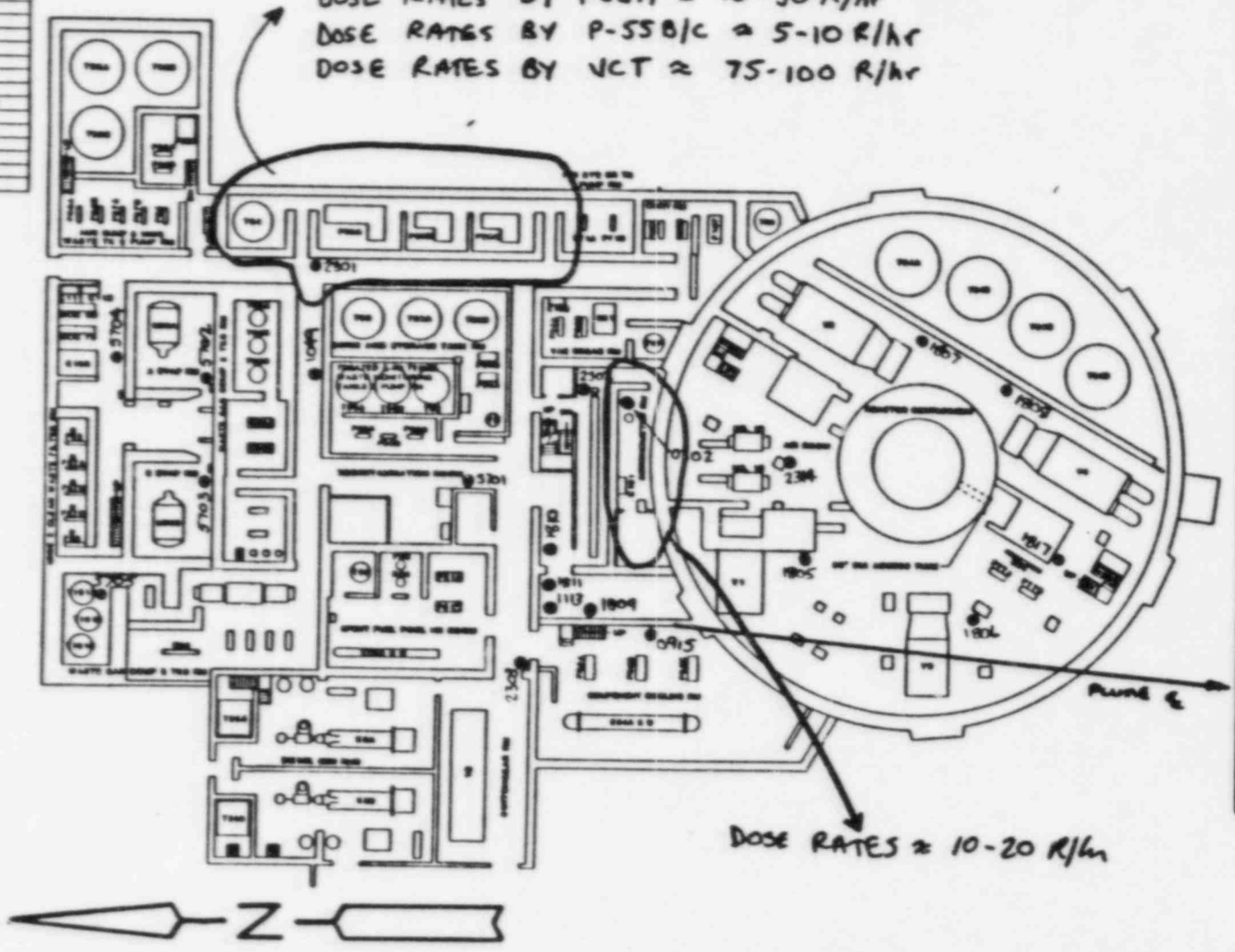
TIME: 8:45 - 10:45

CONSUMERS POWER COMPANY

PALISADES PLANT

570'

DOSE RATES IN THE CORRIDOR ≈ 100-200 mR/hr
DOSE RATES BY RSSA ≈ 10-30 R/hr
DOSE RATES BY P-55B/C ≈ 5-10 R/hr
DOSE RATES BY VCT ≈ 75-100 R/hr

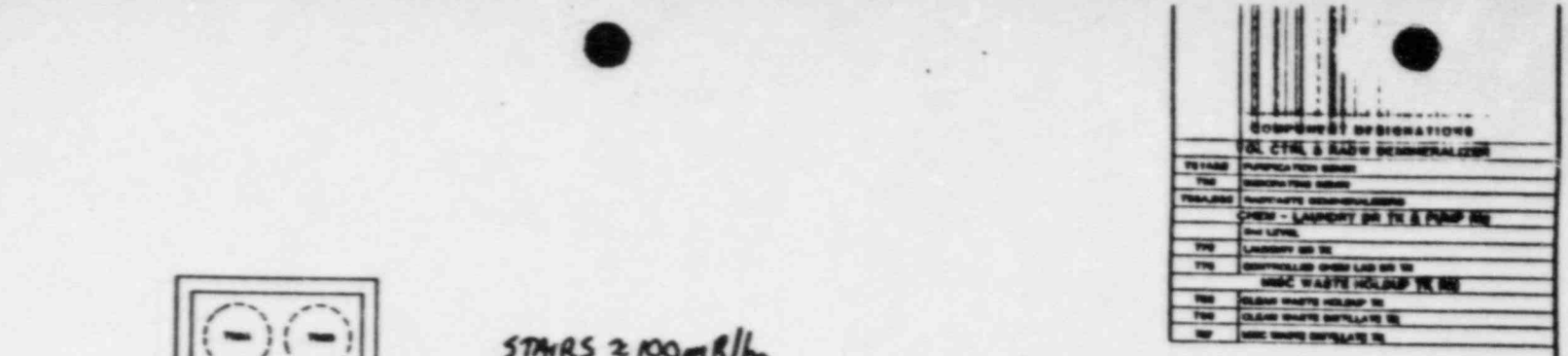


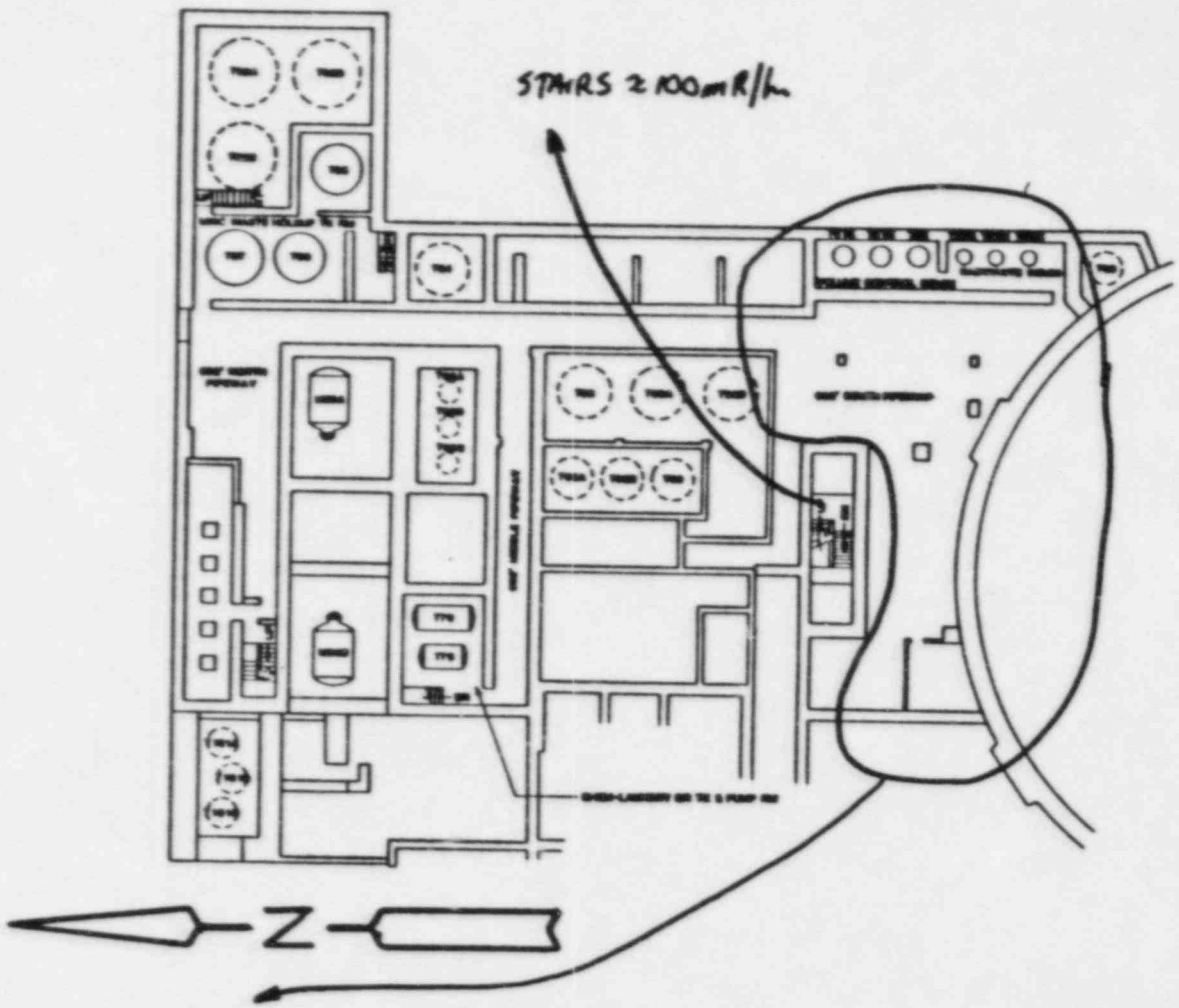
TIME: 8:45 - 10:45

CONSUMERS POWER COMPANY

PALISADES PLANT

590'





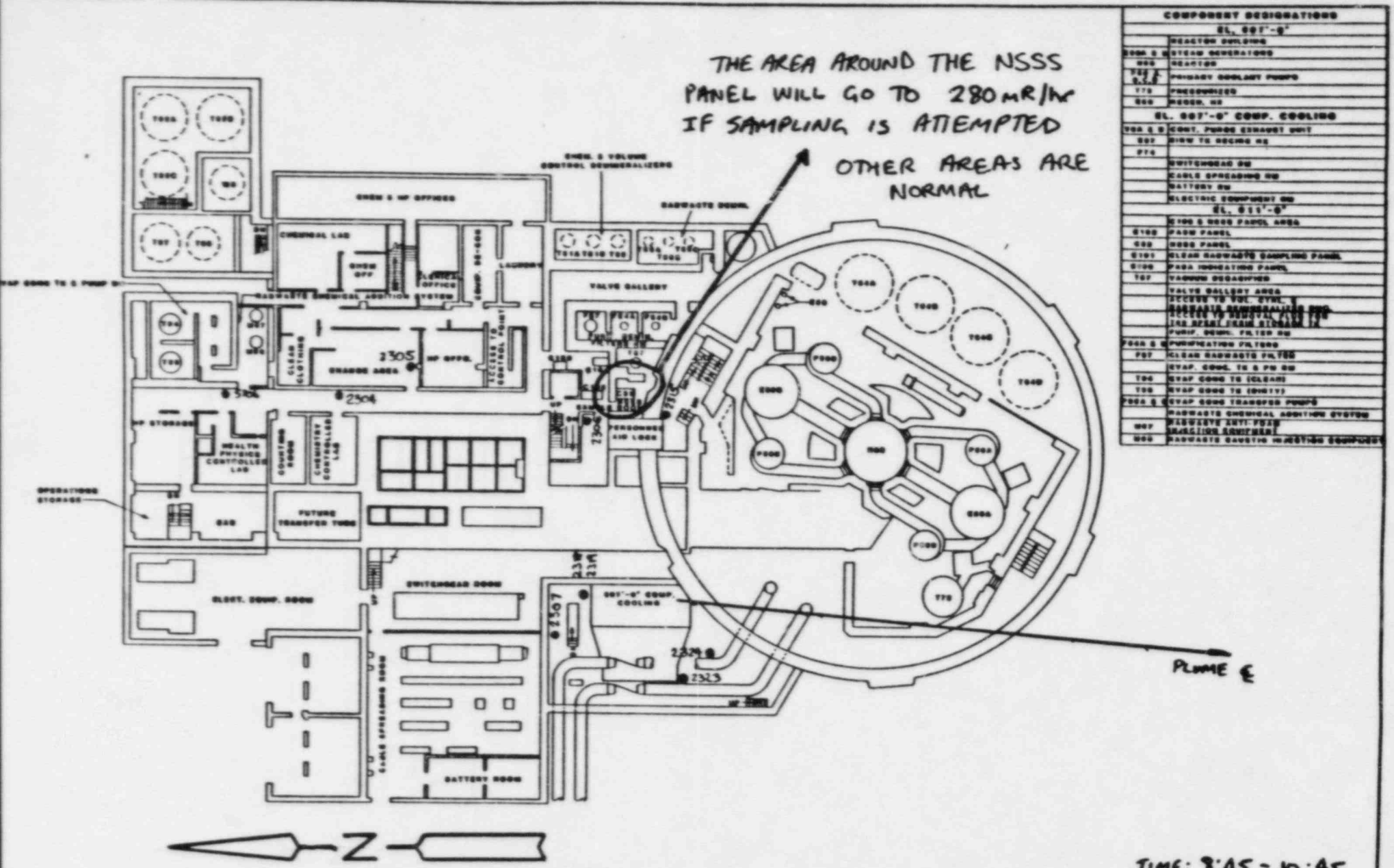
DOSE RATES INCREASE TO ~15 R/hr GENERAL AREA IN THE SOUTH PIPEWAY DUE TO HIGH ACTIVITY IN THE CUCS LINES

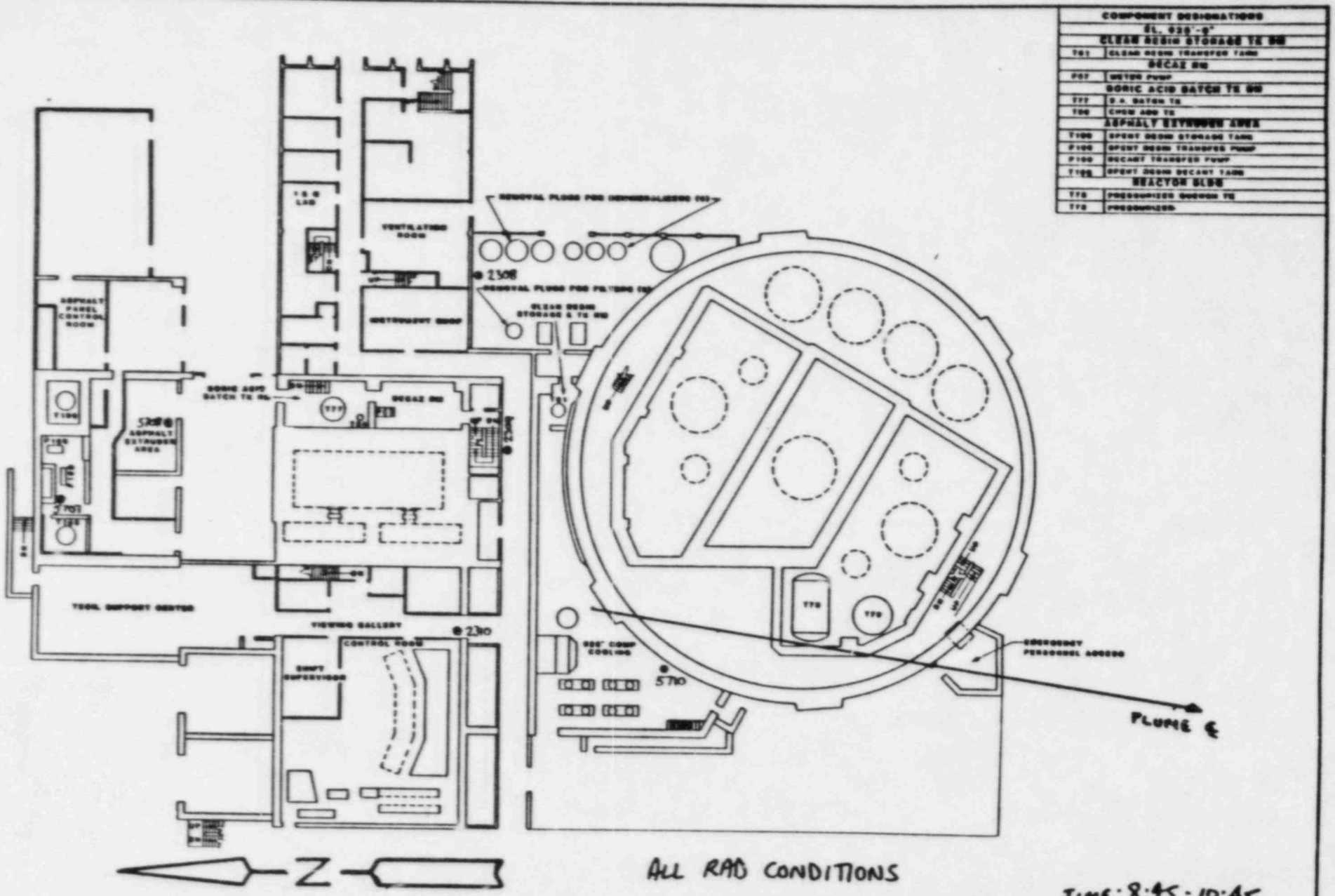
TIME: 8:45 - 10:45

CONSUMERS POWER COMPANY

PALISADES PLANT

602'


THE AREA AROUND THE NSSS PANEL WILL GO TO 280 MR/HR IF SAMPLING IS ATTEMPTED
OTHER AREAS ARE NORMAL
PLUME E
TIME: 8:45 - 10:45
CONSUMERS POWER COMPANY
PALISADES PLANT
611'



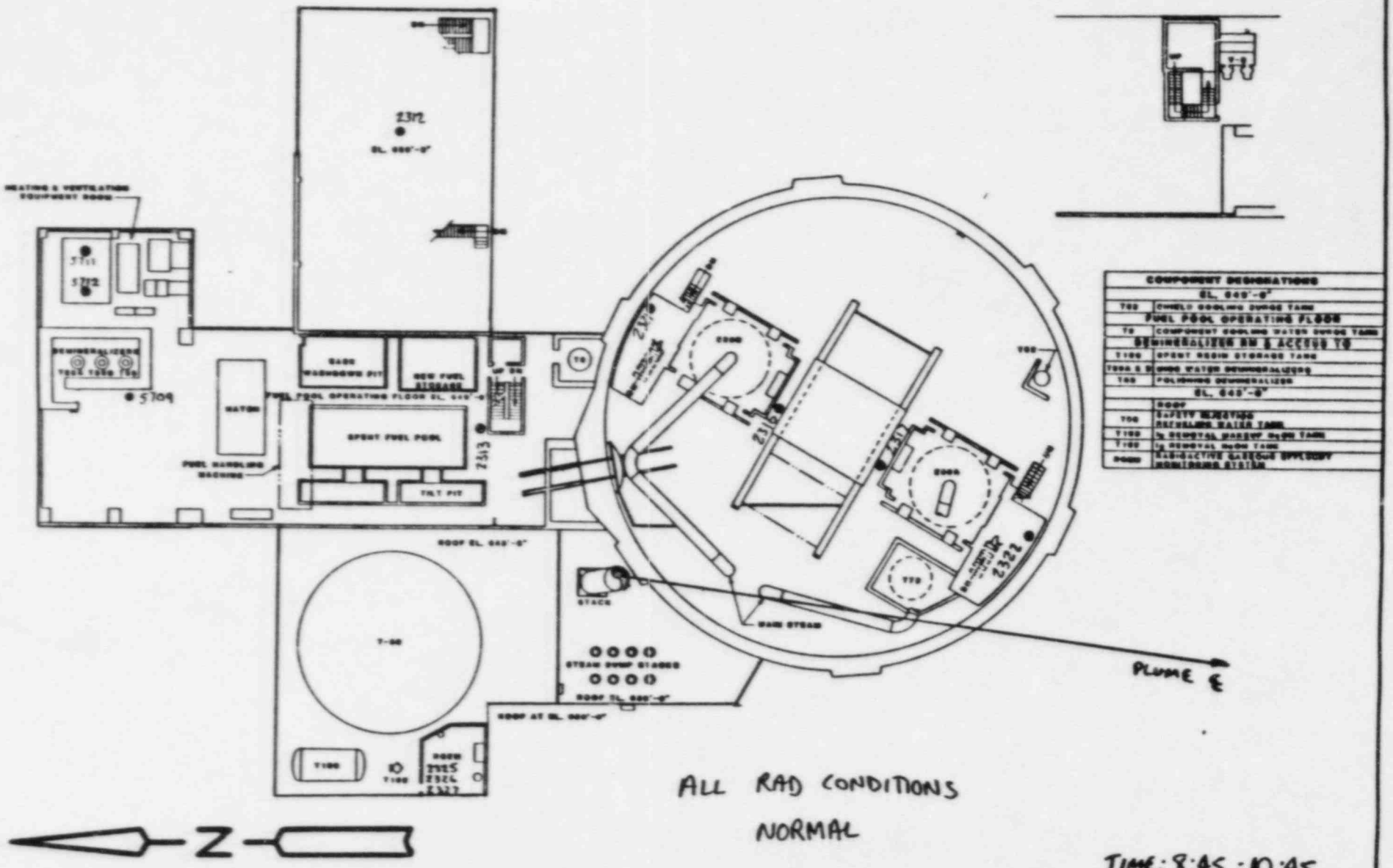
ALL RAD CONDITIONS NORMAL

TIME: 8:45 - 10:45

CONSUMERS POWER COMPANY

PALISADES PLANT

625'



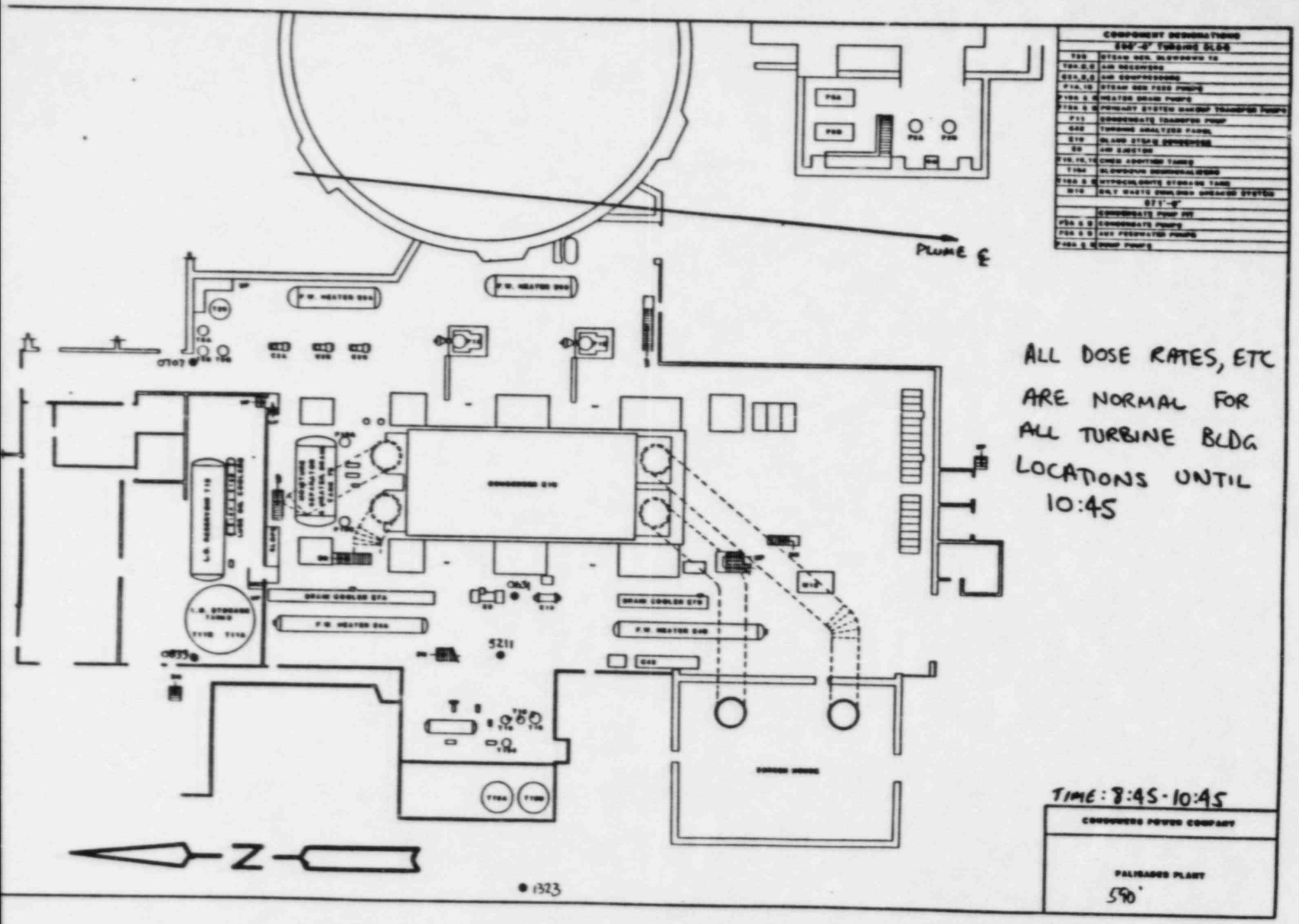
ALL RAD CONDITIONS NORMAL

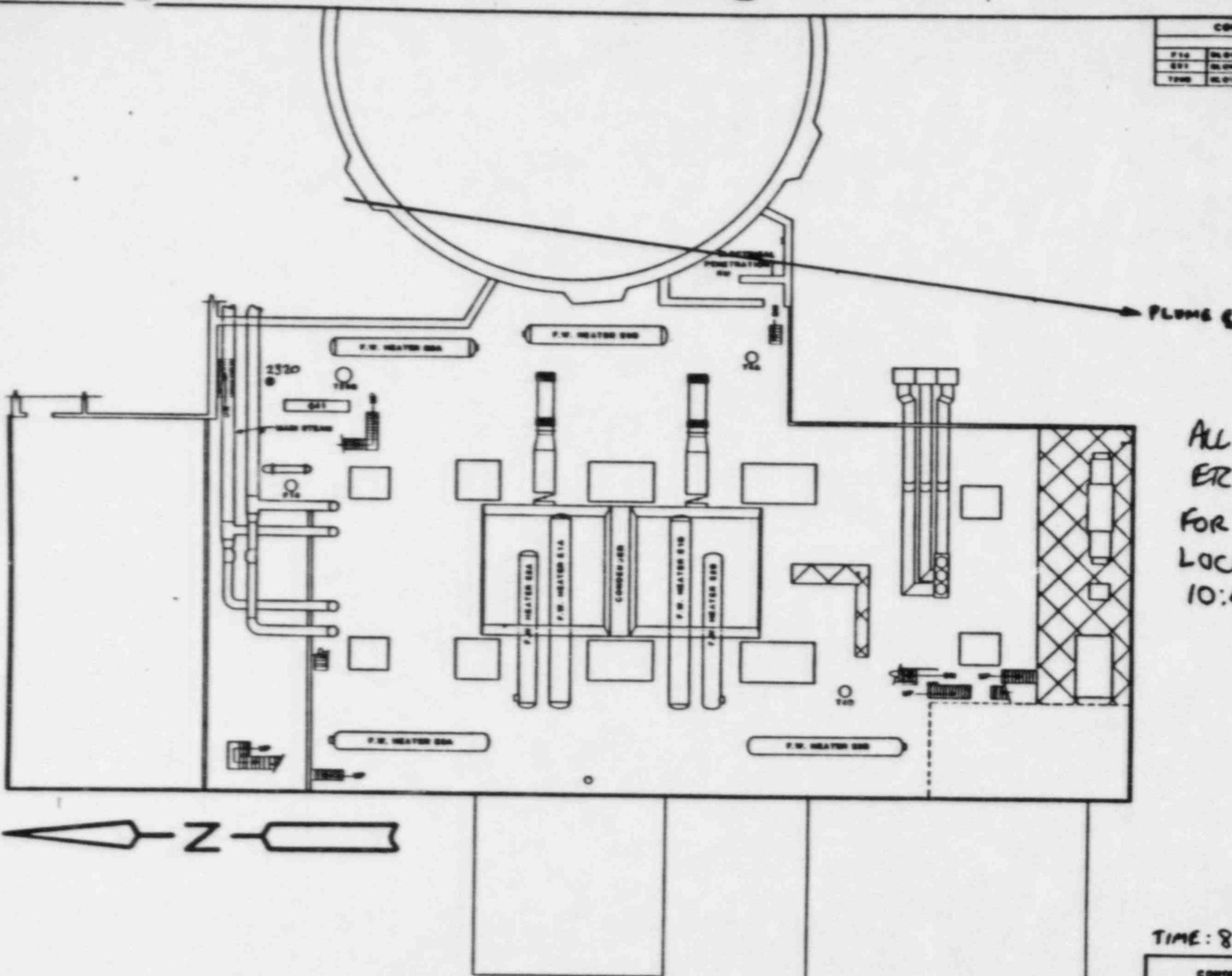
TIME: 8:45 - 10:45

CONSUMERS POWER COMPANY

PALISADES PLANT

647'


PLUME ℄
ALL DOSE RATES, ETC ARE NORMAL FOR ALL TURBINE BLDG LOCATIONS UNTIL 10:45
TIME: 8:45 - 10:45
CONSUMERS POWER COMPANY
PALISADES PLANT
590'
N
1323



ALL DOSE RATES, ER ARE NORMAL FOR TURBINE BLDG LOCATIONS UNTIL 10:45

TIME: 8:45 - 10:45

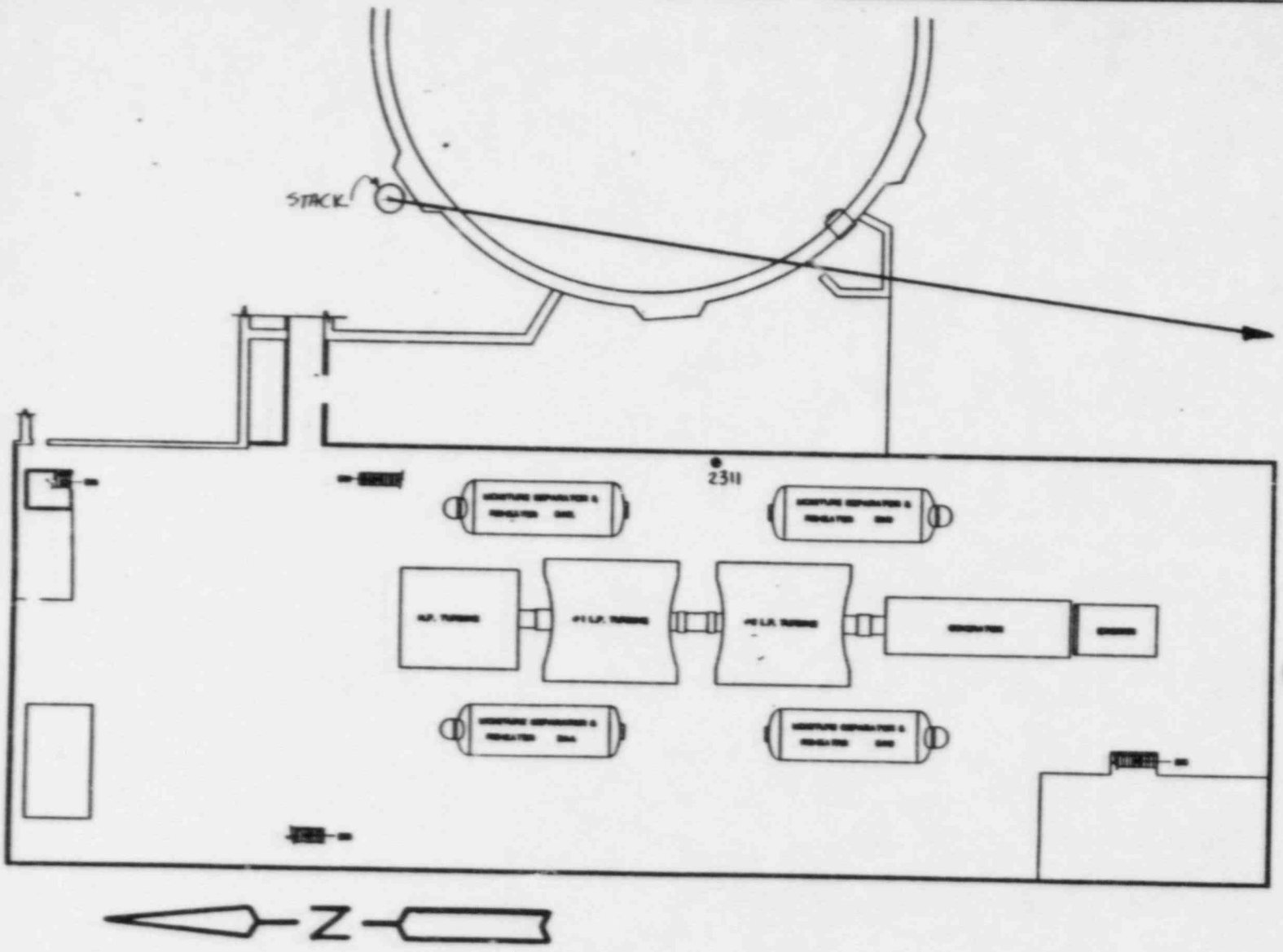
COMPONENT DESIGNATIONS

607'-0" TURBINE

CONSUMERS POWER COMPANY

PALISADES PLANT

607'



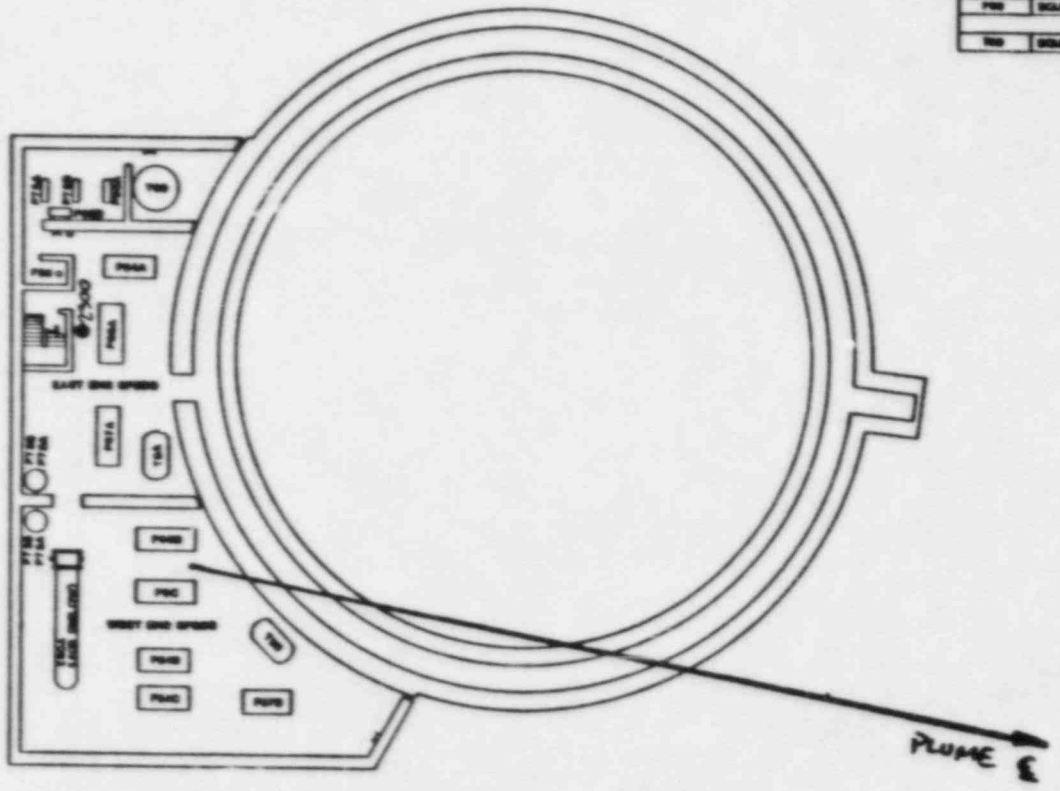
ALL TURBINE BLDG DOSE RATES, ETC ARE NORMAL FOR ALL LOCATIONS UNTIL 10:45

TIME: 8:45 - 10:45

CONSUMERS POWER COMPANY

PALISADES PLANT

625'



DOSE RATES ARE: GENERAL AREA ≈ 60-80mR/hr
INCREASING THE CLOSER YOU ARE
TO THE CONTAINMENT

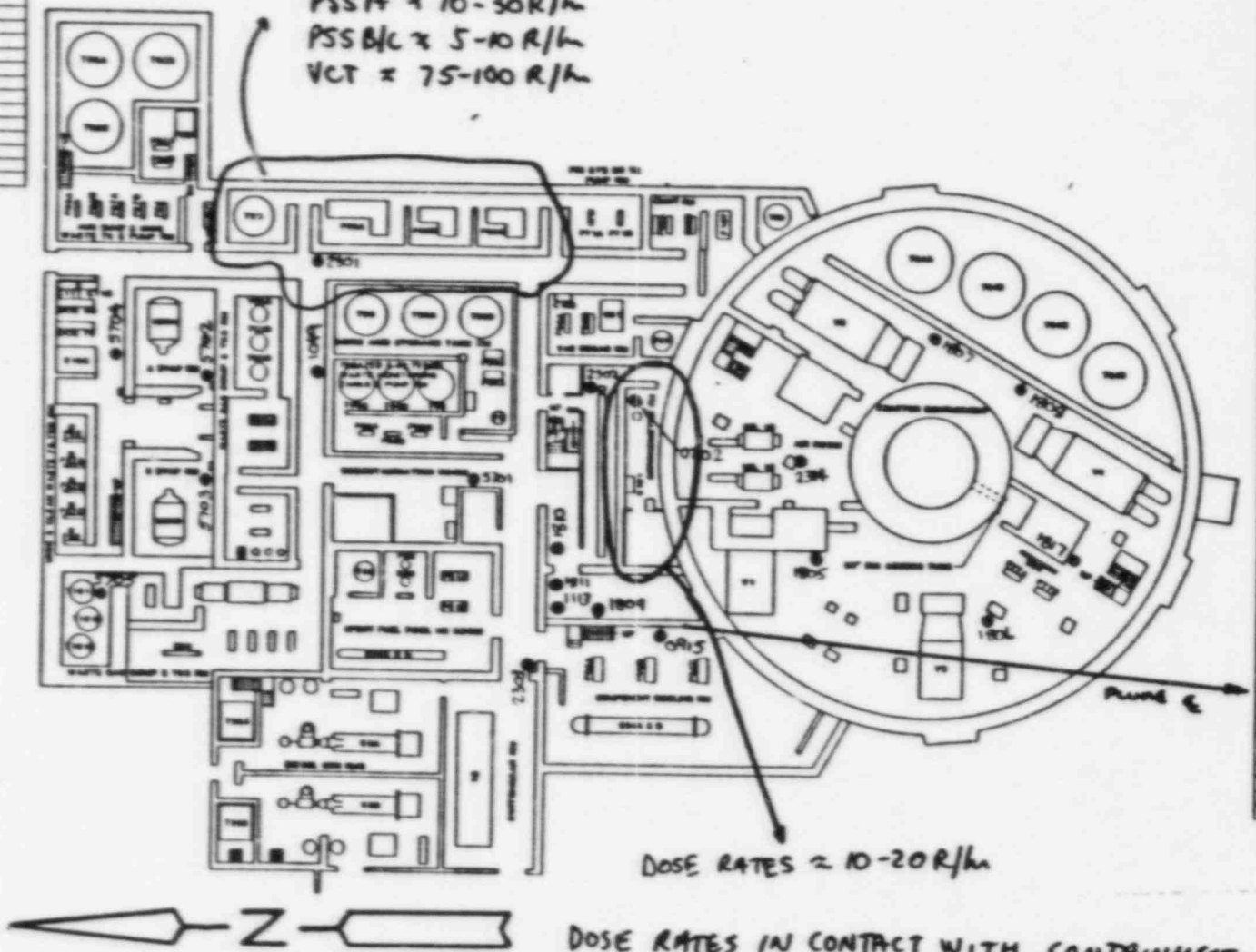
TIME: 10:45 - 11:00

CONSUMERS POWER COMPANY

PALISADES PLANT

570'

CORRIDOR ≈ 100-200 mR/h
PSSA ≈ 10-30 R/h
PSSB/C ≈ 5-10 R/h
VCT ≈ 75-100 R/h



DOSE RATES ≈ 10-20 R/h

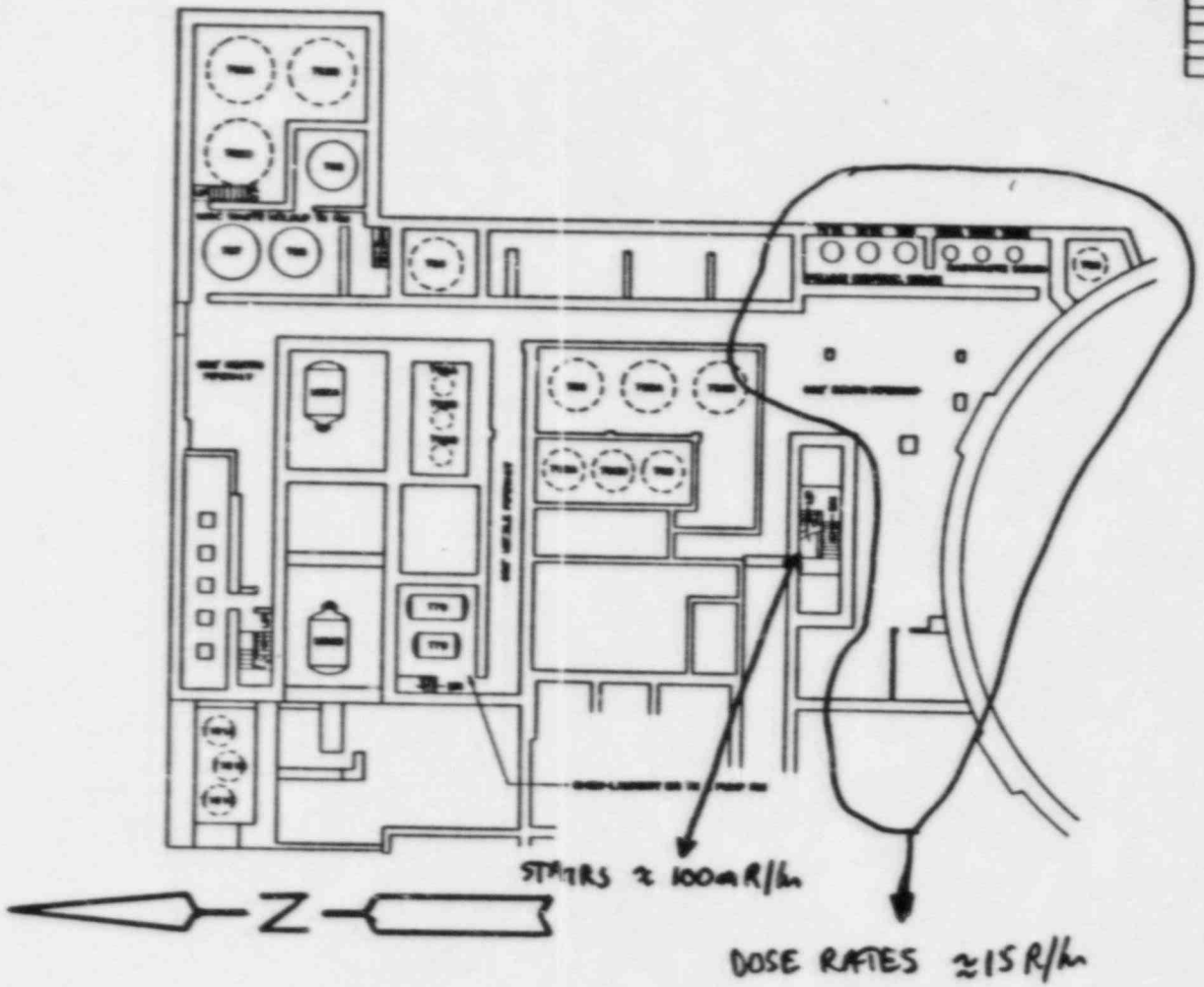
DOSE RATES IN CONTACT WITH CONTAINMENT ARE ≈ 60-80 mR/h, DECREASING AS YOU MOVE AWAY FROM THE WALL.

TIME: 10:45 - 11:00

COMMONWEALTH POWER COMPANY

PALISADES PLANT

590'

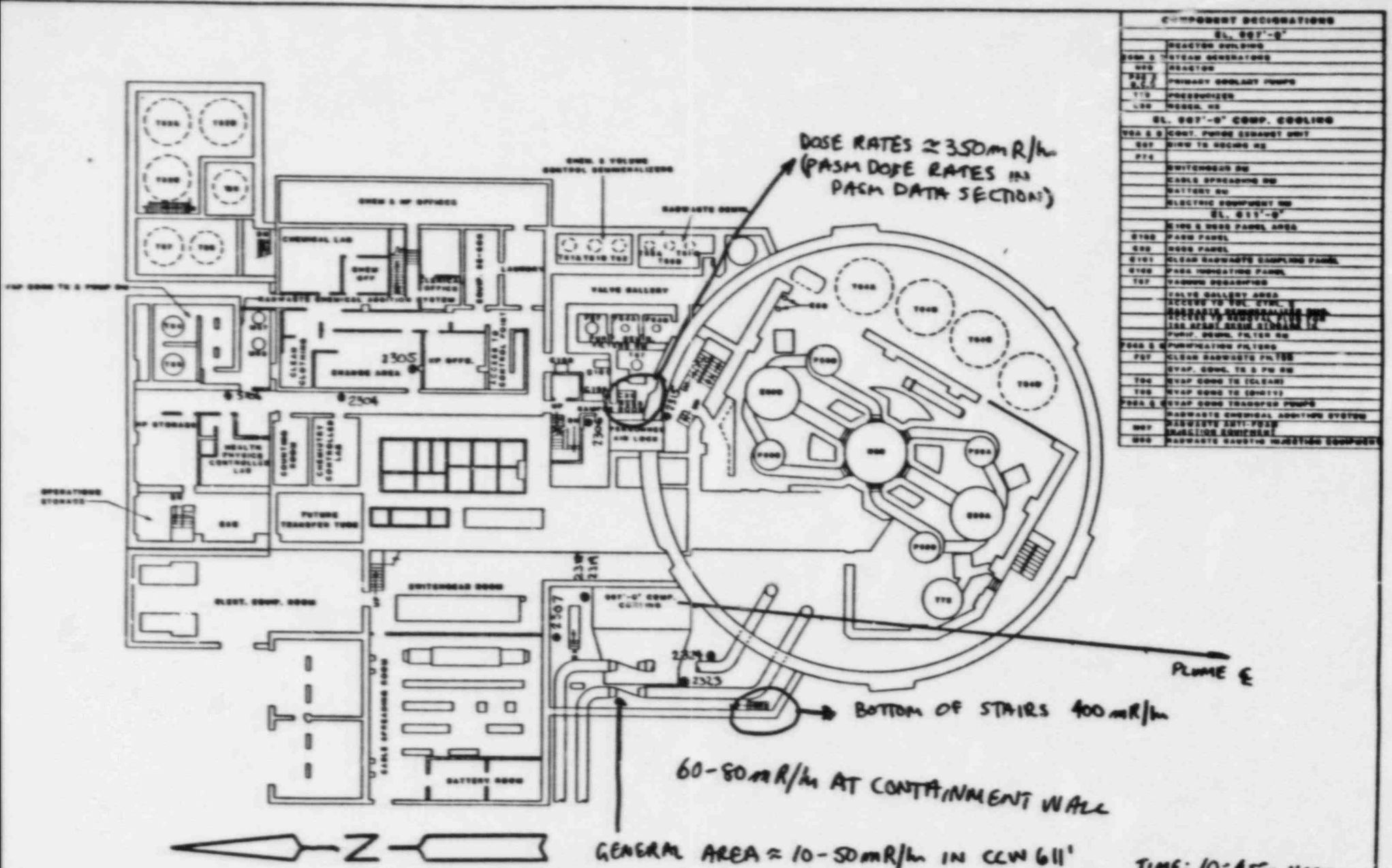


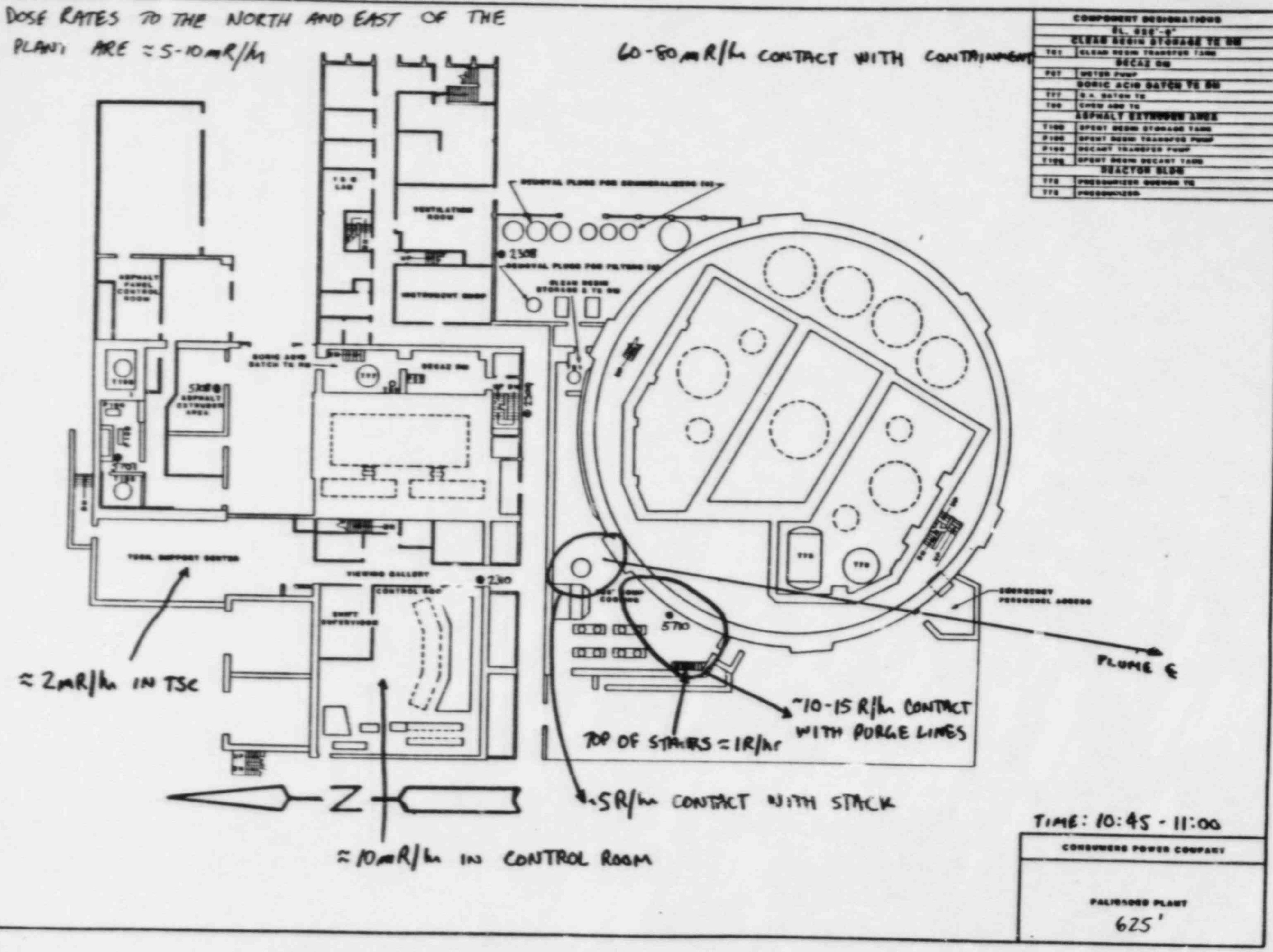
TIME : 10:45 - 11:00

CONSUMERS POWER COMPANY

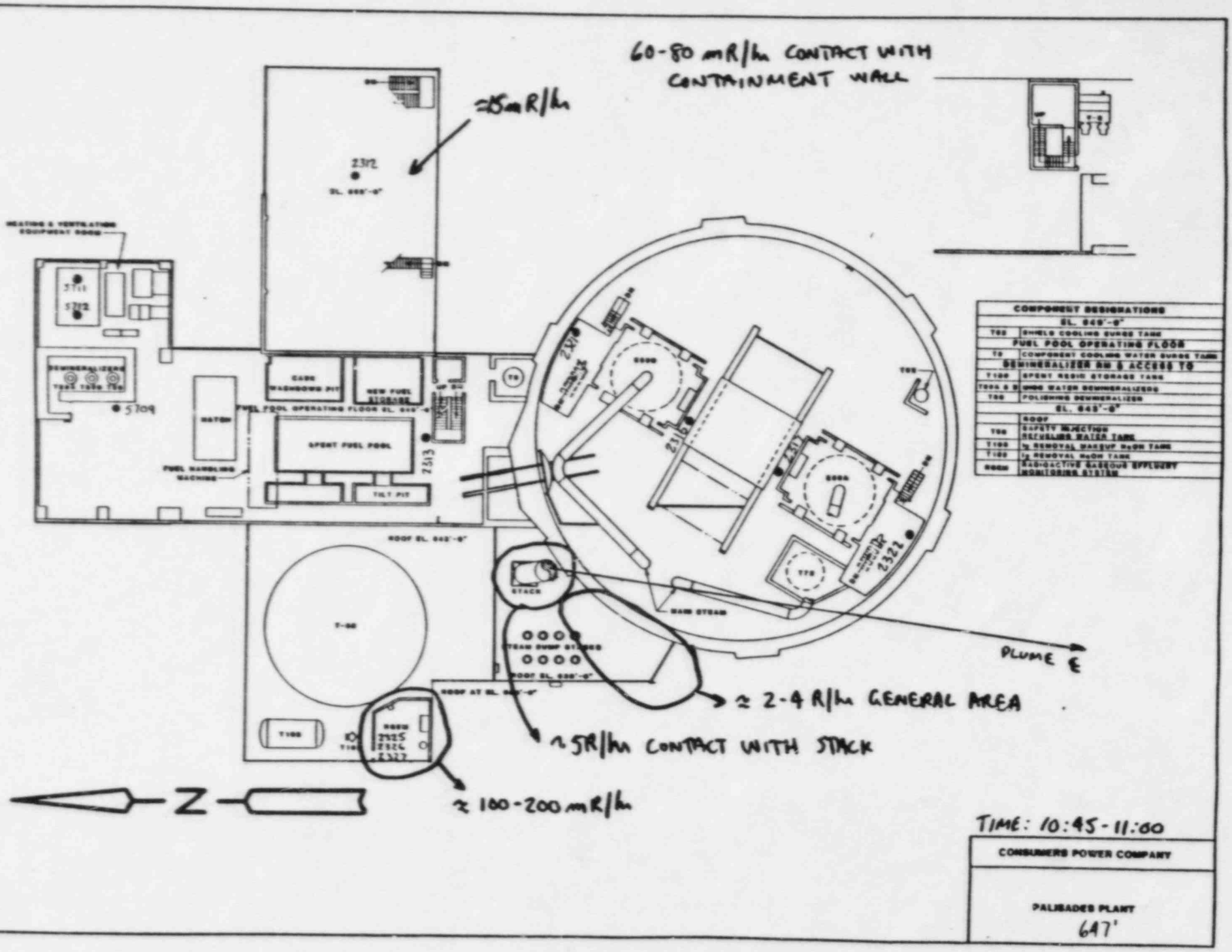
PALISADES PLANT

602'


DOSE RATES ≈ 350 mR/h
(PASM DOSE RATES IN
PASM DATA SECTION)
PLUME ℄
BOTTOM OF STAIRS 400 mR/h
60-80 mR/h AT CONTAINMENT WALL
GENERAL AREA ≈ 10-50 mR/h IN CCW 611'
N
TIME: 10:45 - 11:00
CONSUMERS POWER COMPANY
PALISADES PLANT
611'



DOSE RATES TO THE NORTH AND EAST OF THE PLANT ARE ≈ 5-10 mR/h
60-80 mR/h CONTACT WITH CONTAINMENT
≈ 2 mR/h IN TSC
~10-15 R/h CONTACT WITH PURGE LINES
TOP OF STAIRS ≈ 1R/hr
~5R/h CONTACT WITH STACK
≈ 10 mR/h IN CONTROL ROOM
PLUME ℄
5710
2310
TIME: 10:45 - 11:00
CONSUMERS POWER COMPANY
PALISADES PLANT
625'

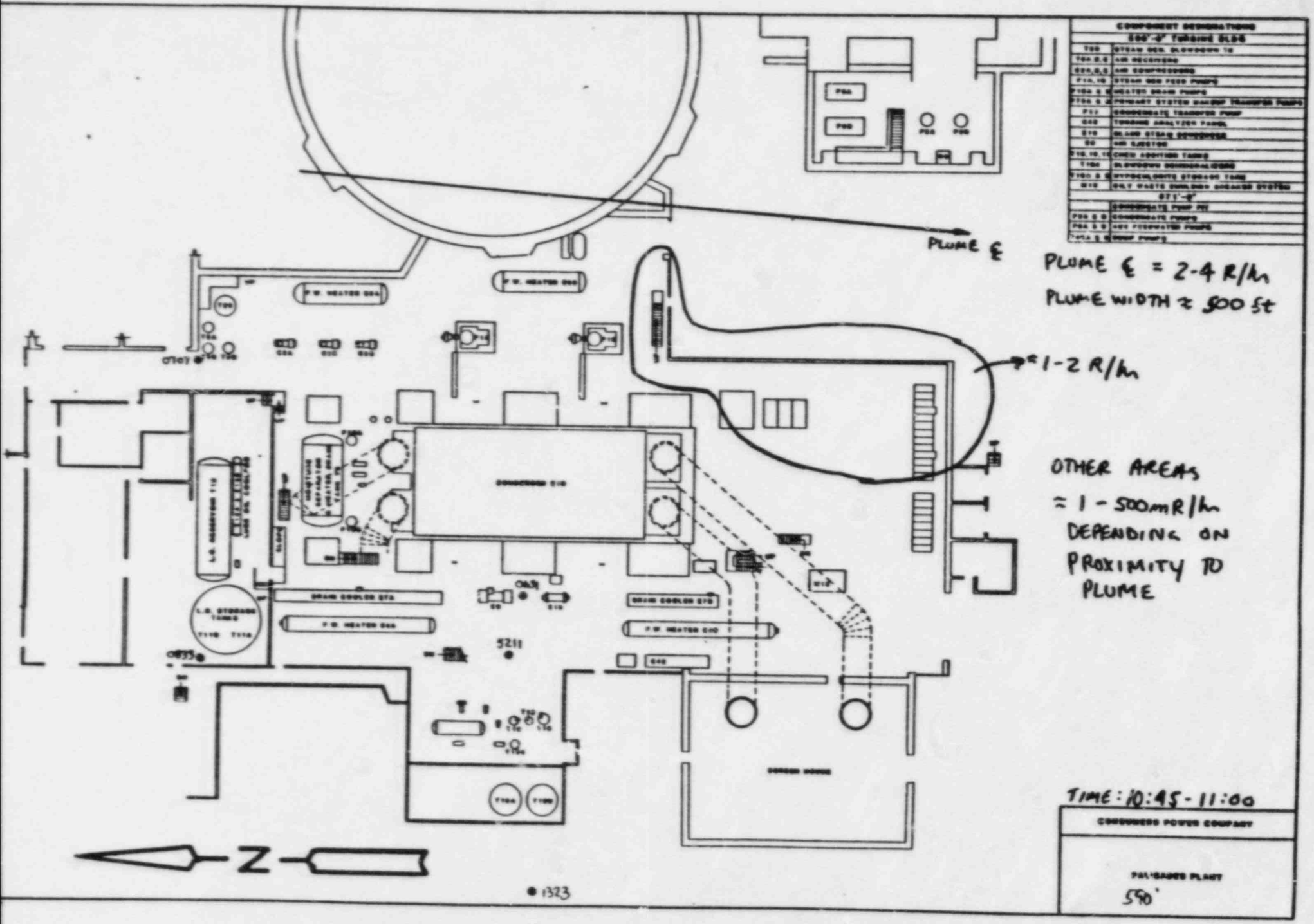


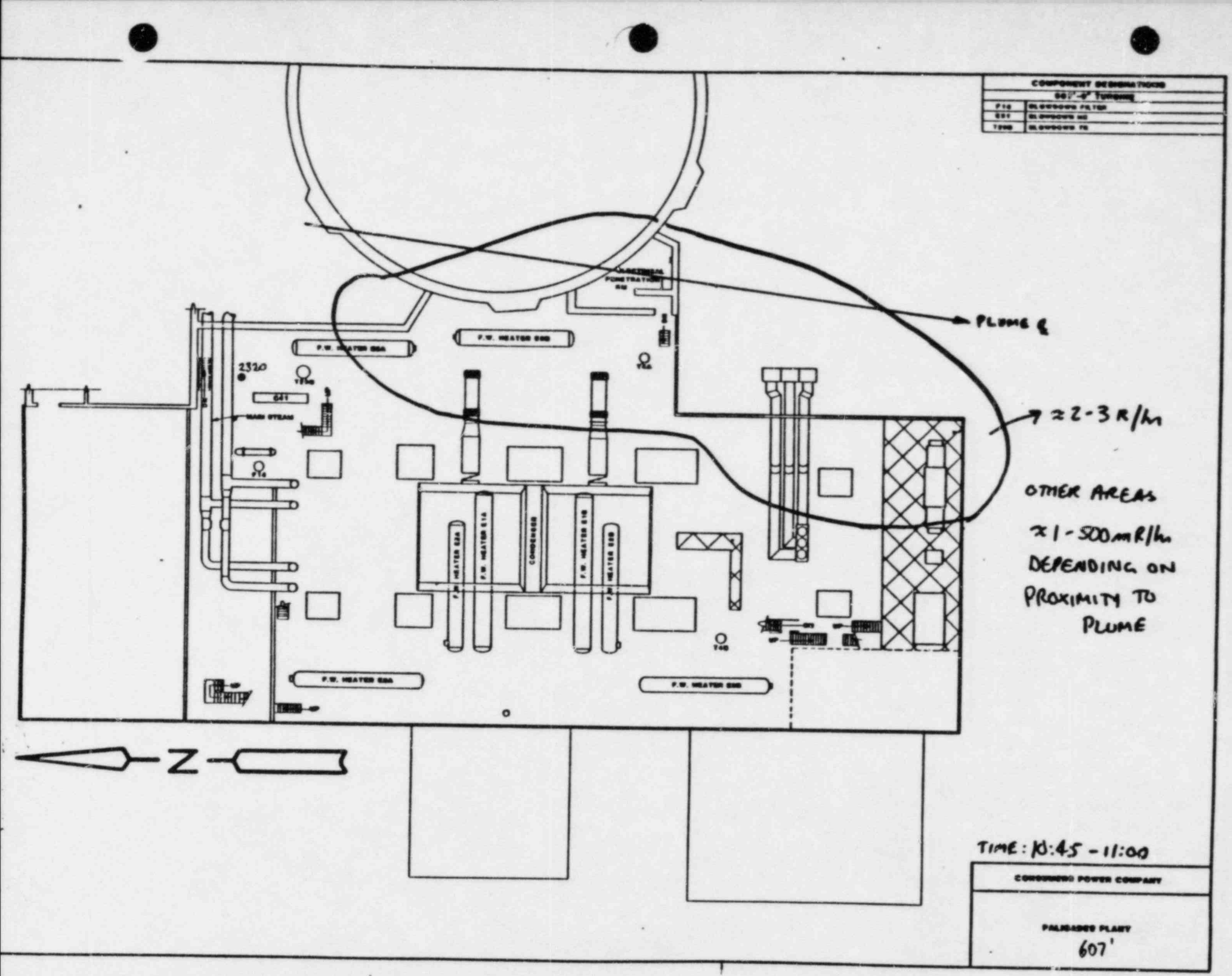
TIME: 10:45 - 11:00

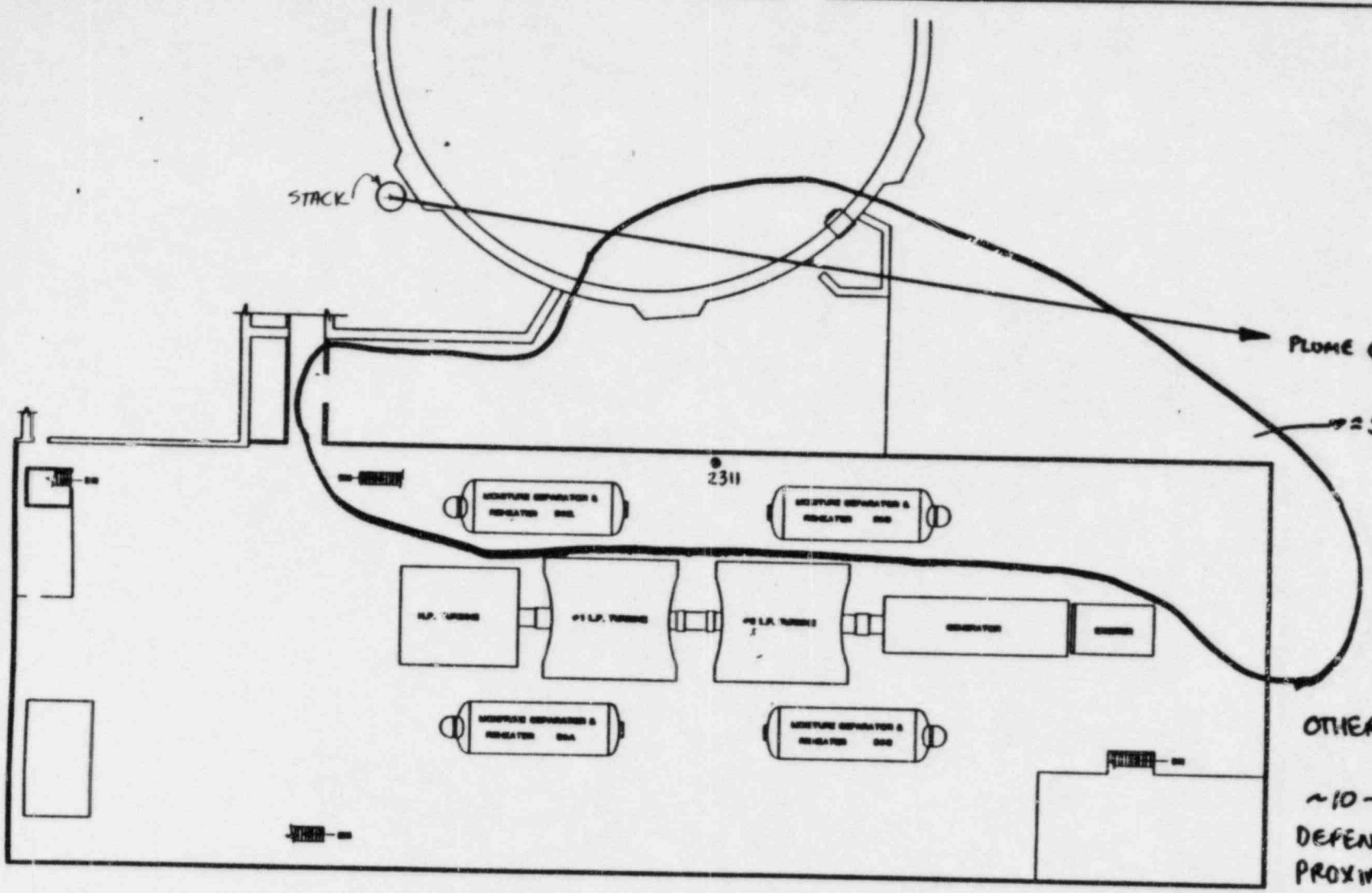
CONSUMERS POWER COMPANY

PALISADES PLANT

647'


PLUME ℄
PLUME ℄ = 2-4 R/hr
PLUME WIDTH ≈ 500 ft
≈ 1-2 R/hr
OTHER AREAS
≈ 1 - 500mR/hr
DEPENDING ON
PROXIMITY TO
PLUME
TIME: 10:45 - 11:00
CONSUMERS POWER COMPANY
PALISADES PLANT
590'
5211
N
1323


PLUME ℄
≈2-3 R/hr
OTHER AREAS
≈1-500 mR/hr
DEPENDING ON
PROXIMITY TO
PLUME
TIME: 10:45 - 11:00
607'



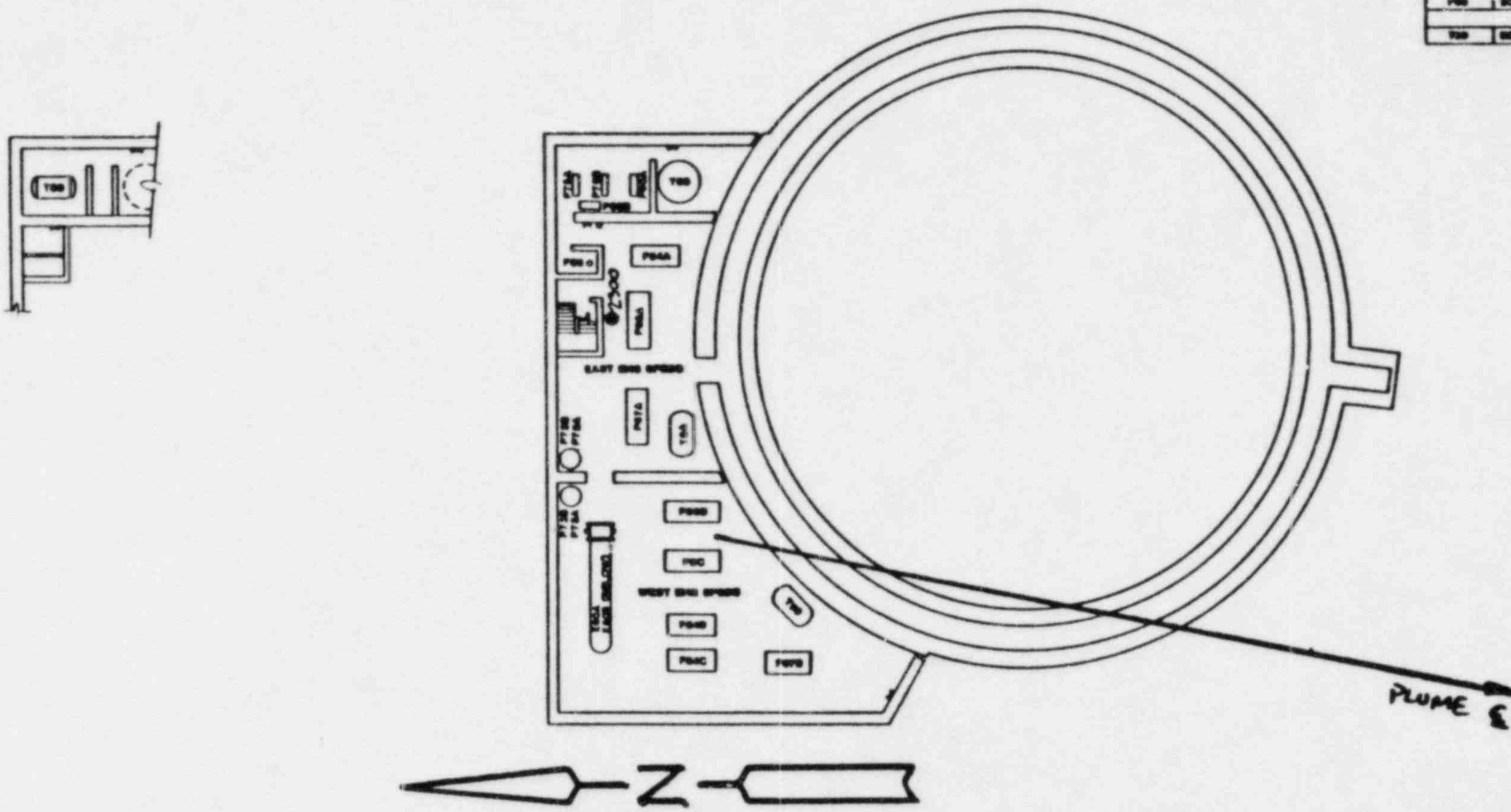
TIME: 10:45 - 11:00

CONSUMERS POWER COMPANY

PALISADES PLANT

625'

COMPONENT DE[illegible]	
WEST ENG SFGDS	
[illegible]	SHUTDOWN COOLING HEAT EXCHANGERS
[illegible]	SUMP PUMPS
[illegible]	CTMT SPRAY PUMPS
[illegible]	HP SAFETY INJECTION PUMP
[illegible]	LP SAFETY INJECTION PUMP
[illegible]	AUX FEEDWATER PUMP
[illegible]	HP AIR RECEIVER
EAST ENG SFGDS	
[illegible]	SUMP PUMPS
[illegible]	LP SAFETY INJECTION PUMP
[illegible]	HP SAFETY INJECTION PUMP
[illegible]	CTMT SPRAY PUMP
[illegible]	HP AIR RECEIVERS
[illegible]	DIRTY WASTE DRAIN TANK PUMPS
[illegible]	EQUIPMENT DRAIN TANK PUMPS
[illegible]	DIRTY WASTE DRAIN TANK
[illegible]	EQUIPMENT DRAIN TANK FILTER
EL. [illegible]	
[illegible]	EQUIPMENT DRAIN TANK



DOSE RATES ≈ 100-500 mR/h CONTACT WITH CONTAINMENT

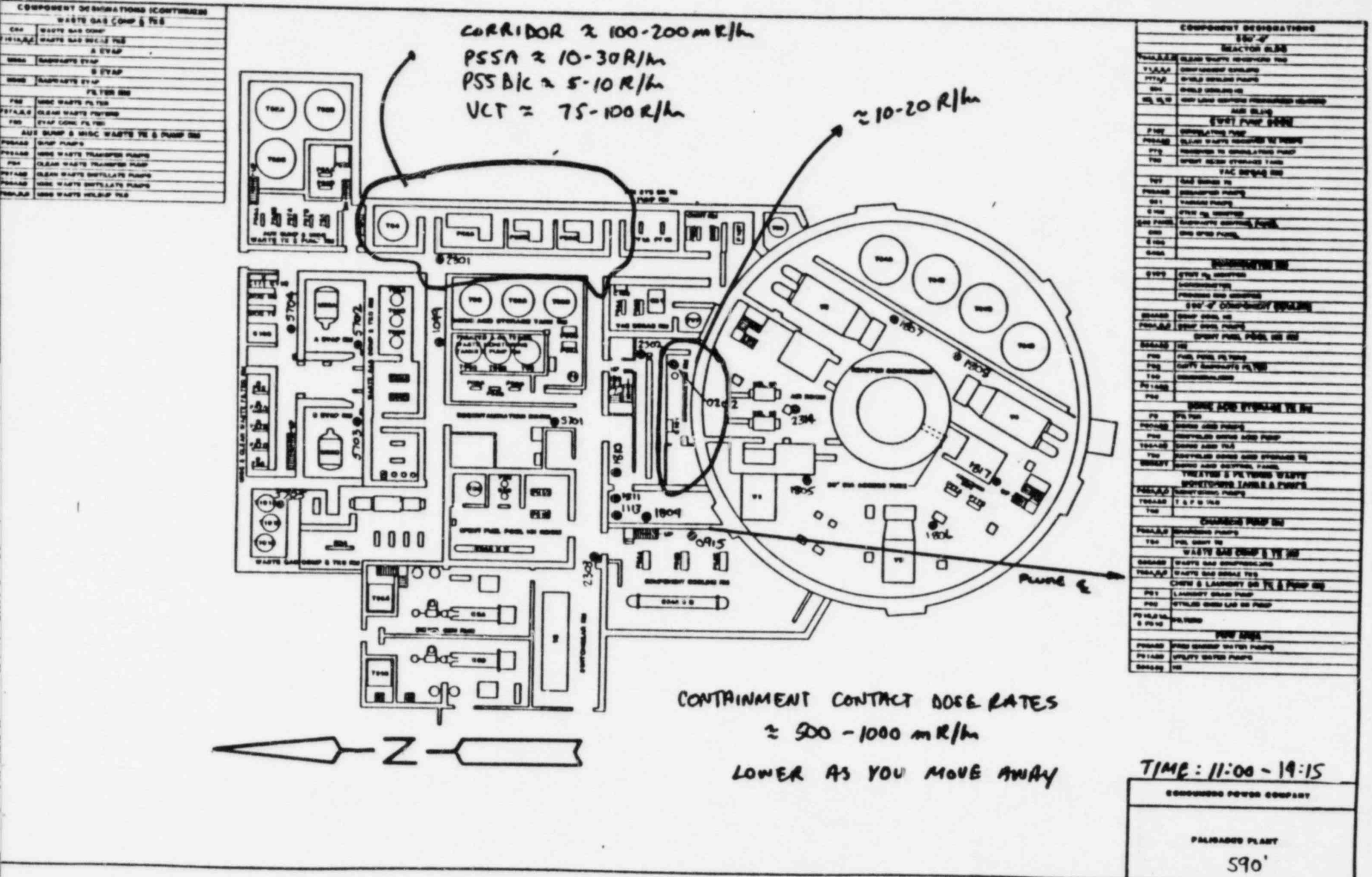
LOWER AS YOU MOVE FARTHER AWAY

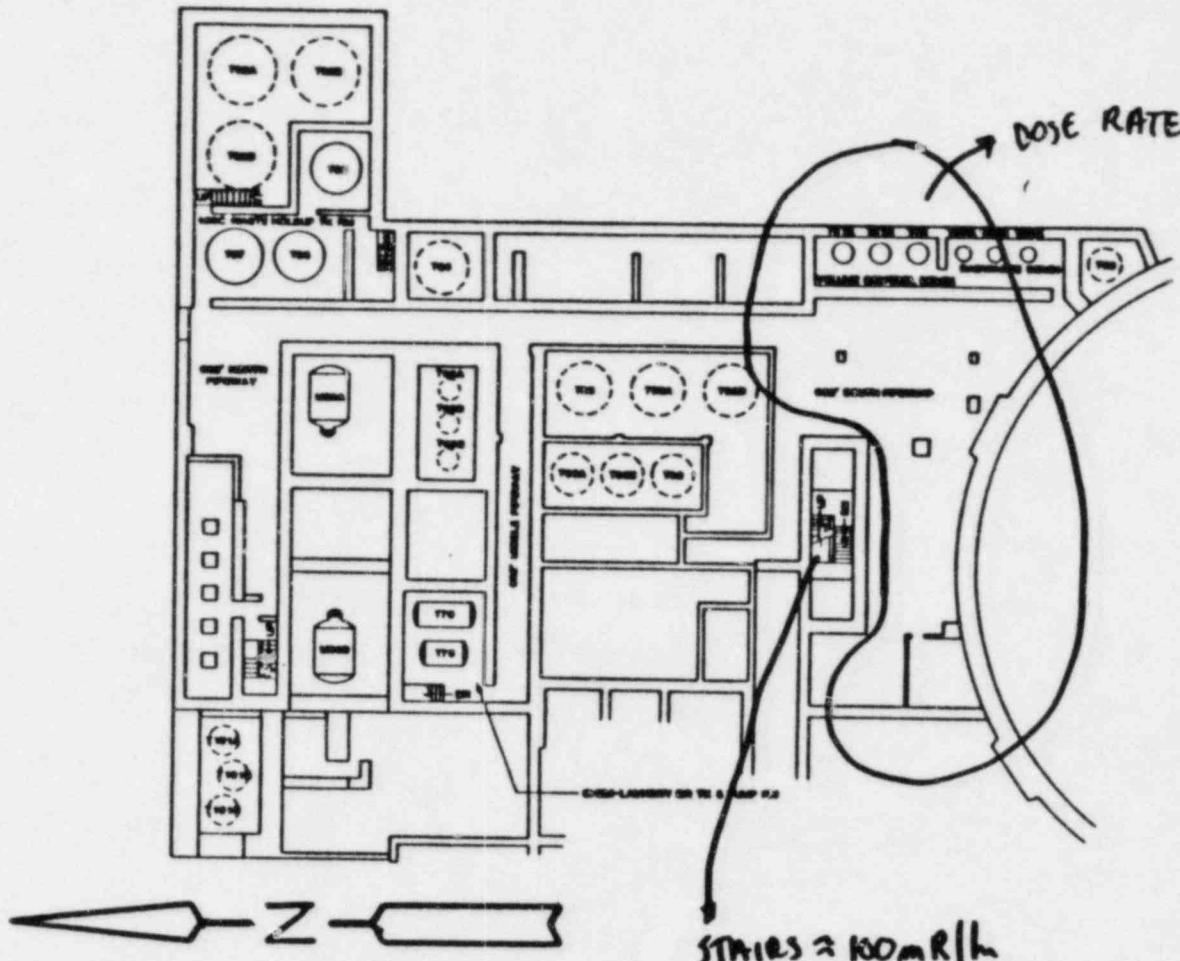
TIME: 11:00 – 14:15

CONSUMERS POWER COMPANY

PALISADES PLANT

570'


CORRIDOR ≈ 100-200 mR/hr
PSSA ≈ 10-30 R/hr
PSSB/C ≈ 5-10 R/hr
VCT ≈ 75-100 R/hr
≈ 10-20 R/hr
CONTAINMENT CONTACT DOSE RATES
≈ 500 - 1000 mR/hr
LOWER AS YOU MOVE AWAY
TIME: 11:00 - 19:15
CONSUMERS POWER COMPANY
PALISADES PLANT
590'

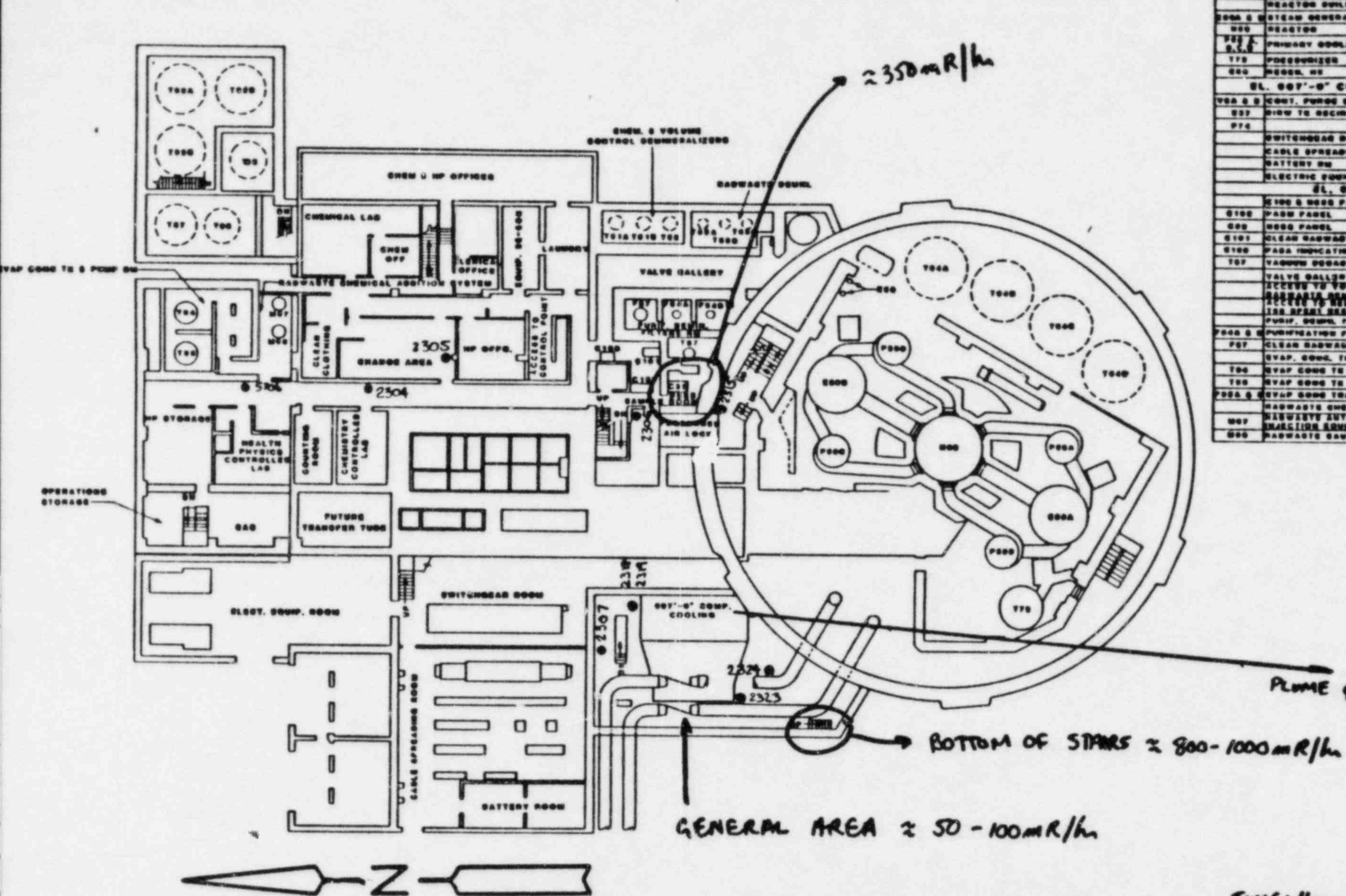


TIME : 11:00 - 14:15

CONSUMERS POWER COMPANY

PALISADES PLANT

602'



COMPONENT DESIGNATIONS	
EL. 607'-0"	
	REACTOR BUILDING
[illegible]	STEAM GENERATORS
[illegible]	REACTOR
[illegible]	PRIMARY COOLANT PUMPS
[illegible]	PRESSURIZER
[illegible]	REGEN. HX
EL. 607'-0" COMP. COOLING	
[illegible]	CONT. PURGE EXHAUST UNIT
[illegible]	[illegible]
[illegible]	
	SWITCHGEAR RM
	CABLE SPREADING RM
	BATTERY RM
	ELECTRIC EQUIPMENT RM
EL. 611'-0"	
	[illegible] PANEL AREA
[illegible]	[illegible] PANEL
[illegible]	[illegible] PANEL
[illegible]	CLEAN RADWASTE SAMPLING PANEL
[illegible]	[illegible] INDICATING PANEL
[illegible]	VACUUM DEGASIFIER
	VALVE GALLERY AREA
	ACCESS TO VOL. CTRL. & RADWASTE DEMINERALIZER RMS.
	ACCESS TO REMOVAL [illegible] SPENT RESIN STORAGE TK
	PURIF. DEMIN. FILTER RM
[illegible]	PURIFICATION FILTERS
[illegible]	CLEAN RADWASTE FILTER
	EVAP. COND. TK & PU RM
[illegible]	EVAP COND TK (CLEAN)
[illegible]	EVAP COND TK (DIRTY)
[illegible]	EVAP COND TRANSFER PUMPS
	RADWASTE CHEMICAL ADDITION SYSTEM
[illegible]	RADWASTE ANTI-FOAM INJECTION EQUIPMENT
[illegible]	RADWASTE CAUSTIC INJECTION EQUIPMENT

TIME: 11:00 - 14:15

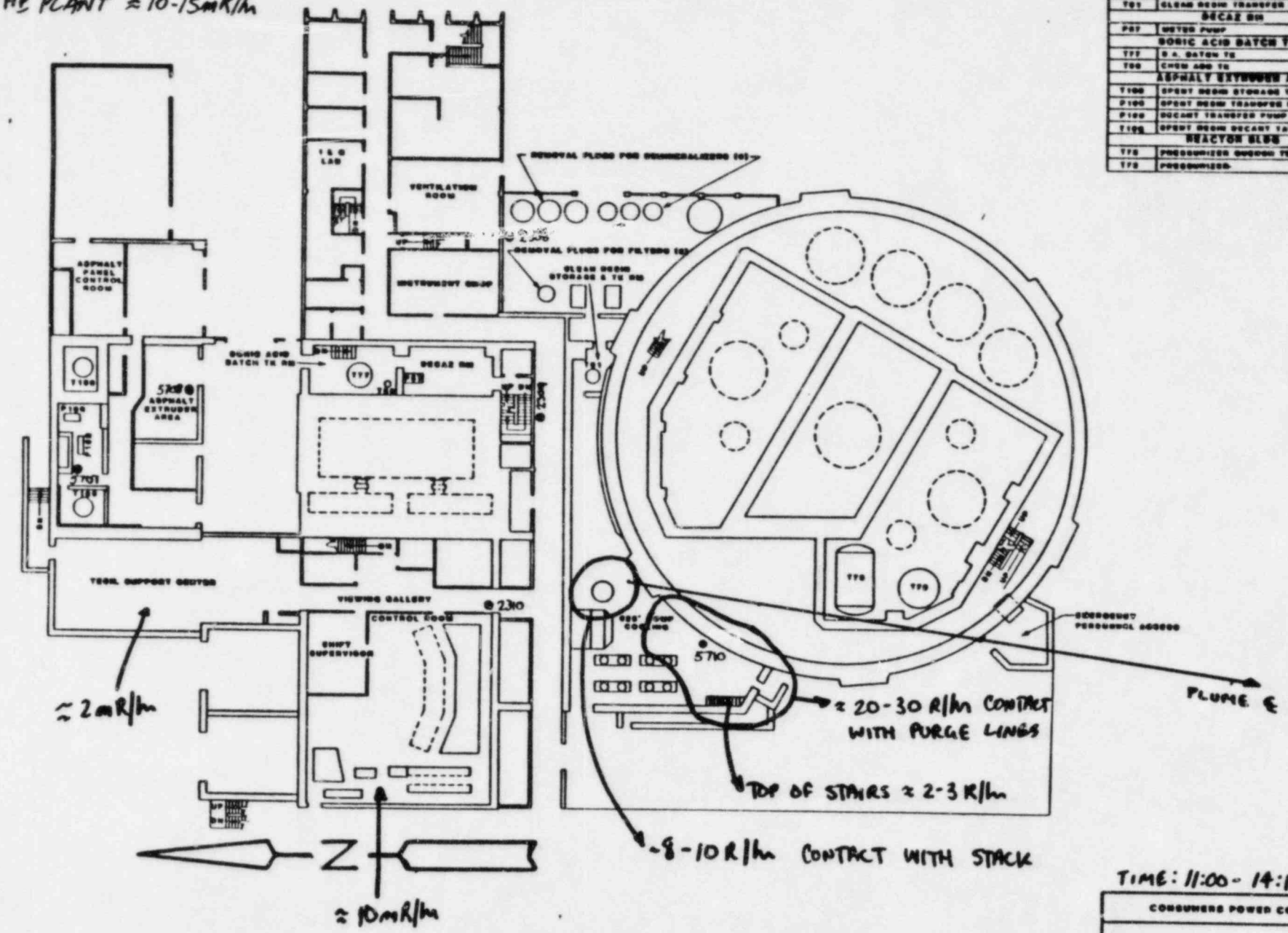
CONTAINMENT CONTACT ≈ 500-1000 mR/h

CONSUMERS POWER COMPANY

PALISADES PLANT

611'

OSE RATES TO THE NORTH AND EAST OF THE PLANT ≈ 10-15 mR/hr

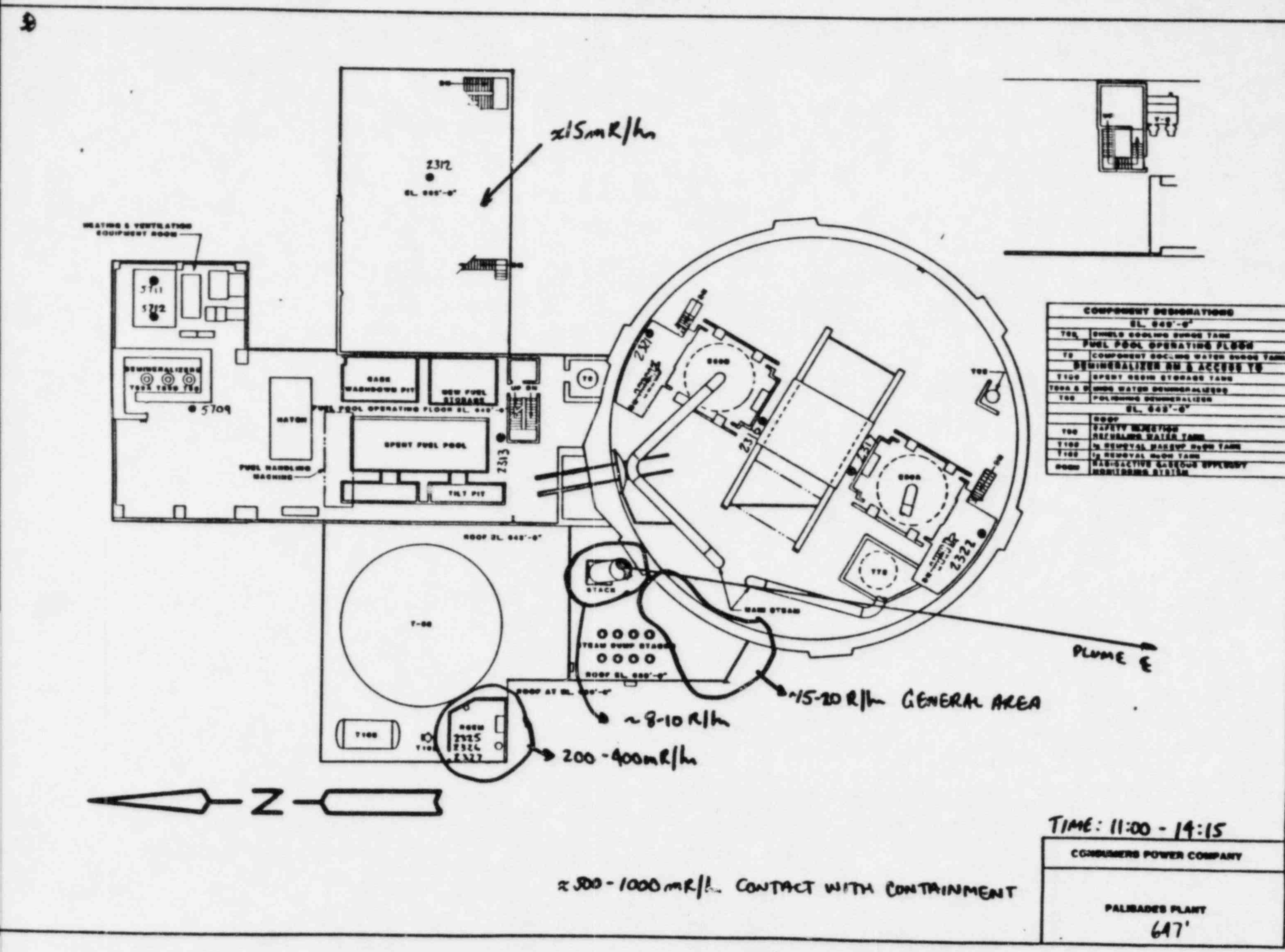


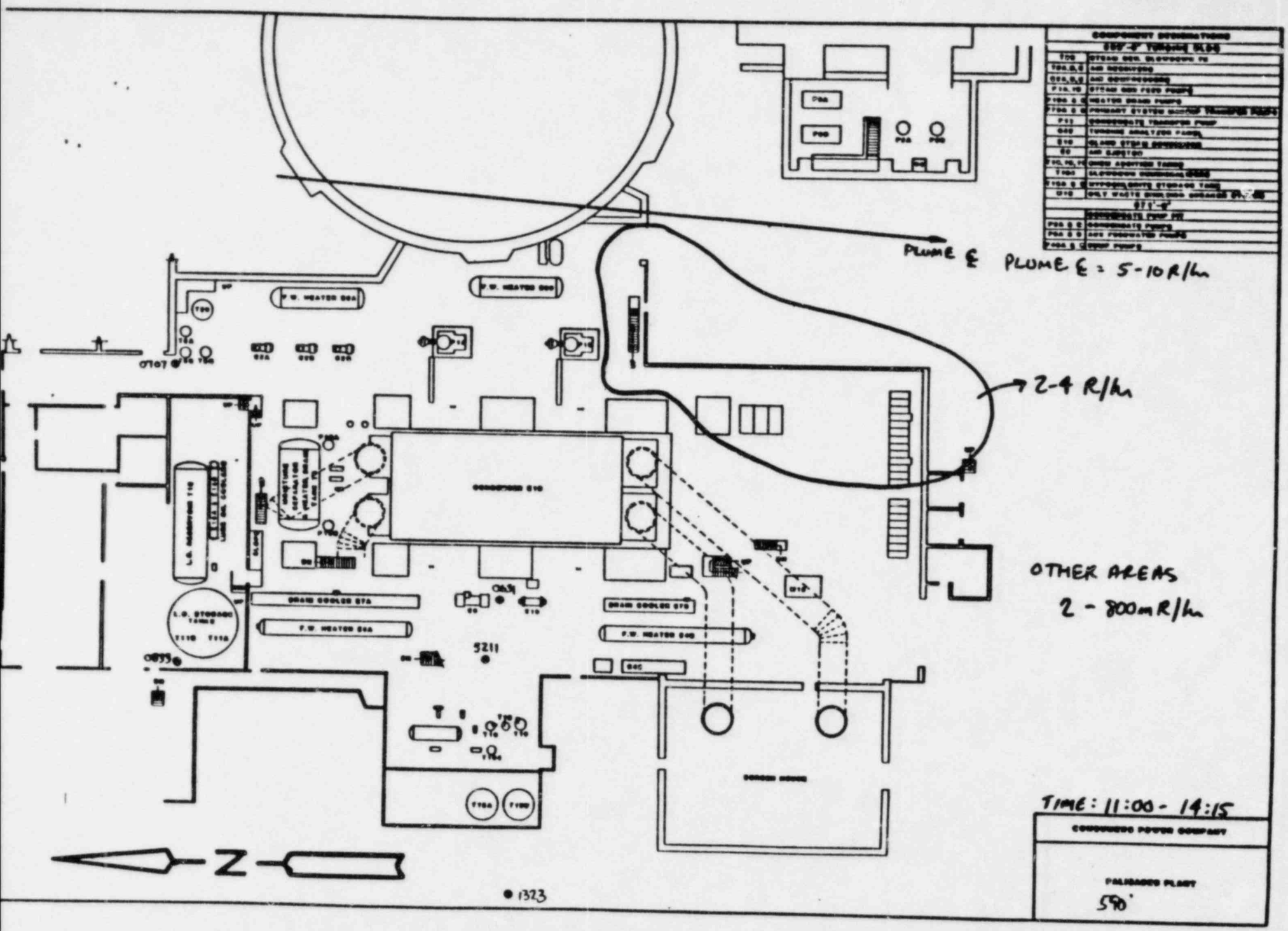
TIME: 11:00 - 14:15

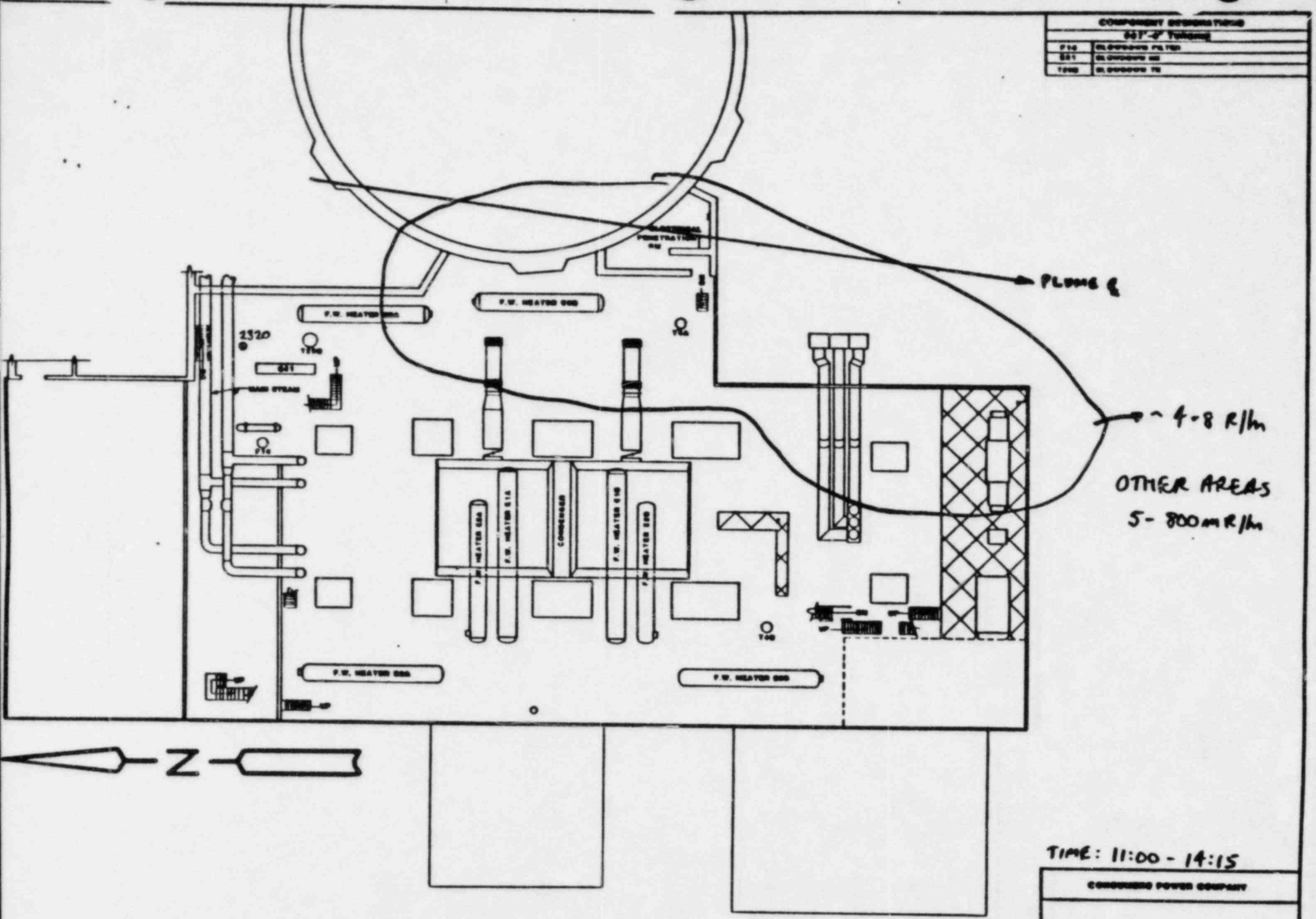
CONSUMERS POWER COMPANY

PALISADES PLANT

625'


≈15mR/hr
2312
5711
5712
5709
2313
2311
2321
2322
2325
2324
2327
HEATING & VENTILATION EQUIPMENT ROOM
CASK WASHDOWN PIT
NEW FUEL STORAGE
FUEL POOL OPERATING FLOOR
SPENT FUEL POOL
TILT PIT
HATCH
FUEL HANDLING MACHINE
STACK
MAIN STEAM
ROOF
T-90
T100
PLUME ℄
~15-20 R/hr GENERAL AREA
~8-10 R/hr
200-400mR/hr
≈500-1000 mR/hr CONTACT WITH CONTAINMENT
COMPONENT DESIGNATIONS
FUEL POOL OPERATING FLOOR
DEMINERALIZER RM & ACCESS TO
N
TIME: 11:00 - 14:15
CONSUMERS POWER COMPANY
PALISADES PLANT
647'


PLUME E
PLUME E = 5-10 R/hr
2-4 R/hr
OTHER AREAS
2 - 800 mR/hr
TIME: 11:00 - 14:15
CONSUMERS POWER COMPANY
PALISADES PLANT
590'
5211
1323
N

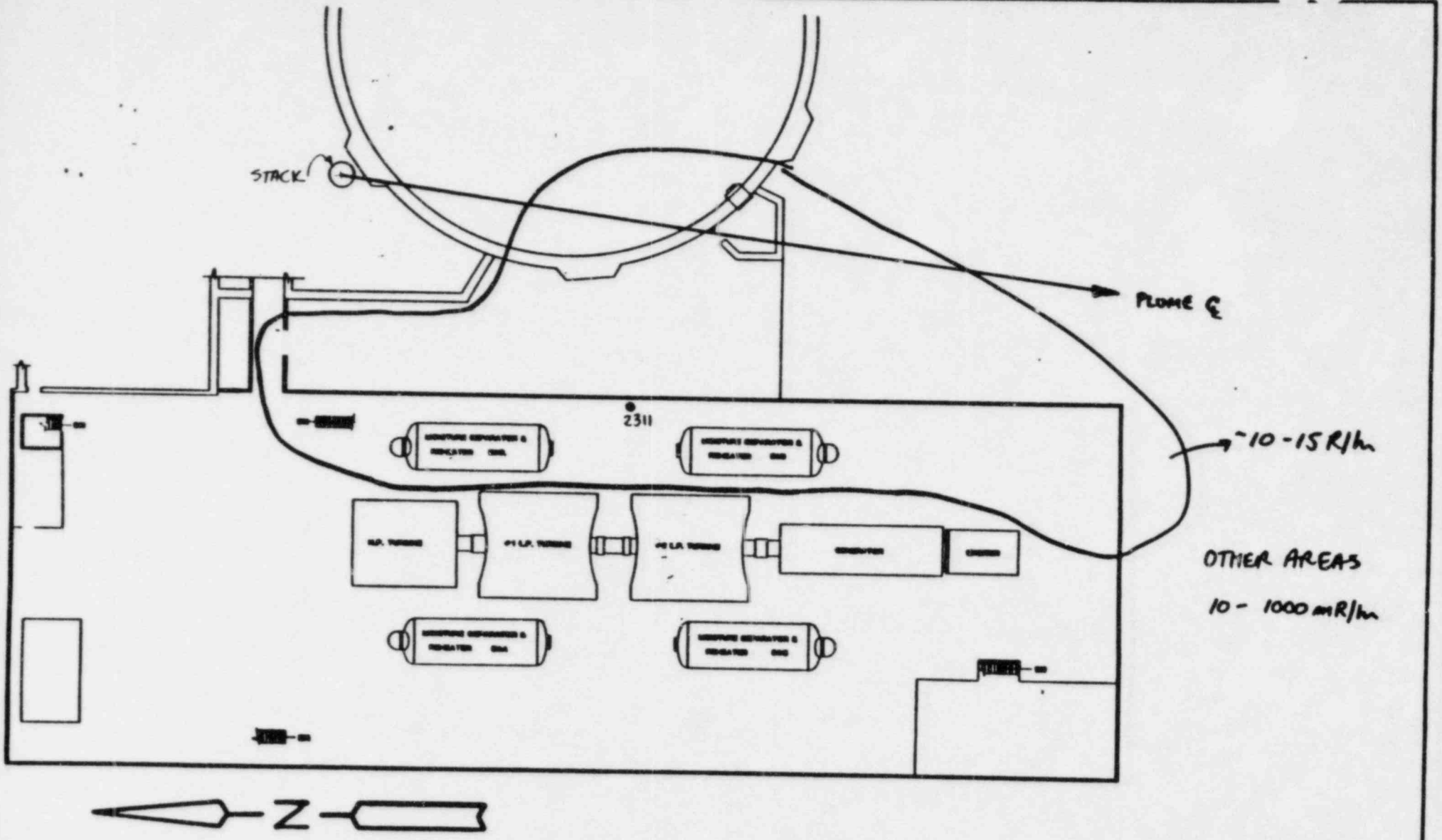


TIME: 11:00 - 14:15

CONSUMERS POWER COMPANY

PALISADES PLANT

607'



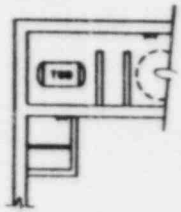
TIME: 11:00 - 14:15

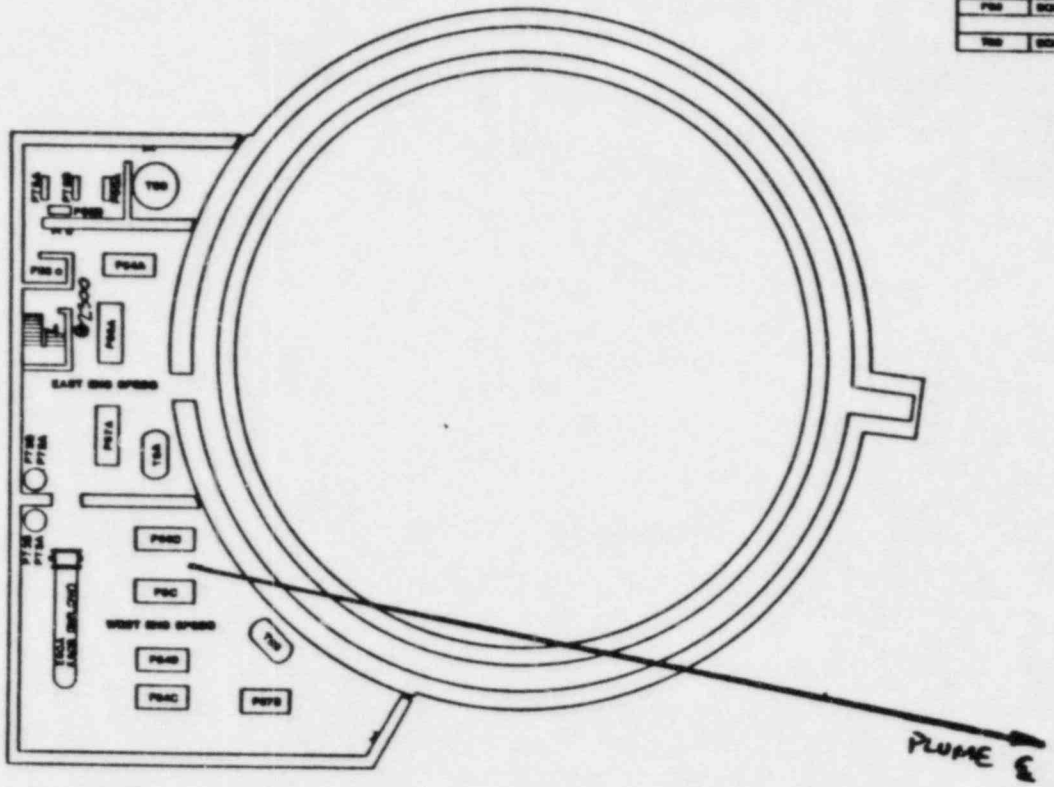
CONSUMERS POWER COMPANY

PALISADES PLANT

625'

COMPONENT DESIGNATIONS	
WEST END SPENT	
P-66A/B	SHUTDOWN COOLING HEAT EXCHANGERS
P-52A/B	SUMP PUMPS
P-54A/B	CTMT SPRAY PUMPS
P-66B	HP SAFETY INJECTION PUMP
P-67B	LP SAFETY INJECTION PUMP
P-89C	AUX FEEDWATER PUMP
T-39	HP AIR RECEIVER
EAST END SPENT	
P-52A/B	SUMP PUMPS
P-67A	LP SAFETY INJECTION PUMP
P-66A	HP SAFETY INJECTION PUMP
P-54A	CTMT SPRAY PUMP
T-39A	HP AIR RECEIVERS
P-69A/B	SPENT WASTE DRAIN TANK PUMPS
P-73A/B	EQUIPMENT DRAIN TANK PUMPS
T-69	SPENT WASTE DRAIN TANK
T-70	EQUIPMENT DRAIN TANK FILTER
EL. 670'-4"	
T-70	EQUIPMENT DRAIN TANK





DOSE RATES ≈ 100-500 mR/hr CONTACT WITH CONTAINMENT

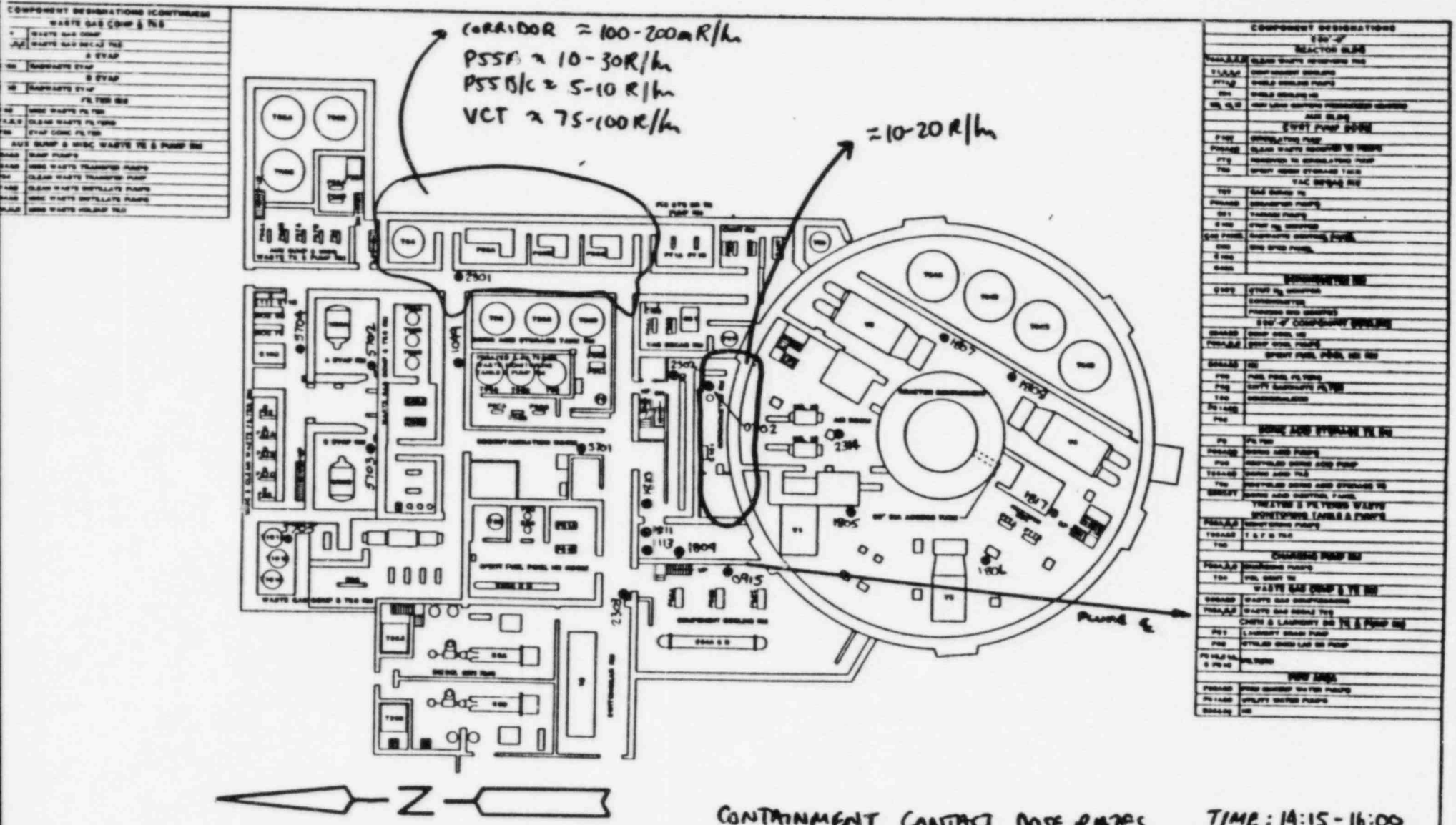
LOWER AS YOU MOVE FARTHER AWAY

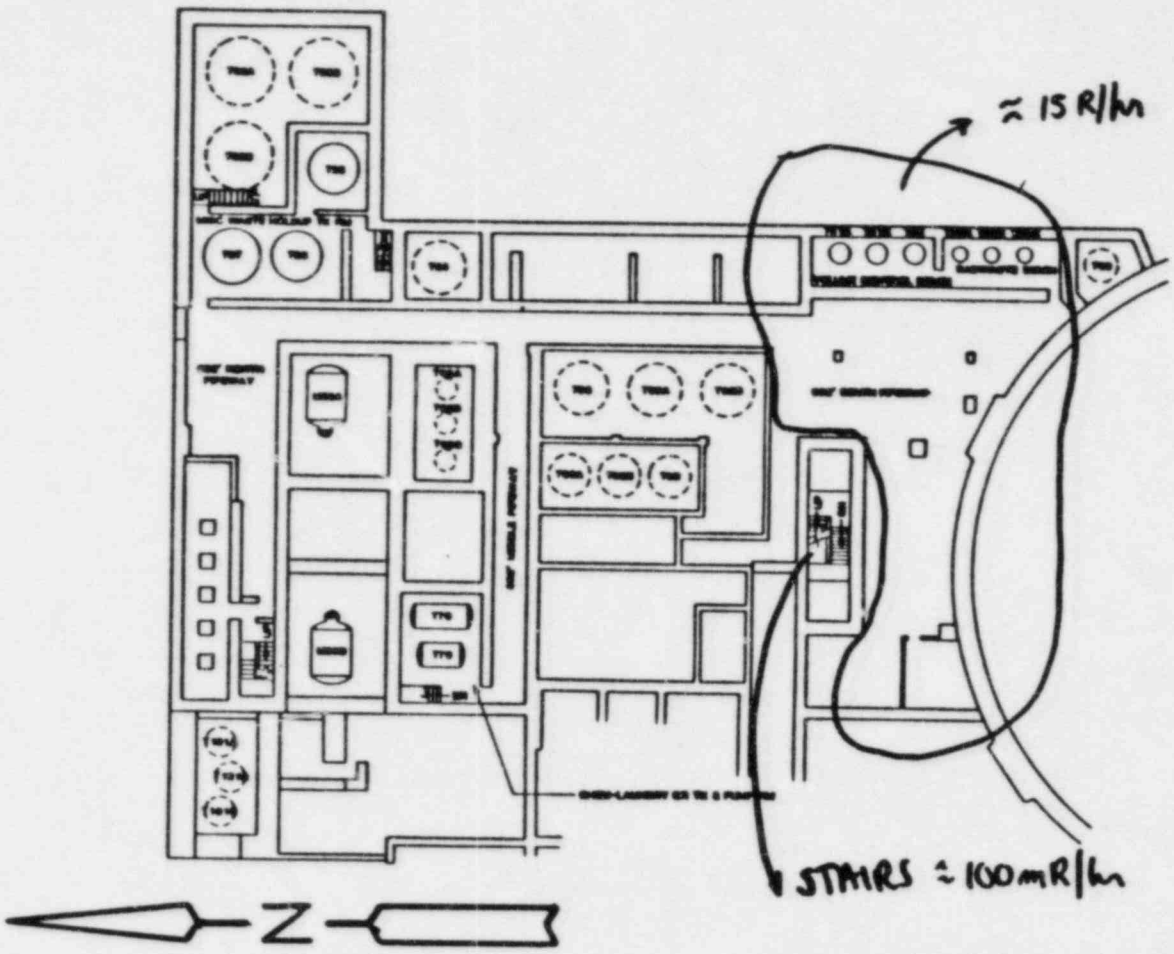
TIME: 19:15 - 16:00

CONSUMERS POWER COMPANY

PALISADES PLANT

570'


CORRIDOR ≈ 100-200mR/h
P55A ≈ 10-30R/h
P55B/C ≈ 5-10 R/h
VCT ≈ 75-100R/h
≈10-20 R/h
PLANE C
N
CONTAINMENT CONTACT DOSE RATES
≈ 500 -1000 mR/h
TIME: 14:15 - 16:00
CONSUMERS POWER COMPANY
PALISADES PLANT
590'

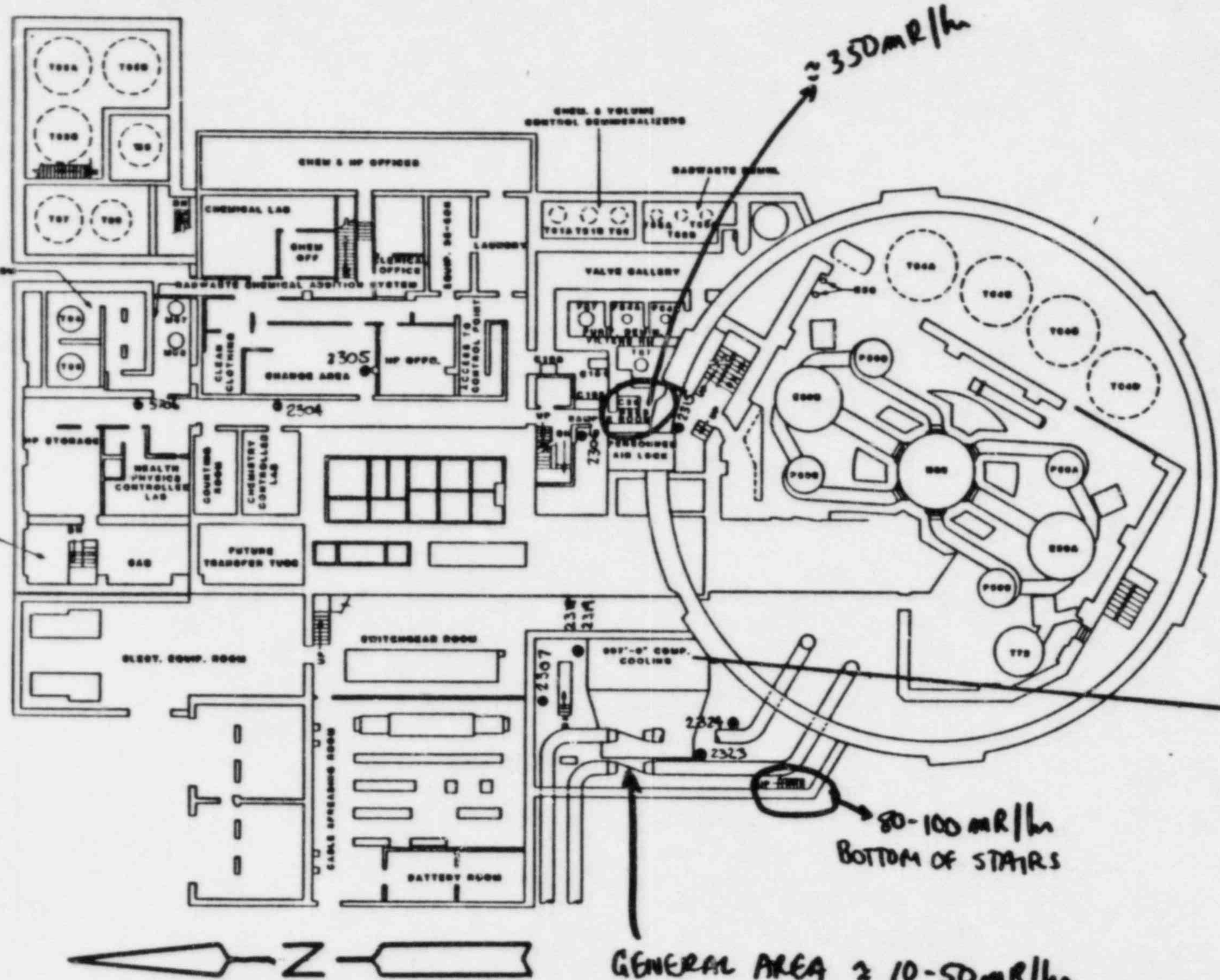


TIME :

CONSUMERS POWER COMPANY

PALISADES PLANT

602'



COMPONENT DESIGNATIONS	
EL. 607'-0"	
	REACTOR BUILDING
[illegible]	STEAM GENERATORS
[illegible]	REACTOR
[illegible]	PRIMARY COOLANT PUMPS
T72	PRESSURIZER
[illegible]	REGEN. HX
EL. 607'-0" COMP. COOLING	
[illegible]	CONT. PURGE EXHAUST UNIT
[illegible]	[illegible]
[illegible]	
	SWITCHGEAR RM
	CABLE SPREADING RM
	BATTERY RM
	ELECTRIC EQUIPMENT RM
EL. 611'-0"	
	[illegible] PANEL AREA
[illegible]	[illegible] PANEL
[illegible]	[illegible] PANEL
[illegible]	CLEAN RADWASTE SAMPLING PANEL
[illegible]	[illegible] INDICATING PANEL
[illegible]	VACUUM DEGASIFIER
	VALVE GALLERY AREA
	ACCESS TO VOL. CTRL. & RADWASTE DEMINERALIZER AND ACCESS TO [illegible] FOR THE SPENT RESIN STORAGE TK
	PURIF. DEMIN. FILTER RM
[illegible]	PURIFICATION FILTERS
[illegible]	CLEAN RADWASTE FILTER
	EVAP. CONC. TK & PU RM
[illegible]	EVAP CONC TK (CLEAN)
[illegible]	EVAP CONC TK (DIRTY)
[illegible]	EVAP CONC TRANSFER PUMPS
	RADWASTE CHEMICAL ADDITION SYSTEM
[illegible]	RADWASTE ANTI-FOAM INJECTION EQUIPMENT
[illegible]	RADWASTE CAUSTIC INJECTION EQUIPMENT

TIME: 14:15 - 16:00

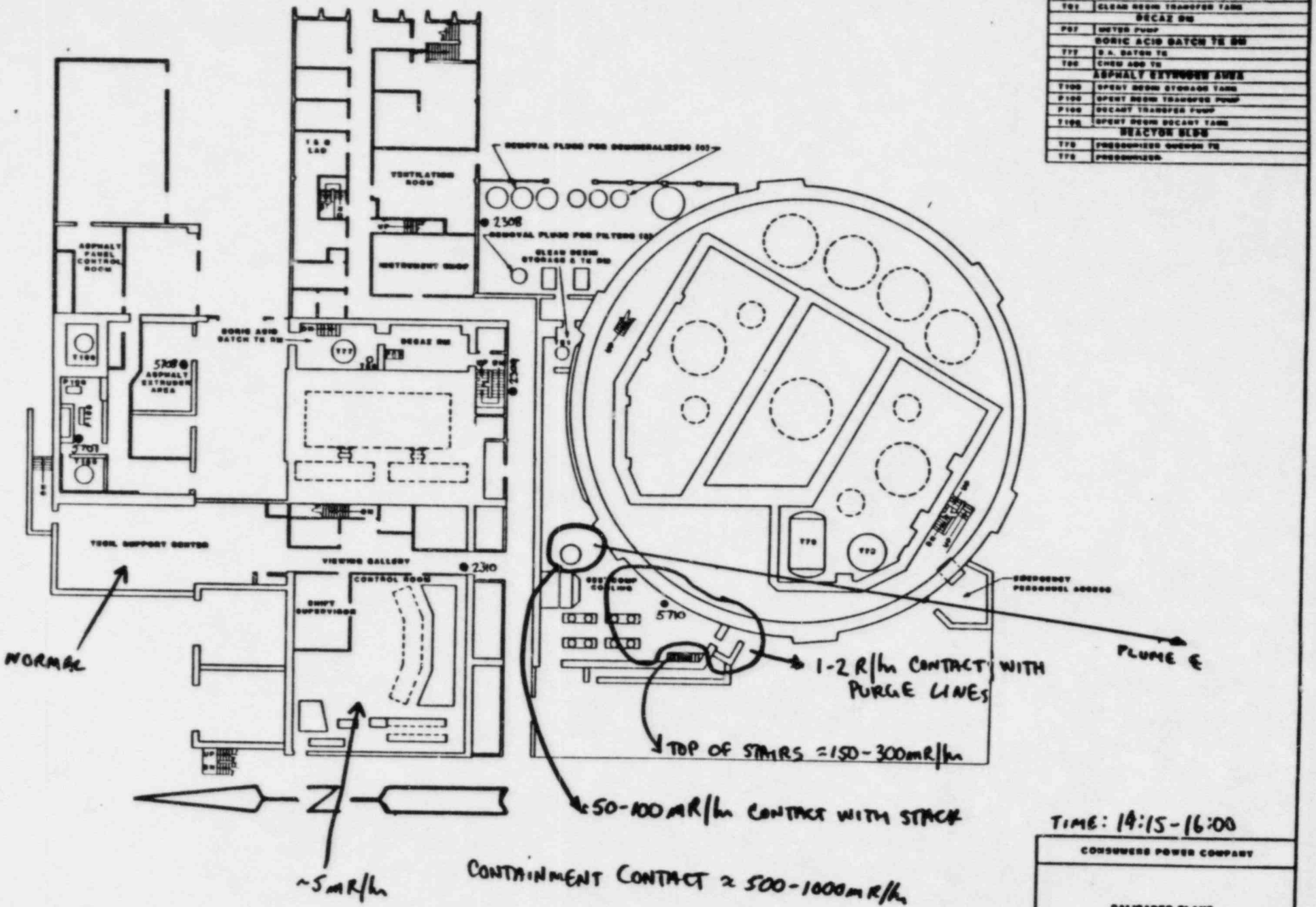
CONTAINMENT CONTACT 500-1000 mR/hr

CONSUMERS POWER COMPANY

PALISADES PLANT

611'

DOSE RATES OUTSIDE ARE BACK TO NORMAL

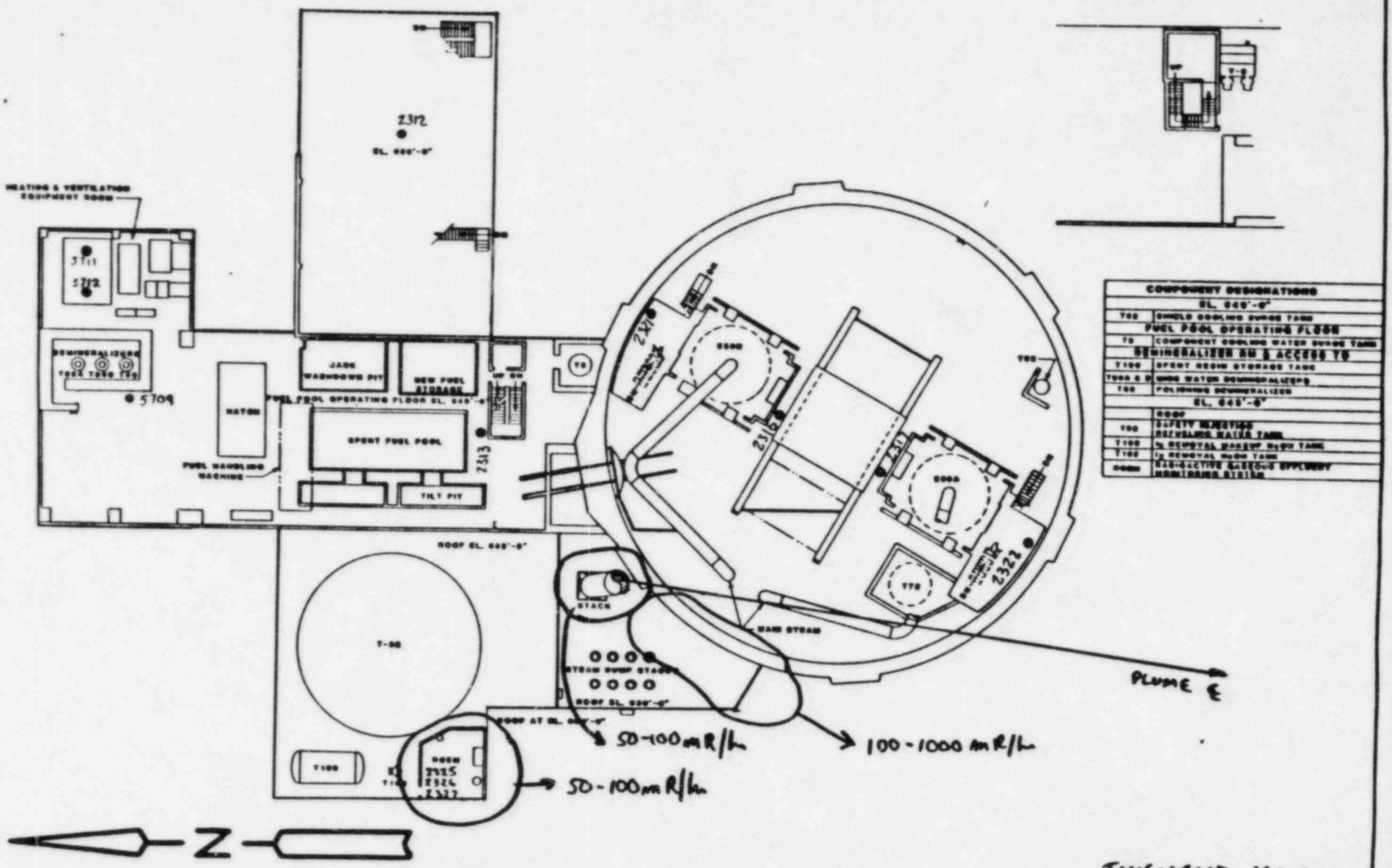


TIME: 14:15-16:00

CONSUMERS POWER COMPANY

PALISADES PLANT

625'



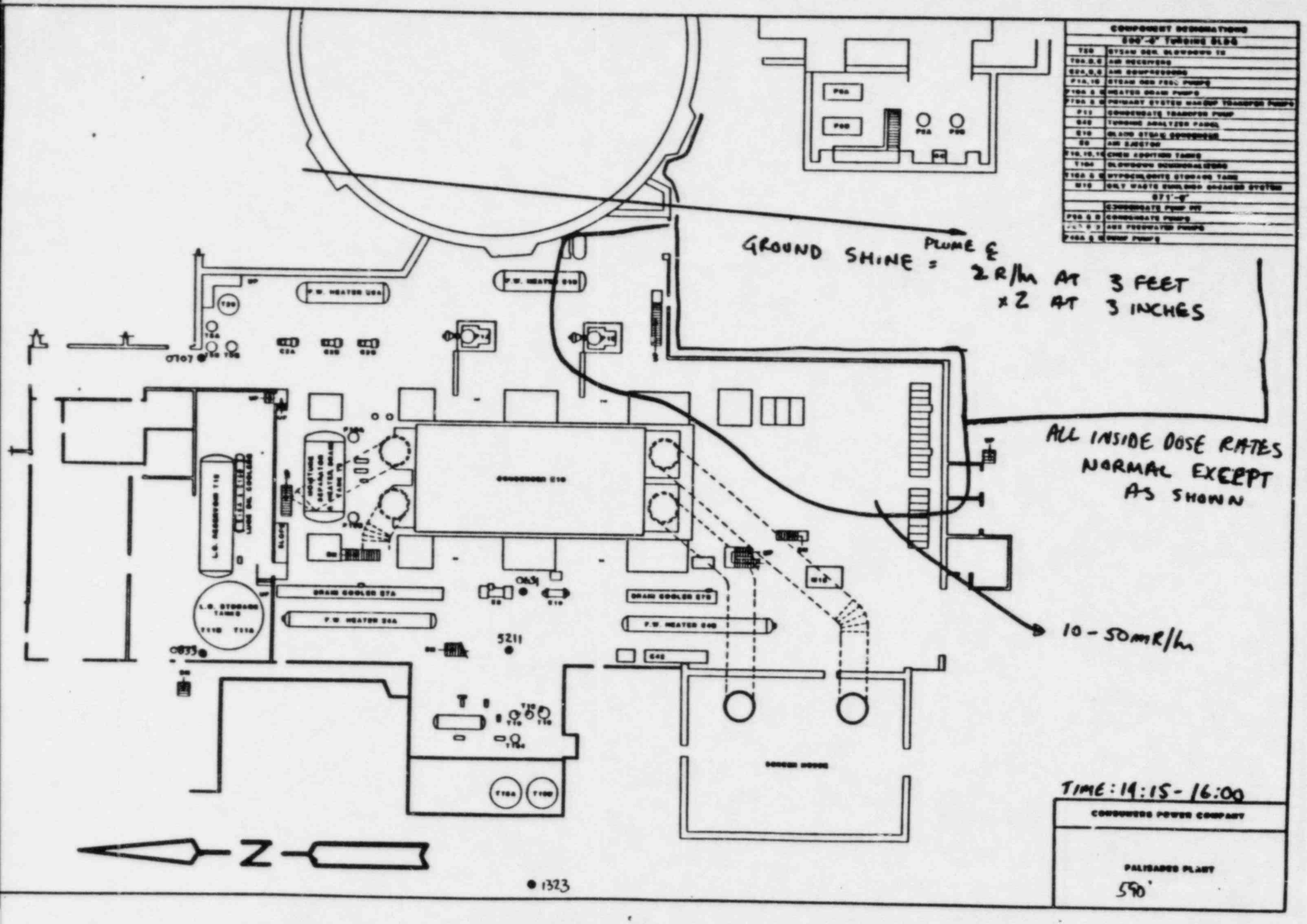
CONTAINMENT CONTACT ≈ 500-1000 mR/h

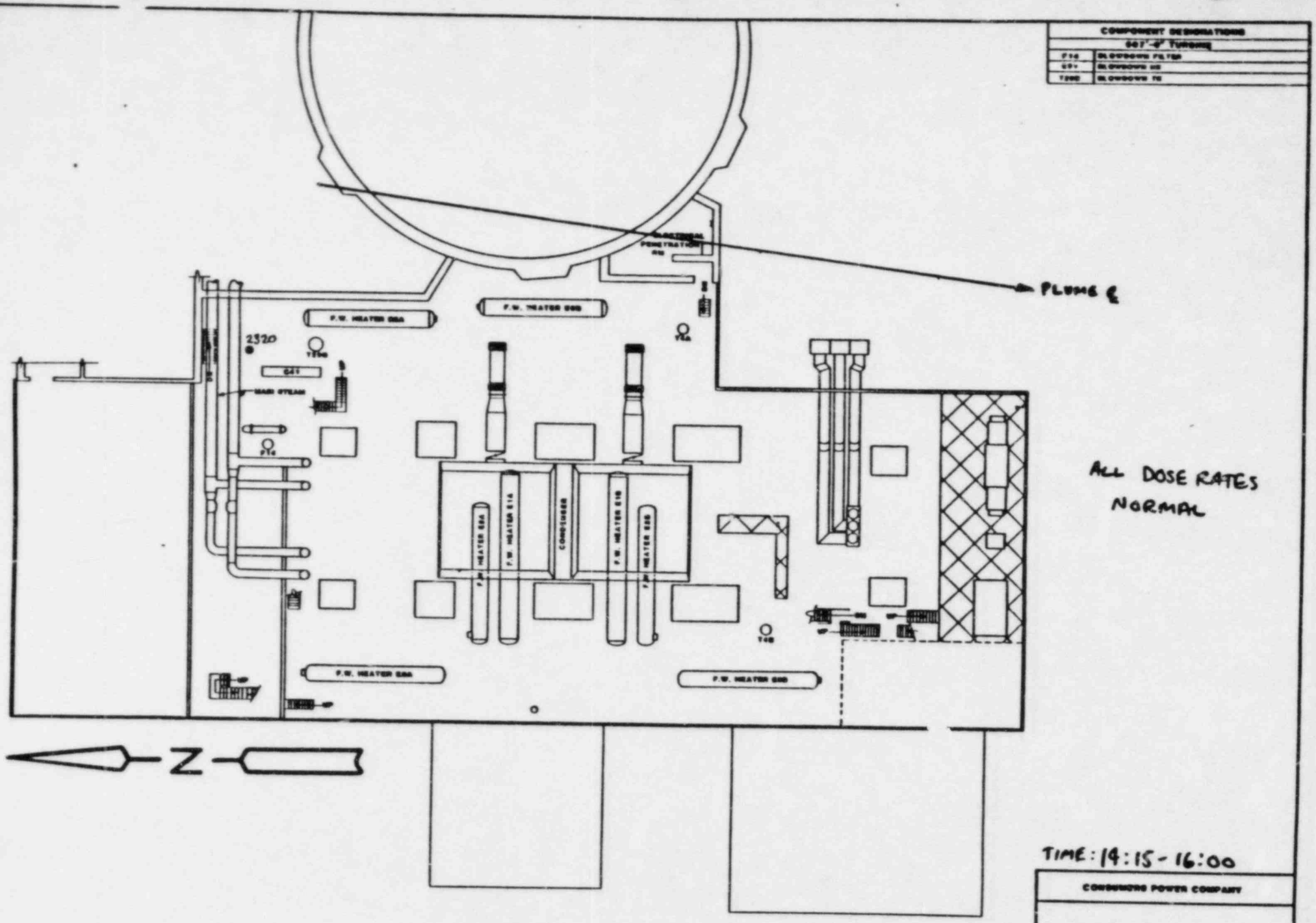
TIME: 14:15 - 16:00

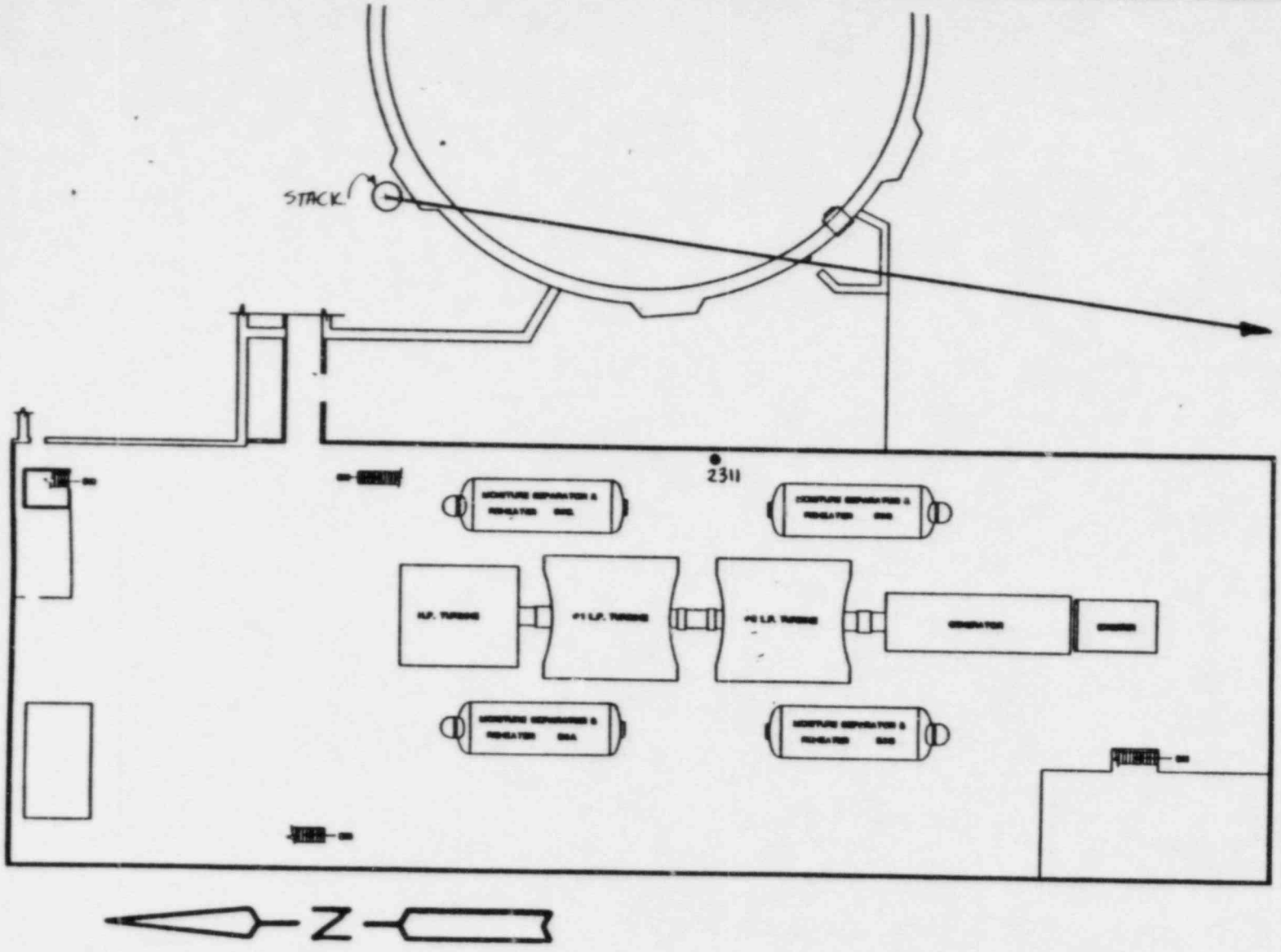
CONSUMERS POWER COMPANY

PALISADES PLANT

647'


GROUND SHINE = PLUME &
2 R/hr AT 3 FEET
x2 AT 3 INCHES
ALL INSIDE DOSE RATES NORMAL EXCEPT AS SHOWN
10 - 50 mR/hr
TIME: 14:15 - 16:00
CONSUMERS POWER COMPANY
PALISADES PLANT
590'
5211
1323


COMPONENT DESIGNATIONS
607'-0" TURBINE
PLUME
ALL DOSE RATES NORMAL
TIME: 14:15 - 16:00
CONSUMERS POWER COMPANY
PALISADES PLANT
607'



ALL DOSE RATES NORMAL

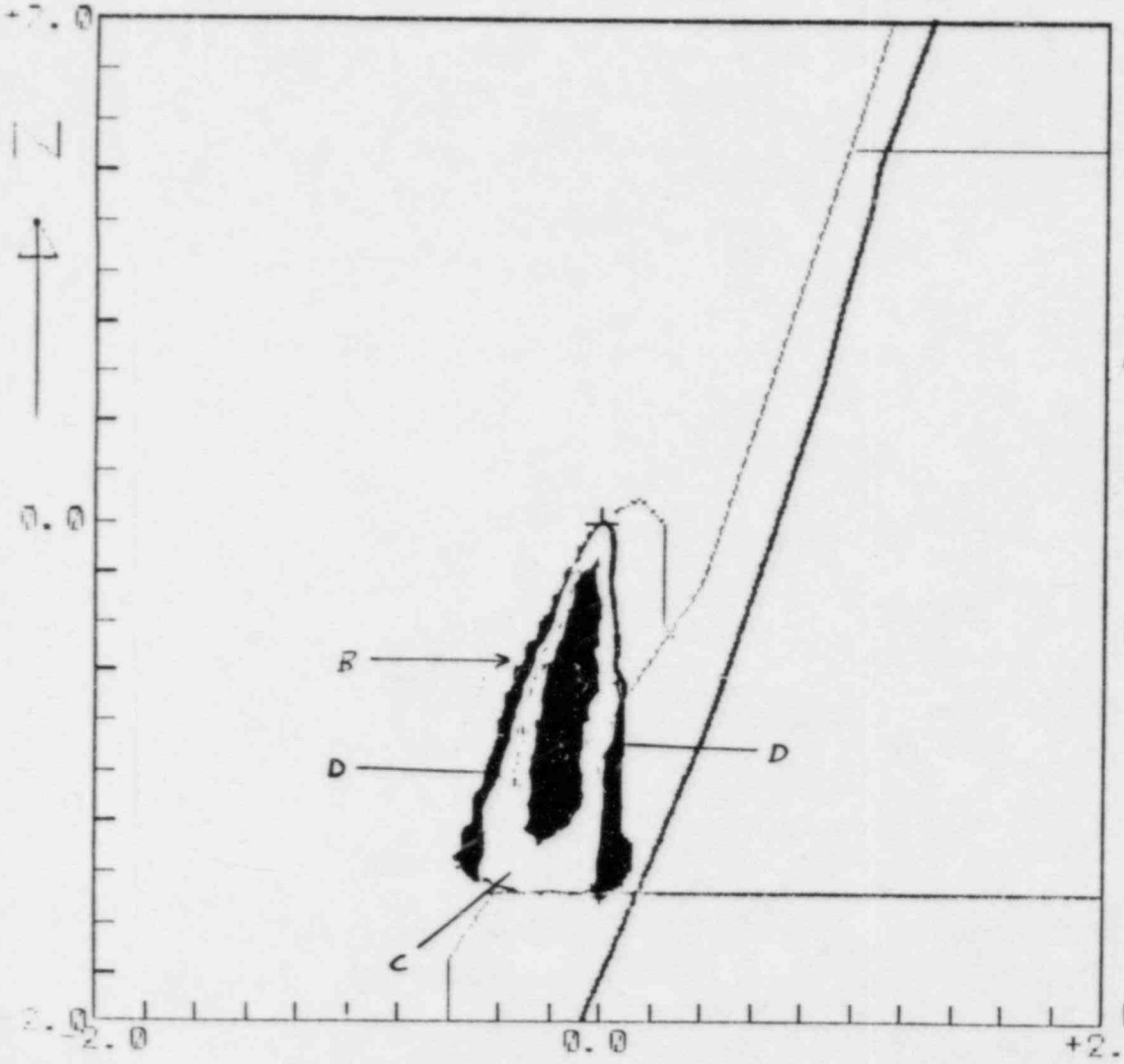
TIME: 14:15 - 16:00

CONSUMERS POWER COMPANY

PALISADES PLANT

625'

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



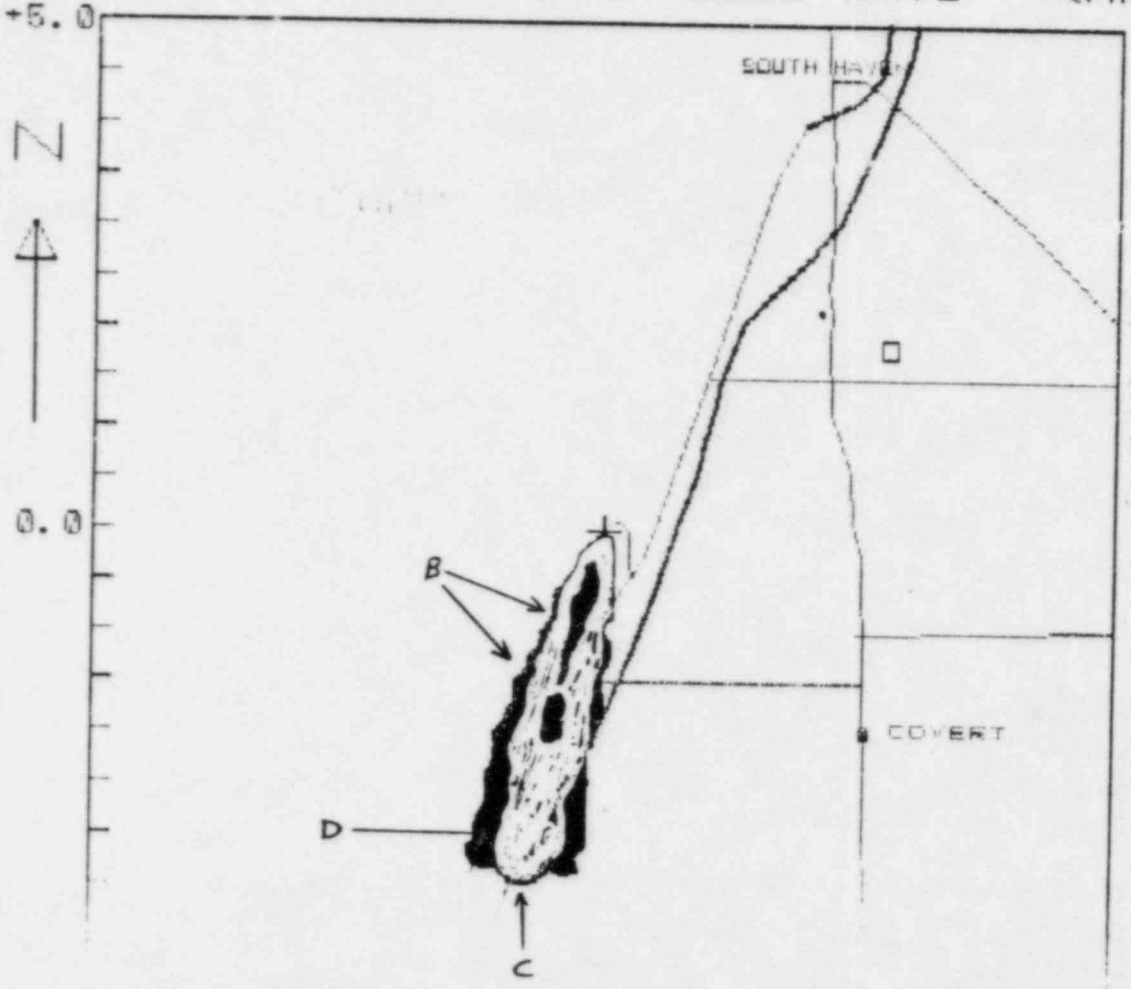
SEGMENT NO.: 1
TIME: 0HR 15MIN

ISOPLETH SCALE:
1.00E+03
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
■ TOWN
□ AIRPORT
—— ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)

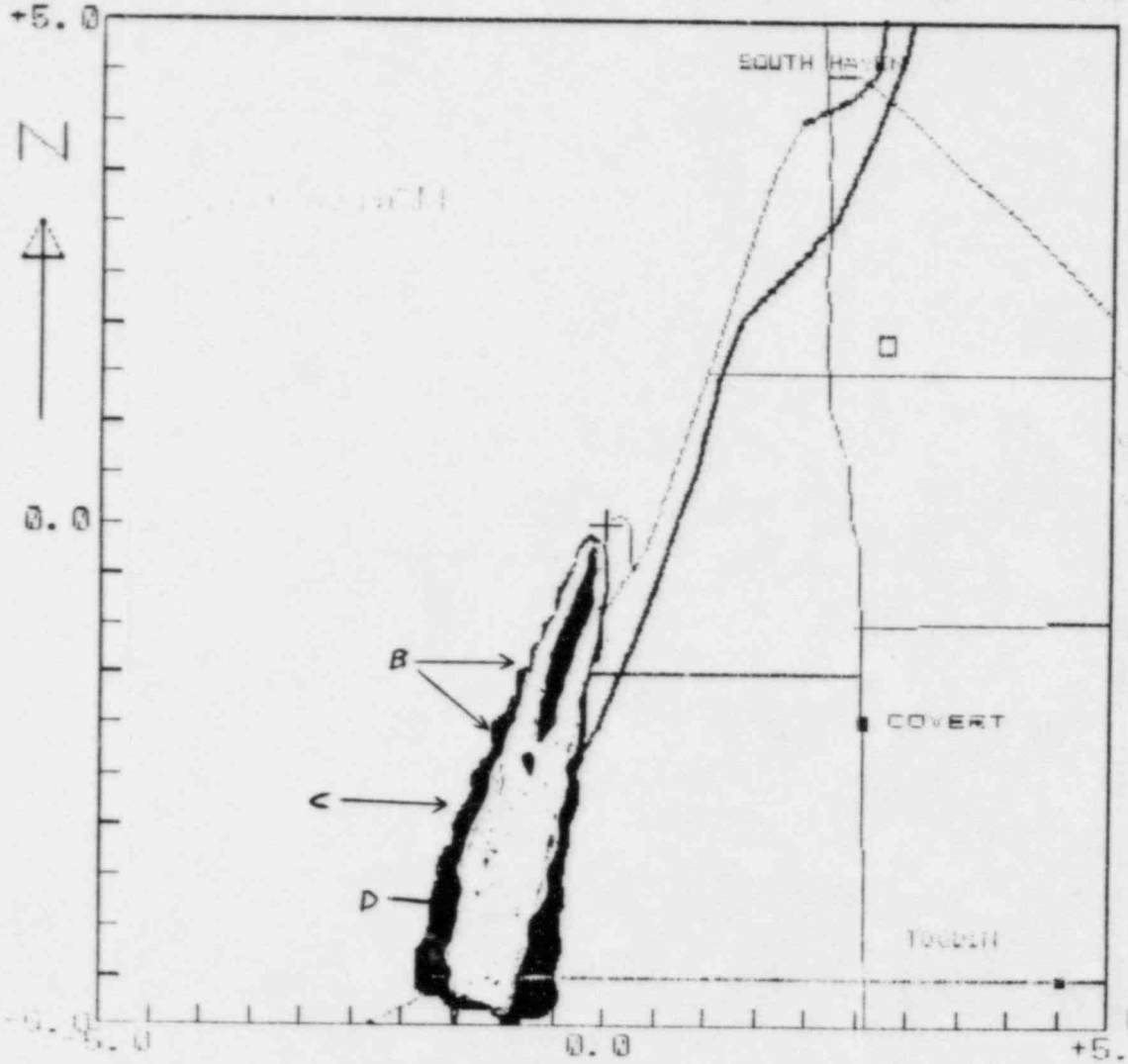


SEGMENT NO.: 2
TIME: 0HR 30MIN

ISOPLETH SCALE:
1.00E+03
1.00E+02
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
• TOWN
□ AIRPORT

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



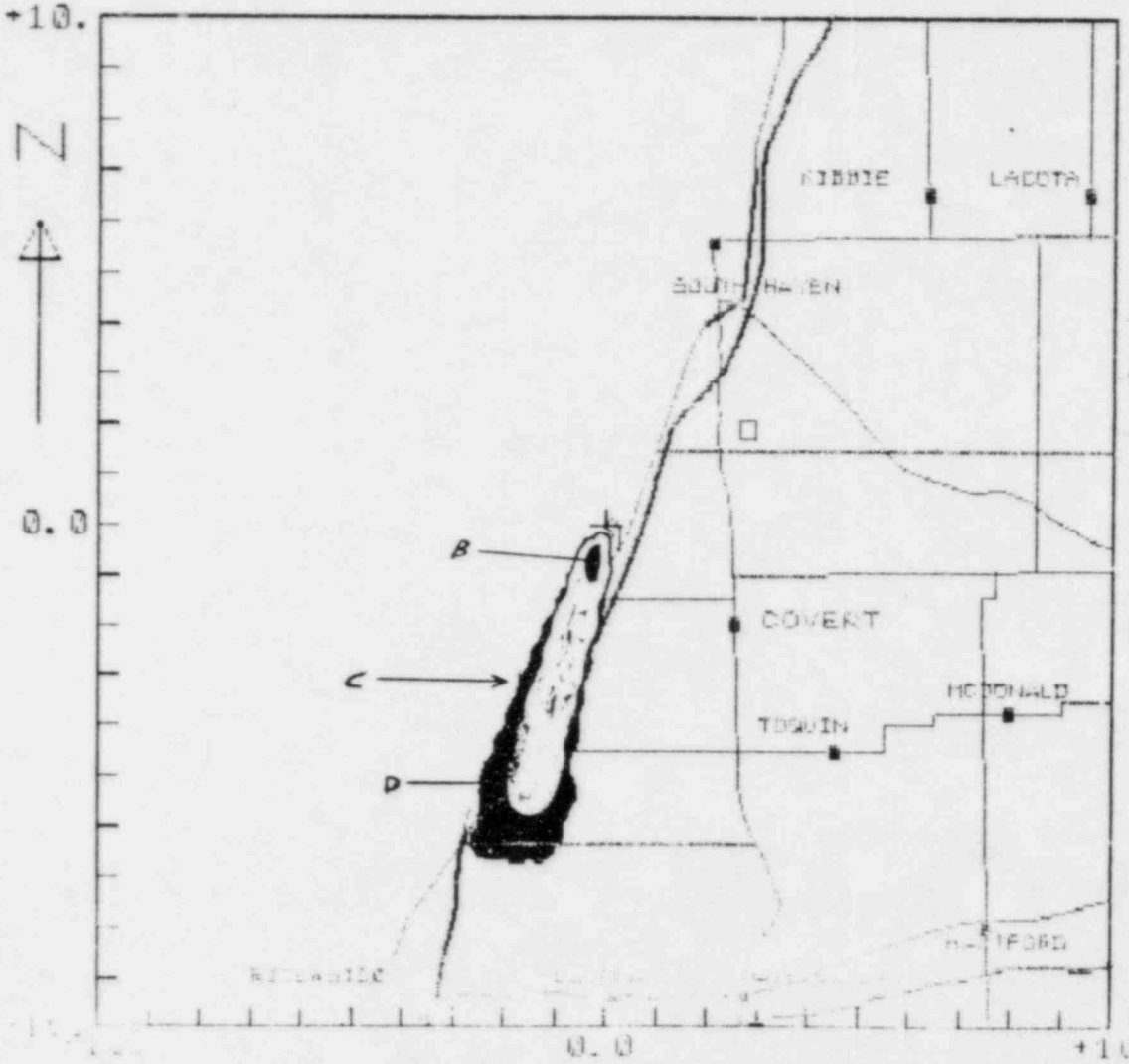
SEGMENT NO.: 3
TIME: 0HR 45MIN

ISOPLETH SCALE:
1.00E+03
1.00E+02
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
TOWN
AIRPORT
ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



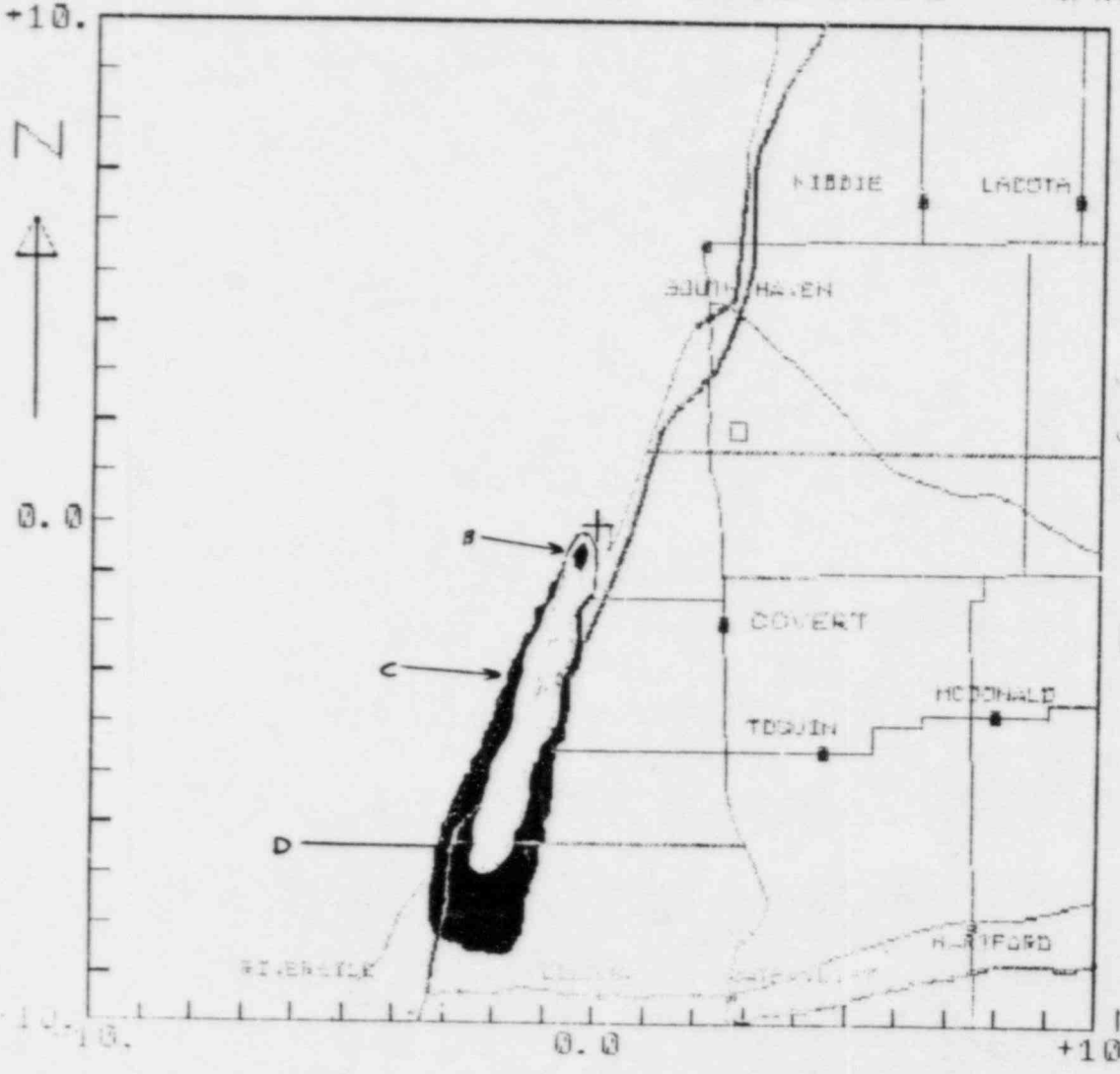
SEGMENT NO.: 4
TIME: 1HR 0MIN

ISOPLETH SCALE:
1.00E+03
1.00E+02
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
TOWN
AIRPORT
ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



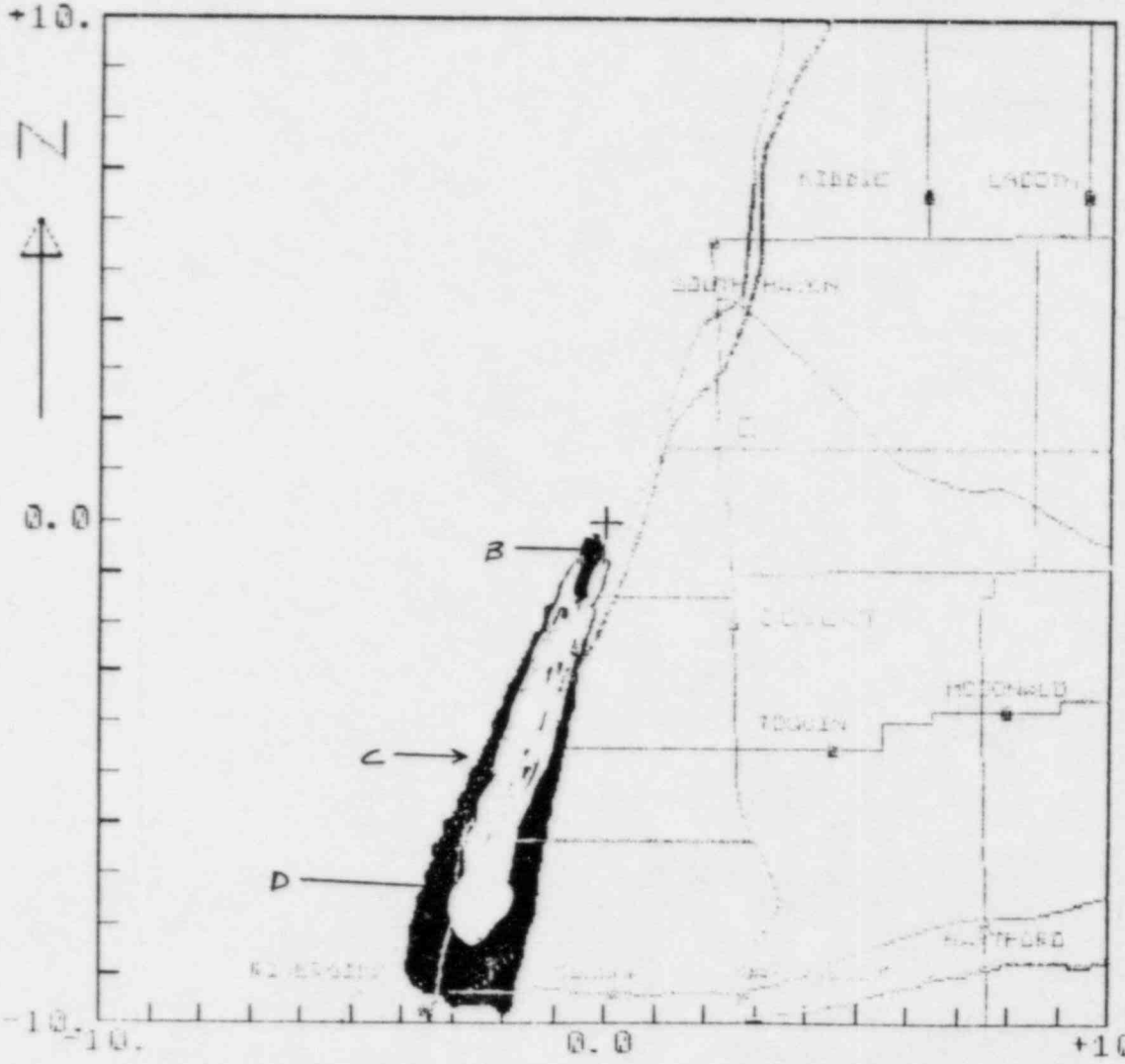
SEGMENT NO.: 5
TIME: 1HR 15MIN

ISOPLETH SCALE:
1.00E+03
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
TOWN
AIRPORT
ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



SEGMENT NO.: 6

TIME: 1HR 30MIN

ISOPLETH SCALE:

1.00E+03

1.00E+02

1.00E+01

1.00E+00

MAP LEGEND:

+ PALISADES

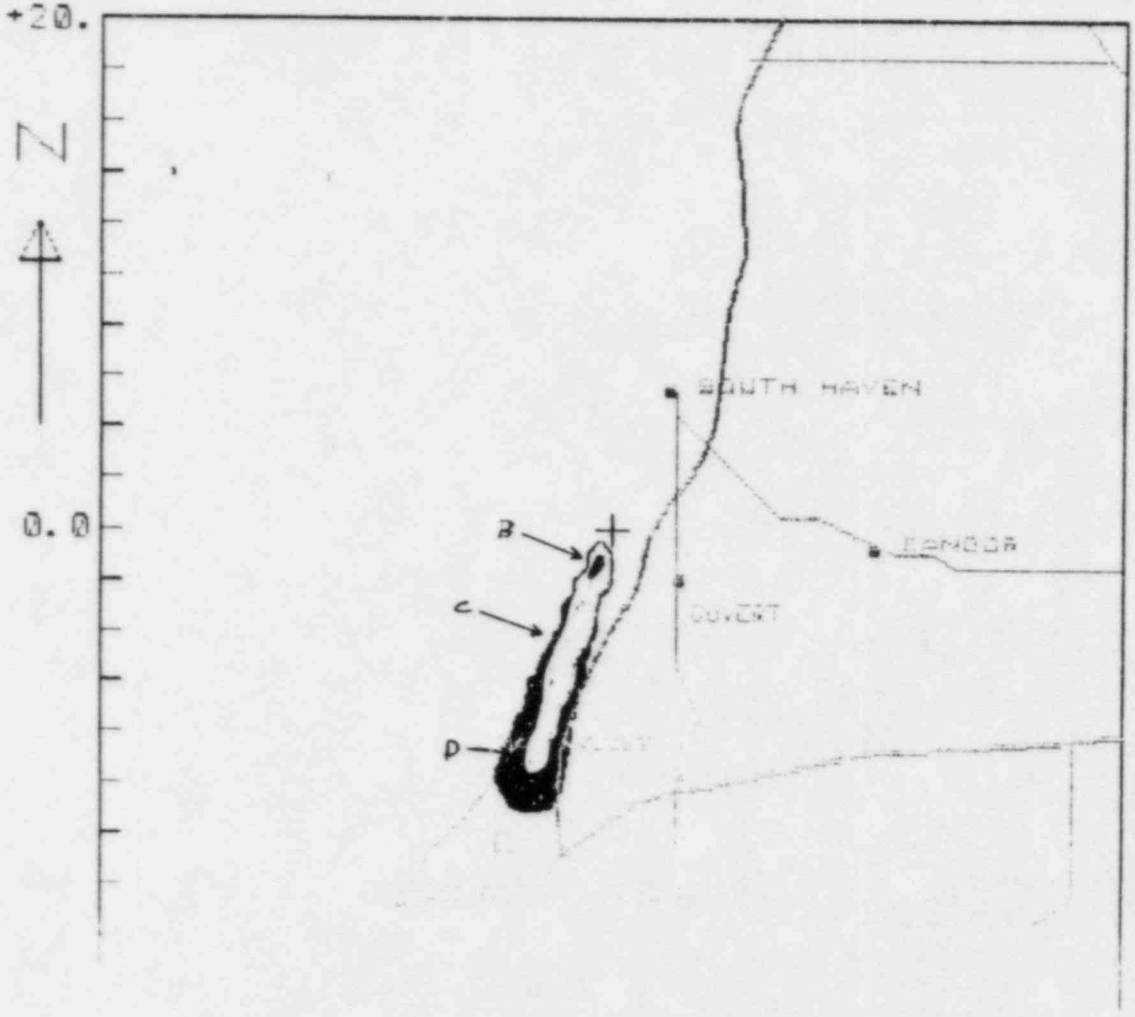
TOWN

AIRPORT

ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)

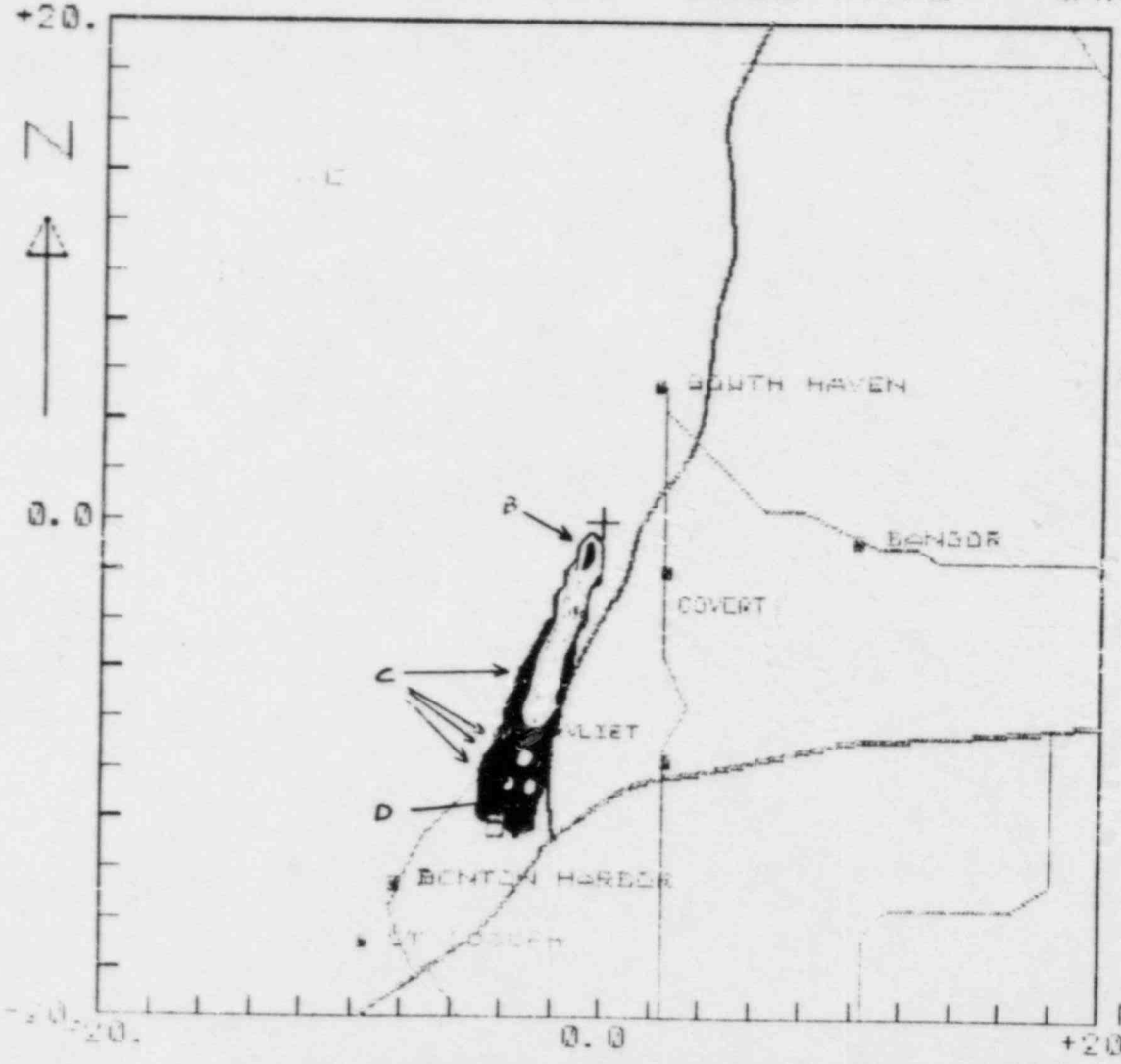


SEGMENT NO.: 7
TIME: 1HR 45MIN

ISOPLETH SCALE:
1.00E+03
1.00E+02
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



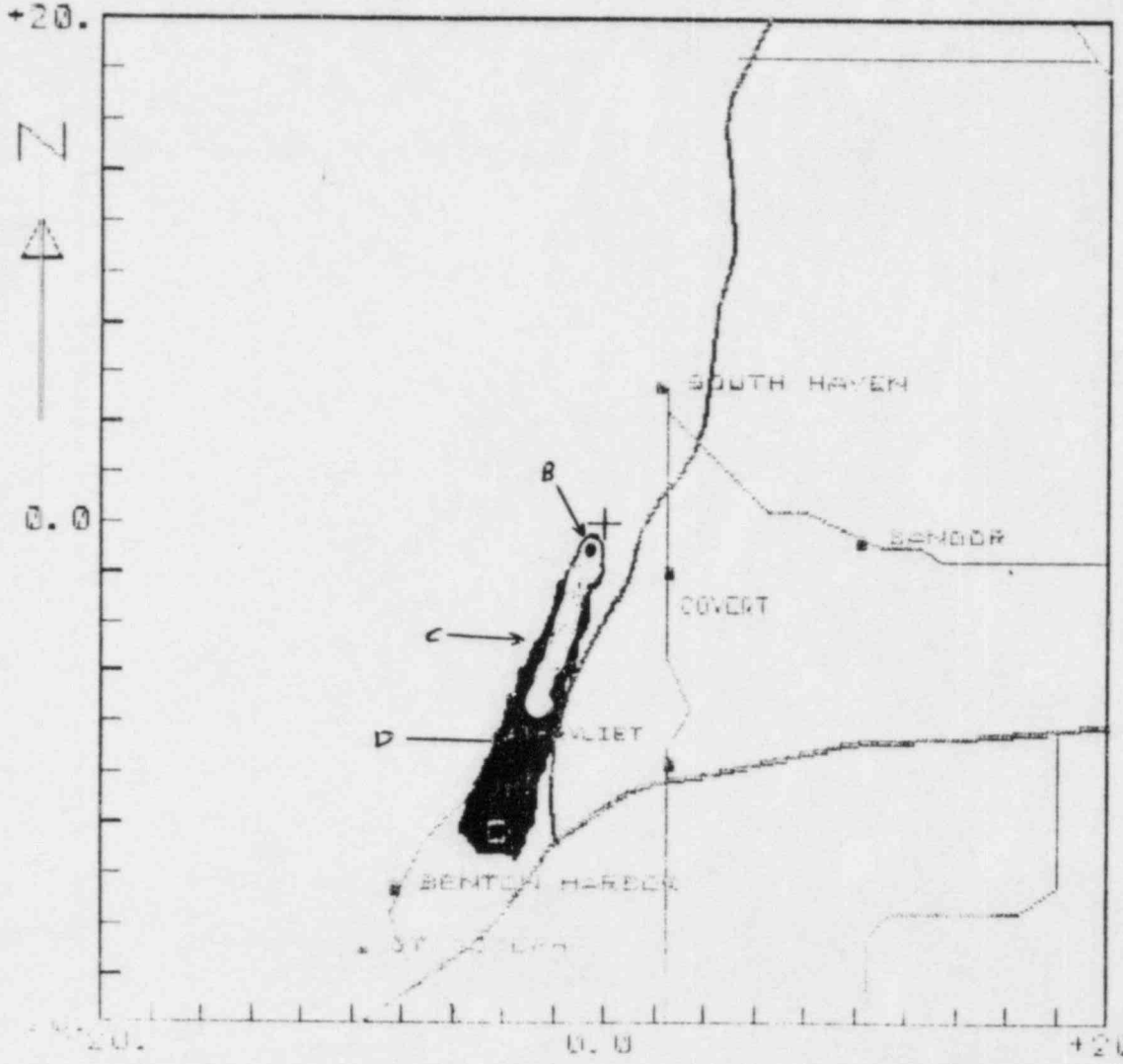
SEGMENT NO.: 8
TIME: 2HR 0MIN

ISOPLETH SCALE:
A 1.00E+03
B [illegible]
C 1.00E+01
D 1.00E+00

MAP LEGEND:
+ PALISADES
TOWN
AIRPORT
ROAD
[illegible]

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



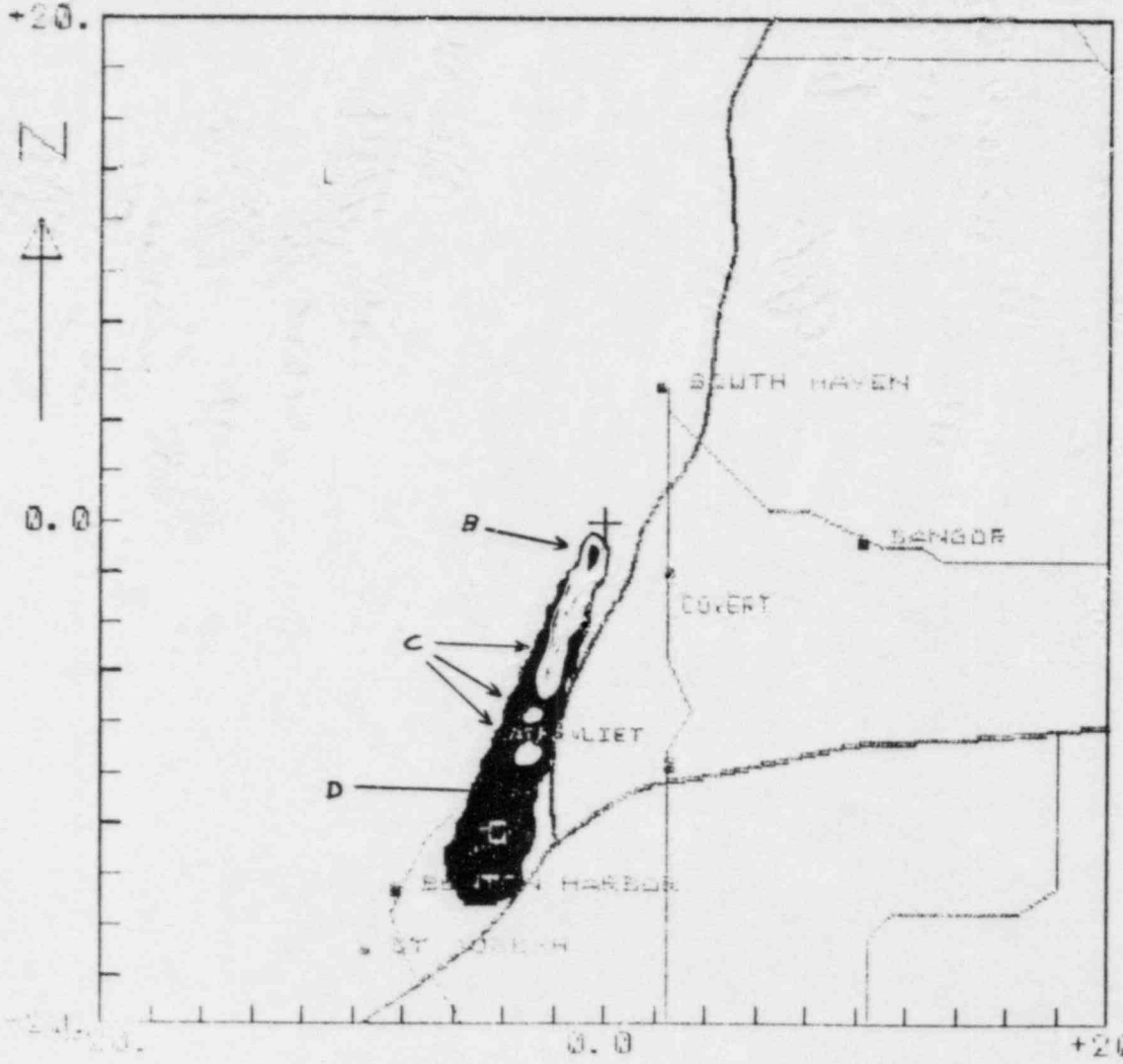
SEGMENT NO.: 9
TIME: 2HR 15MIN

ISOPLETH SCALE:
1.00E+03
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
TOWN
AIRPORT

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



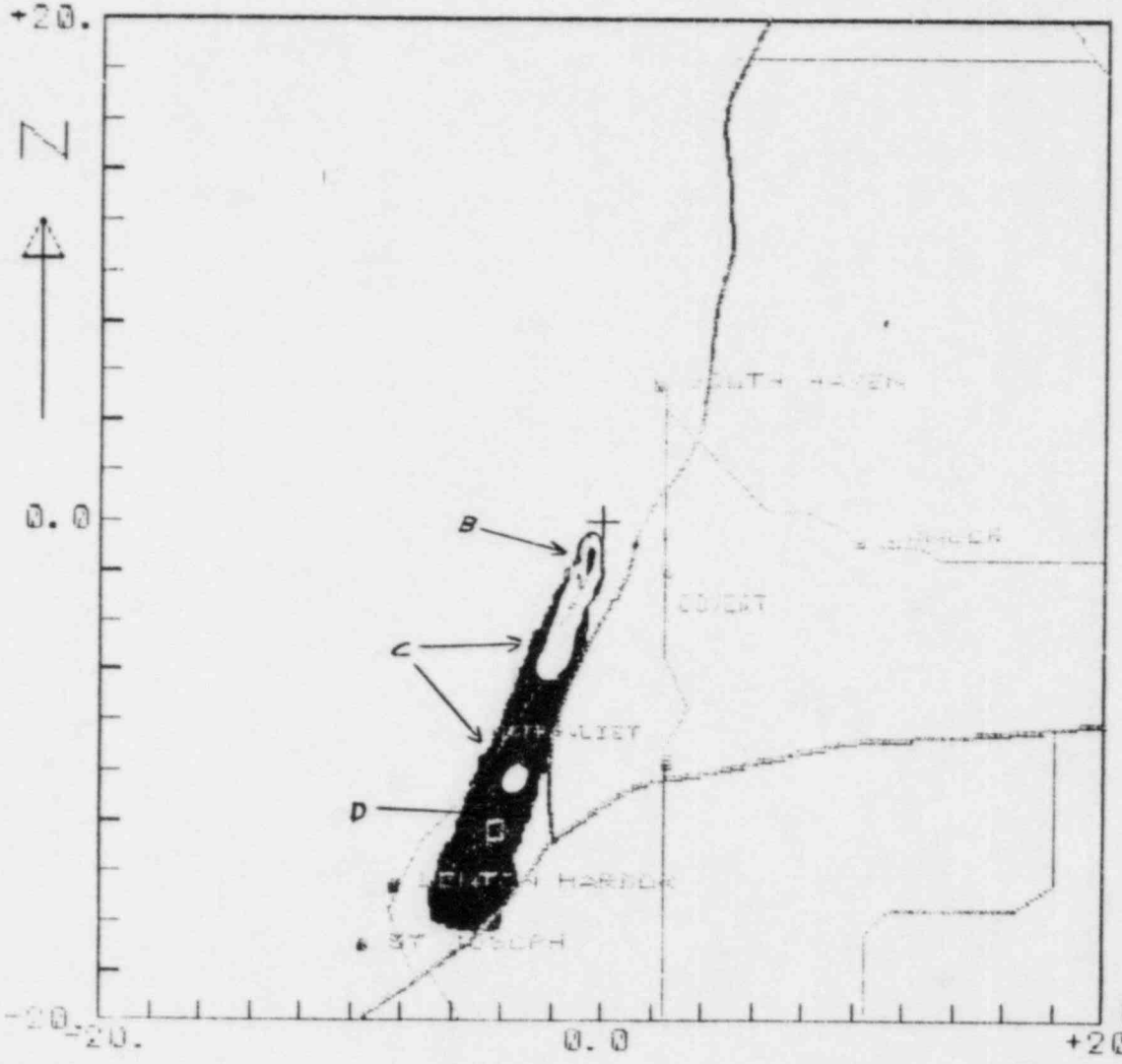
SEGMENT NO.: 10
TIME: 2HR 30MIN

ISOPLETH SCALE:
1.00E+03
1.00E+02
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
■ TOWN
□ AIRPORT
—— ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



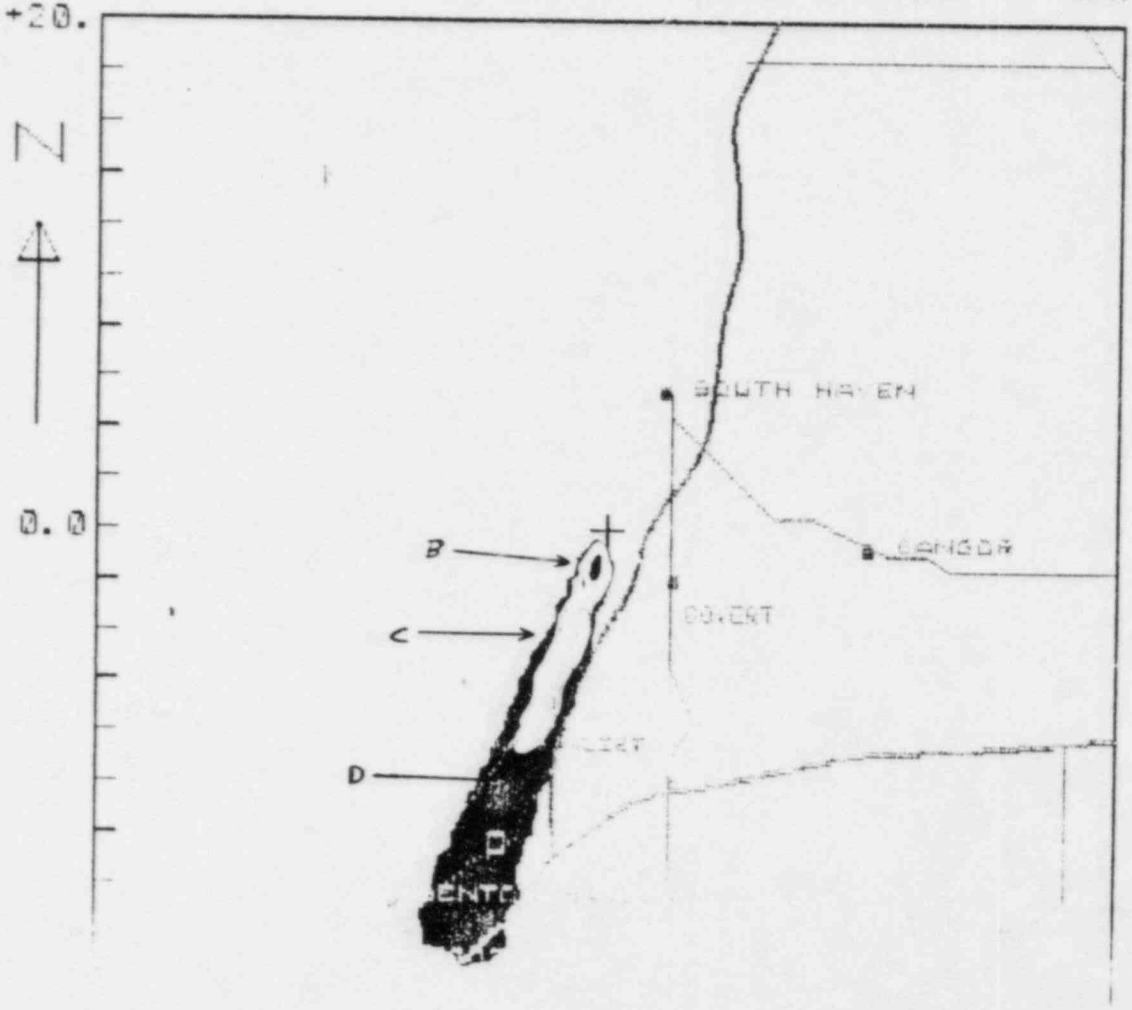
SEGMENT NO.: 11
TIME: 2HR 45MIN

ISOPLETH SCALE:
1.00E+03
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
TOWN
AIRPORT

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)

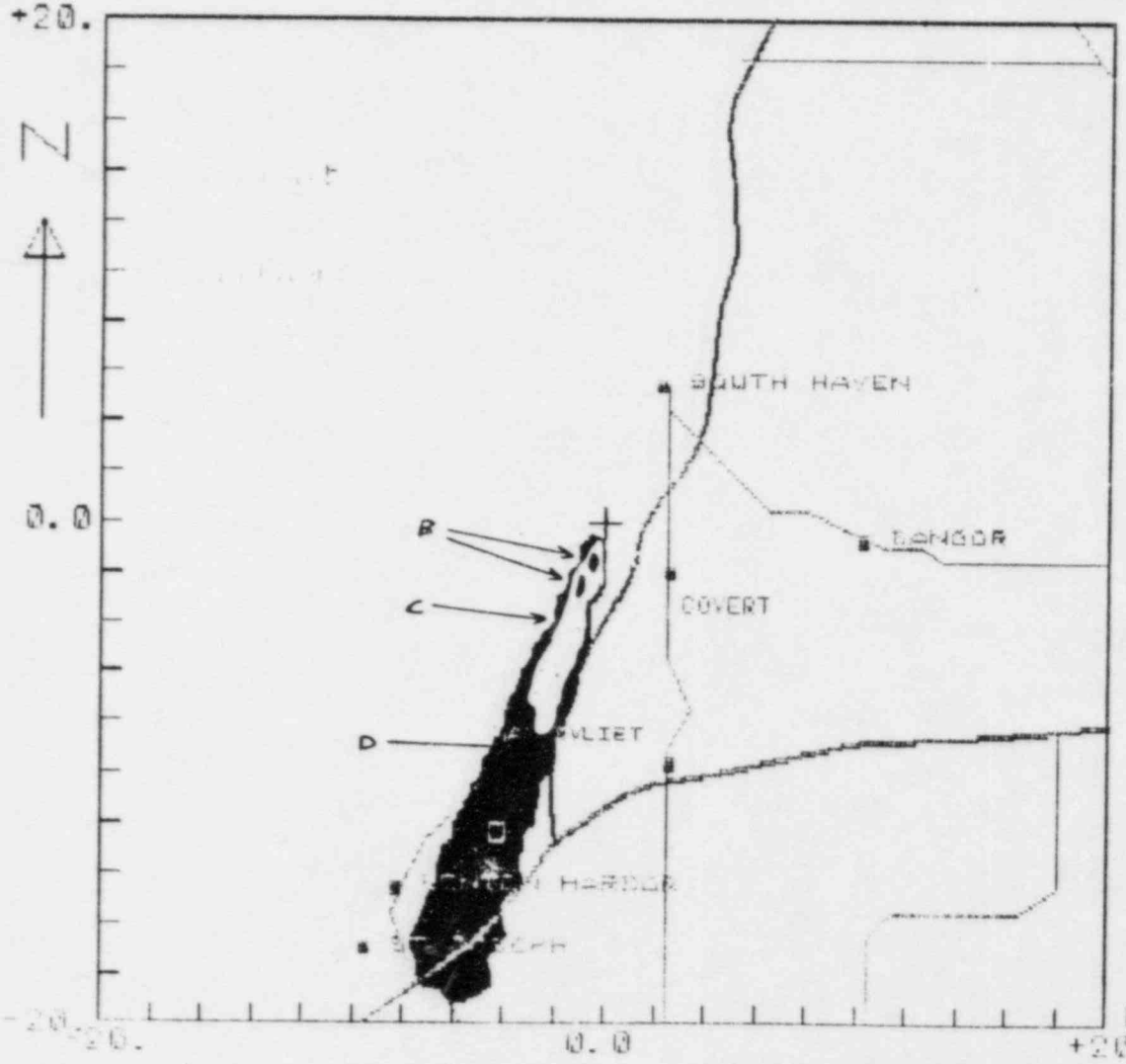


SEGMENT NO.: 12
TIME: 3HR 0MIN

ISOPLETH SCALE:
1.00E+03
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



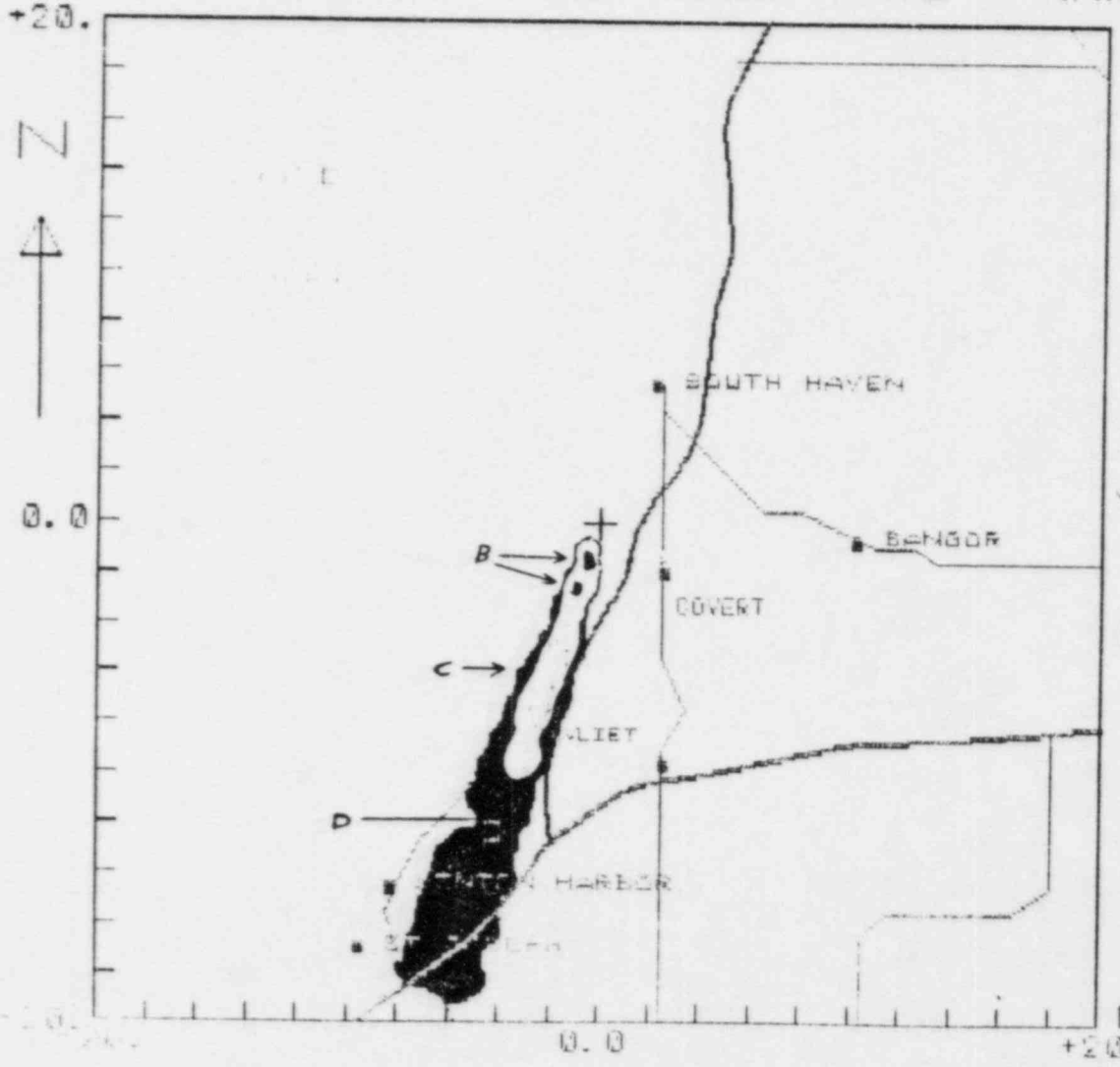
SEGMENT NO.: 13
TIME: 3HR 15MIN

ISOPLETH SCALE:
1.00E+03
1.00E+02
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
TOWN
AIRPORT
ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



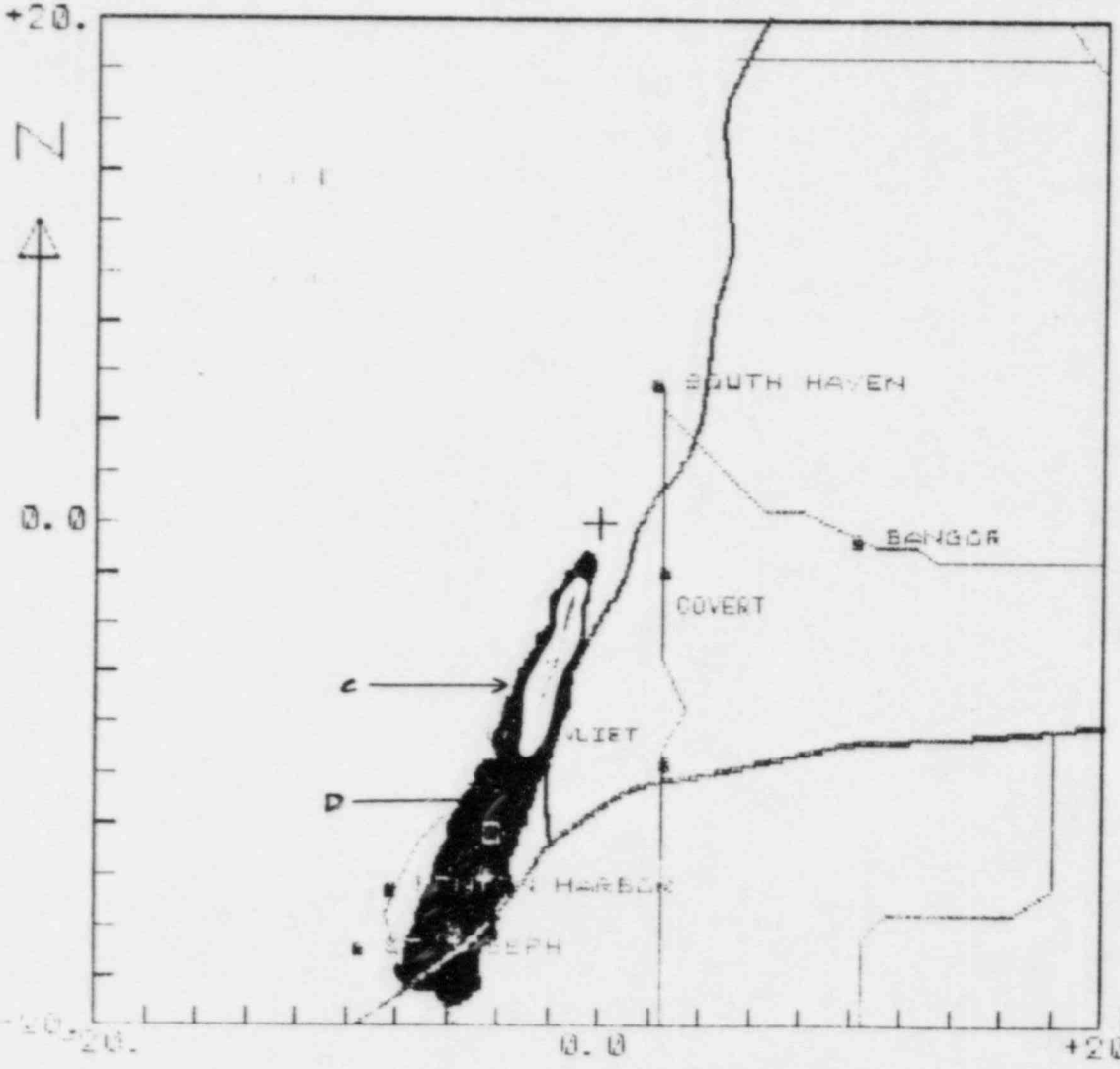
SEGMENT NO.: 14
TIME: 3HR 30MIN

ISOPLETH SCALE:
1.00E+03
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
TOWN
AIRPORT
ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



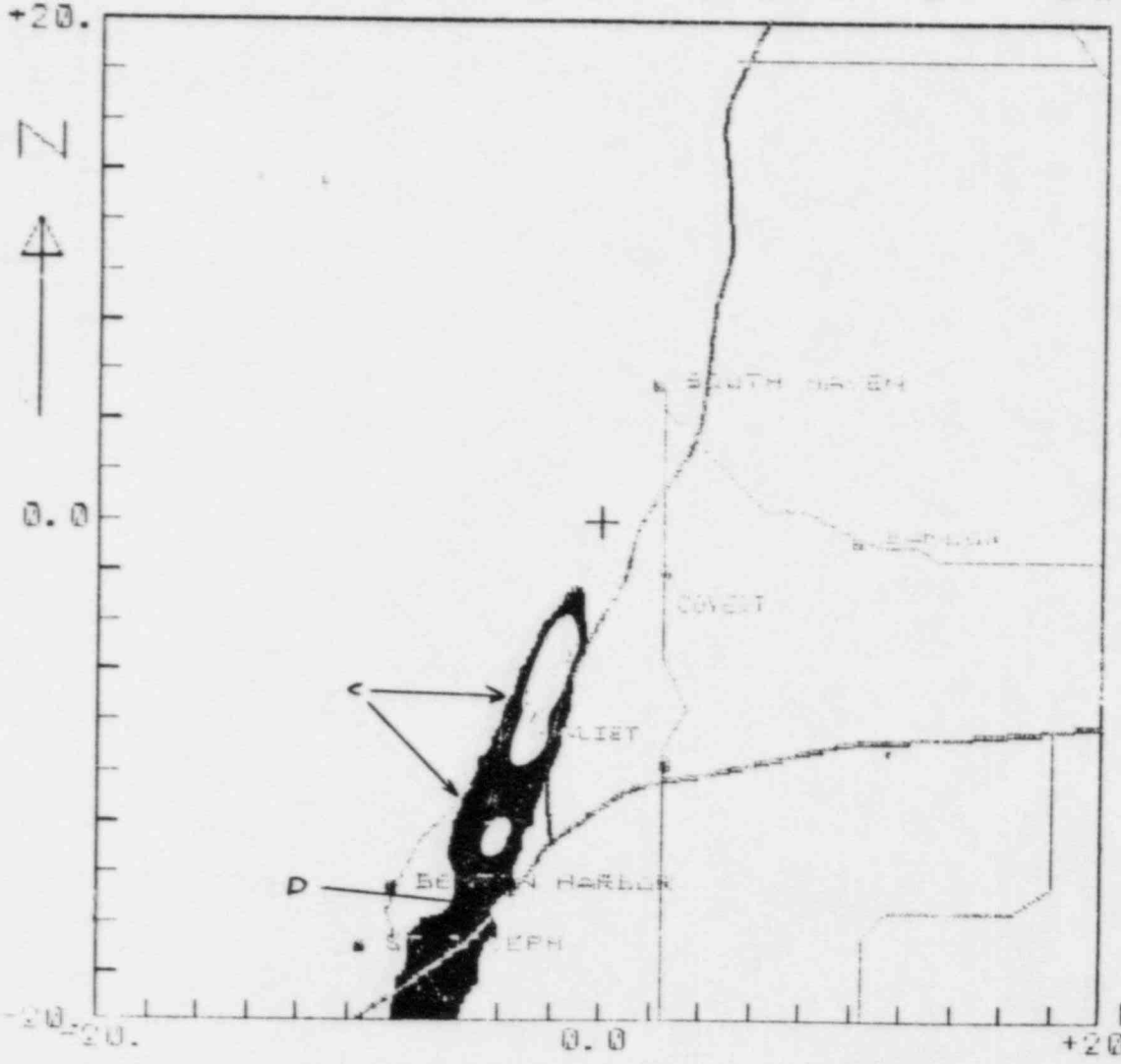
SEGMENT NO.: 15
TIME: 3HR 45MIN

ISOPLETH SCALE:
1.00E+03
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
■ TOWN
□ AIRPORT
—— ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



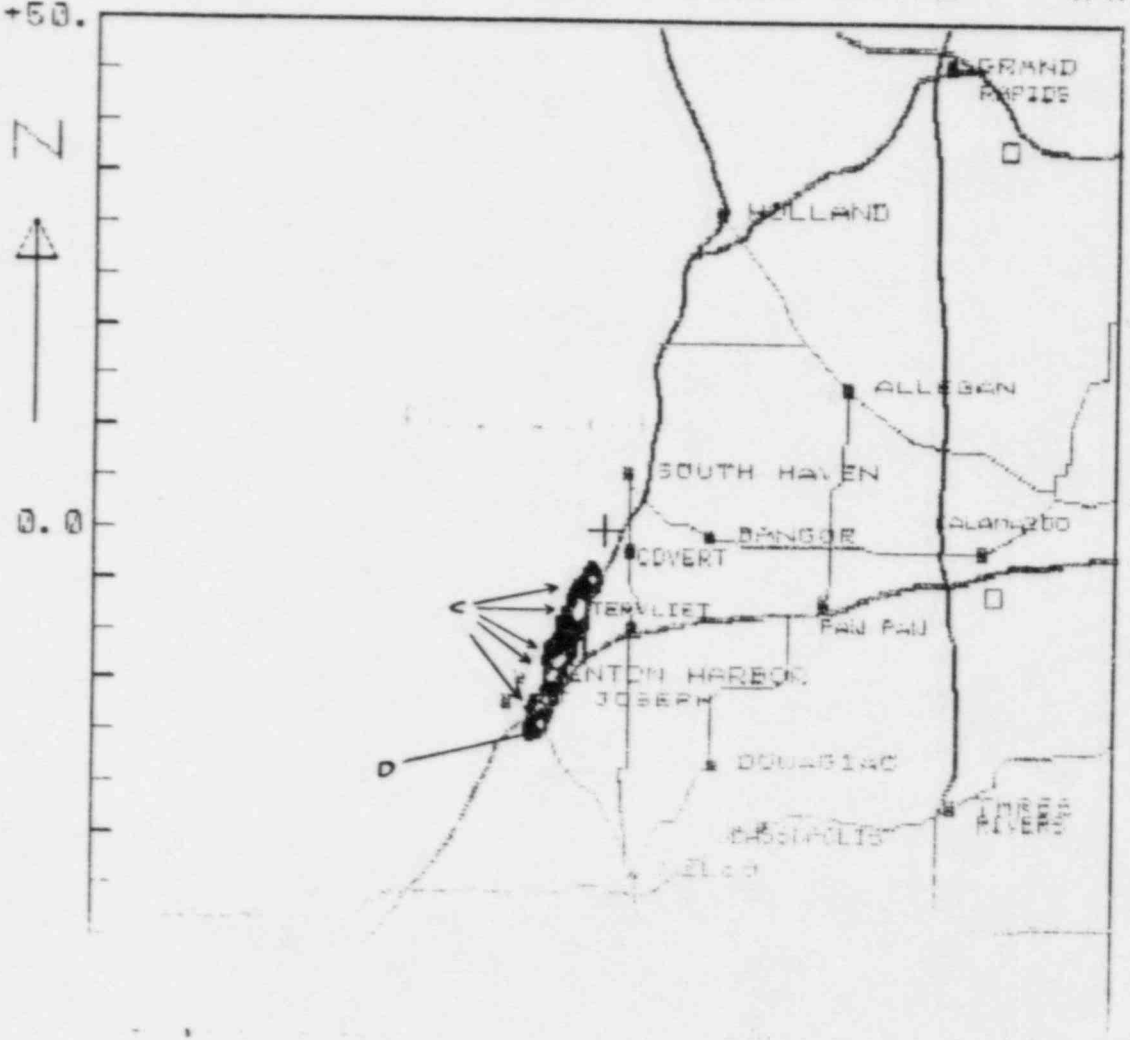
SEGMENT NO.: 16
TIME: 4HR 0MIN

ISOPLETH SCALE:
1.00E+03
[illegible]
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
▪ TOWN
□ AIRPORT
—— ROAD
[illegible]

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)

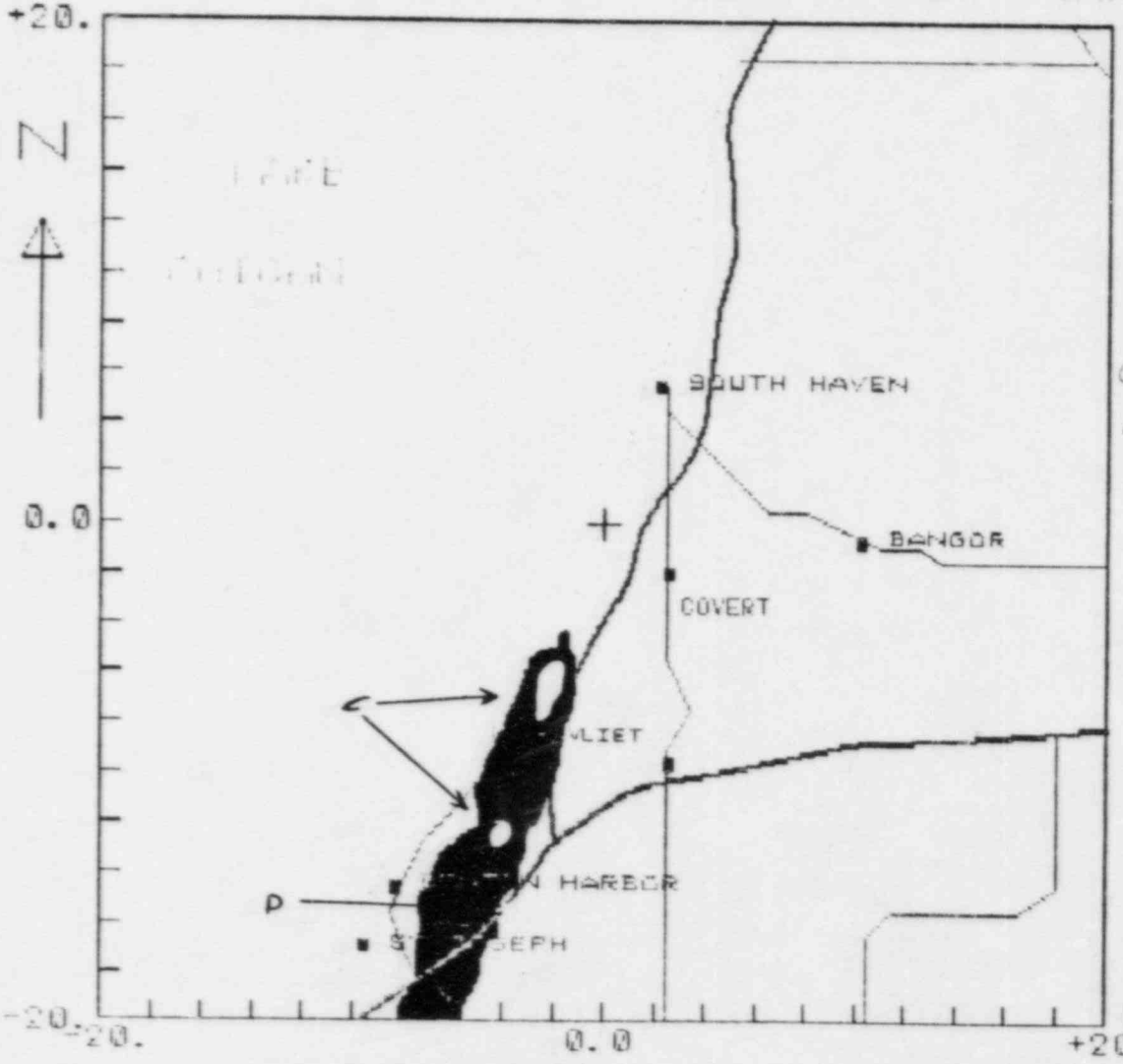


SEGMENT NO.: 16A
TIME: 4HR 0MIN

ISOPLETH SCALE:
A 1.00E+03
B 1.00E+02
C 1.00E+01
D 1.00E+00

MAP LEGEND:
+ PALISADES
TOWN
AIRPORT

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



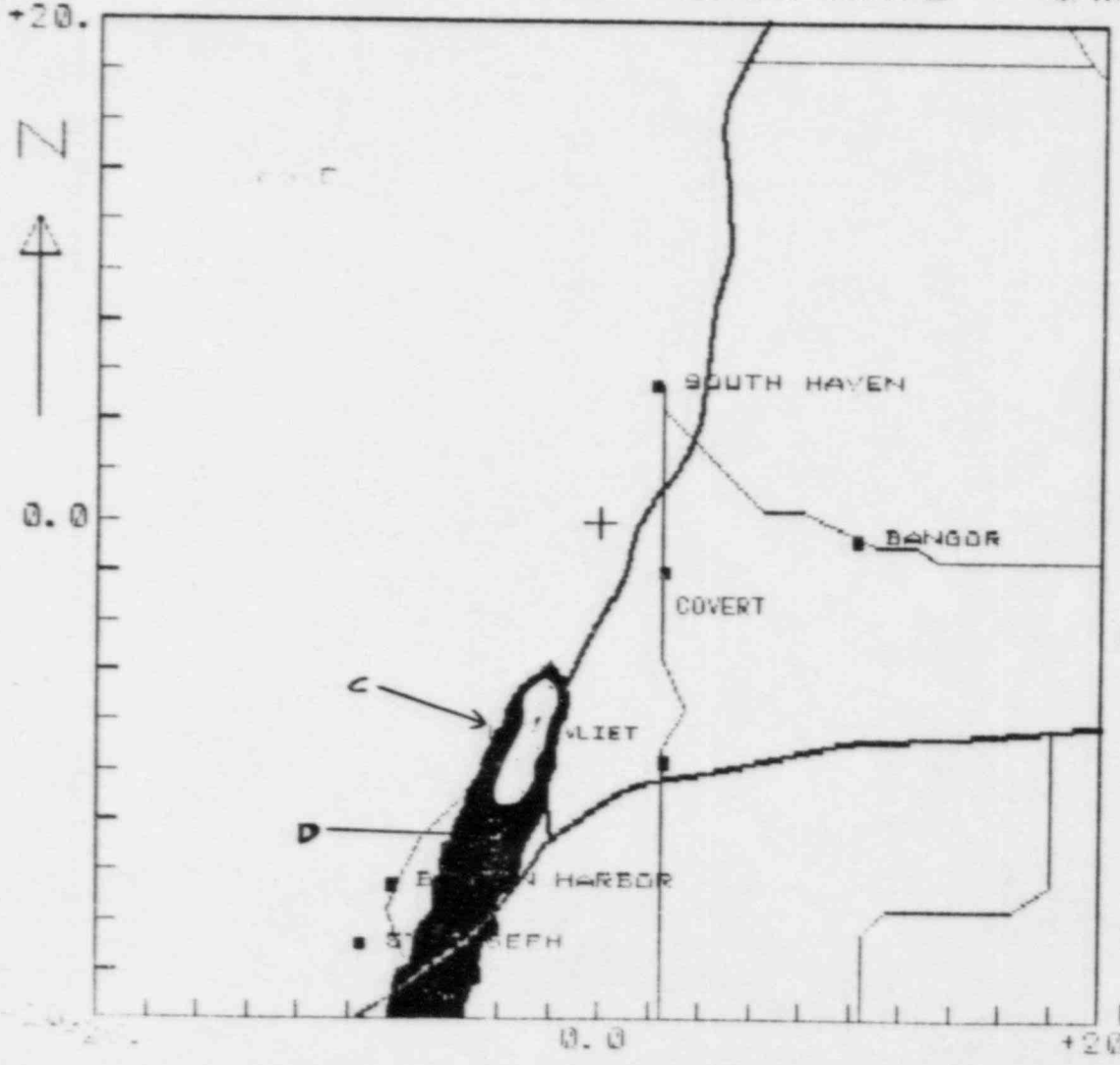
SEGMENT NO.: 17
TIME: 4HR 15MIN

ISOPLETH SCALE:
A 1.00E+03
B 1.00E+02
C 1.00E+01
D 1.00E+00

MAP LEGEND:
+ PALISADES
■ TOWN
□ AIRPORT
—— ROAD
RIVER/LAKE

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



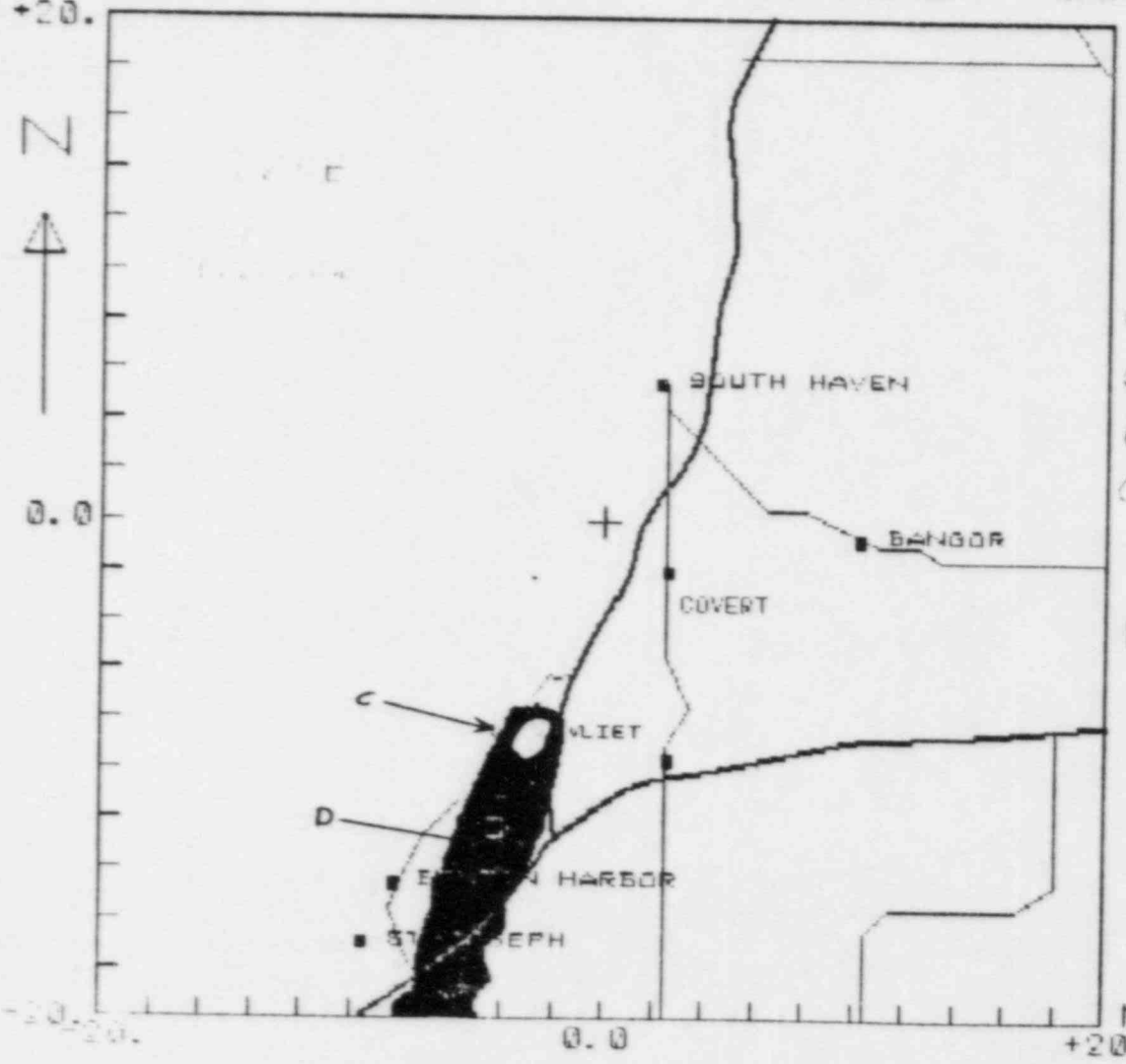
SEGMENT NO.: 18
TIME: 4HR 30MIN

ISOPLETH SCALE:
A 1.00E+03
B 1.00E+02
C 1.00E+01
D 1.00E+00

MAP LEGEND:
+ PALISADES
■ TOWN
□ AIRPORT
—— ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



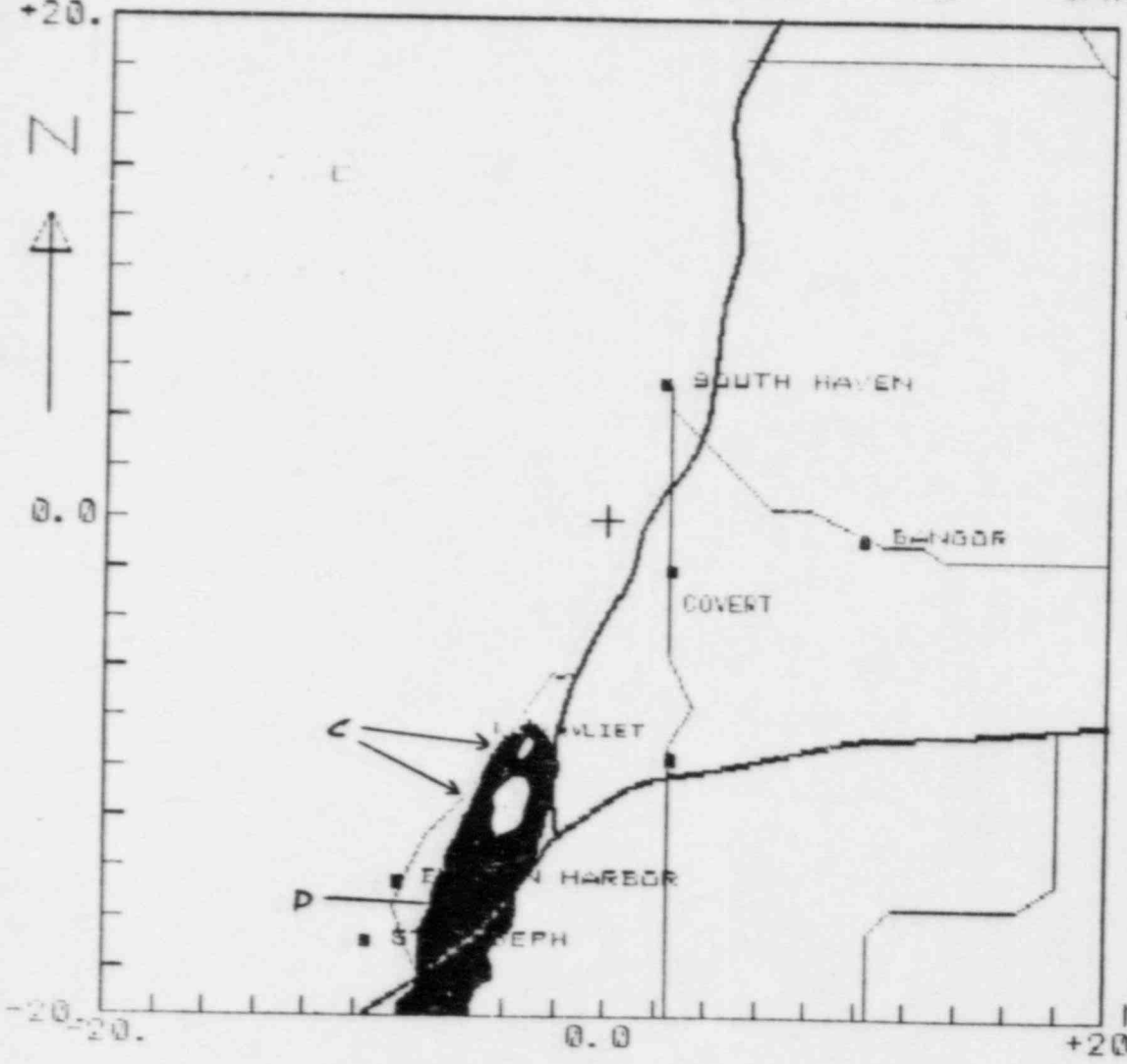
SEGMENT NO.: 19
TIME: 4HR 45MIN

ISOPLETH SCALE:
A 1.00E+03
B 1.00E+02
C 1.00E+01
D 1.00E+00

MAP LEGEND:
+ PALISADES
■ TOWN
□ AIRPORT
—— ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



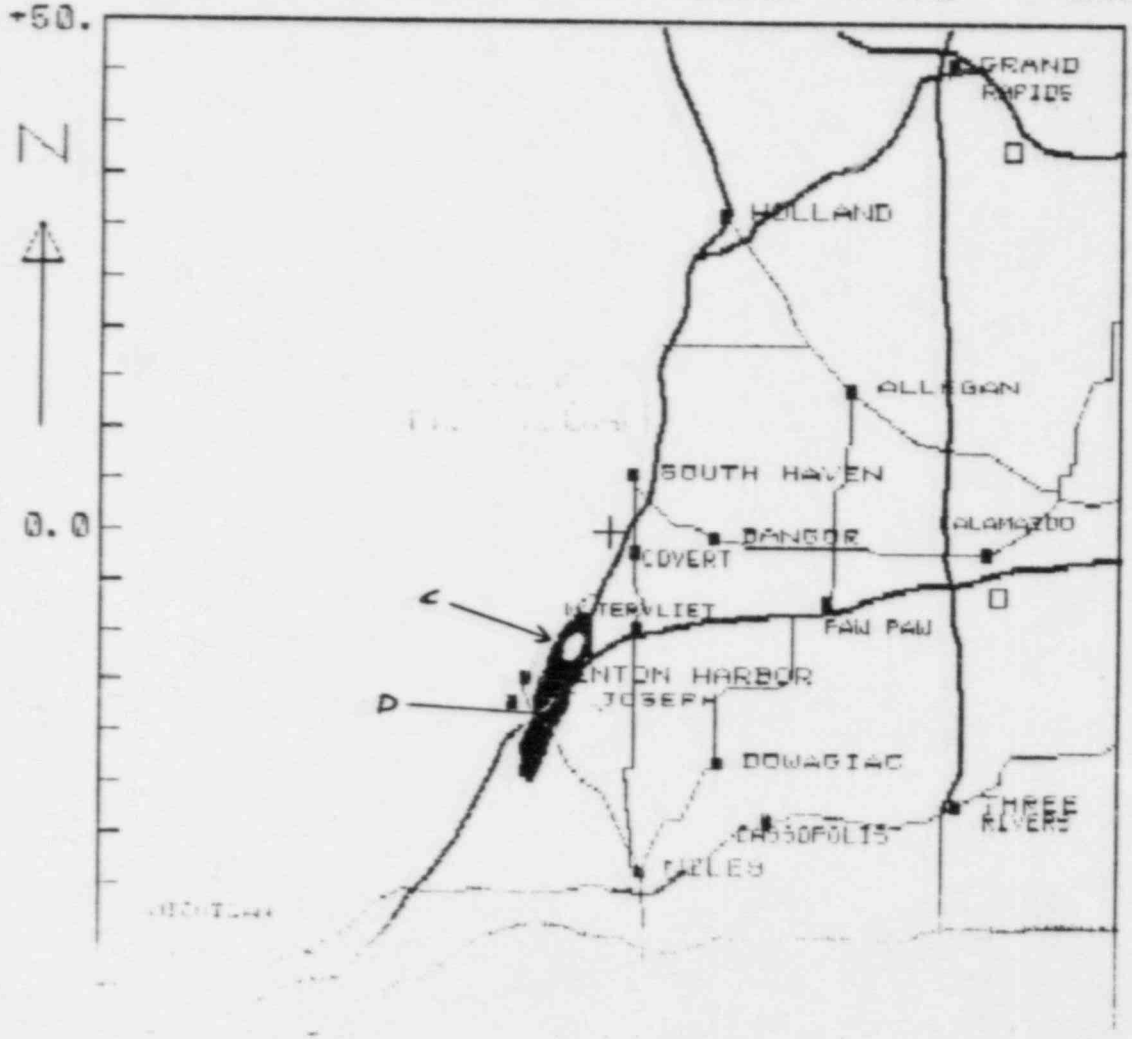
SEGMENT NO.: 20
TIME: 5HR 0MIN

ISOPLETH SCALE:
A 1.00E+03
B 1.00E+02
C 1.00E+01
D 1.00E+00

MAP LEGEND:
+ PALISADES
■ TOWN
□ AIRPORT
—— ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



SEGMENT NO.: 20A

TIME: 5HR 0MIN

ISOPLETH SCALE:

A 1.00E+03

B 1.00E+02

C 1.00E+01

D 1.00E+00

MAP LEGEND:

+ PALISADES

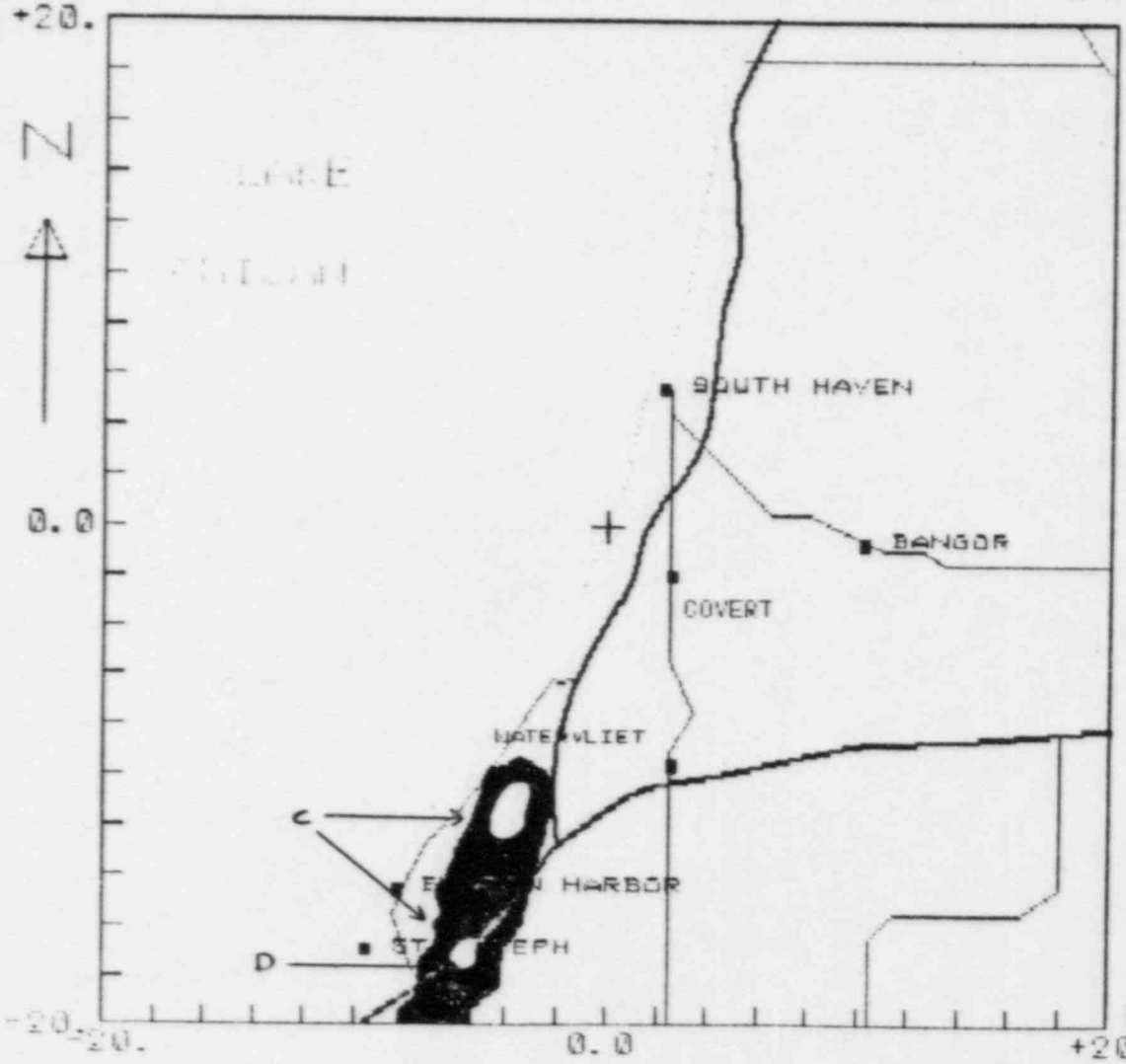
■ TOWN

□ AIRPORT

—— ROAD

~~~ RIVER
~~~

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



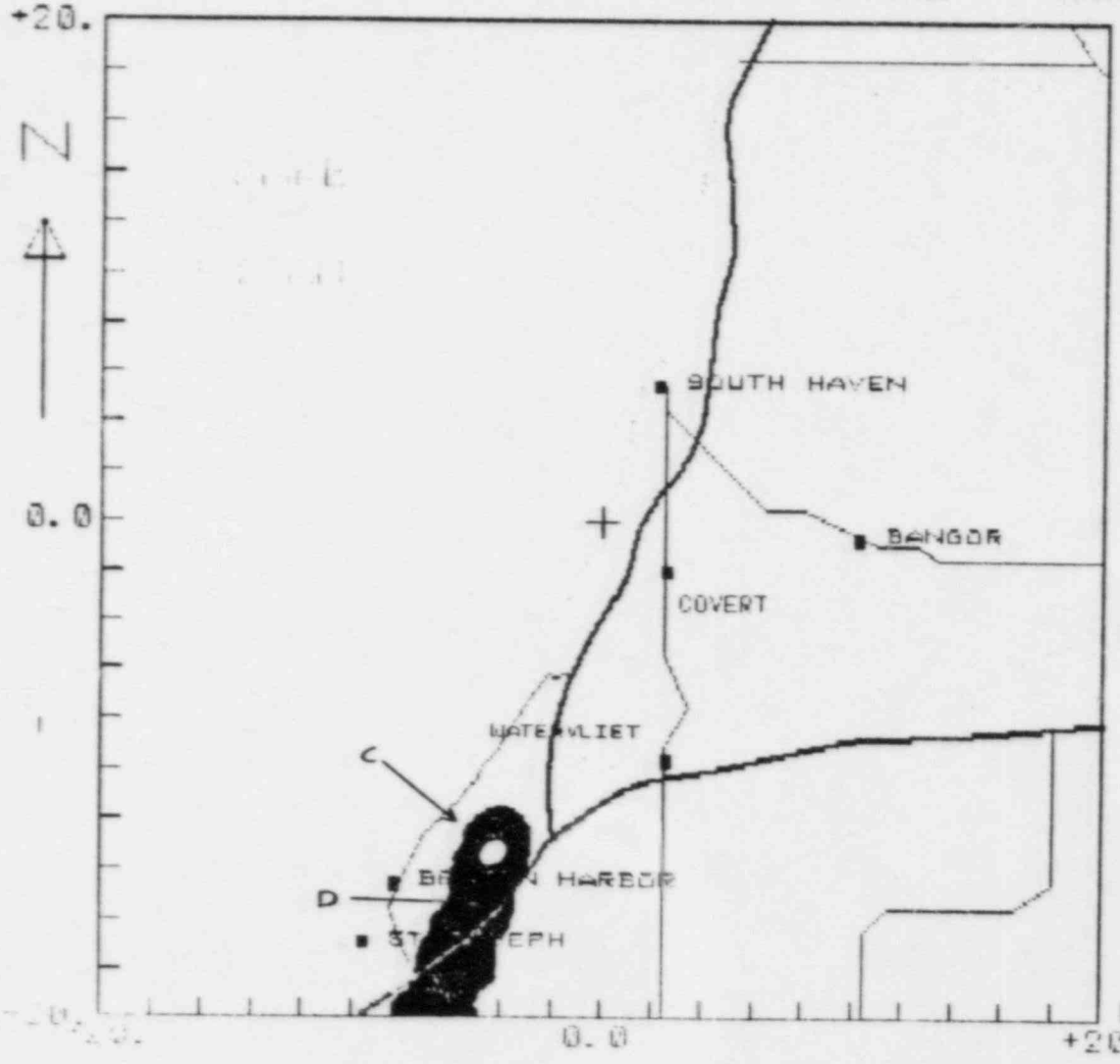
SEGMENT NO.: 21
TIME: 5HR 15MIN

ISOPLETH SCALE:
A 1.00E+03
B 1.00E+02
C 1.00E+01
D 1.00E+00

MAP LEGEND:
+ PALISADES
■ TOWN
□ AIRPORT
—— ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



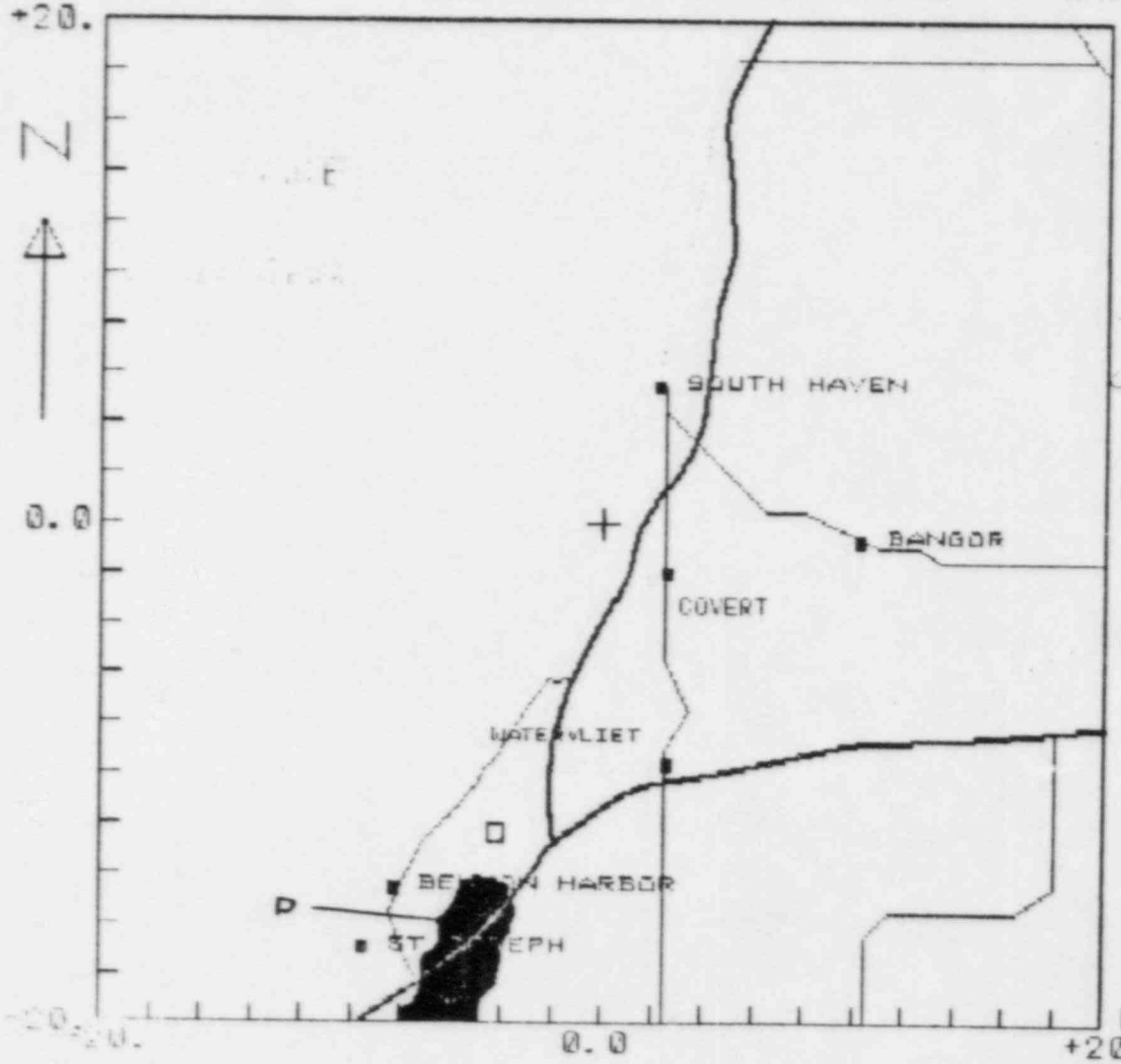
SEGMENT NO.: 22
TIME: 5HR 30MIN

ISOPLETH SCALE:
A 1.00E+03
B 1.00E+02
C 1.00E+01
D 1.00E+00

MAP LEGEND:
+ PALISADES
■ TOWN
□ AIRPORT
—— ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



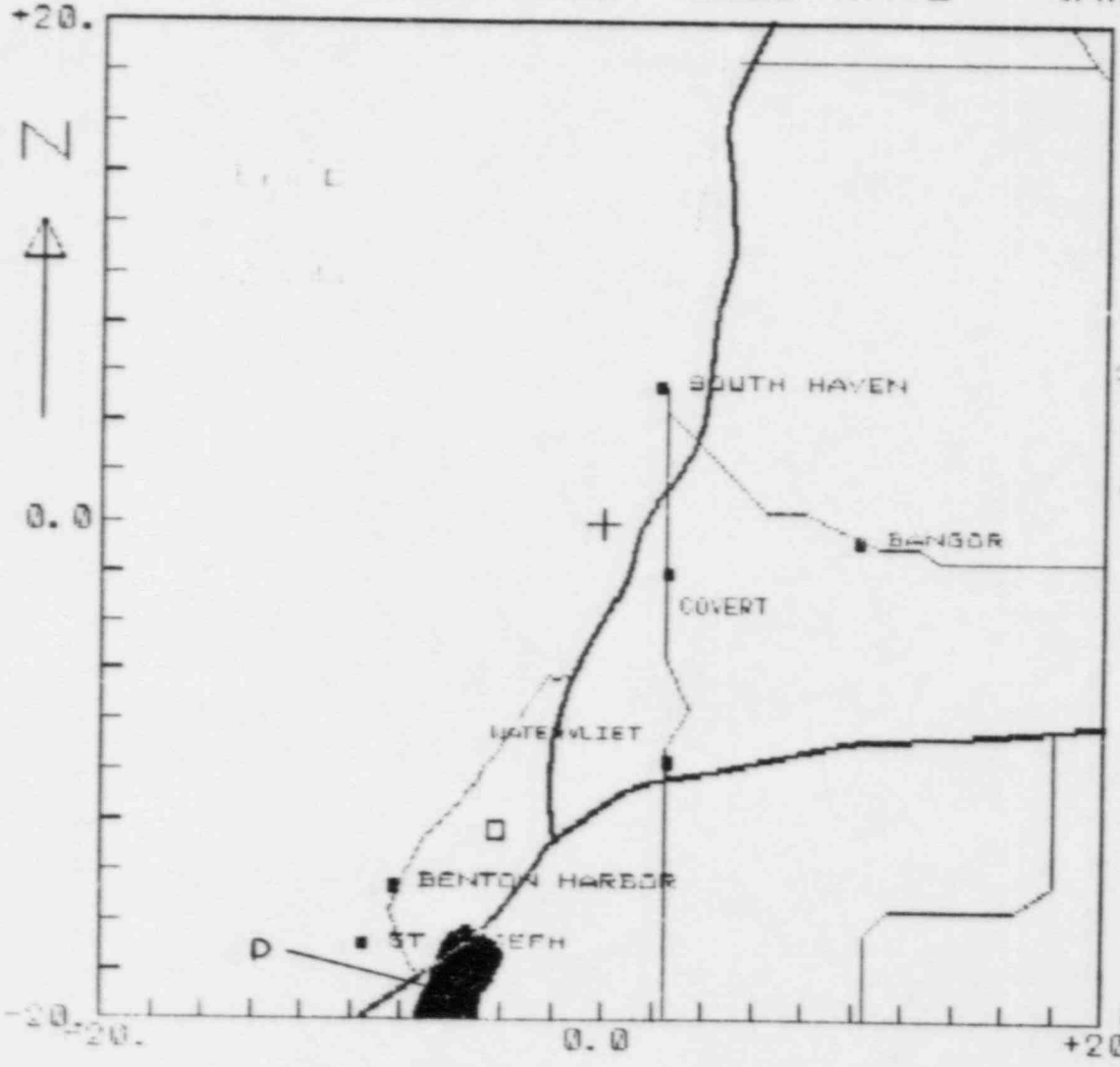
SEGMENT NO.: 23
TIME: 5HR 45MIN

ISOPLETH SCALE:
1.00E+03
1.00E+02
1.00E+01
1.00E+00

MAP LEGEND:
+ PALISADES
■ TOWN
□ AIRPORT
—— ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



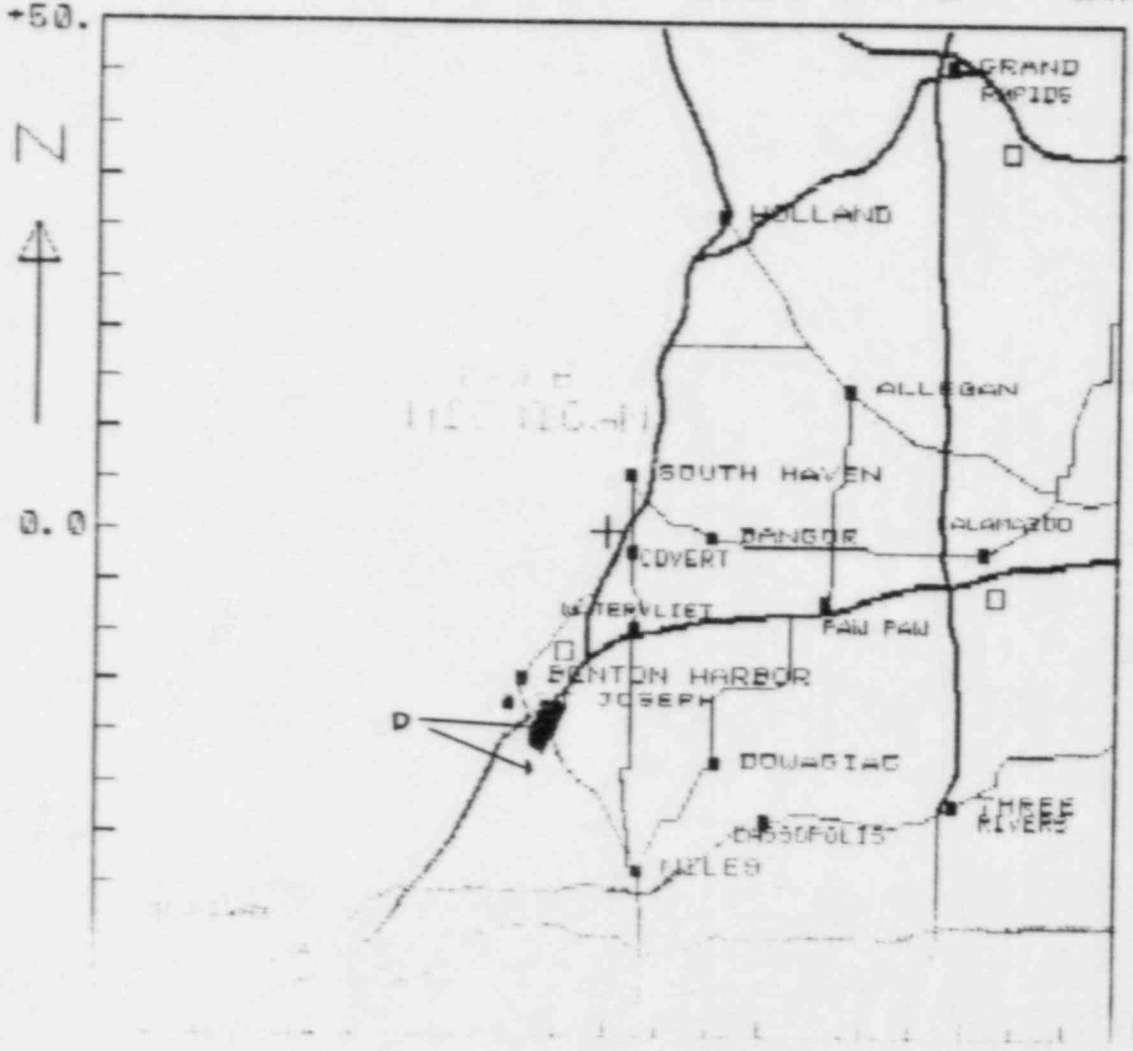
SEGMENT NO.: 24
TIME: 6HR 0MIN

ISOPLETH SCALE:
A 1.00E+03
B 1.00E+02
C 1.00E+01
D 1.00E+00

MAP LEGEND:
+ PALISADES
■ TOWN
□ AIRPORT
—— ROAD

MAP SCALE IN MILES

CURRENT WHOLE BODY DOSE RATE (MREM/HR)



SEGMENT NO.: 24A

TIME: 6HR 0MIN

ISOPLETH SCALE:

1.00E+03

1.00E+02

1.00E+01

1.00E+00

MAP LEGEND:

+ PALISADES

■ TOWN

□ AIRPORT

OFFSITE RAD DATA INSTRUCTIONS

1. NOTE: DUE TO A LAST-MINUTE CHANGE IN THE SCENARIO, ALL VALUES OF CPM_I MUST BE DIVIDED BY 100. IF THE VALUE OF CPM_I/100 IS LESS THAN 50, THE VALUE OF CPM_I SHOULD BE REPORTED AS 50 CPM.

2. For each 15-minute time interval following the beginning of the release, 3 maps are provided. These maps display:

   a. 0-0.5 mi $\quad \frac{DR_{WB}/CPM_I}{CPM_S}$

   b. 0-5 mi $\quad \frac{DR_{WB}/CPM_I}{CPM_S}$

   c. 5-10 mi $\quad \frac{DR_{WB}/CPM_I}{CPM_S}$

   Where: DR_{WB} = Wholebody dose rate at 3 feet measured with the window closed, $\frac{mR}{hr}$

   CPM_I = Counts per minute from an iodine filter used to take a $5\ ft^3$ air sample, cpm or K cpm

   CPM_S = Counts per minute from a 100 cm^2 smear, cpm or K cpm

The format of the displayed data is:

$$\begin{matrix} DR_{WB}/CPM_I \\ CPM_S \end{matrix}$$

or

$$\begin{matrix} CPM_S \\ DR_{WB}/CPM_I \end{matrix}$$

The data separated by the slash are DR_{WB} and CPM_I. The data value above, below, next to, etc, is CPM_S.

On the maps, Bkg indicates normal background for surveys and counts on filters.

3. The following rules are to be used to supply other required data (unless otherwise noted on maps).

   a. Open Window = 1.25 x closed window

   b. 3-Inch Dose Rate = 3-foot dose rate (when in plume)

   c. Particulate Filter CPM = Iodine filter cpm ÷ 10

   d. mR/hr from smears, filters, etc ~ cpm ÷ 5,000

   e. For each minute "in the plume," contaminate vehicles, people, equipment with ~ 100 cpm/100 cm^2

f. For air samples other than 5-cubic feet, ratio the provided value, appropriately

(Example: 1/2 ft^3 sample → 0.5/5 → 0.10 x CPM_I, etc)

Do the same for smears other than 100 cm^2 ($NCPM_S$).

g. EMT exposure is estimated from the dose rates and time in the plume.

h. When EMT members are counting samples, be sure to consider the potential for elevated background due to other samples.

i. Instrument ranges have been assumed to be:

Count Rate Max = 500 K cpm

Min = Bkg

Dose Rate Max = 50,000 mR/hr

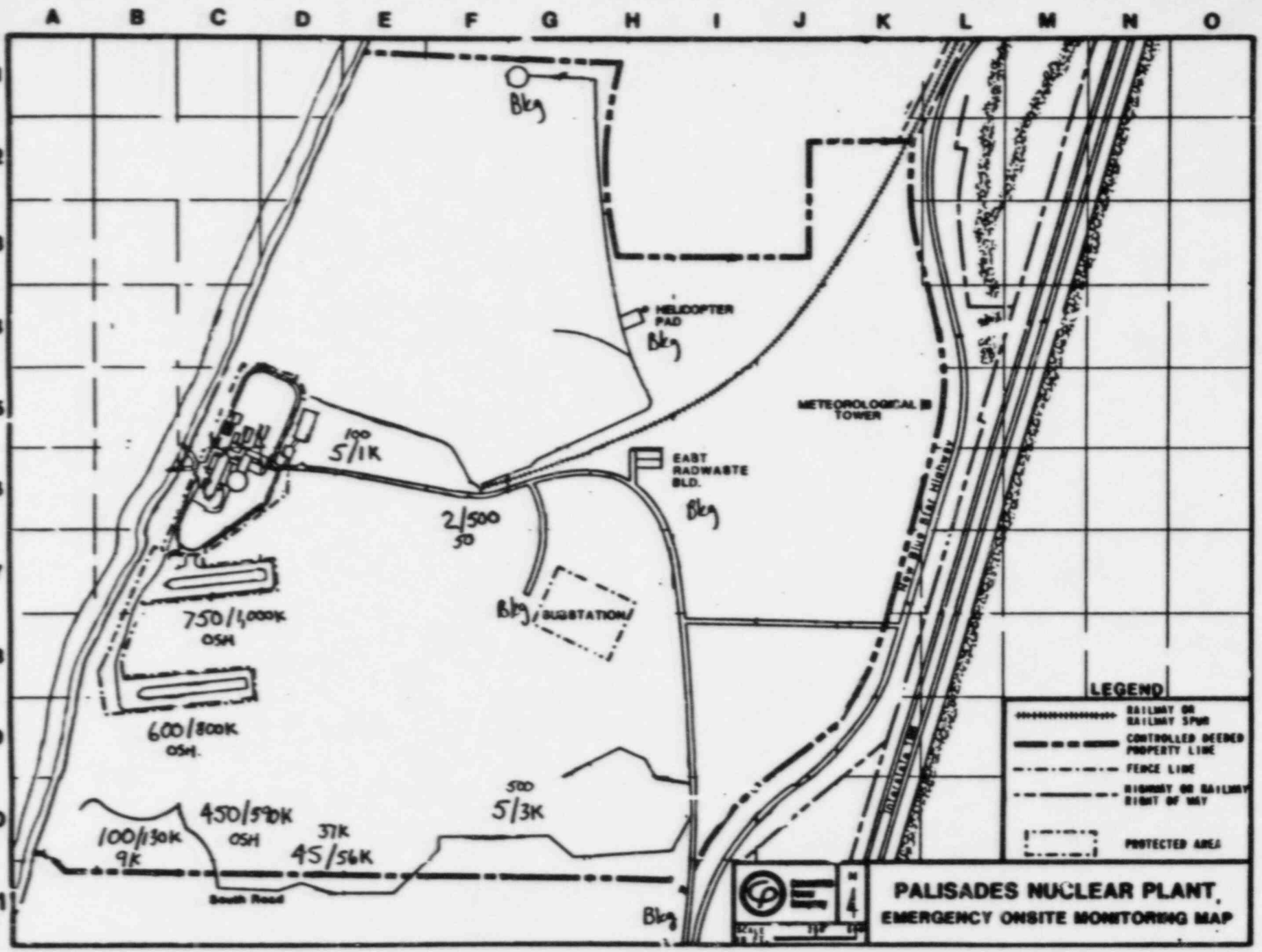
Min = 0.5 mR/hr

j. Normal background as measured by the EMT instruments is: 50 cpm and 0.1 mR/hr.

k. Frisker response to plume is ~ mR/hr x 5,000.

l. Ground frisk is only after the plume blows away and is CPM_S (smear counts) ÷ 10 at 1/2 inch and CPM_S ÷ 50 at 3 feet from the ground.

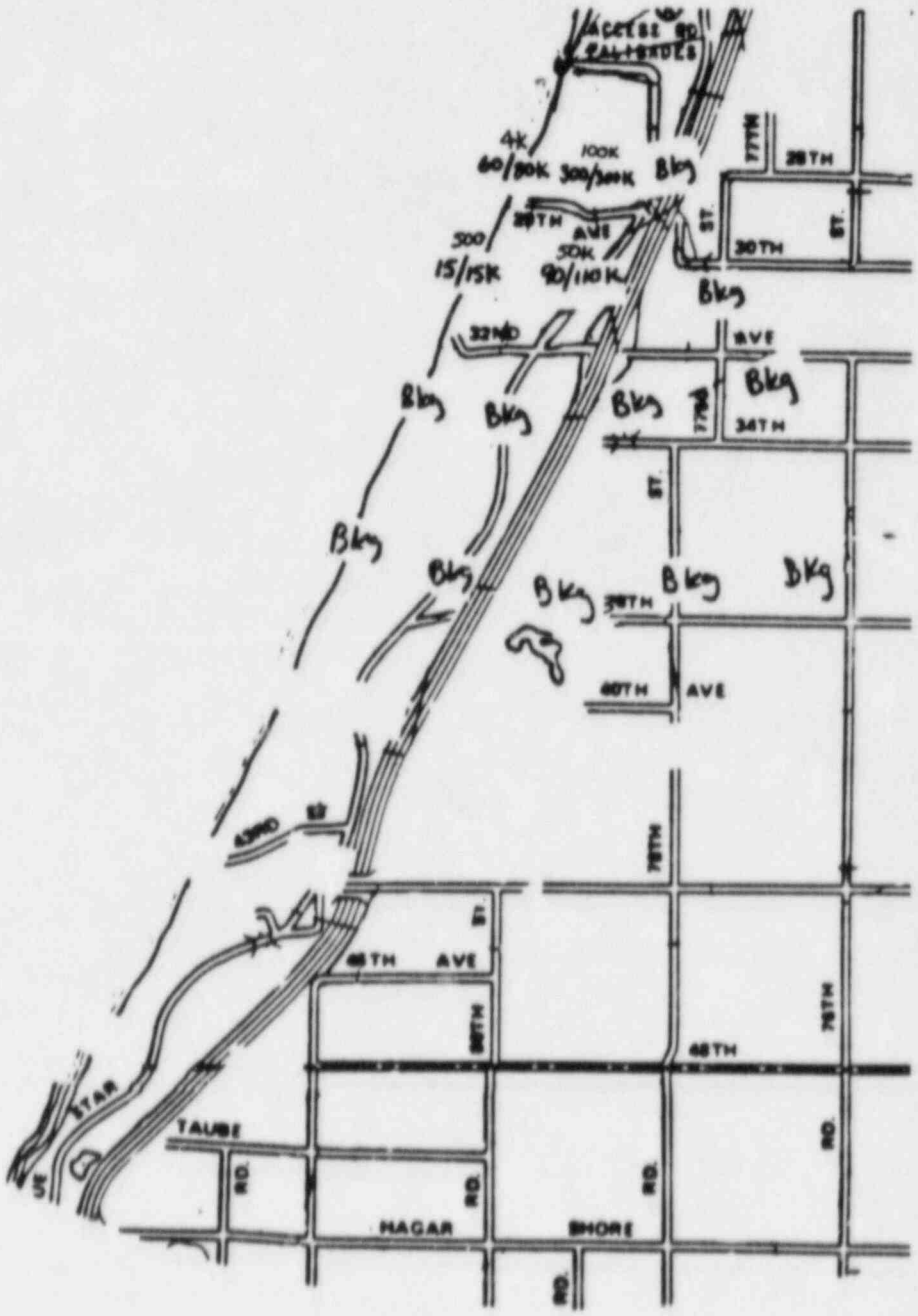
Between 0800 and 1045, all offsite radiological conditions are normal background.



**** TIME: 1045 - 11:00

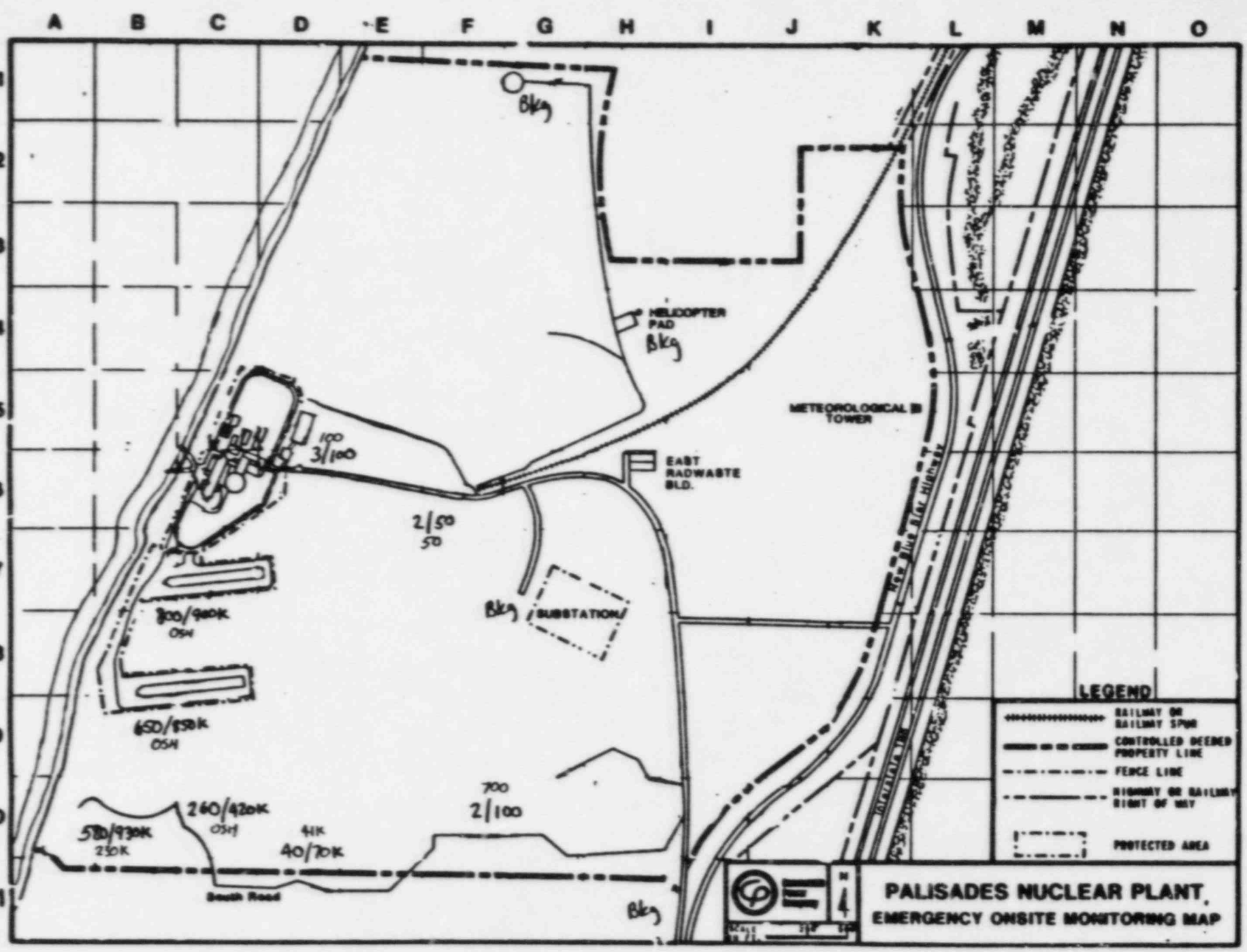
0 - 5MILE EMT MAP

TIME : 10:45 - 11:00



5 - 10 MILE EMT MAP

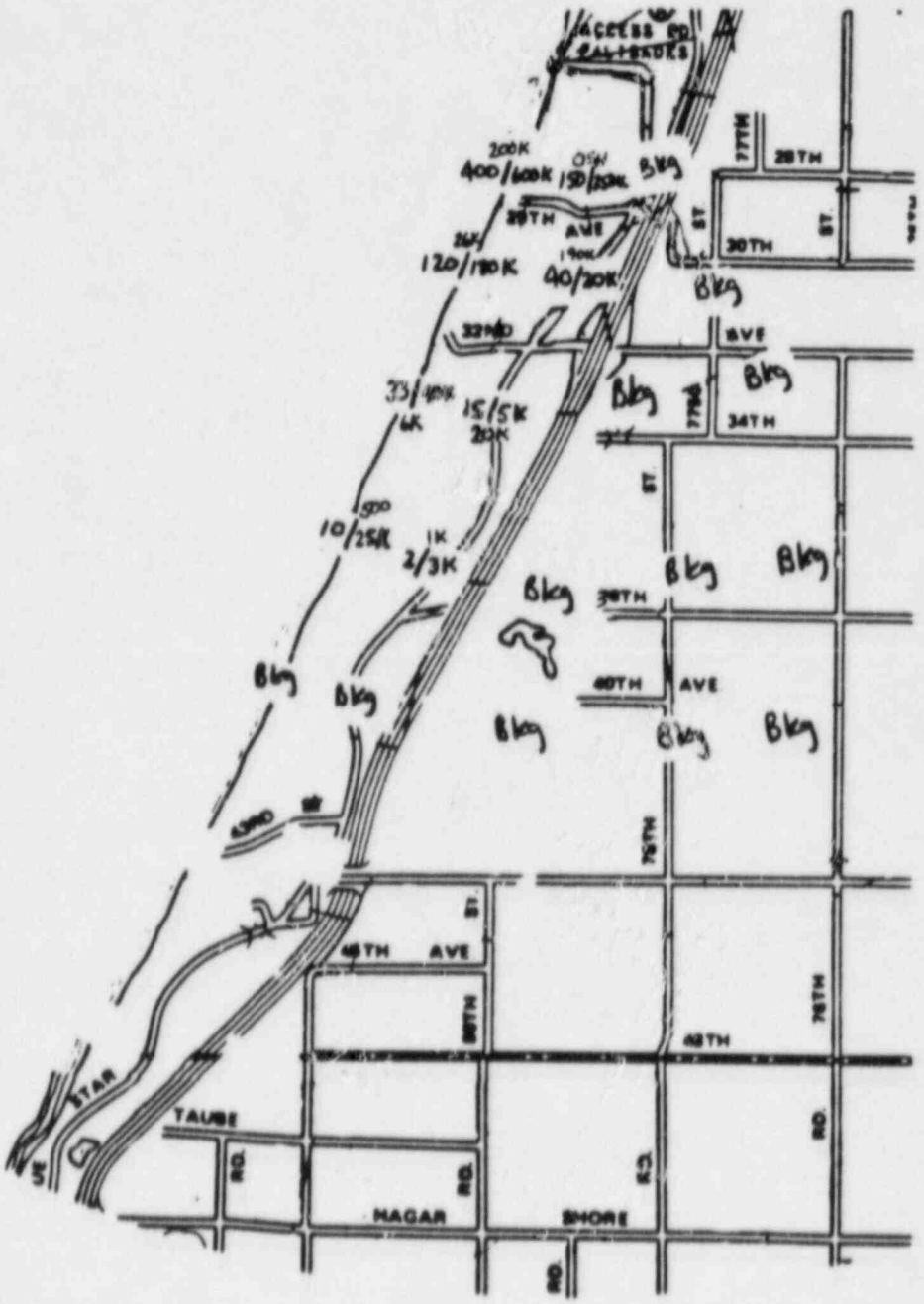
TIME: 10:45 - 11:00



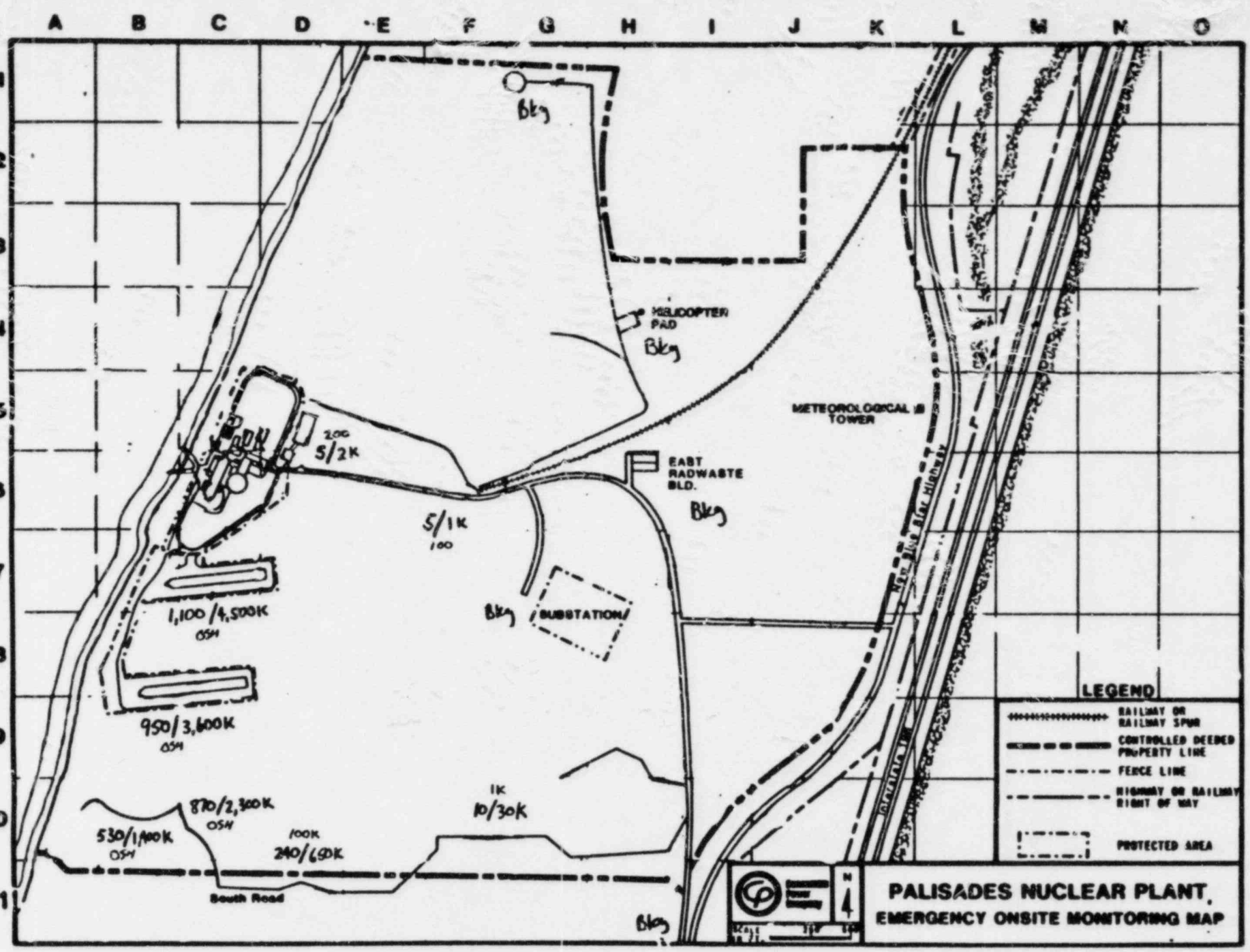
TIME: 11:00 - 11:15

O - SMILE EMT MAP

TIME: 11:00 - 11:15



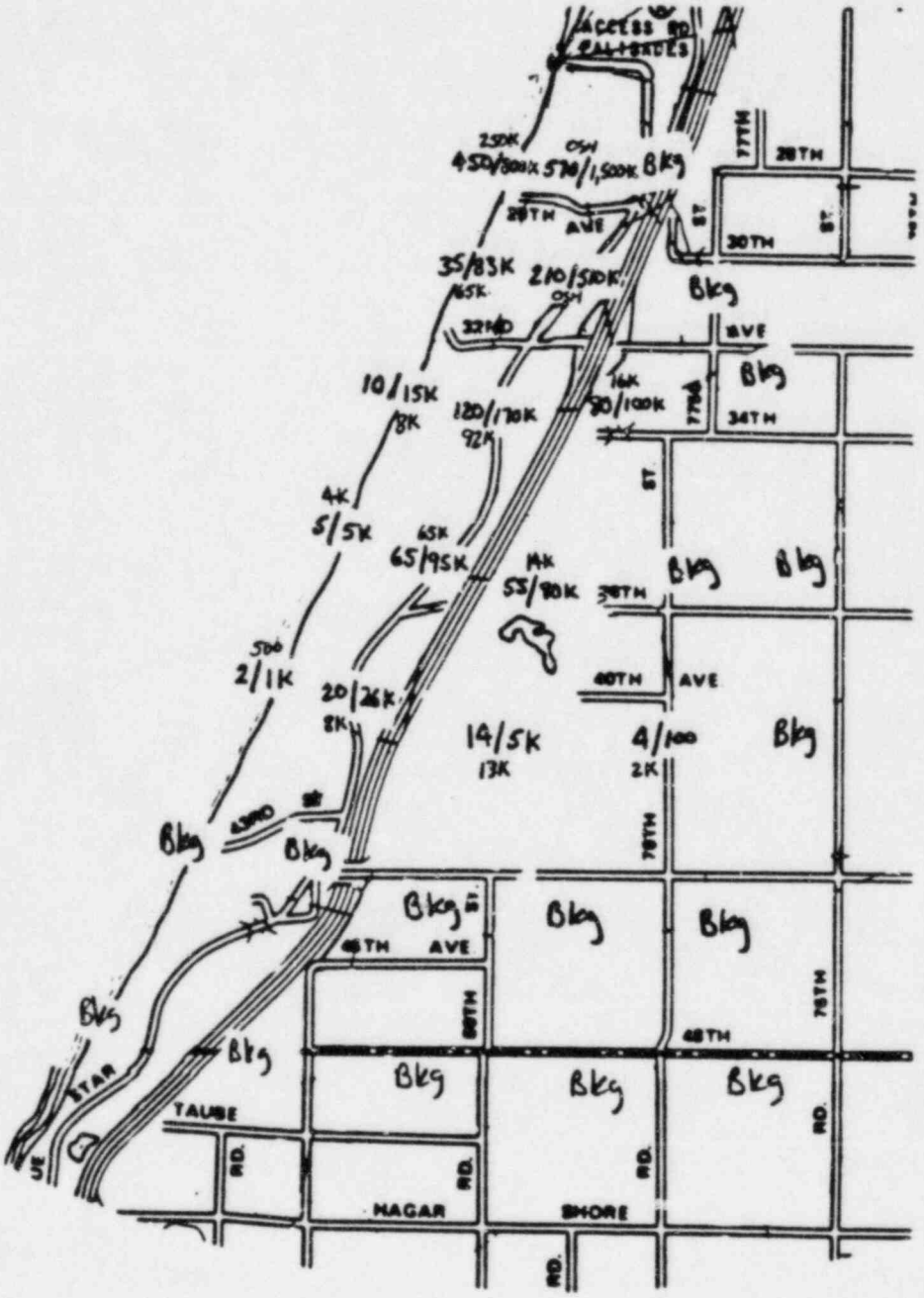
5 - 10 MILE EMT MAP



···· TIME 11:15 - 11:30

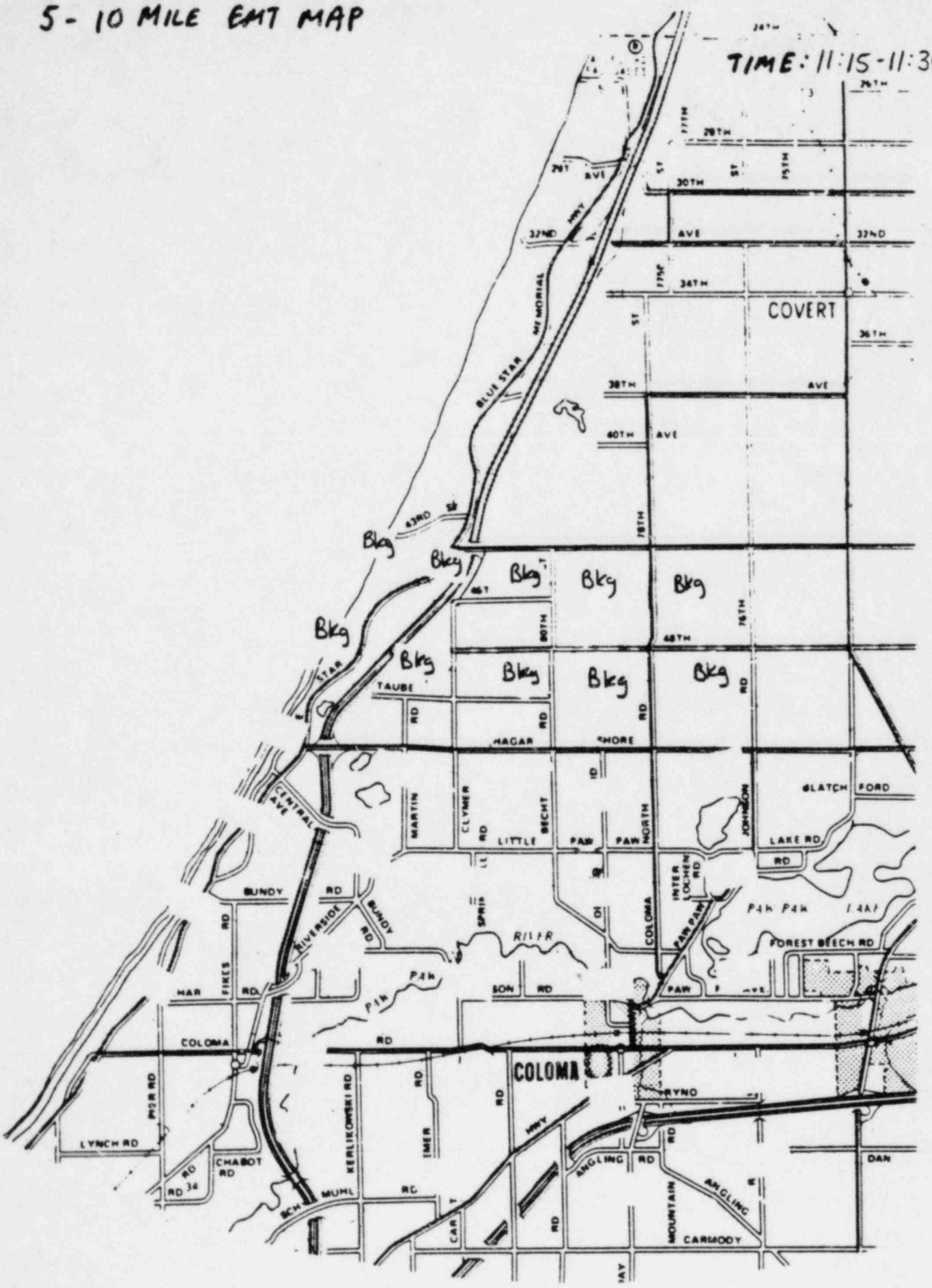
0 - 5MILE EMT MAP

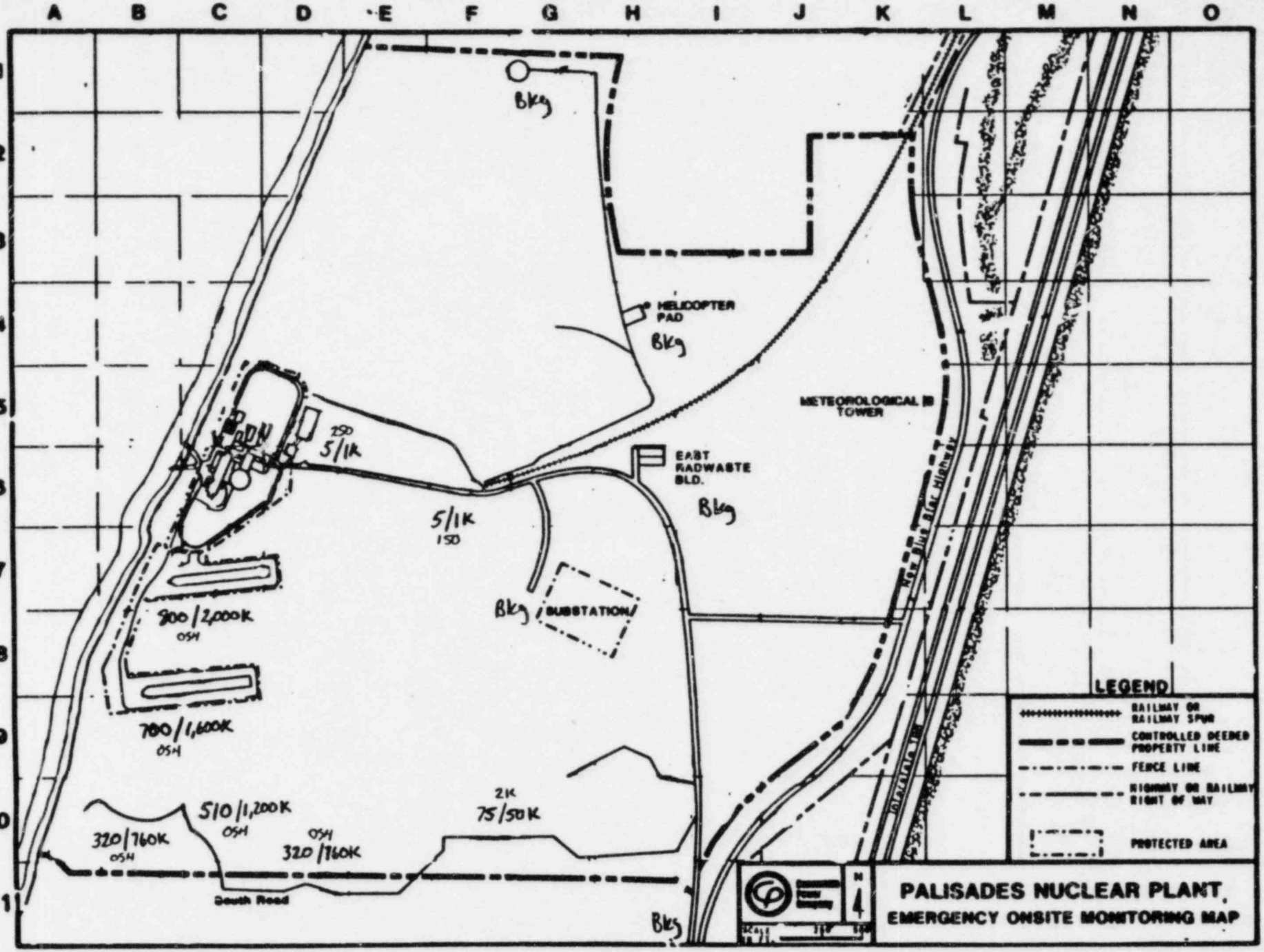
TIME: 11:15 - 11:30



5 - 10 MILE EMT MAP

TIME: 11:15 - 11:30

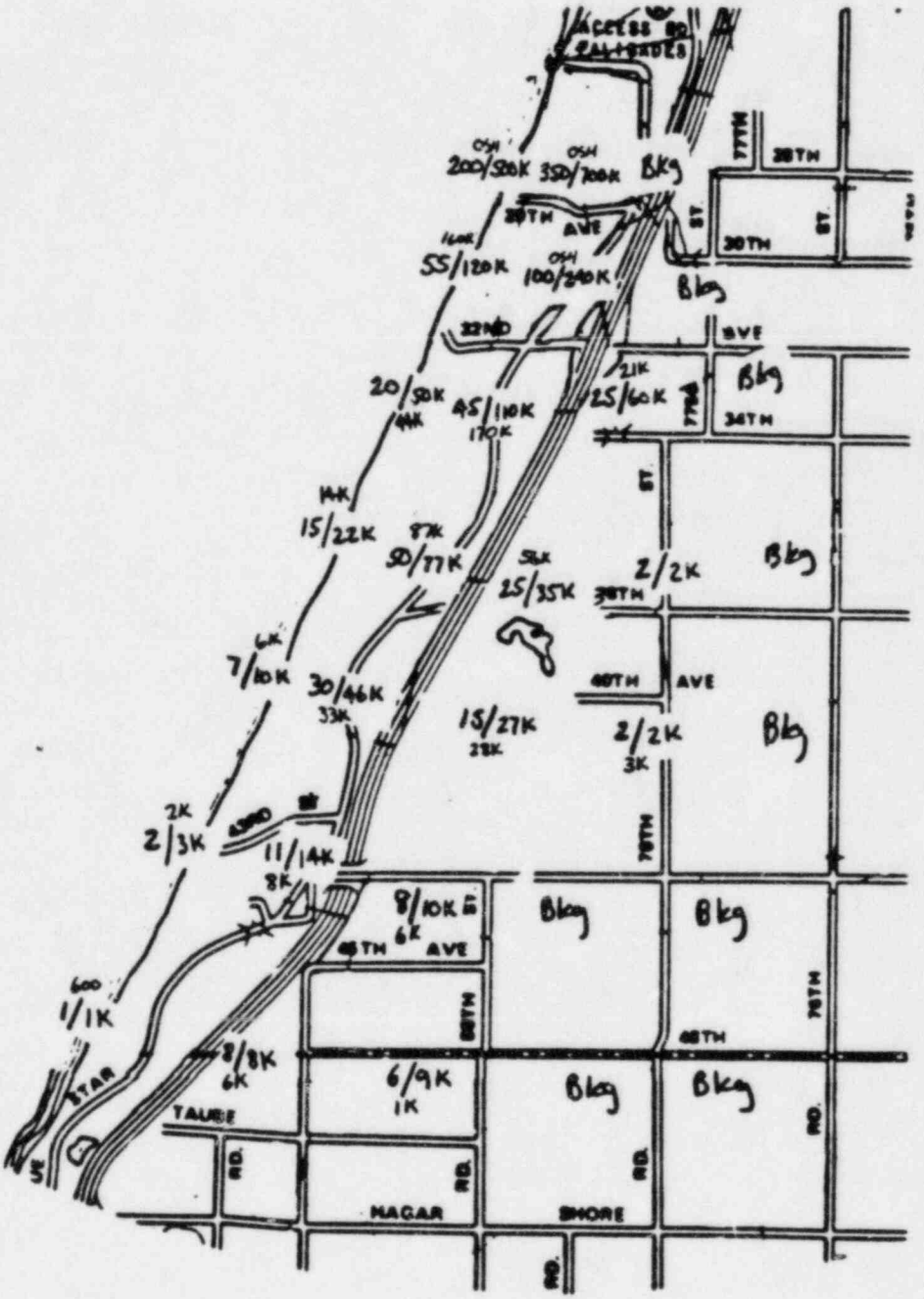




TIME: 11:30 - 11:45

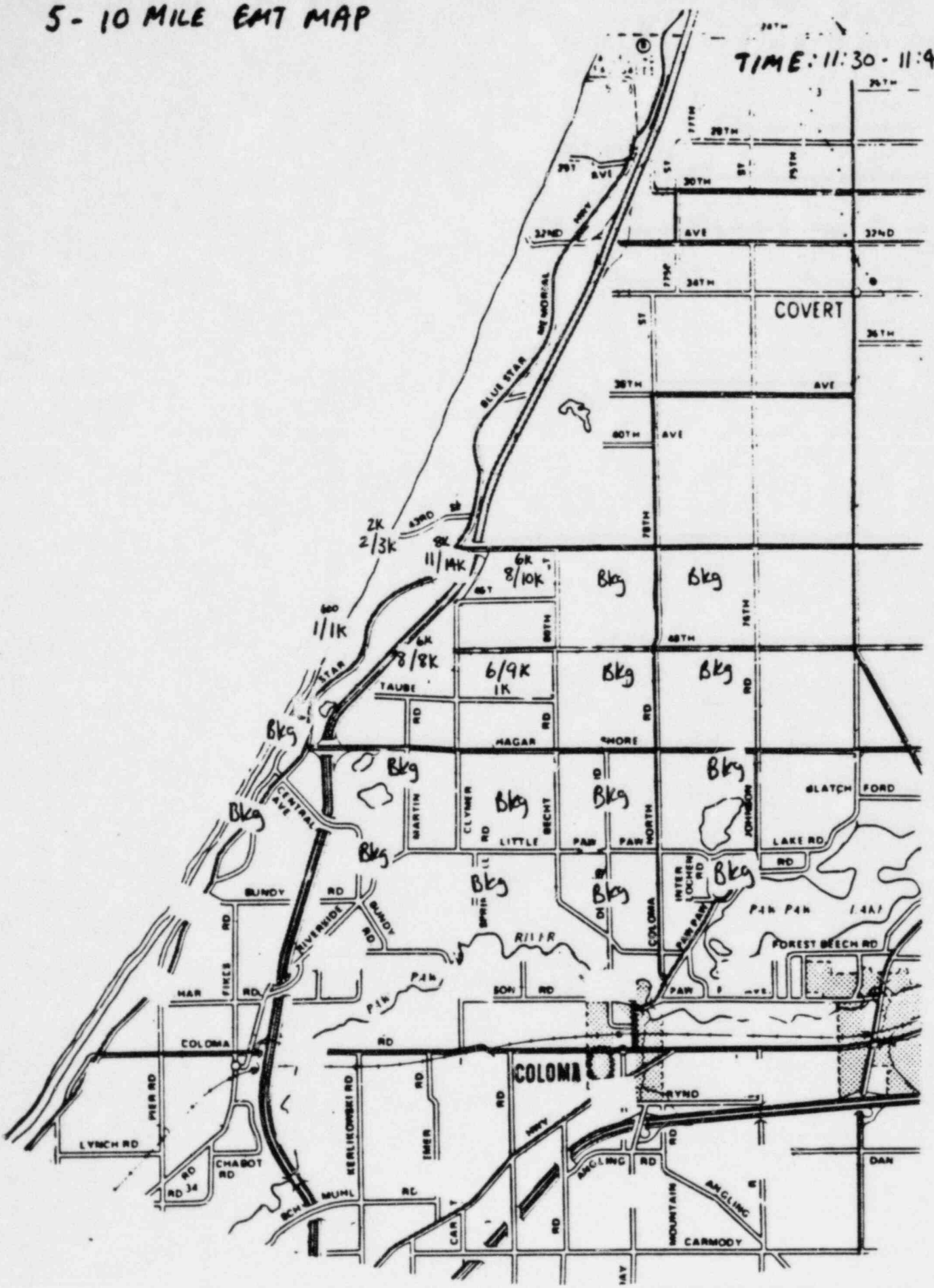
O - SMILE EMT MAP

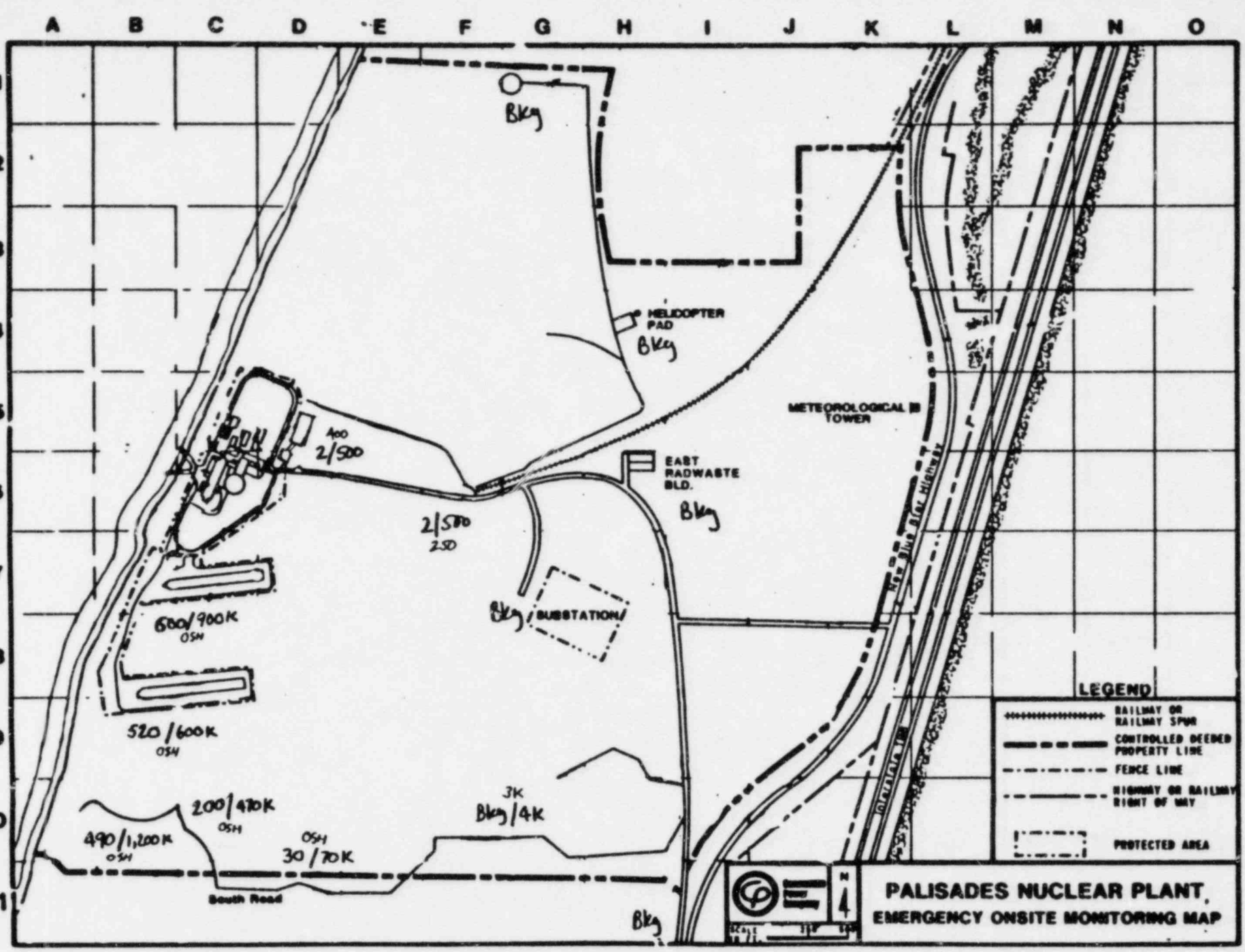
TIME : 11:30 - 11:45



5 - 10 MILE EMT MAP

TIME: 11:30 - 11:45

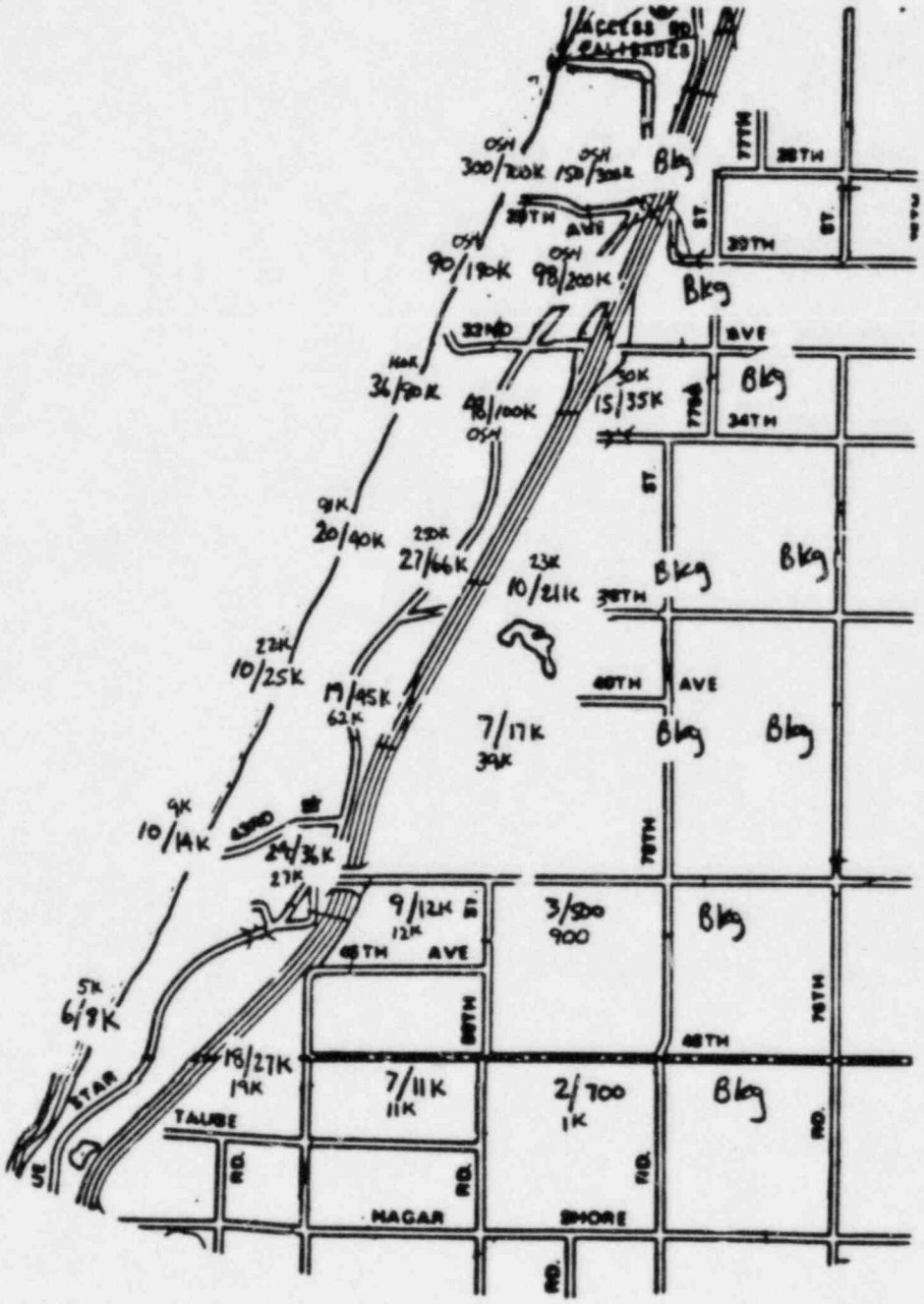




TIME: 11:45 - 12:00

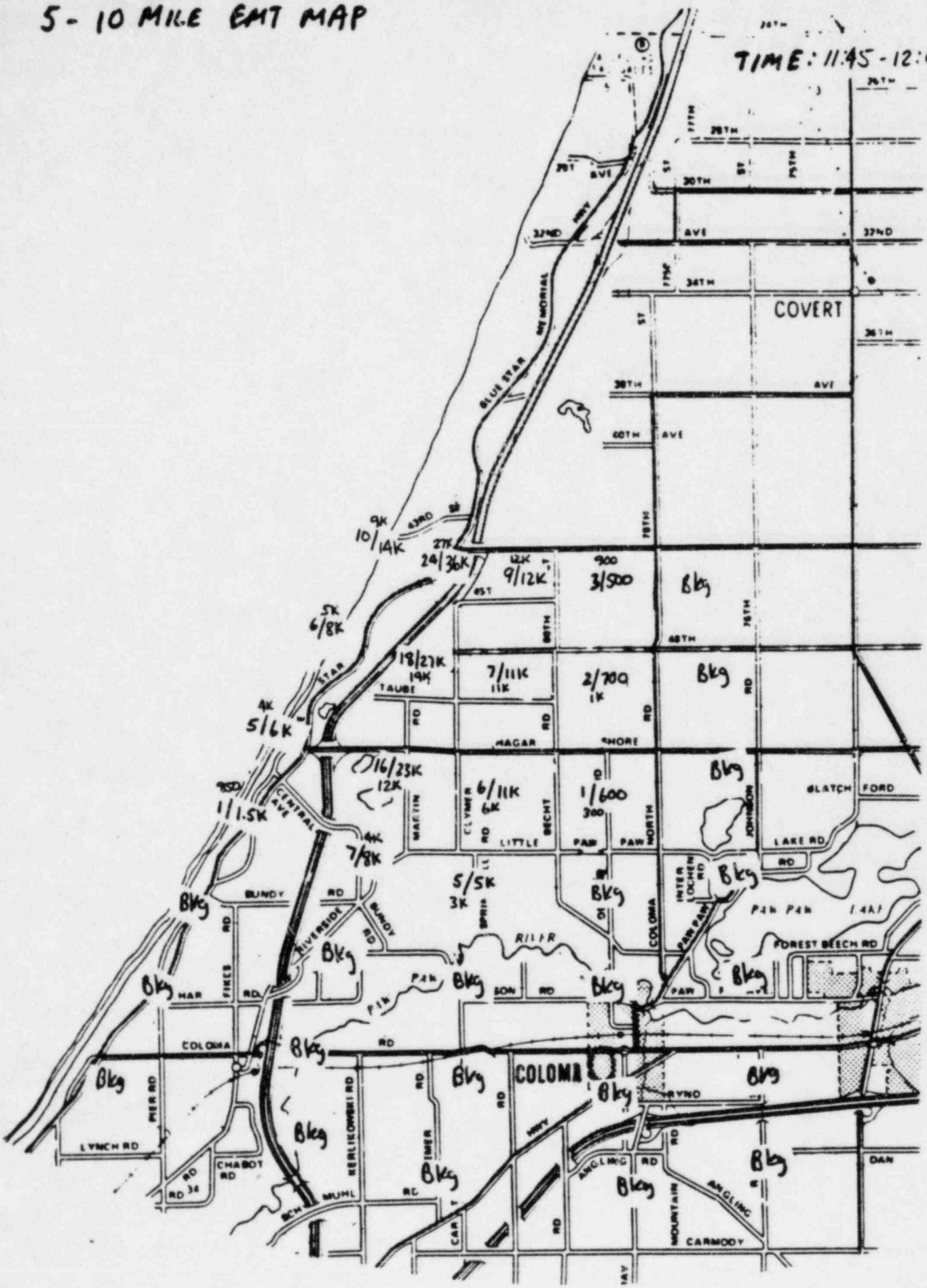
O - SMILE EMT MAP

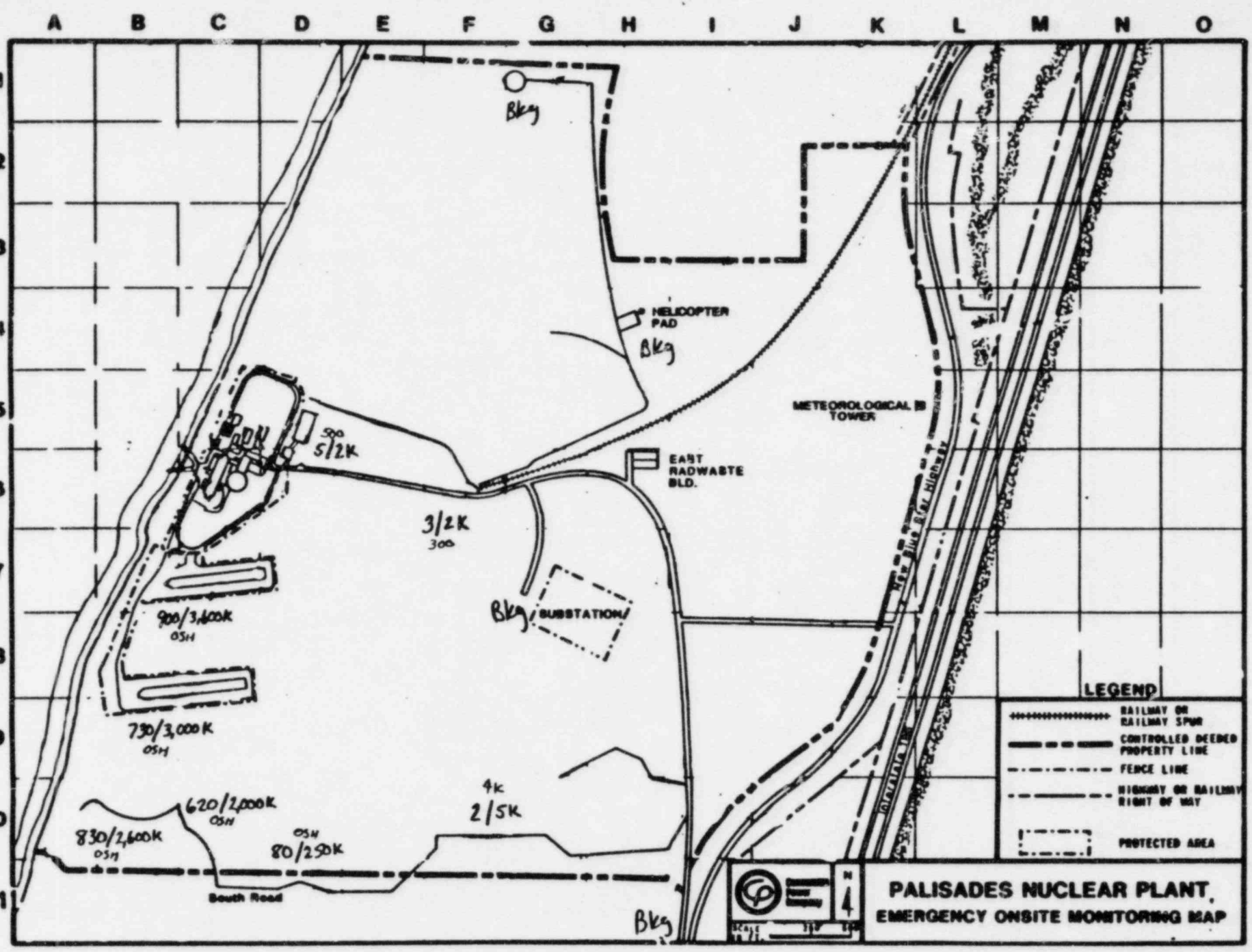
TIME: 11:45 - 12:00



5 - 10 MILE EMT MAP

TIME: 11:45 - 12:00

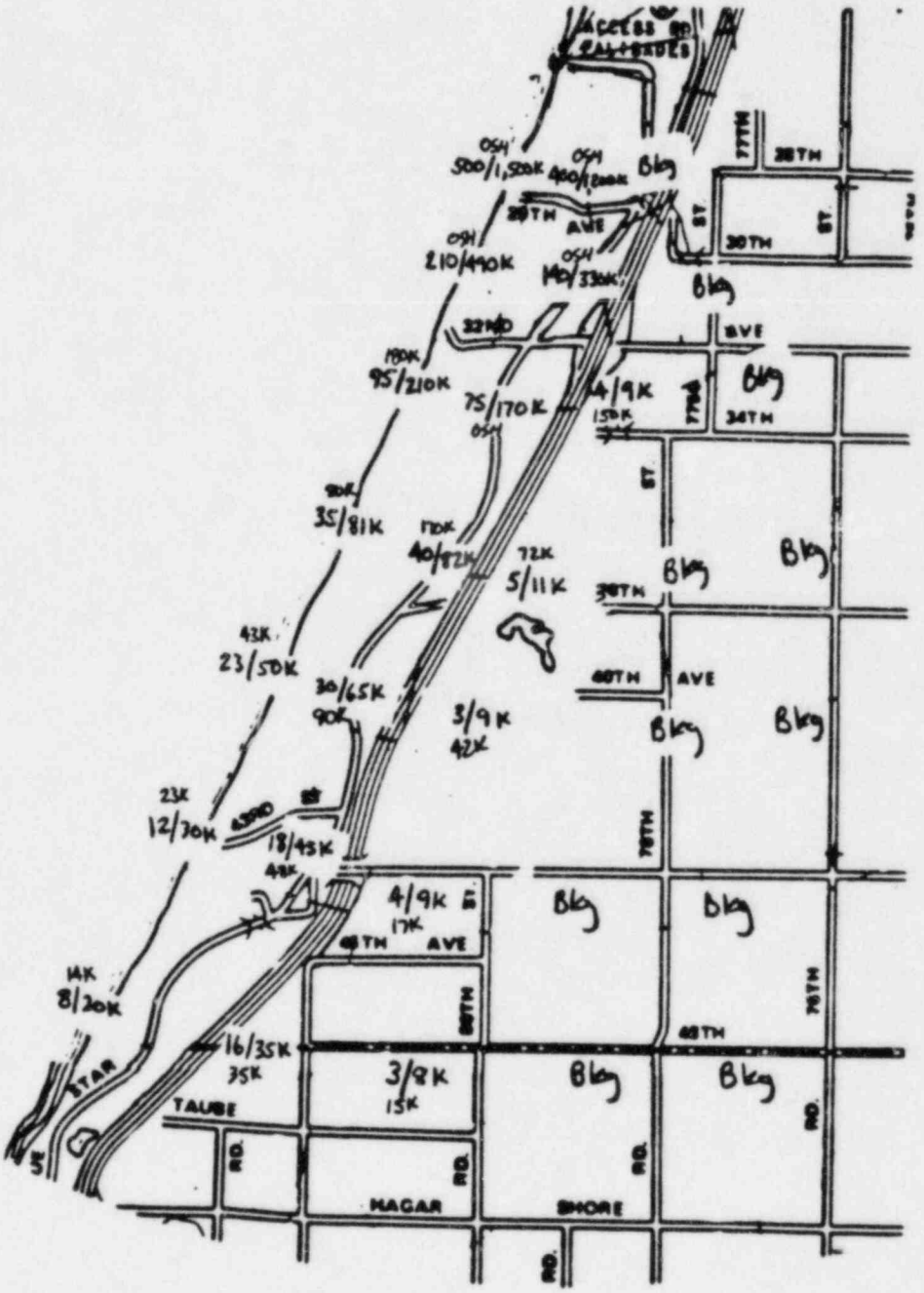




TIME: 12:00 - 12:15

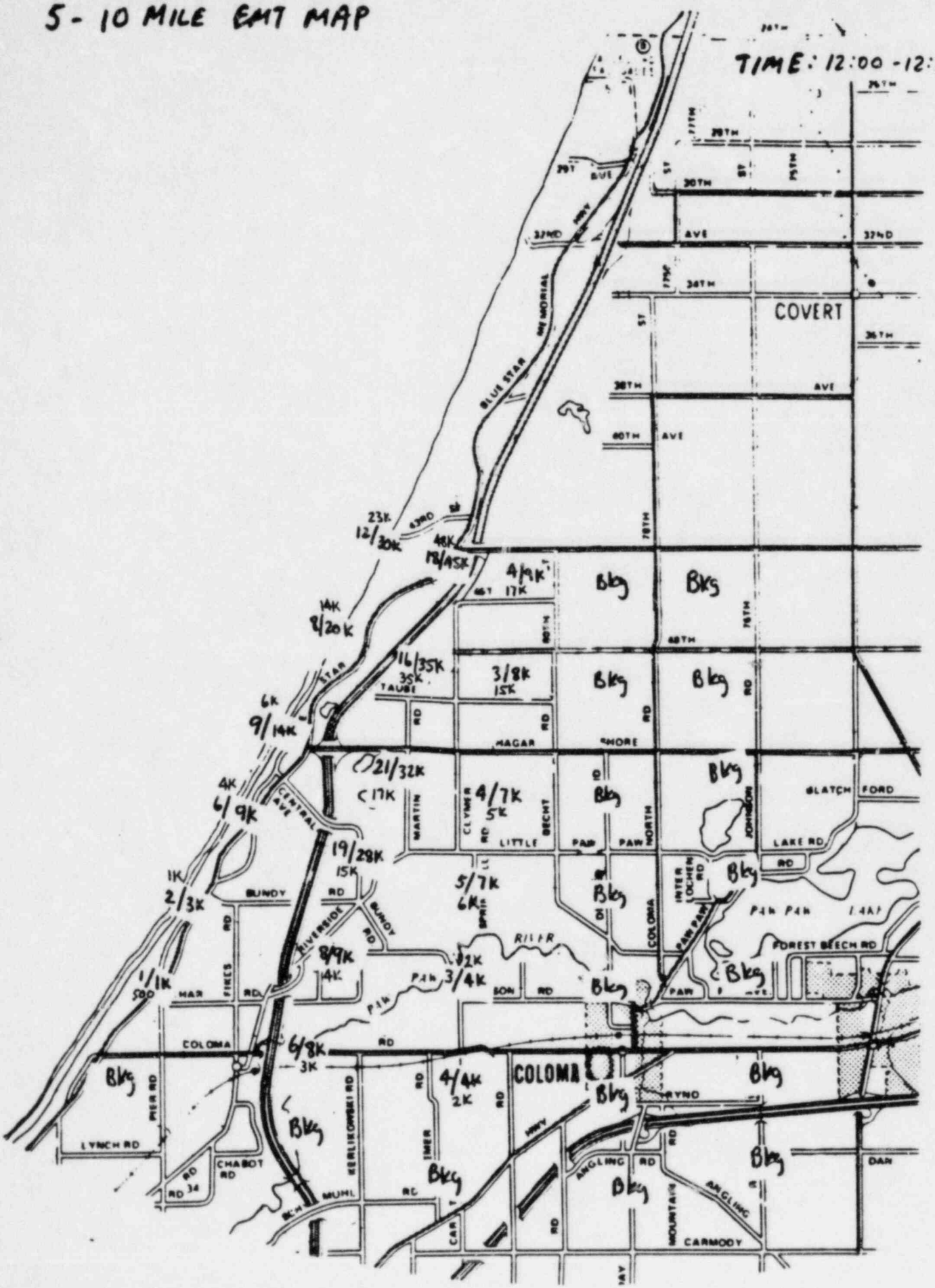
O-SMILE EMT MAP

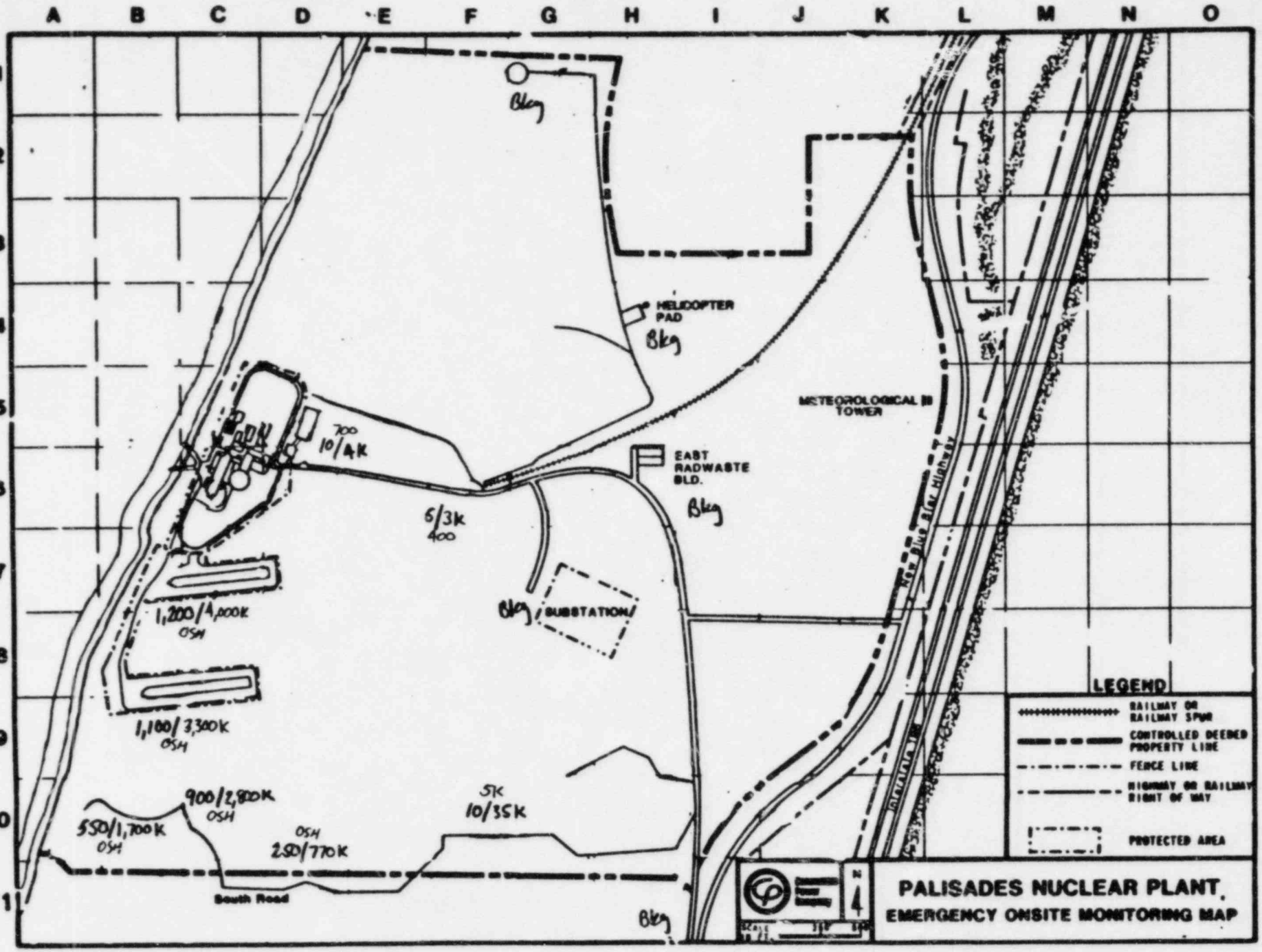
TIME: 12:00 - 12:15



5 - 10 MILE EMT MAP

TIME: 12:00 - 12:15

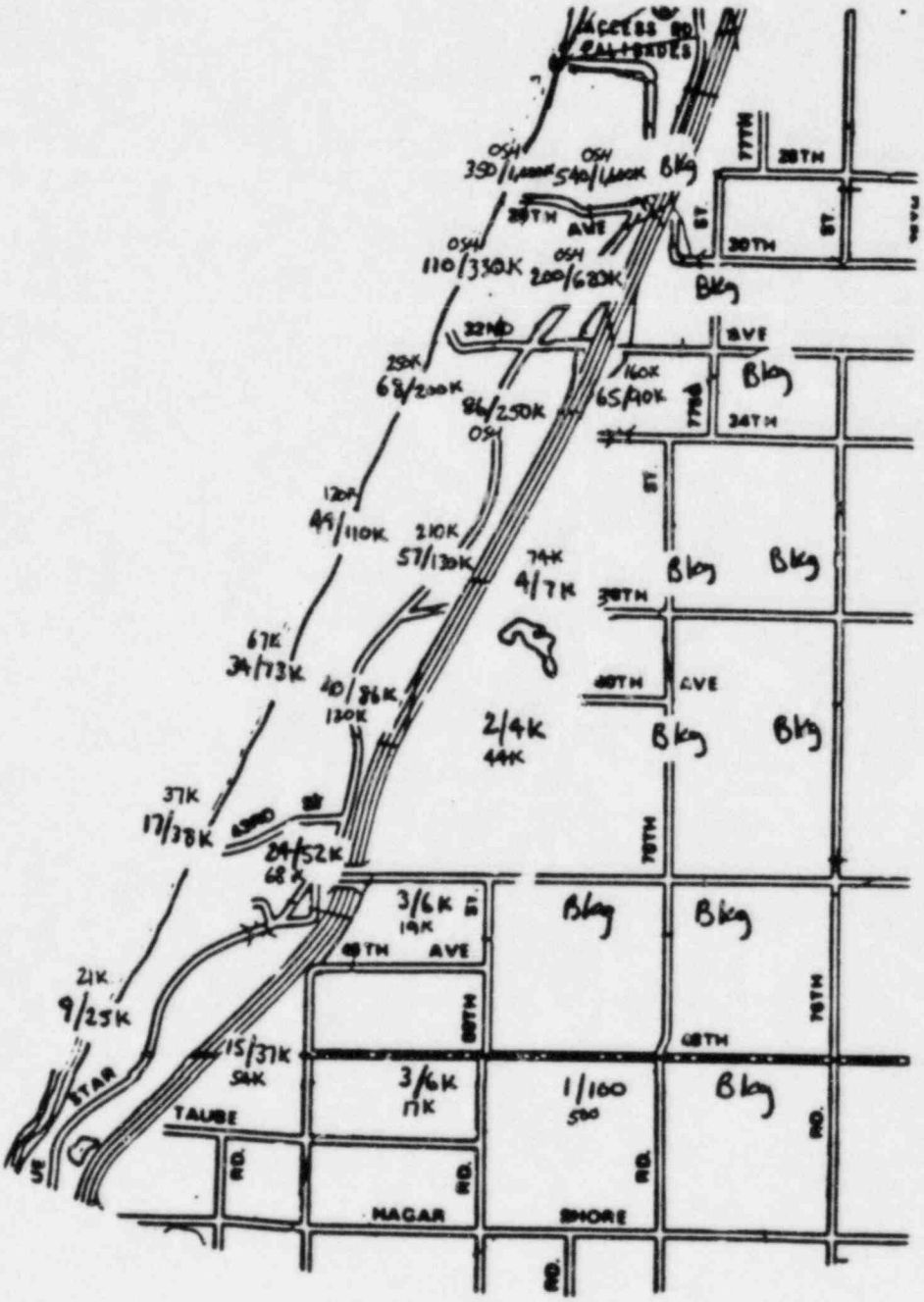




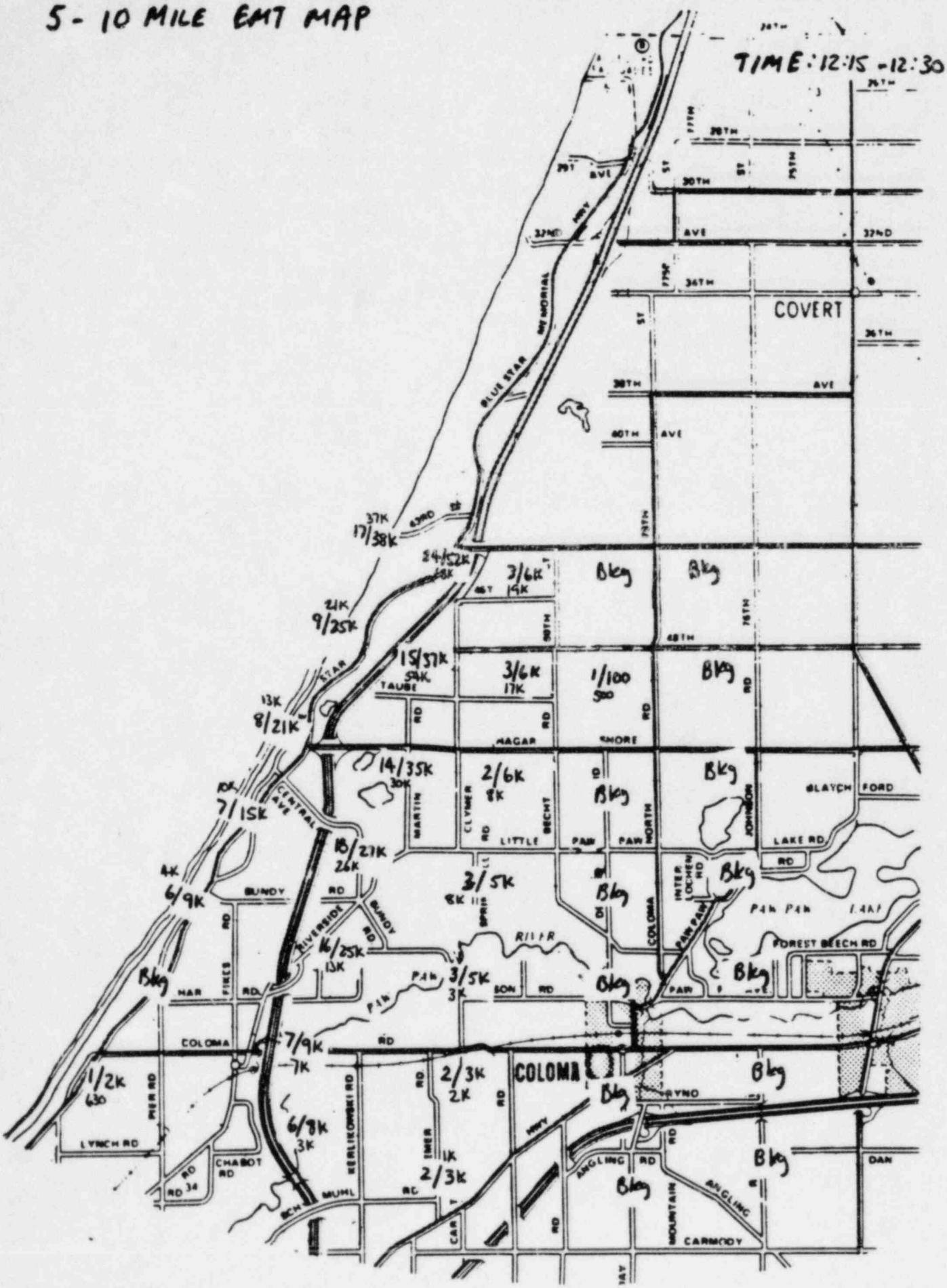
TIME: 12:15 - 12:30

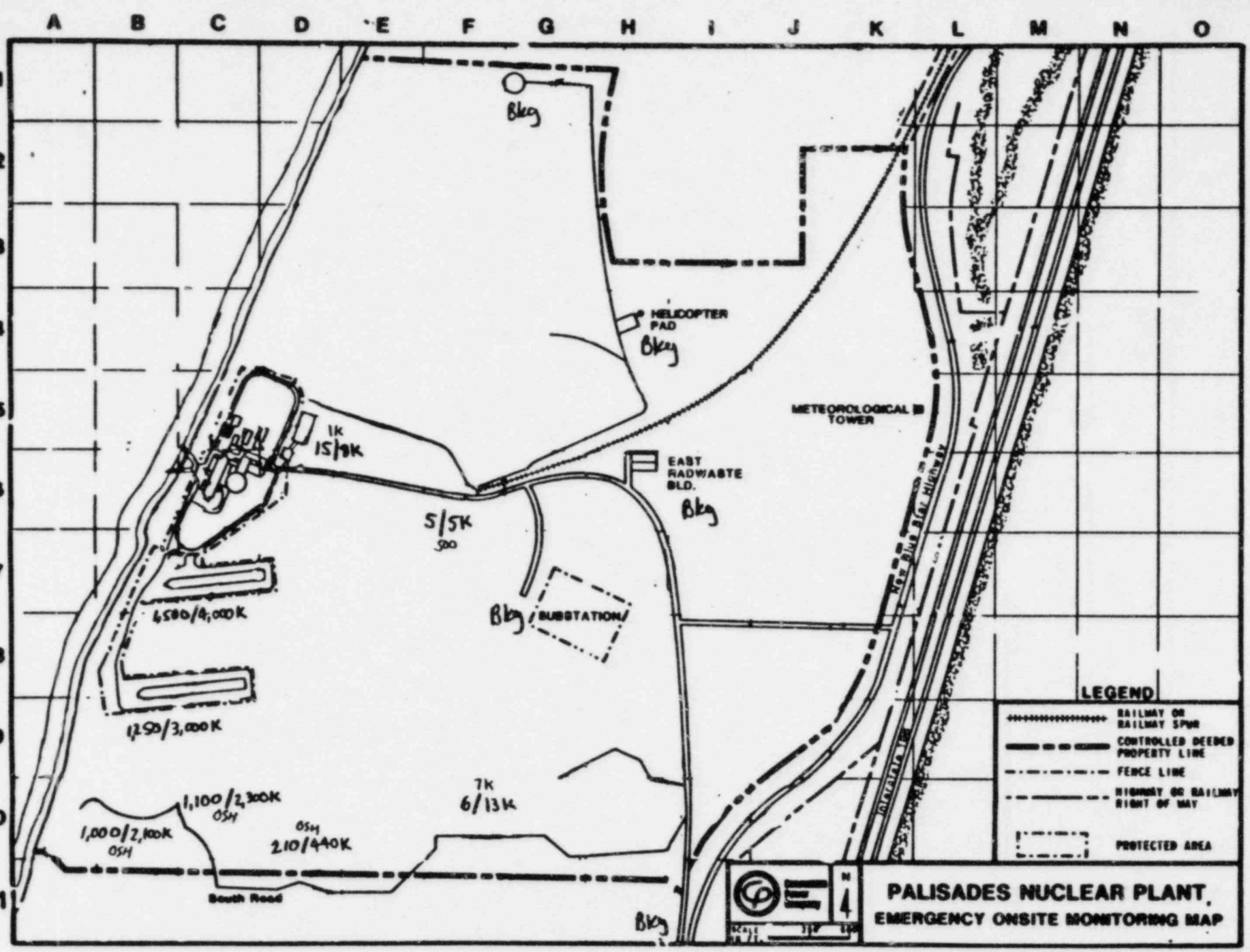
O-SMILE EMT MAP

TIME: 12:15 - 12:30



5 - 10 MILE EMT MAP

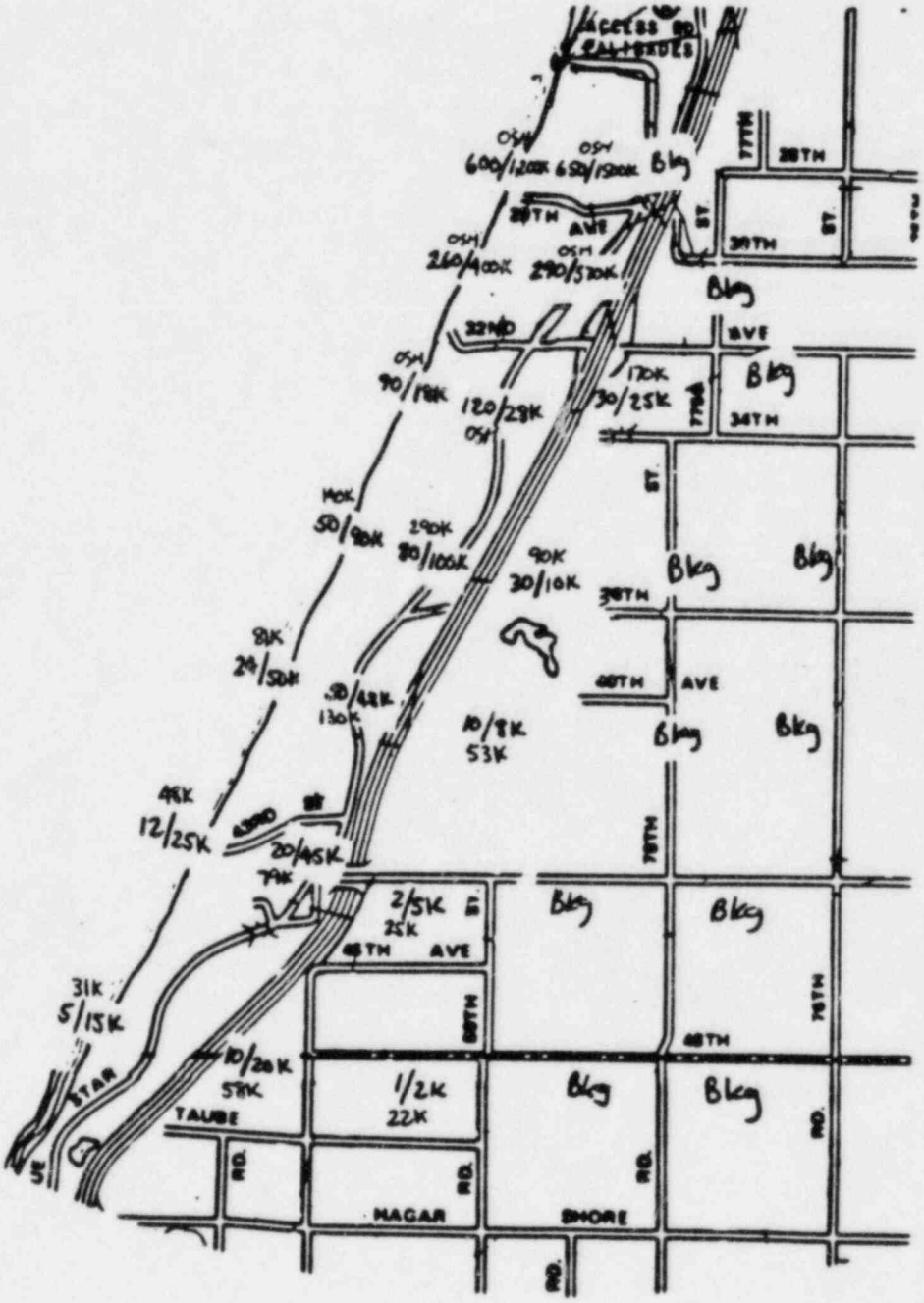




TIME: 12:30 - 12:45

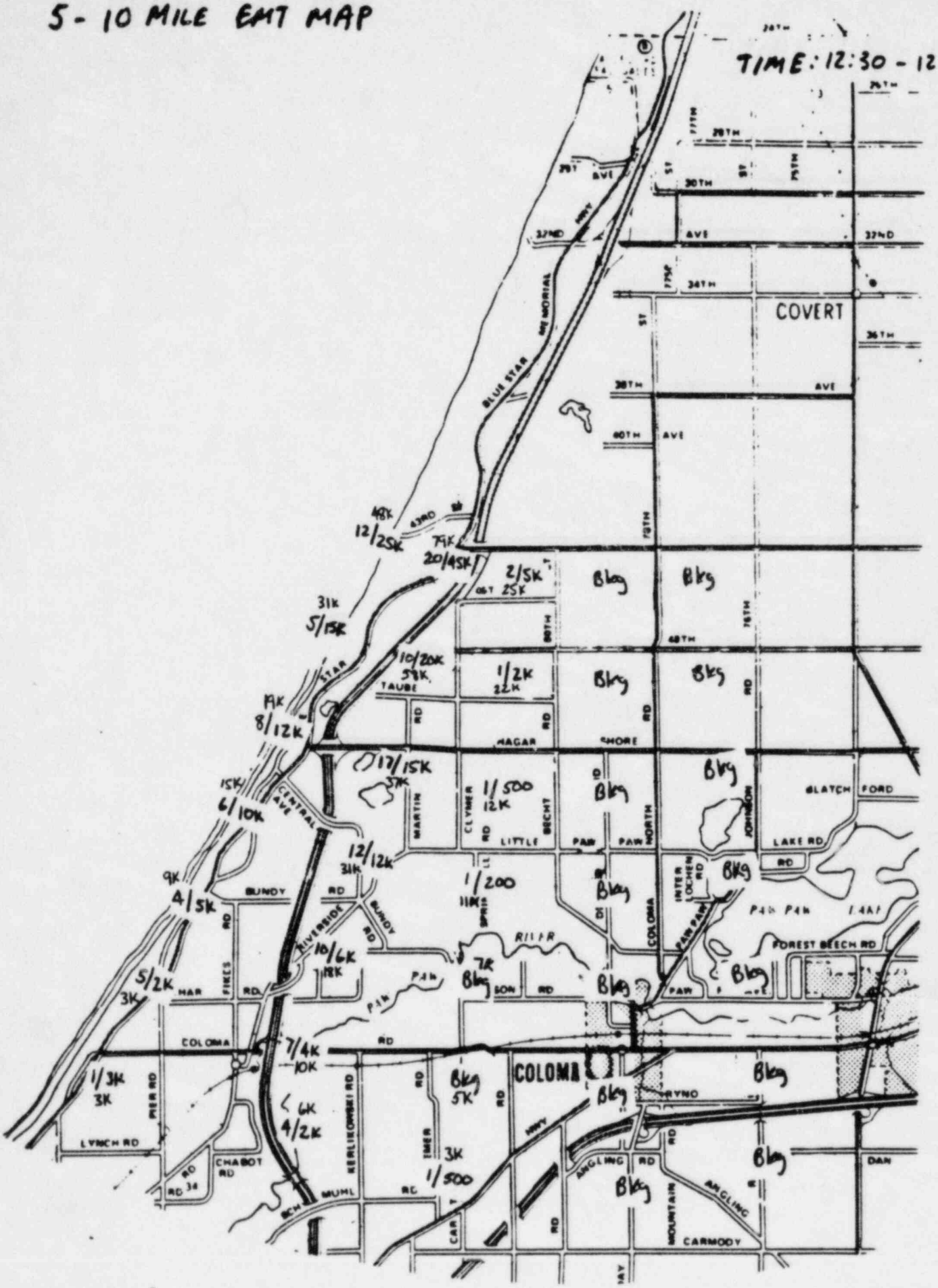
0 - 5MILE EMT MAP

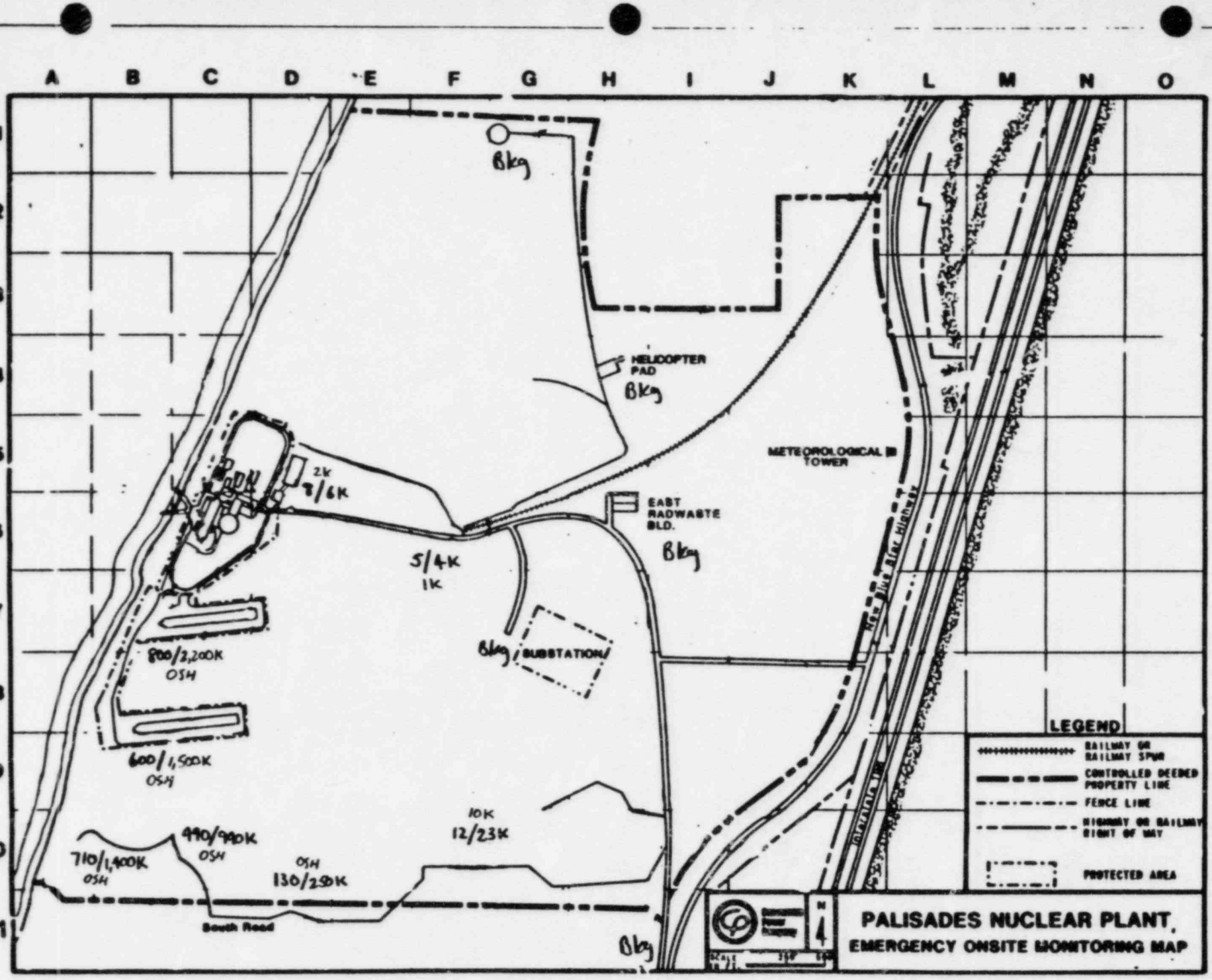
TIME : 12:30 - 12:45



5 - 10 MILE EMT MAP

TIME: 12:30 - 12:45

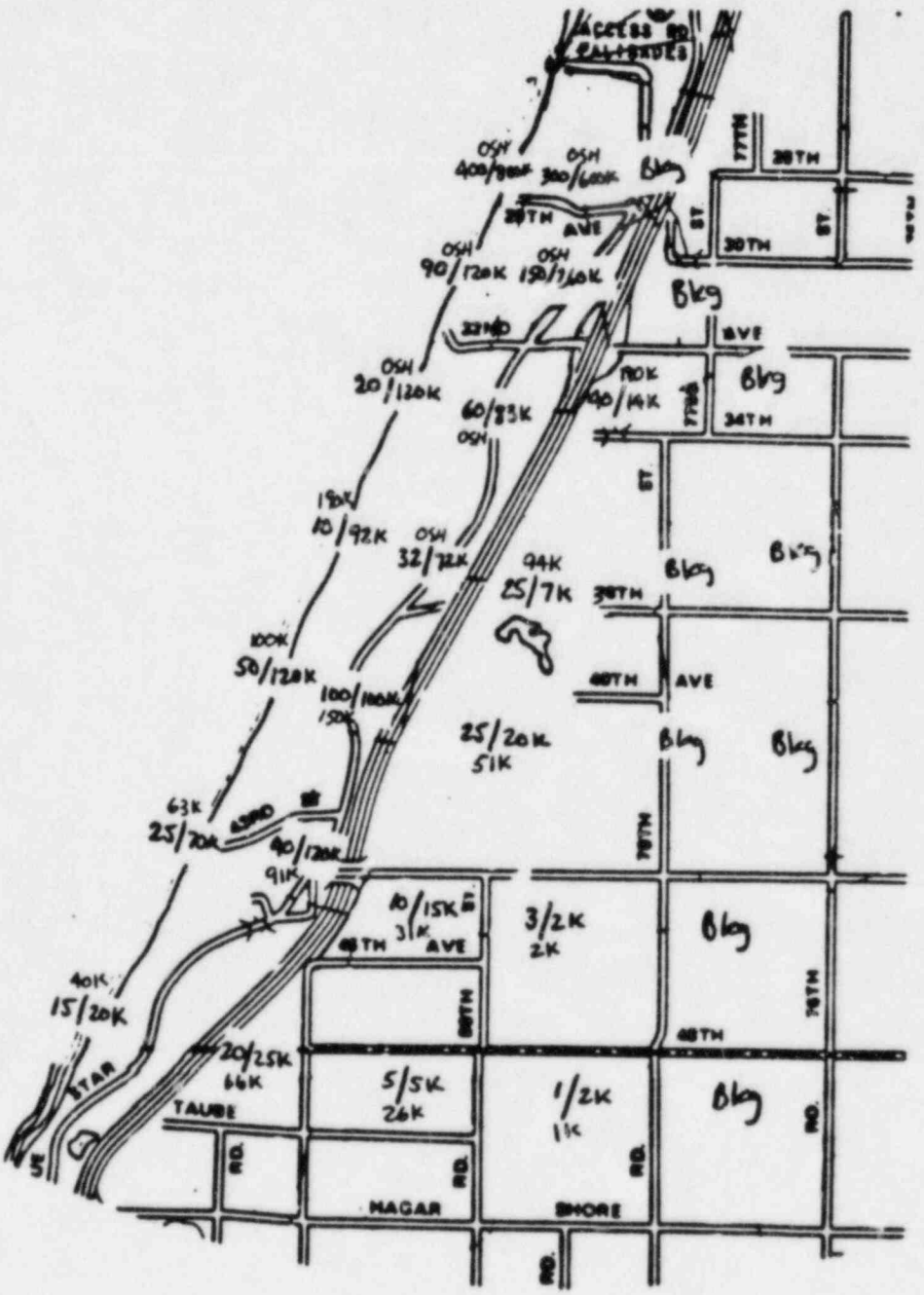




TIME: 12:45-13:00

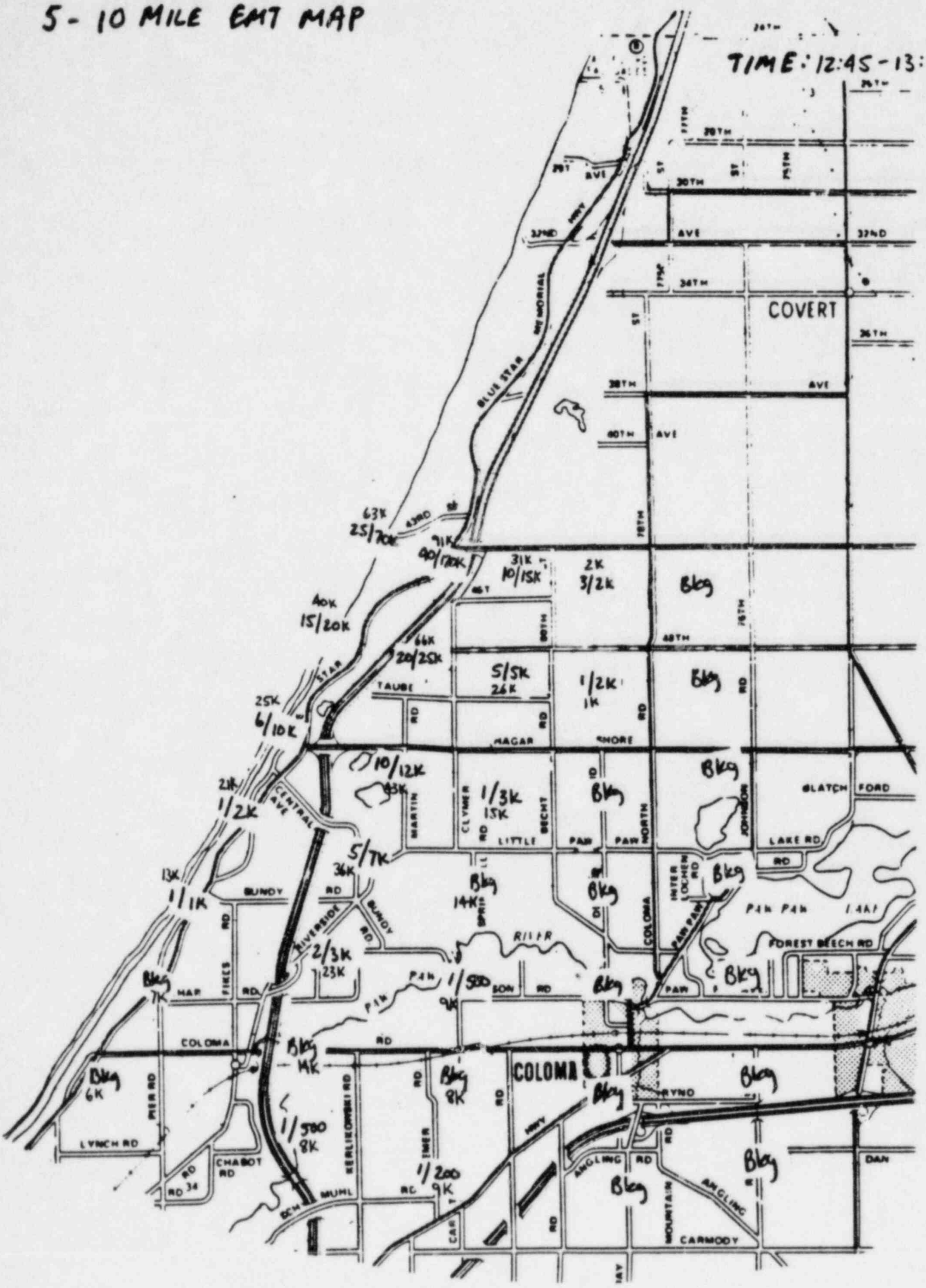
O - SMILE EMT MAP

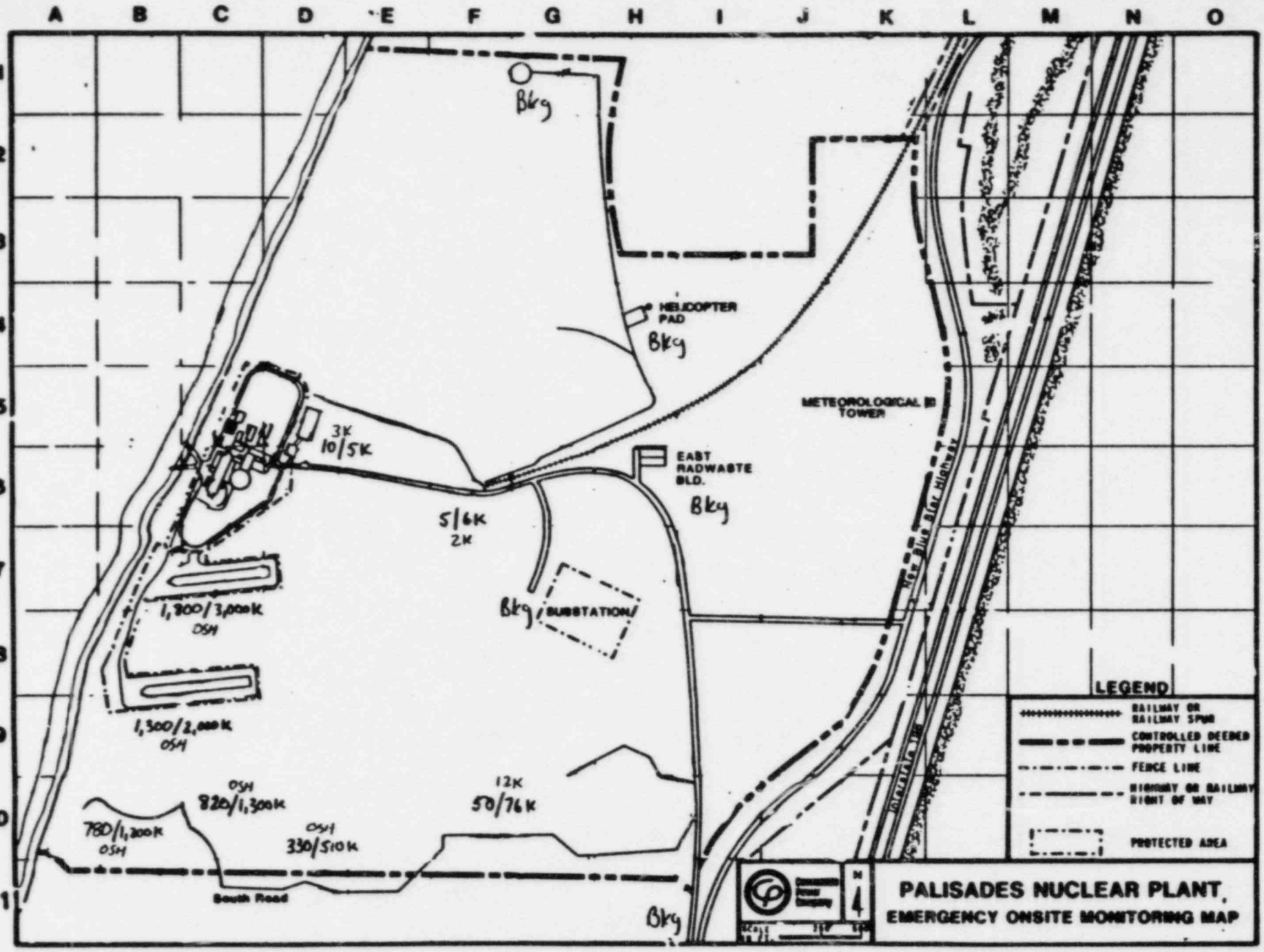
TIME: 12:45 - 13:00



5 - 10 MILE EMT MAP

TIME: 12:45 - 13:00

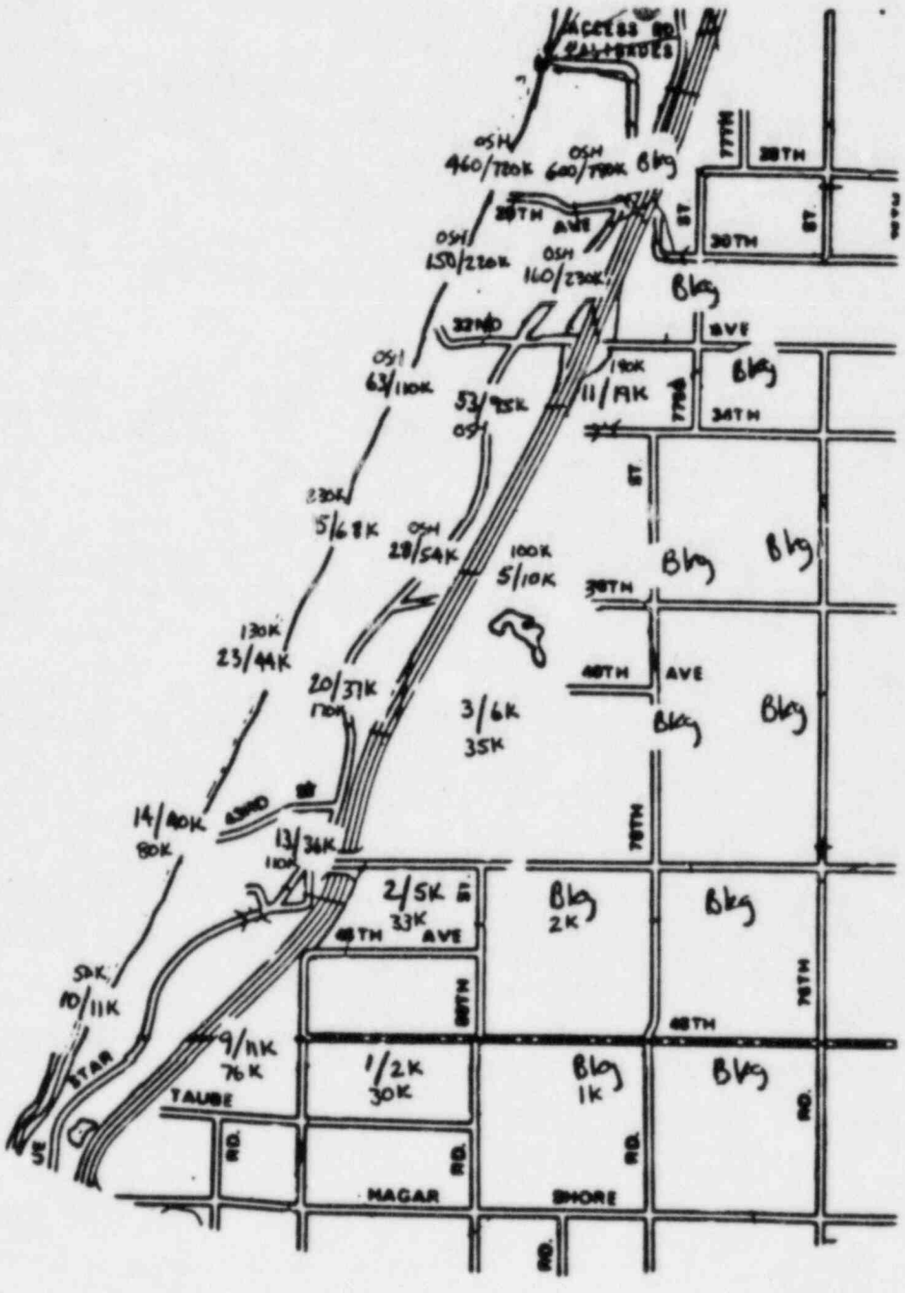




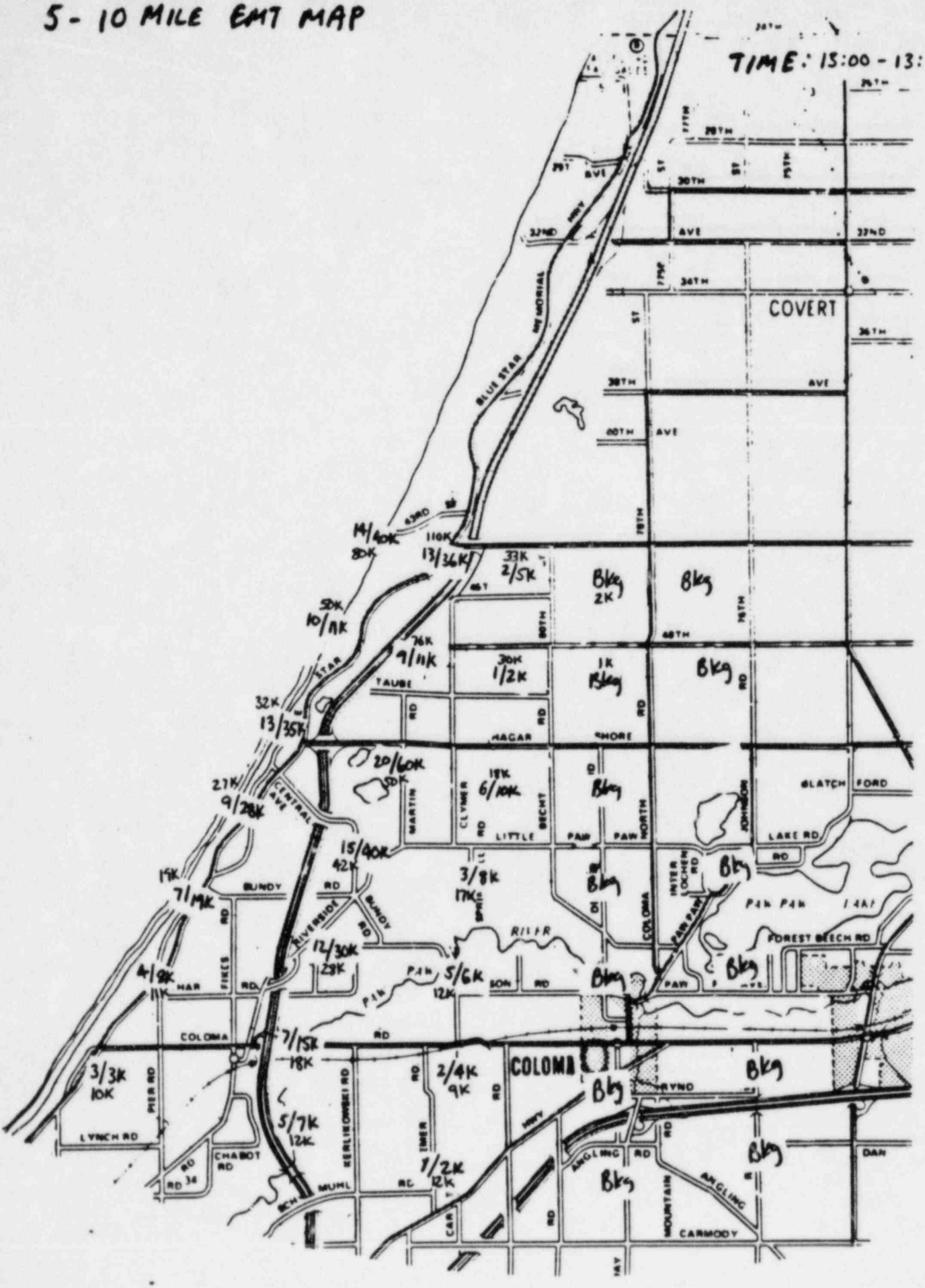
TIME: 13:00 - 13:15

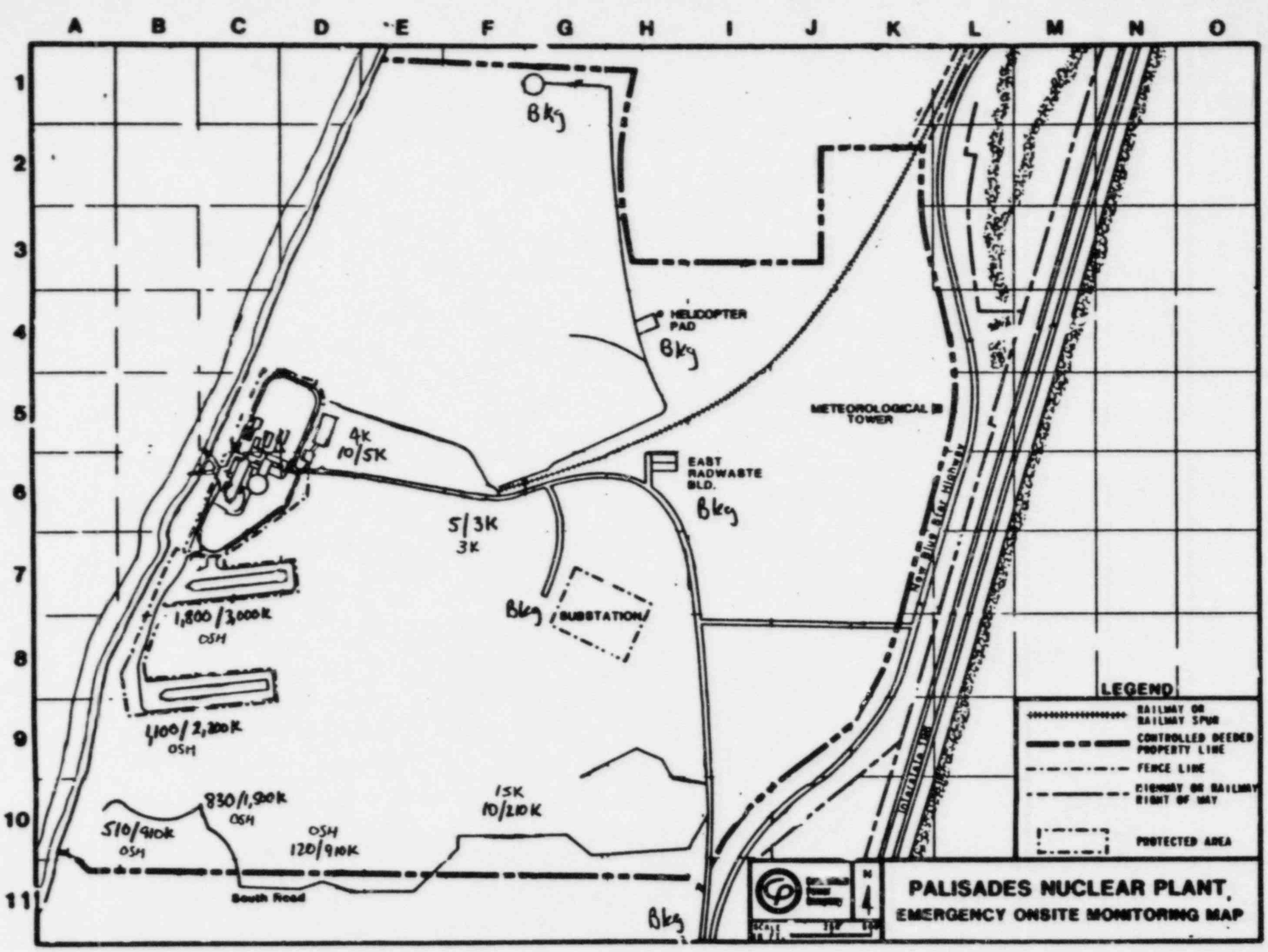
0 - 5MILE EMT MAP

TIME: 13:00 - 13:15



5 - 10 MILE EMT MAP

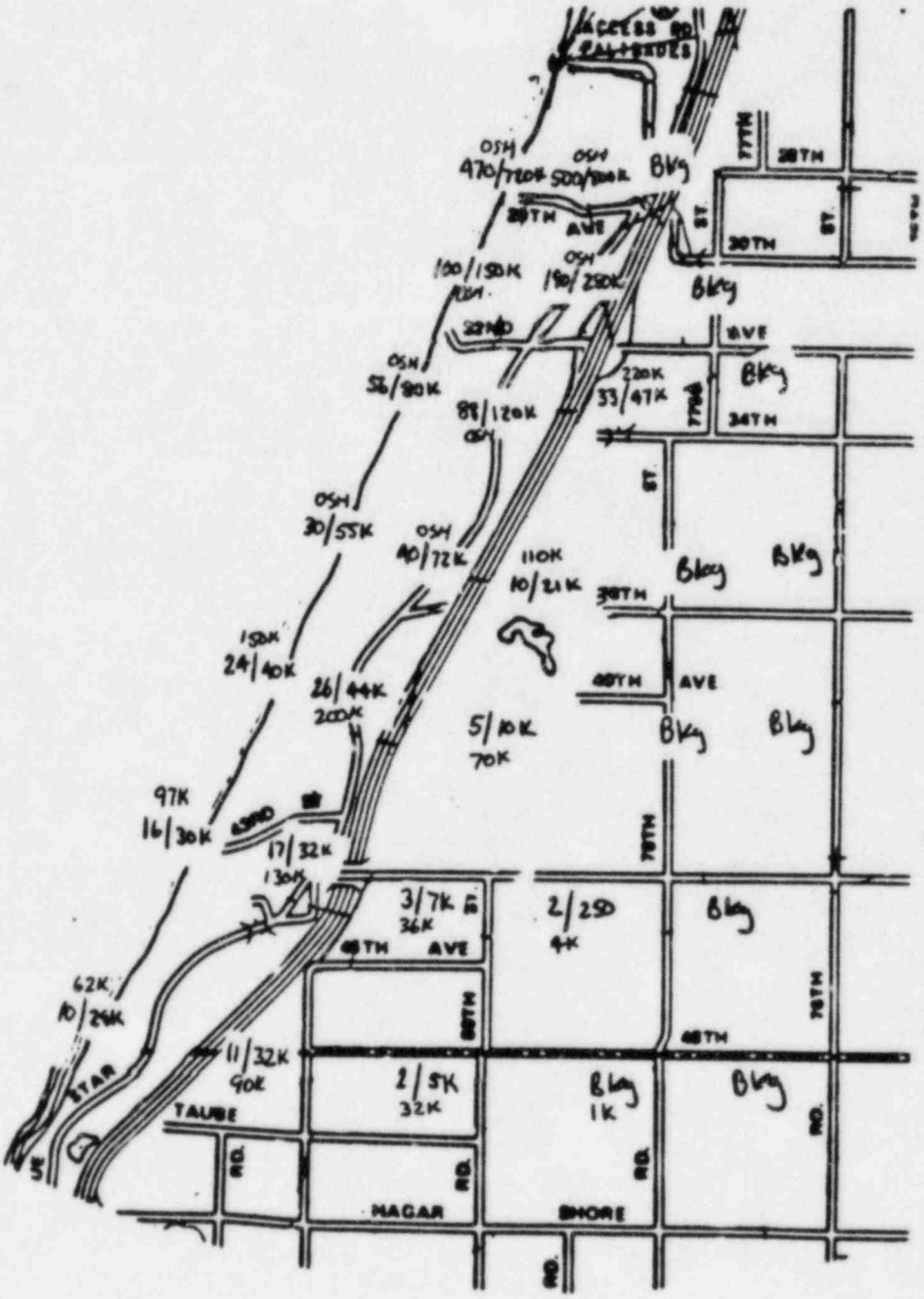




TIME: 13:15 - 13:30

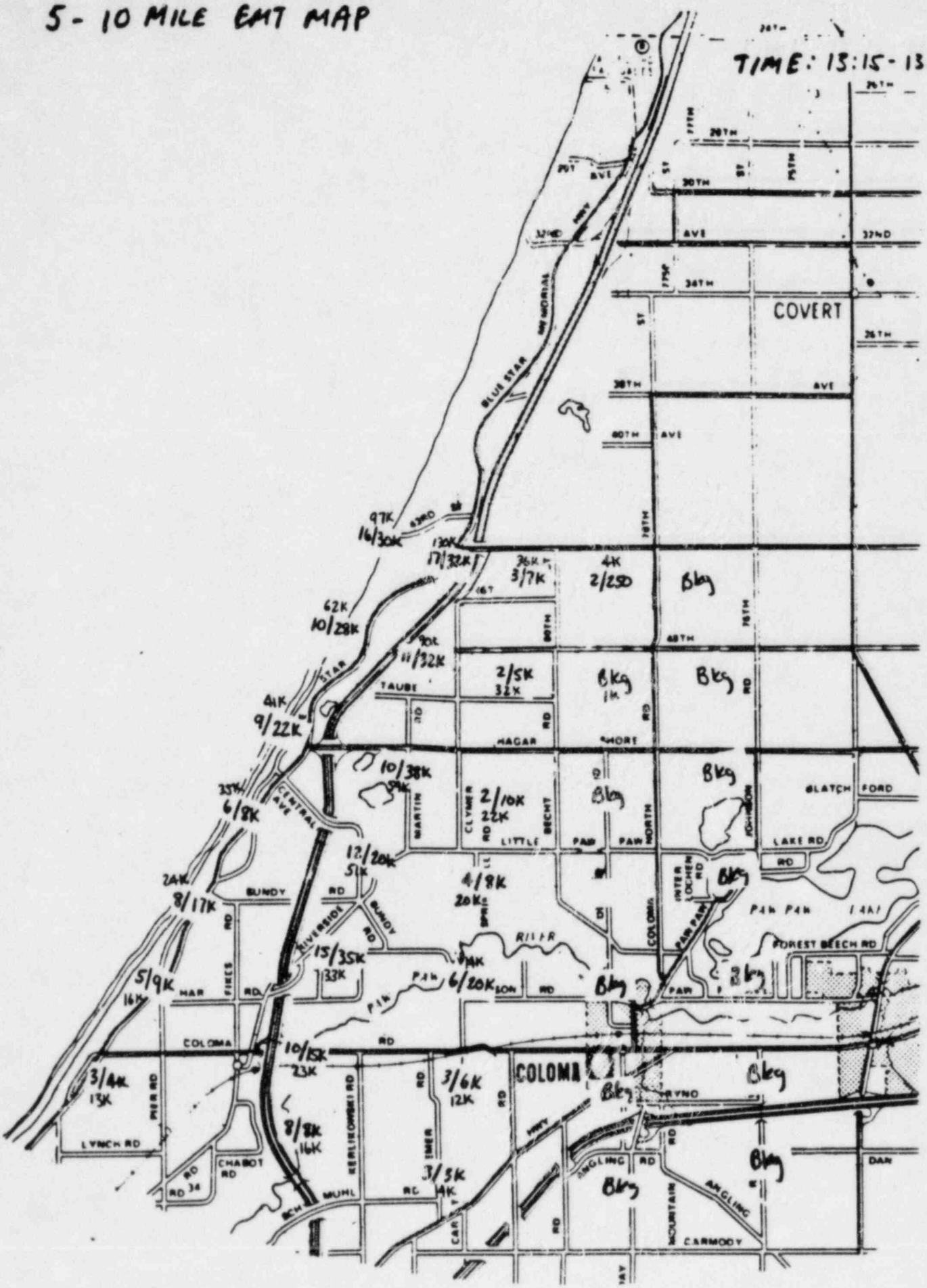
O - SMILE EMT MAP

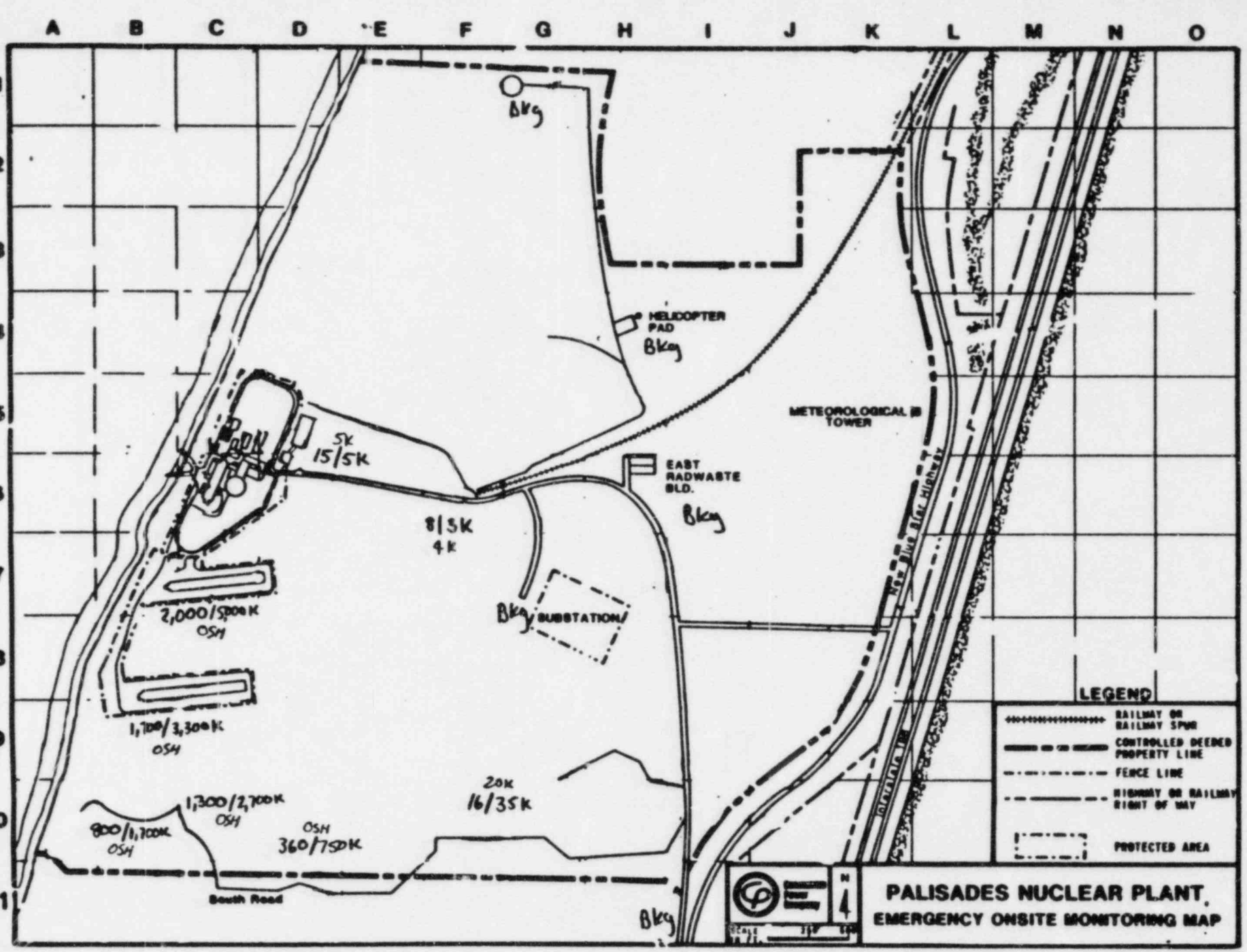
TIME : 13:15 - 13:30



5 - 10 MILE EMT MAP

TIME: 13:15 - 13:30

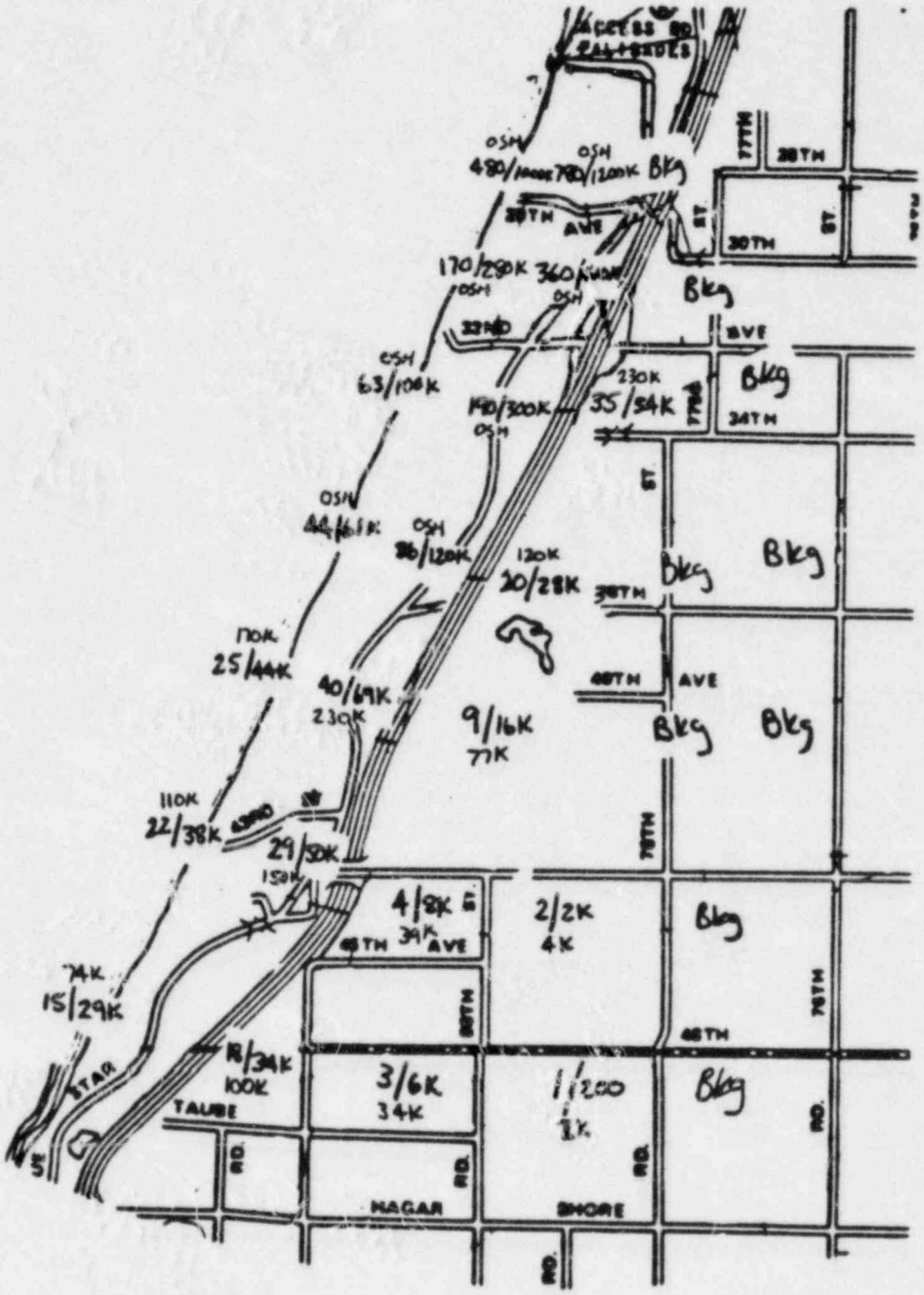




TIME: 13:30 - 13:45

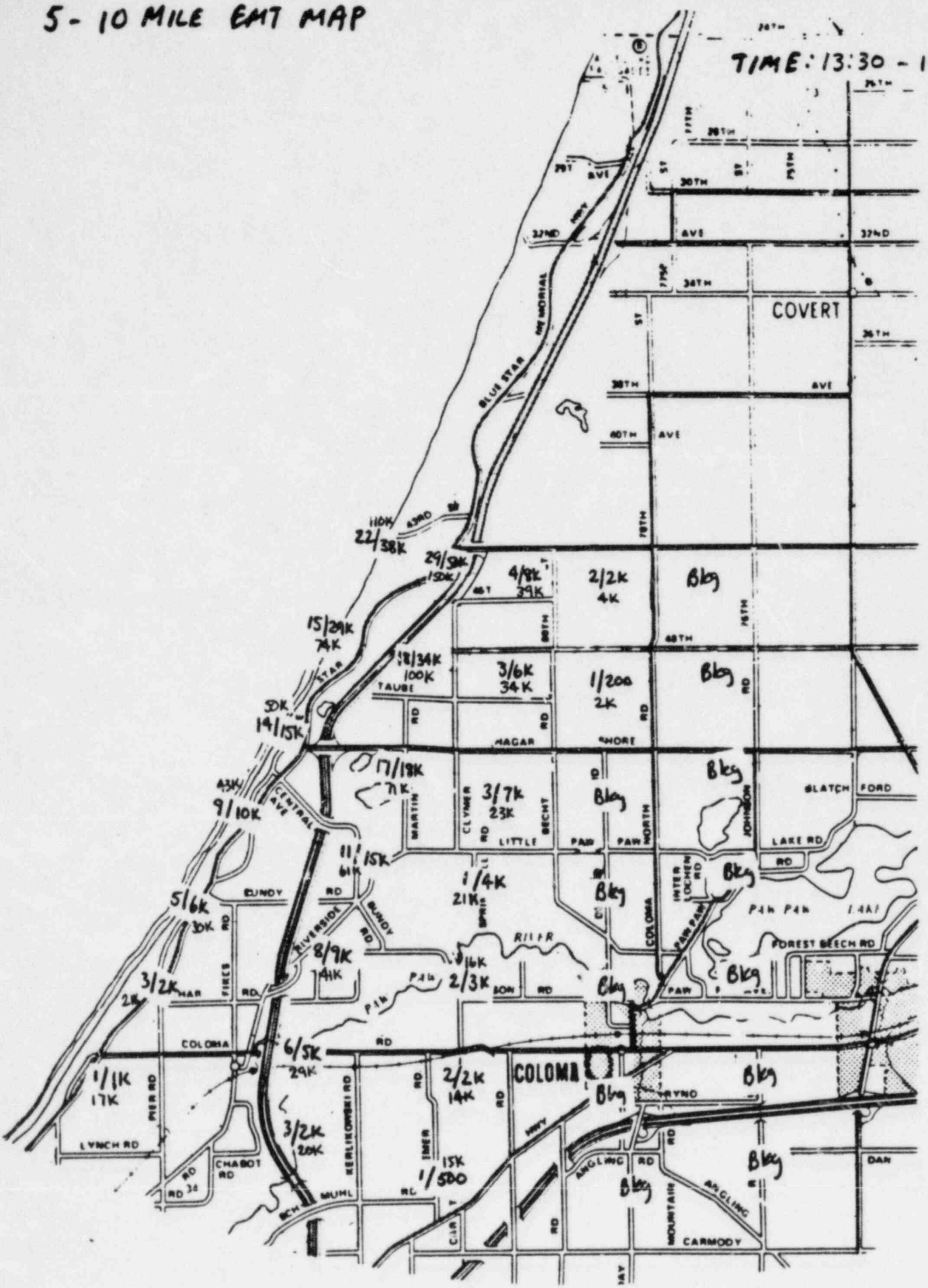
O - SMILE EMT MAP

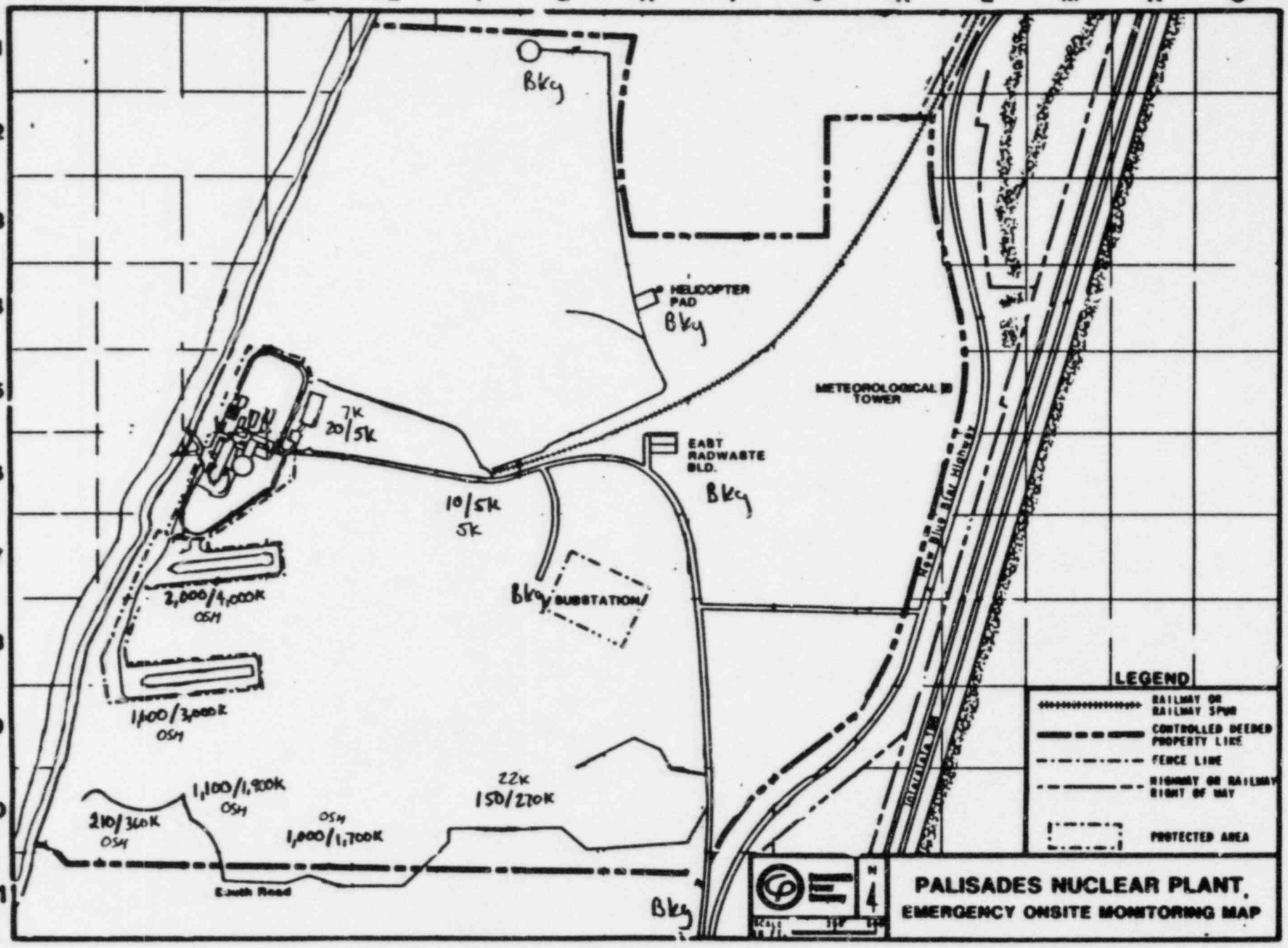
TIME : 13:30 - 13:45



5 - 10 MILE EMT MAP

TIME: 13:30 - 14:00

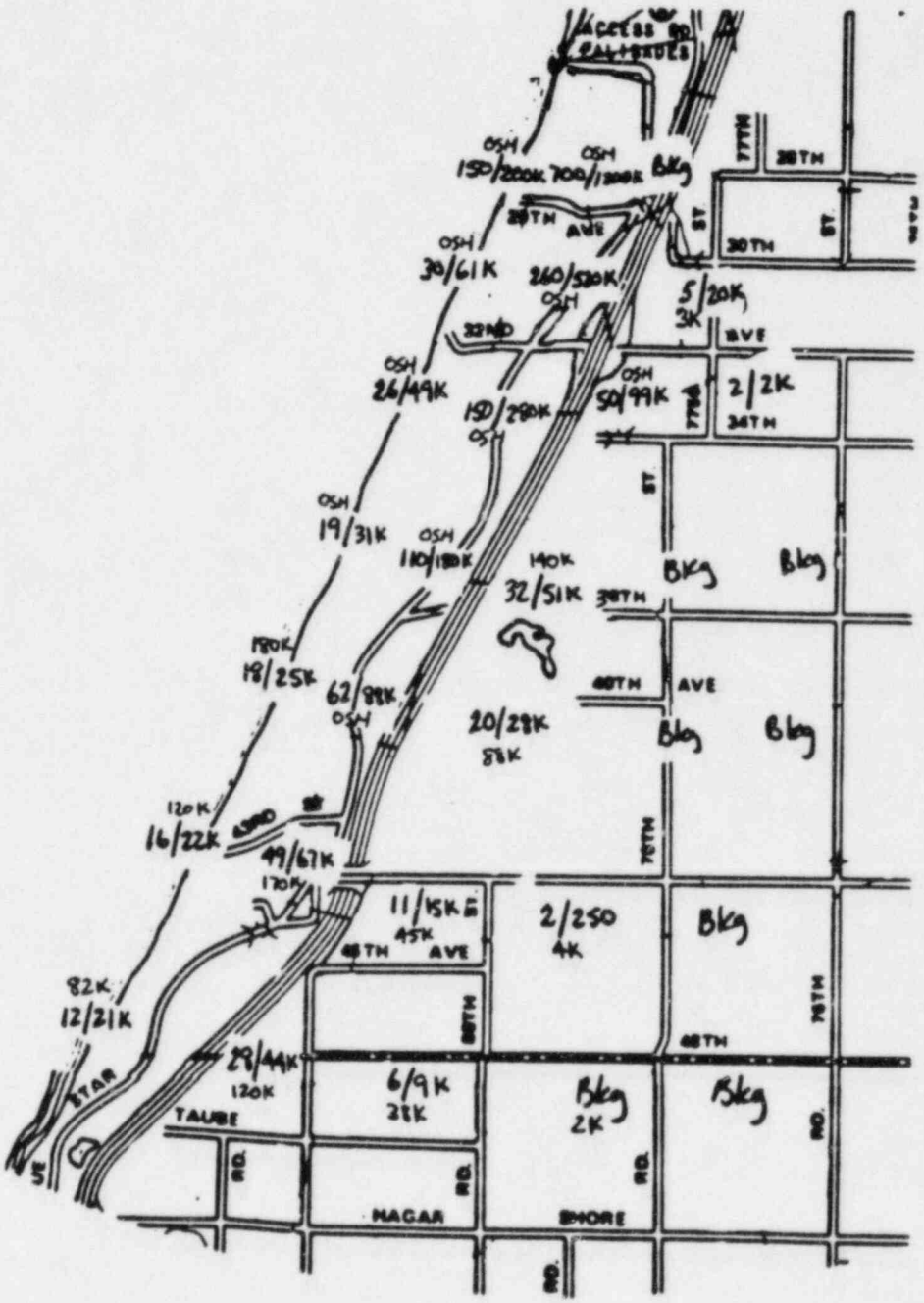




TIME: 13:45 - 14:00

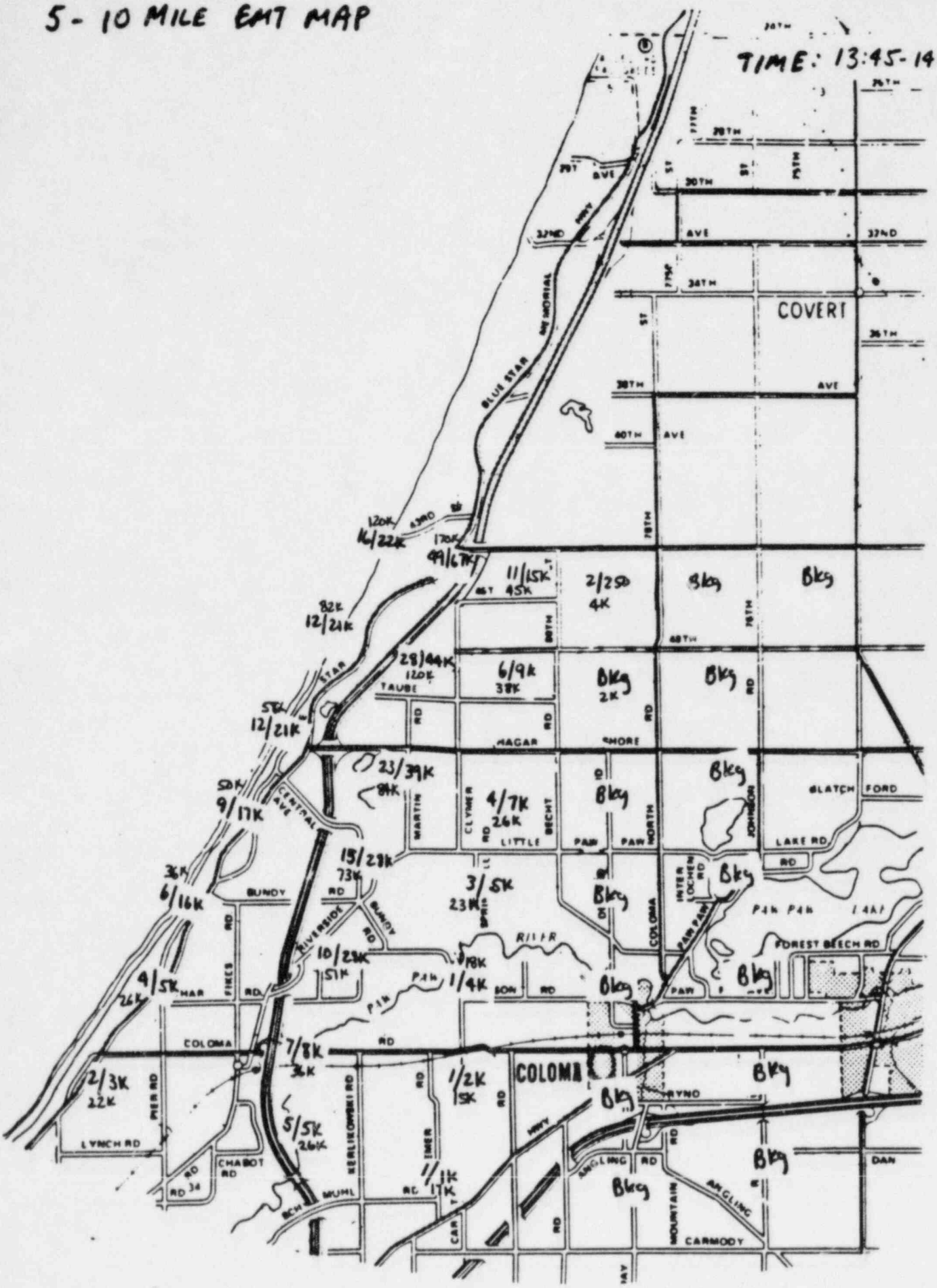
O - SMILE EMT MAP

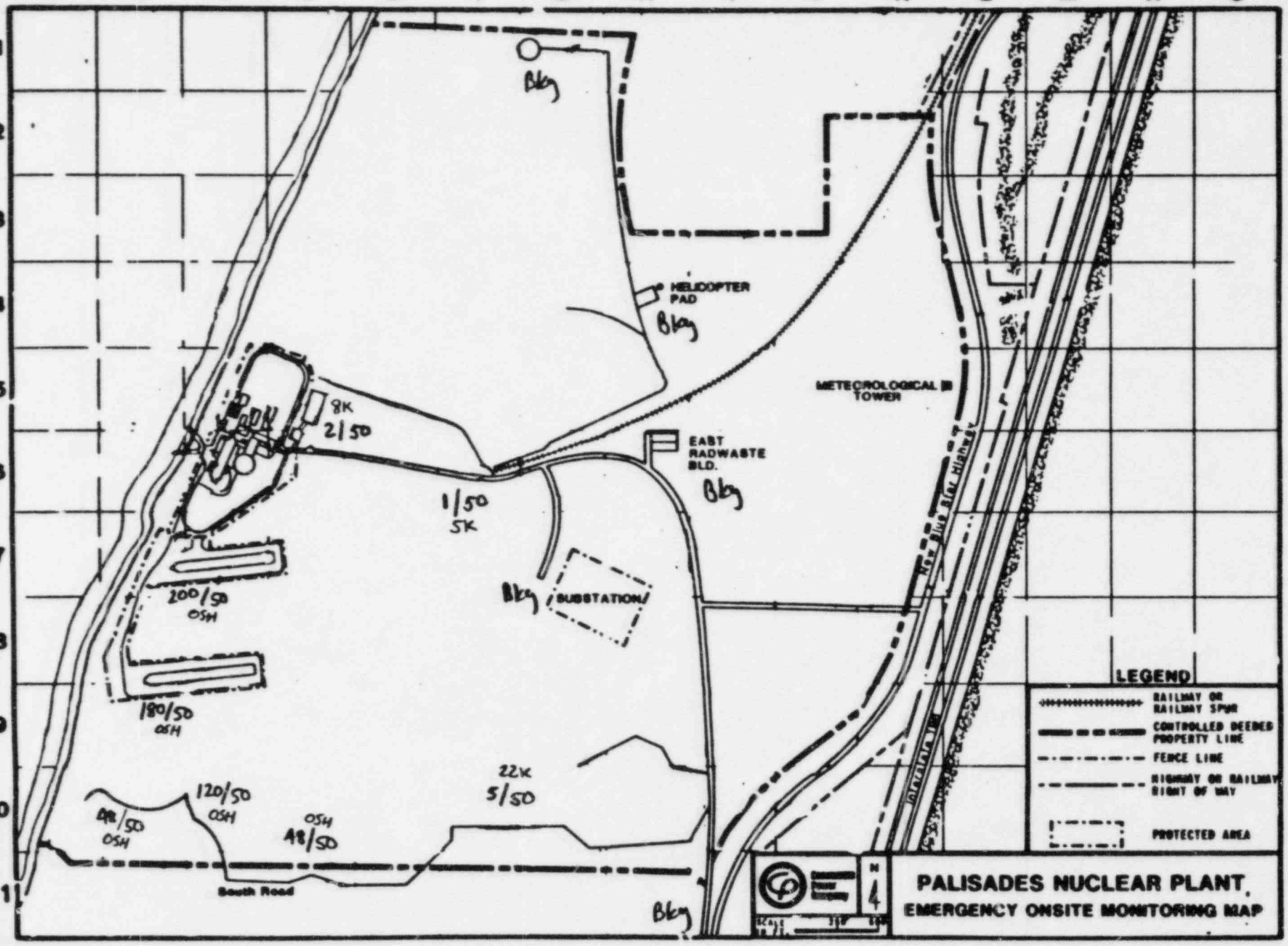
TIME: 13:45 - 1400



5 - 10 MILE EMT MAP

TIME: 13:45-14:00

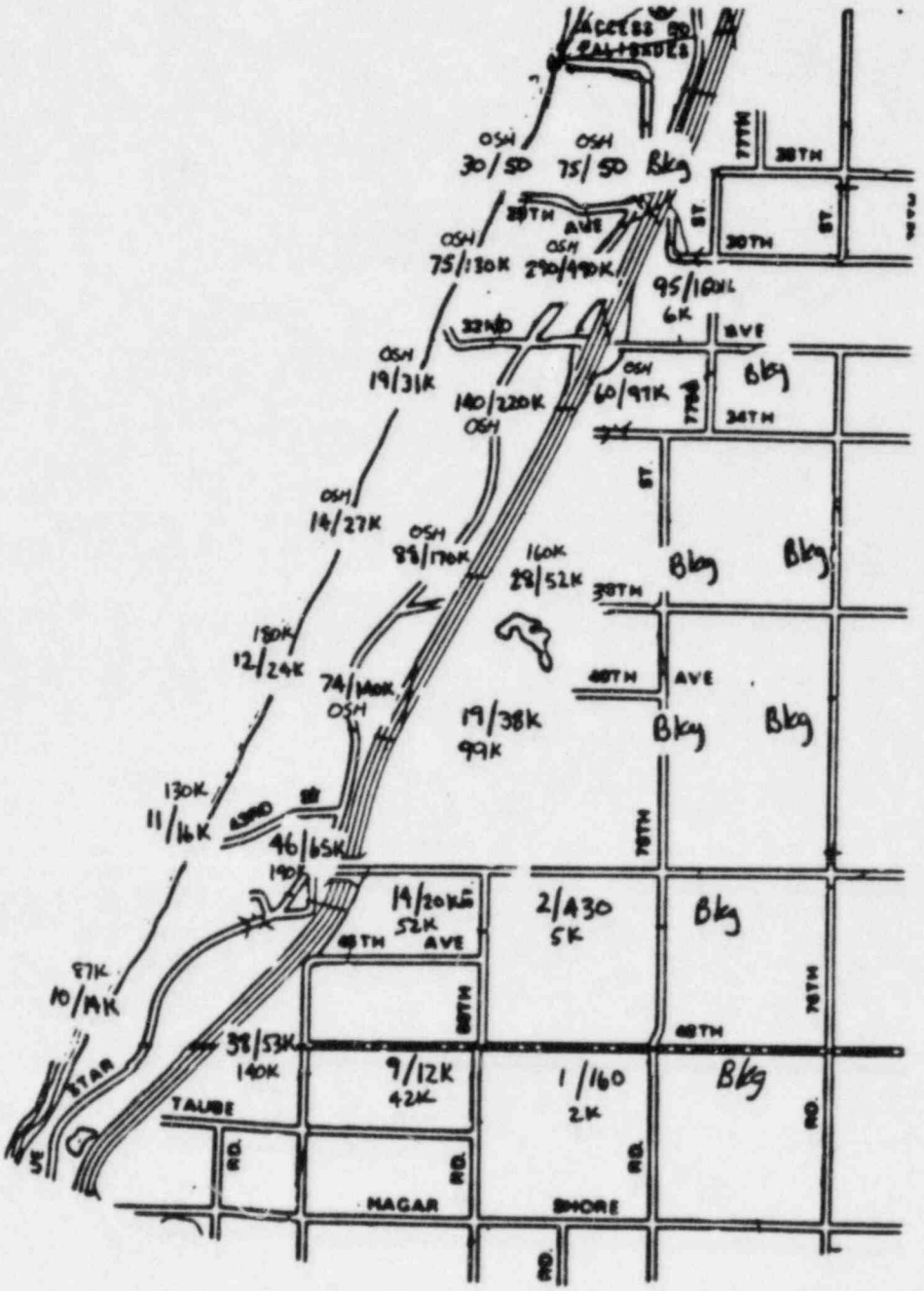




TIME: 14:00 - 14:15

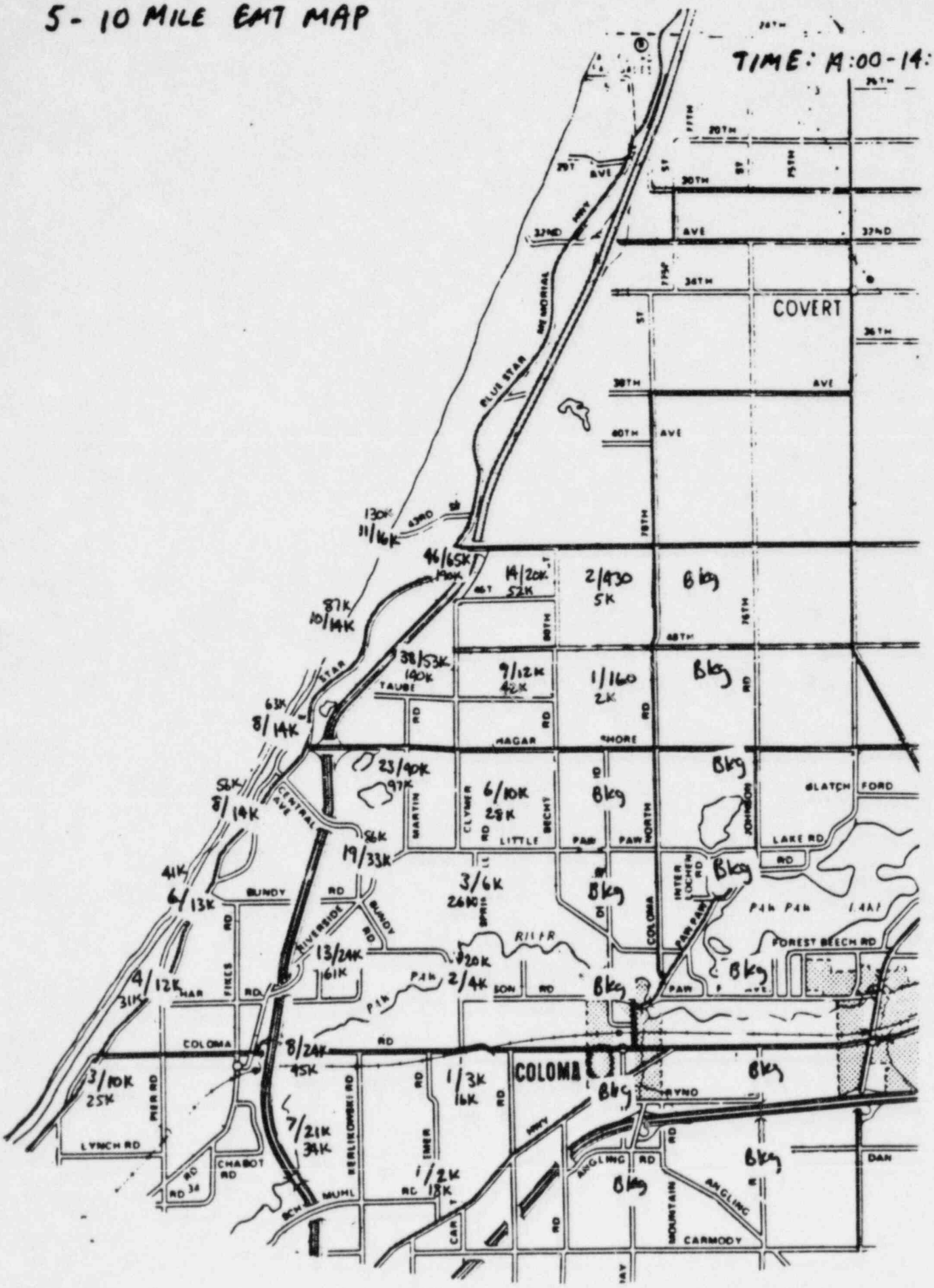
0 - 5MILE EMT MAP

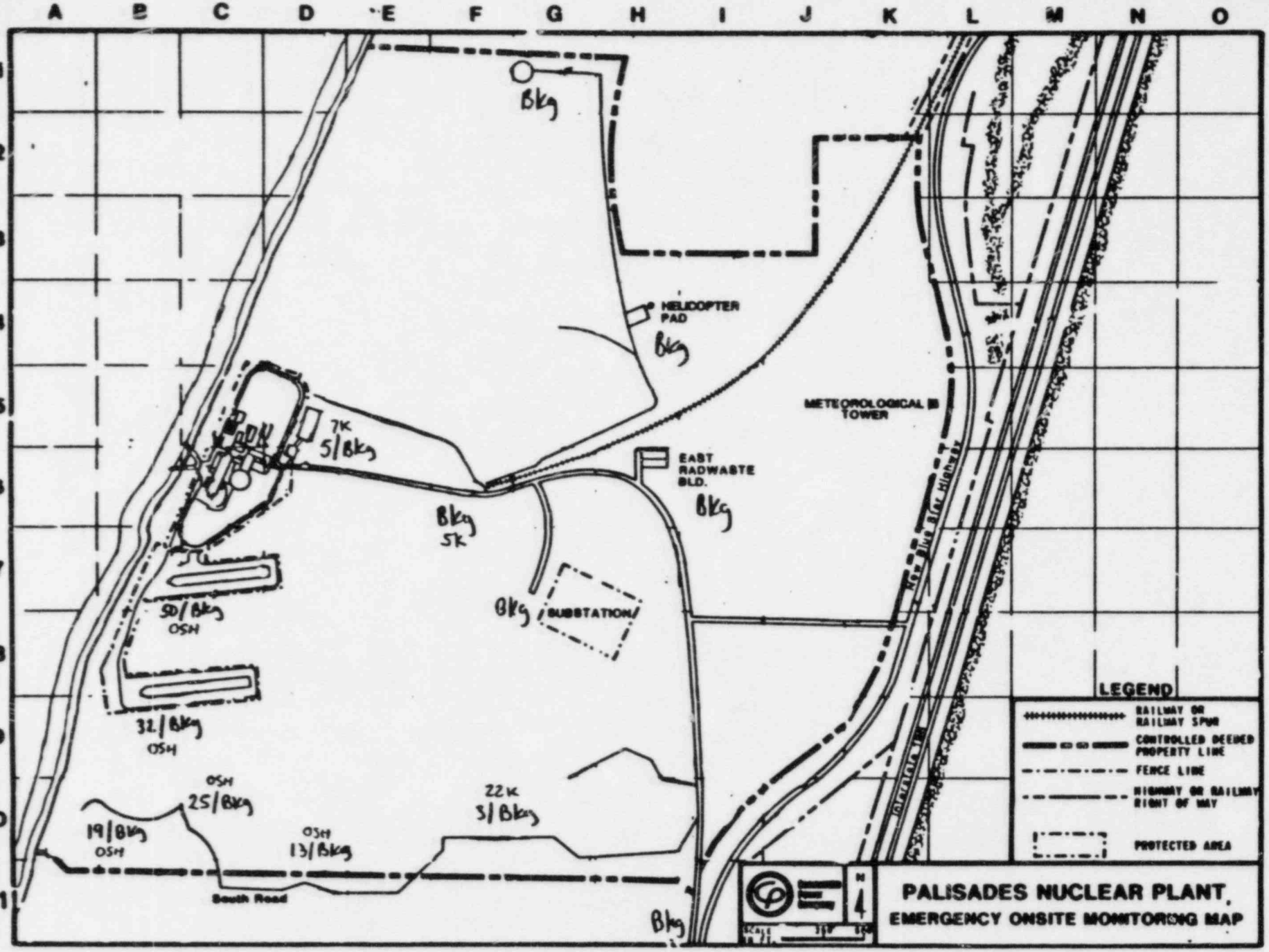
TIME : 14:00 - 14:15



5 - 10 MILE EMT MAP

TIME: A:00 - 14:15





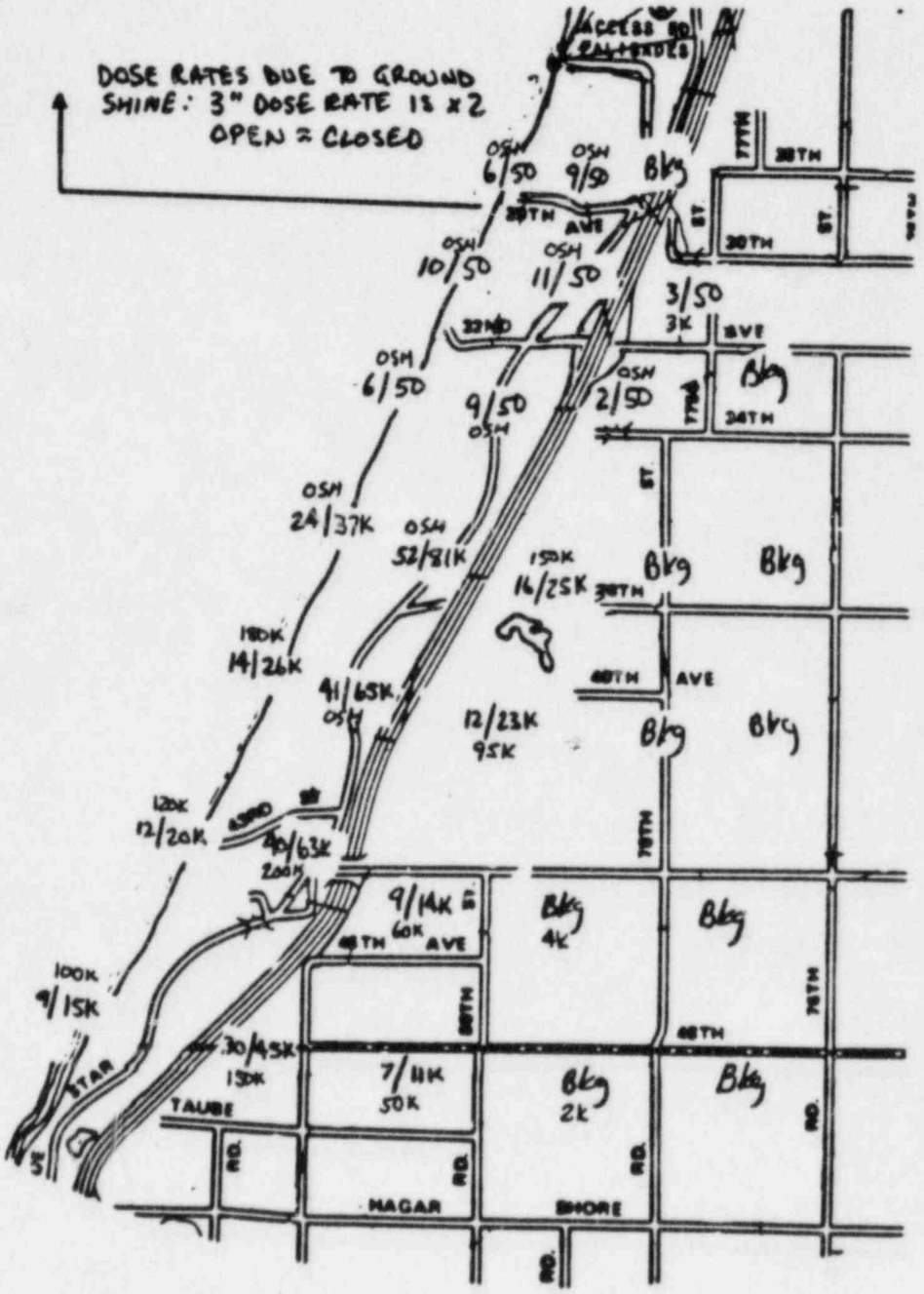
DOSE RATES FROM GROUND SHINE: 3" DOSE RATE IS X2

OPEN & CLOSED

···· TIME: 14:15 - 14:30

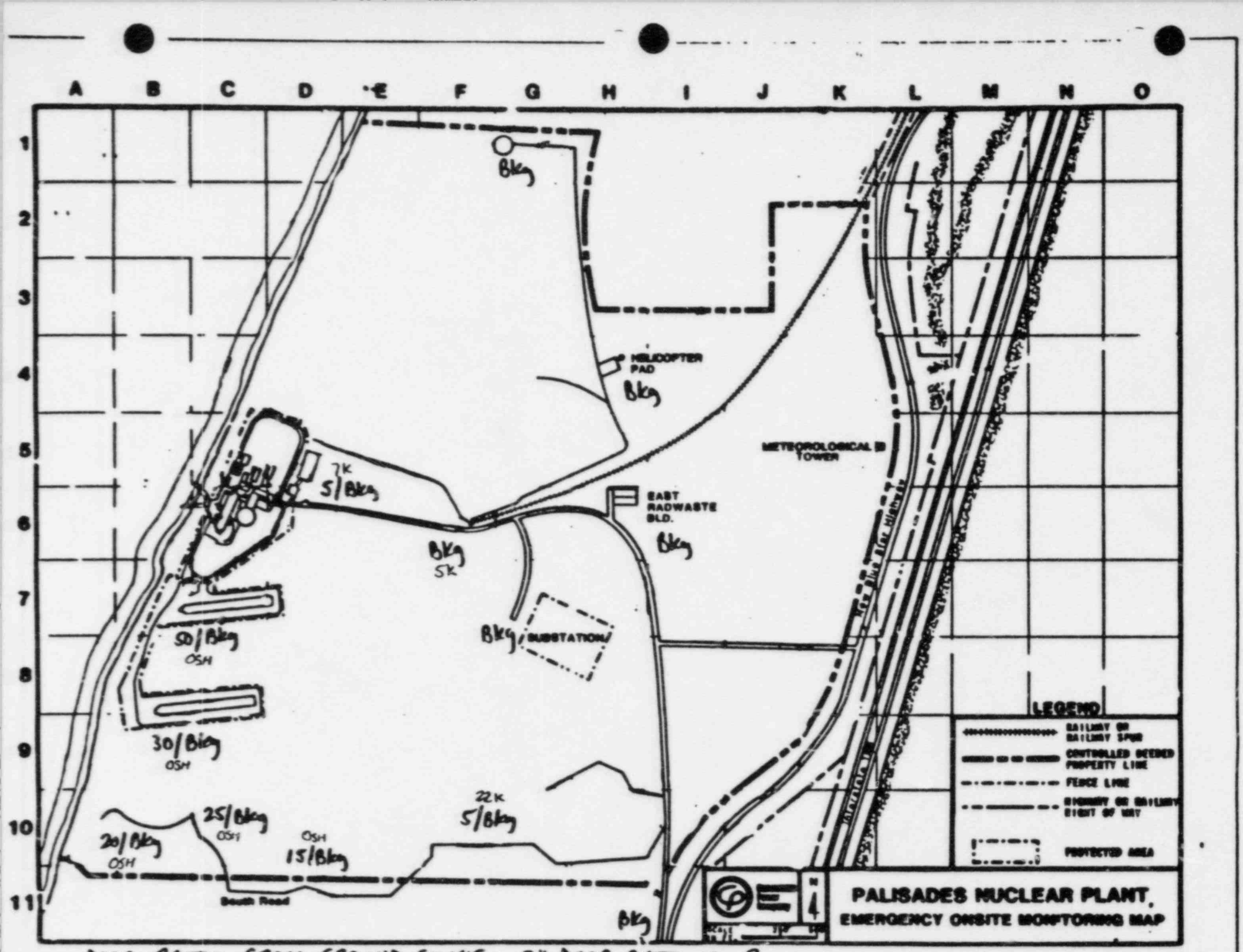
O - SMILE EMT MAP

TIME : 14:15 - 14:30



5 - 10 MILE EMT MAP

TIME: 14:15 - 14:30



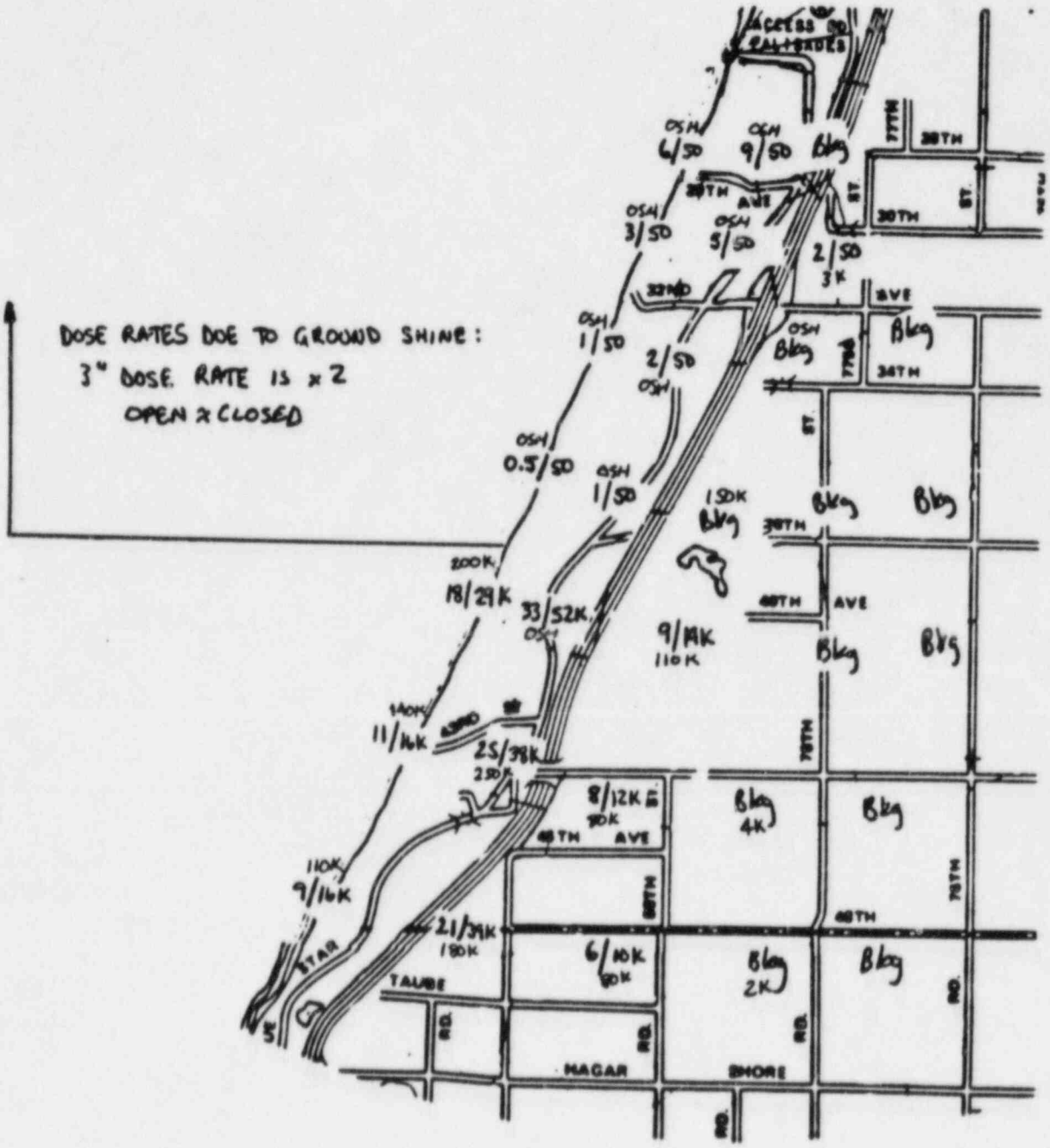
DOSE RATES FROM GROUND SHINE: 3" DOSE RATE IS x2

OPEN = CLOSED

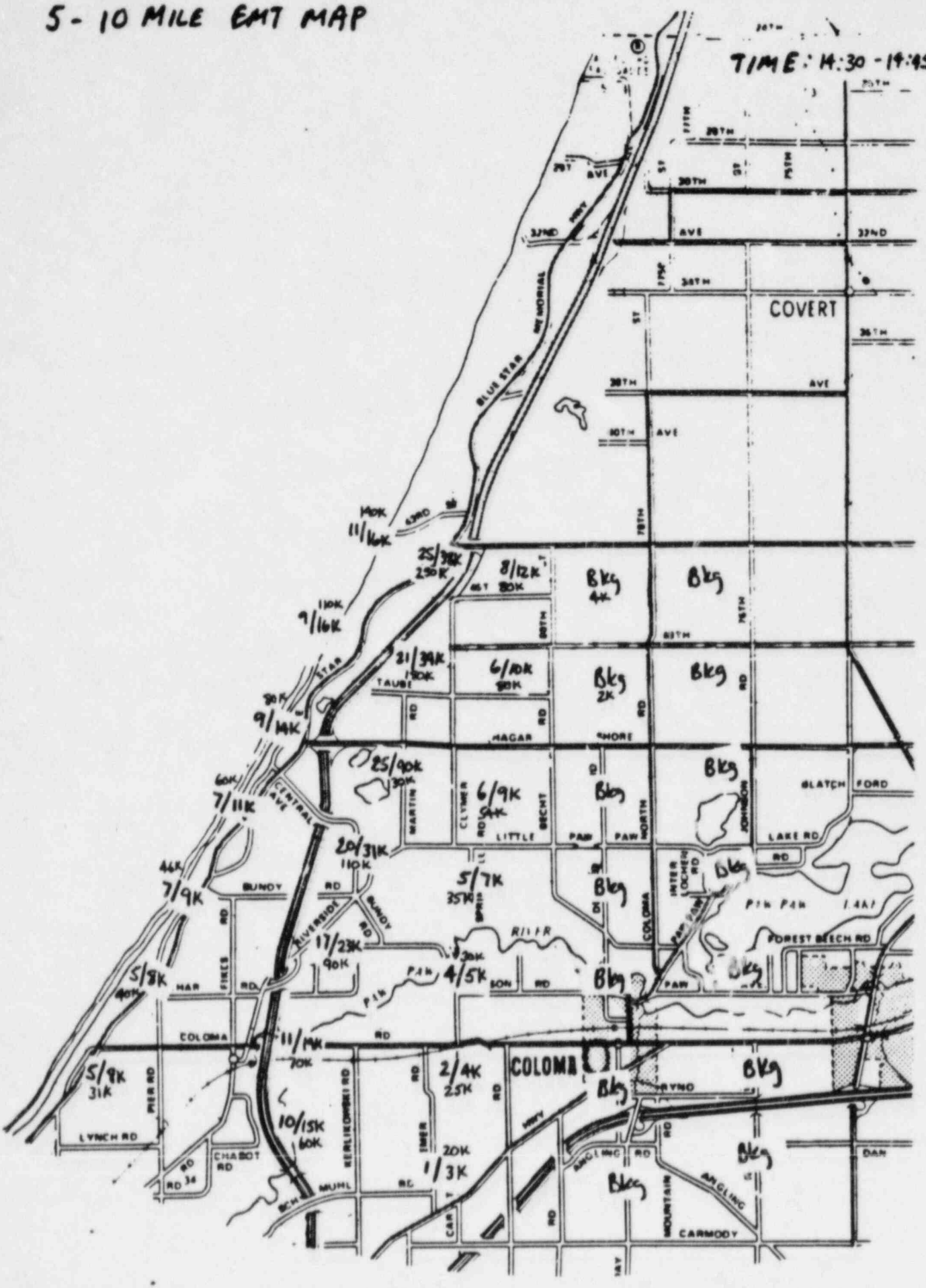
···· TIME: 14:30 - 14:45

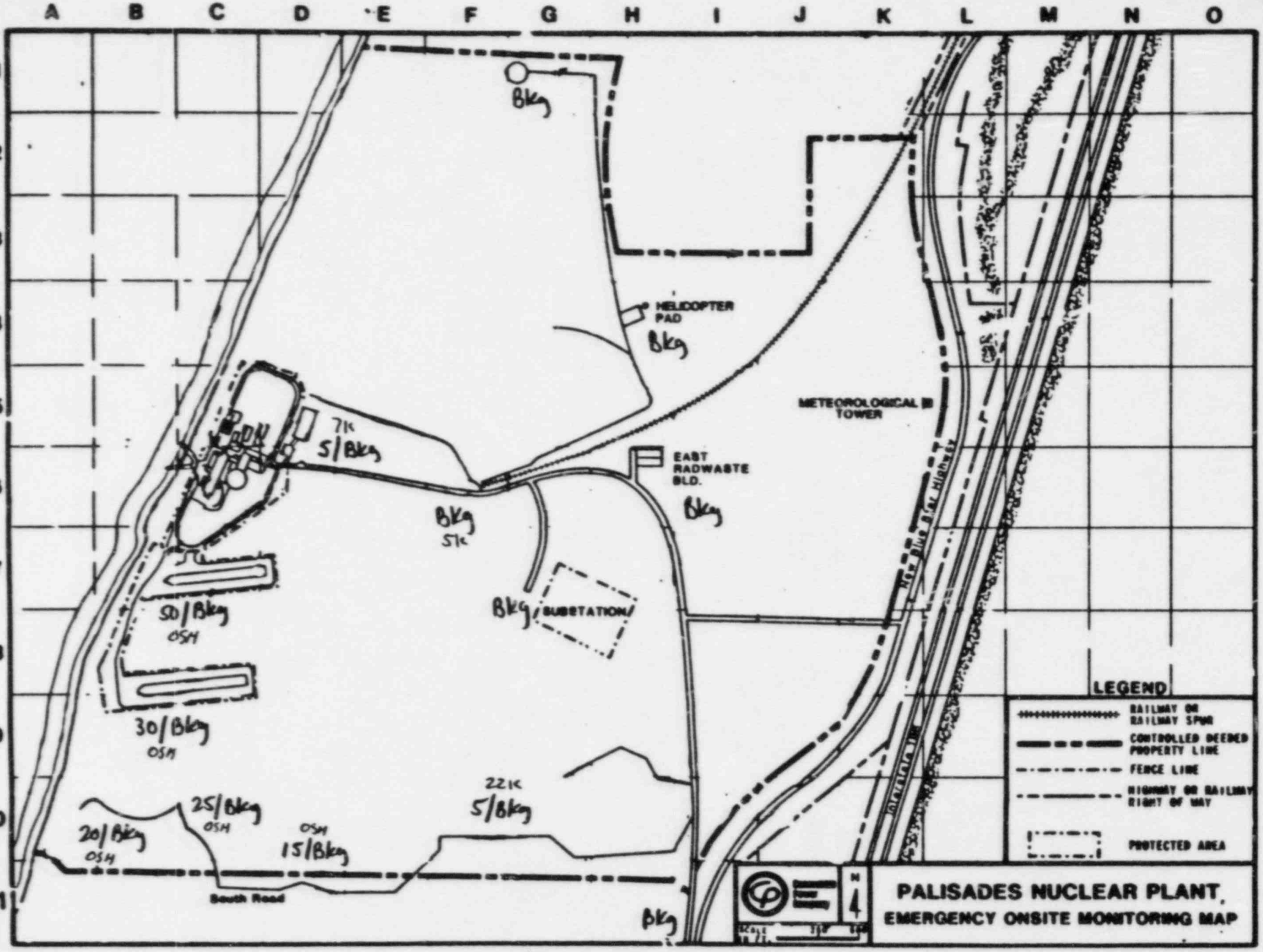
O - 5MILE EMT MAP

TIME: 14:30 - 14:45



5 - 10 MILE EMT MAP





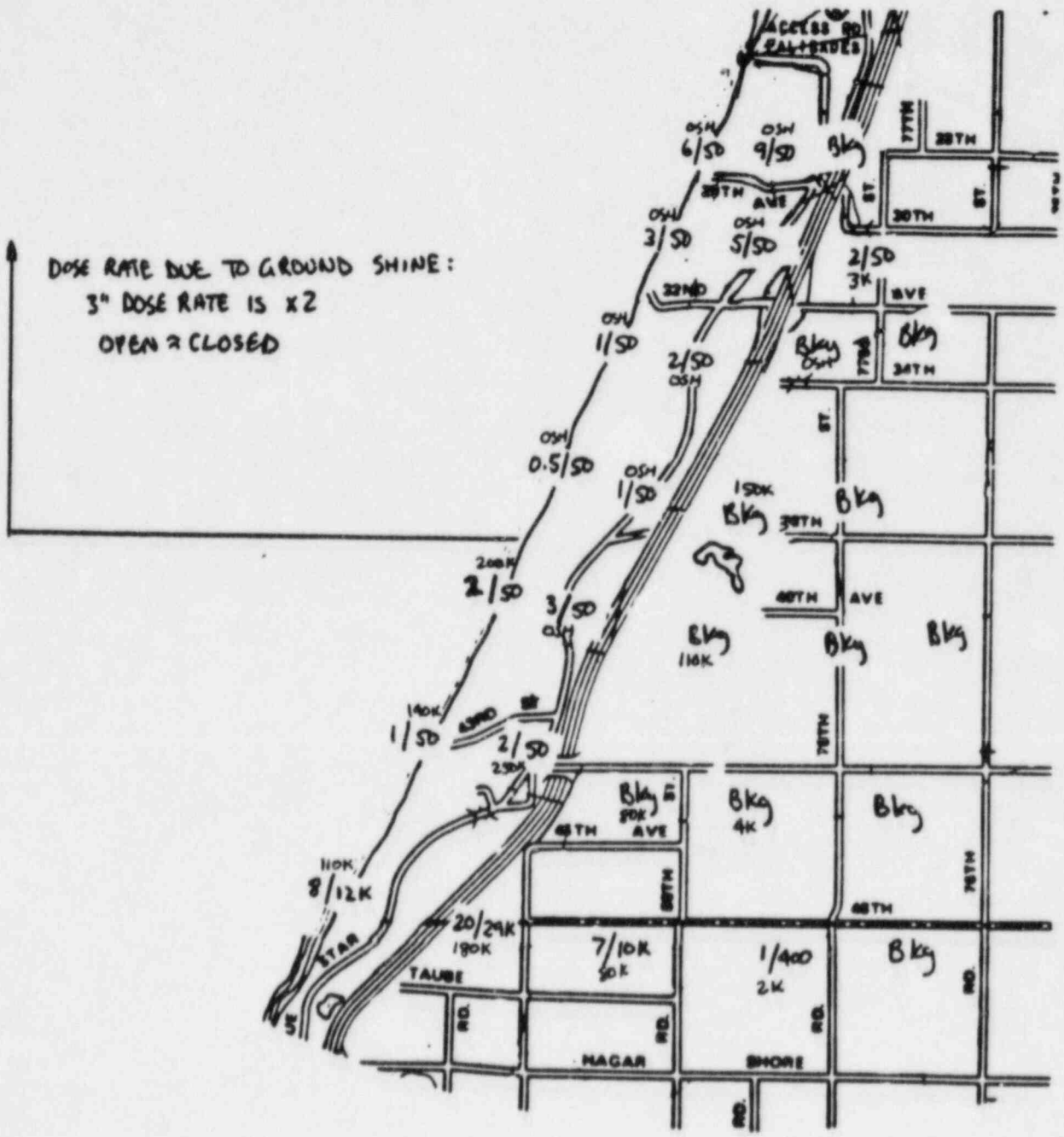
DOSE RATES FROM GROUND SHINE: 3" DOSE RATE IS x2

OPEN ≈ CLOSED

···· TIME: 14:45 – 15:00

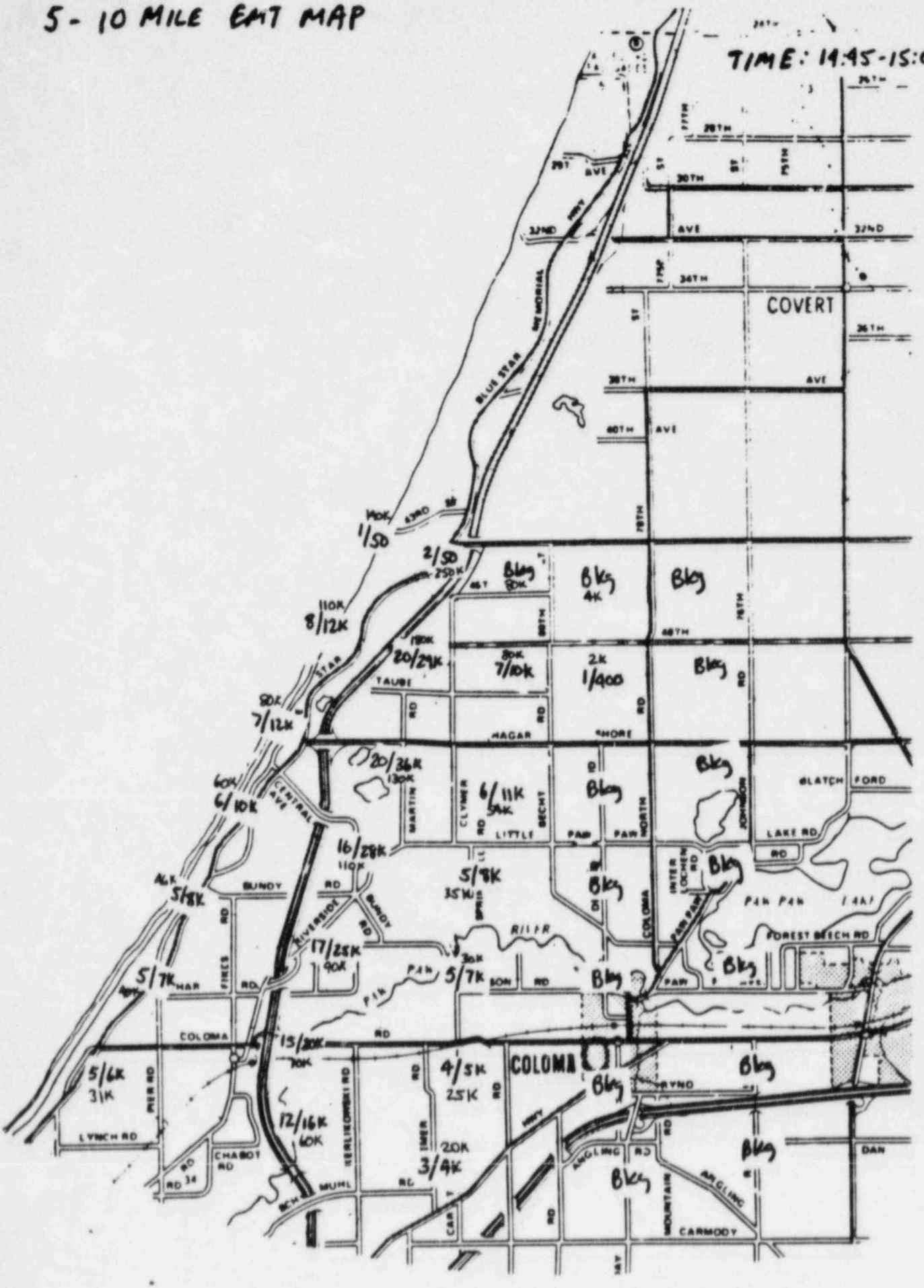
0 - 5MILE EMT MAP

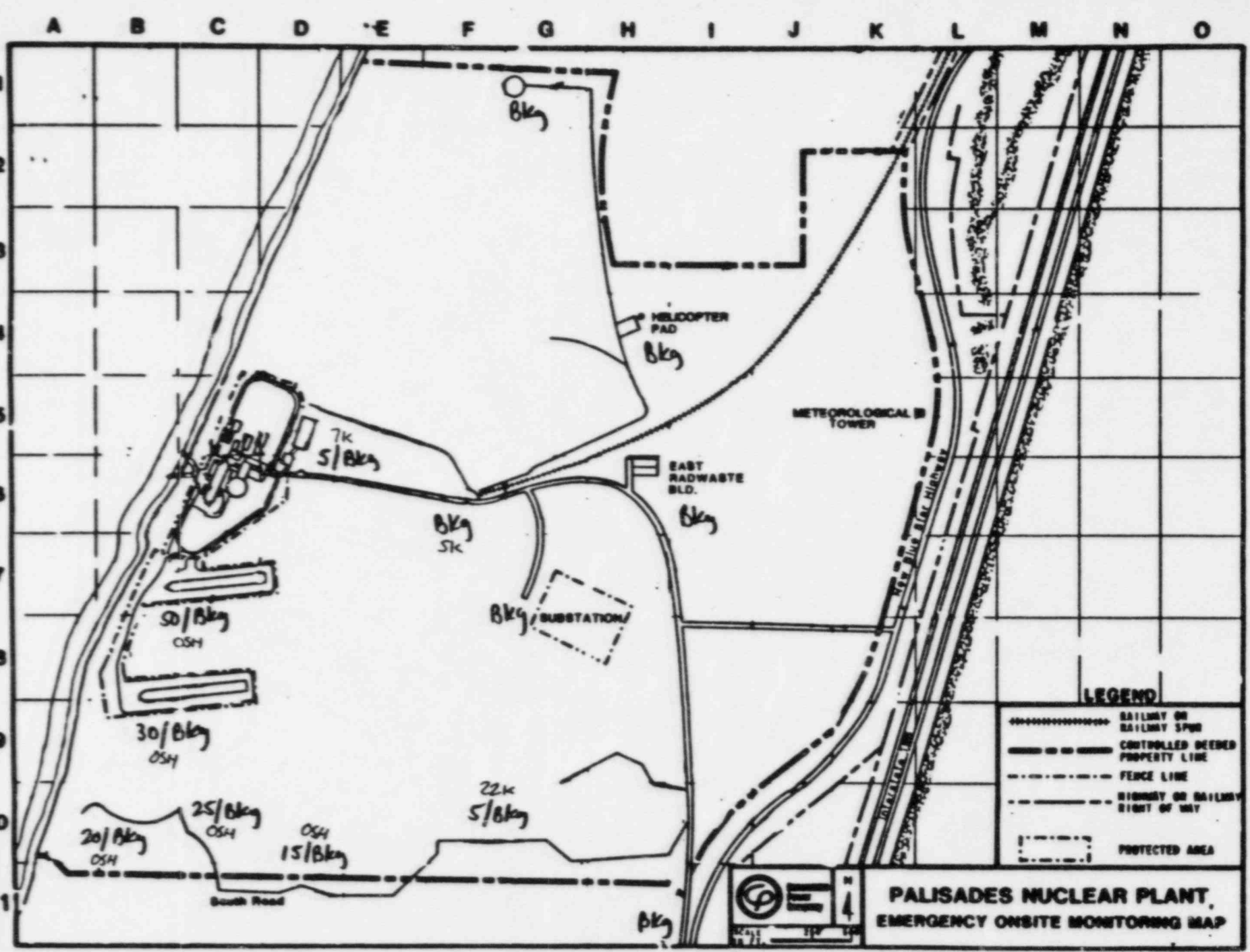
TIME: 14:45 - 15:00



5 - 10 MILE EMT MAP

TIME: 14:45 - 15:00





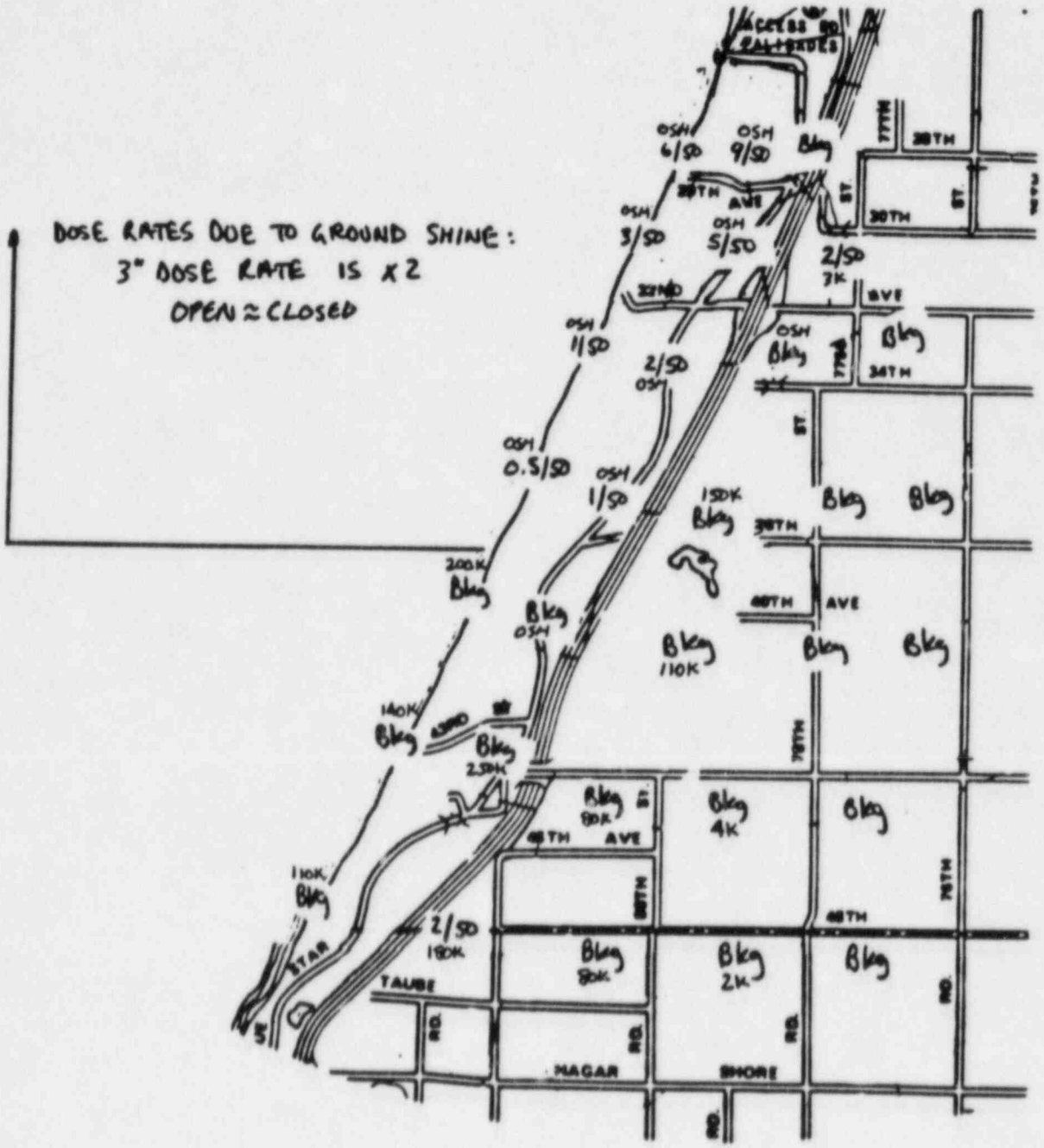
DOSE RATES FROM GROUND SHINE: 3" DOSE RATE IS x2

OPEN = CLOSED

···· TIME: 15:00 - 15:15

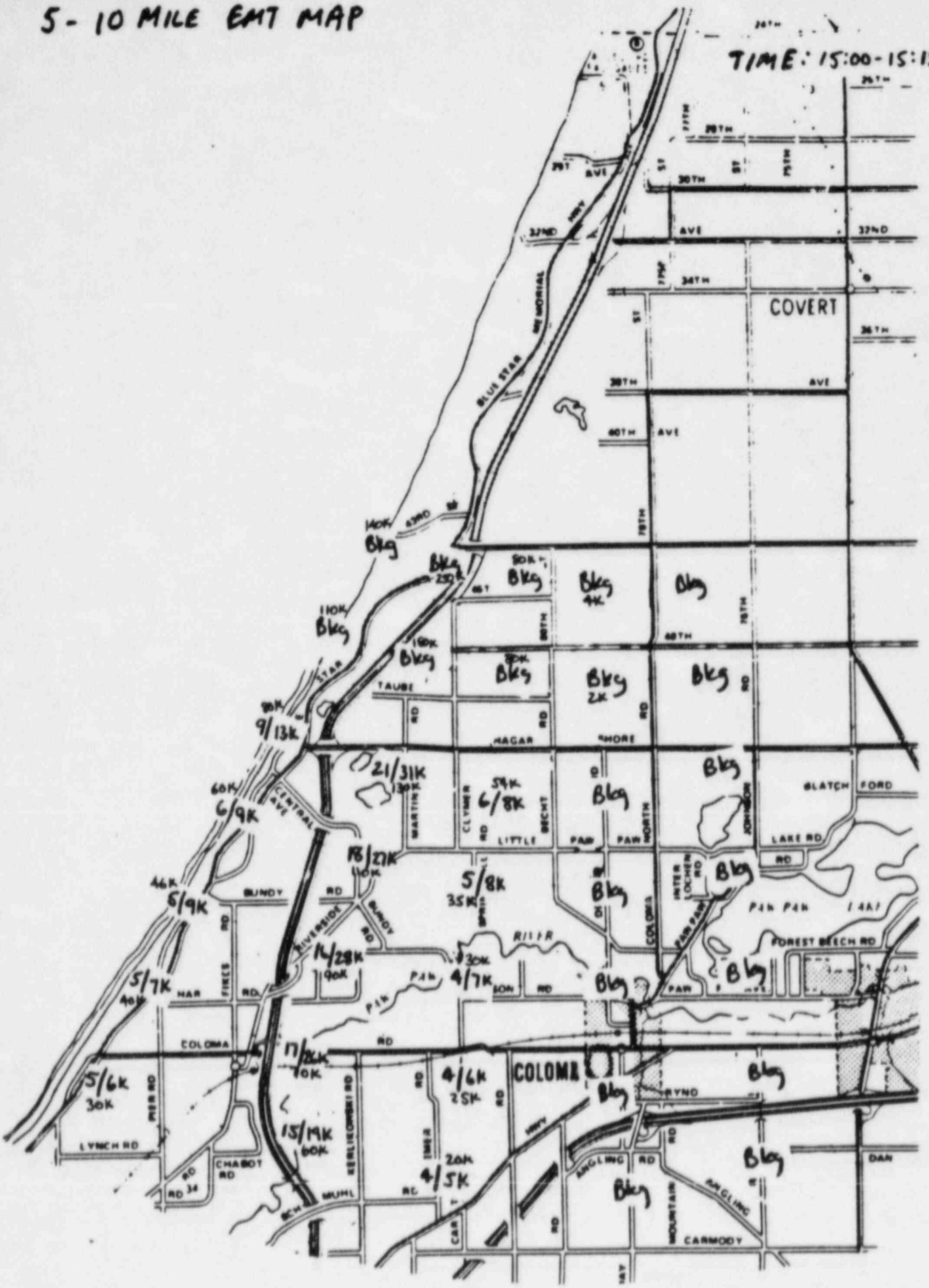
O - SMILE EMT MAP

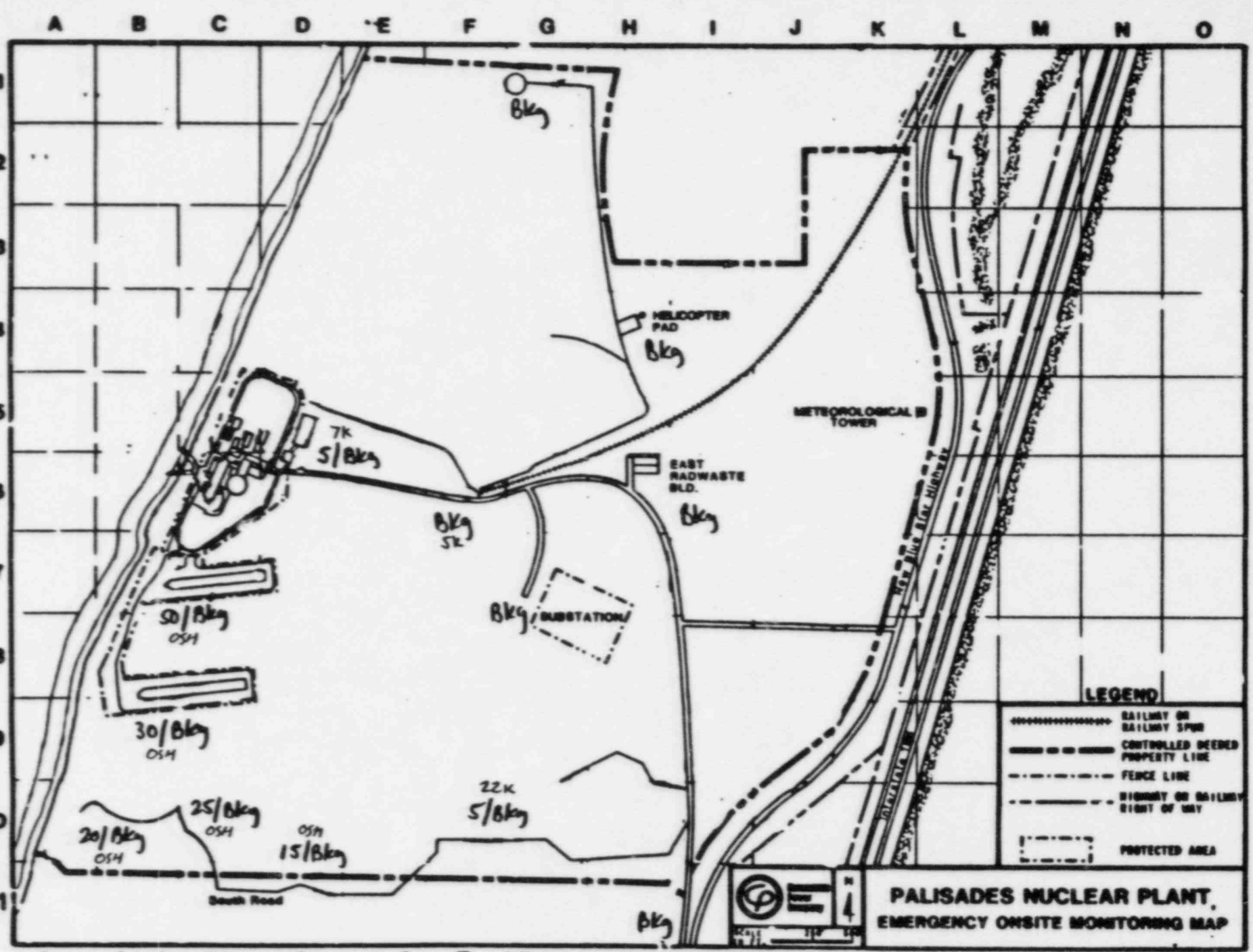
TIME : 15:00 - 15:15



5 - 10 MILE EMT MAP

TIME: 15:00 - 15:15





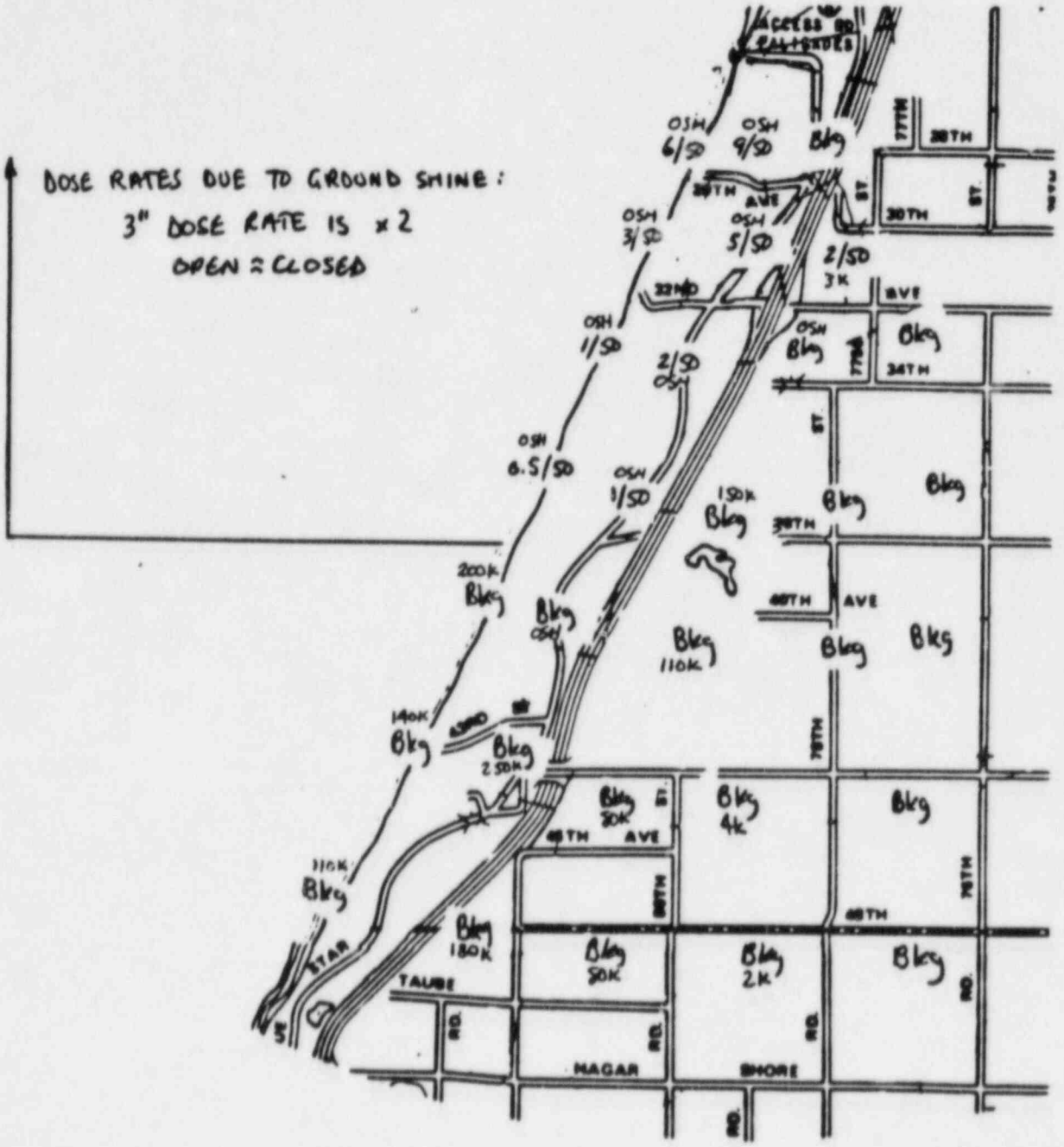
DOSE RATES FROM GROUND SHINE: 3" DOSE RATE IS x 2

OPEN ≈ CLOSED

···· TIME: 15:15 - 15:30

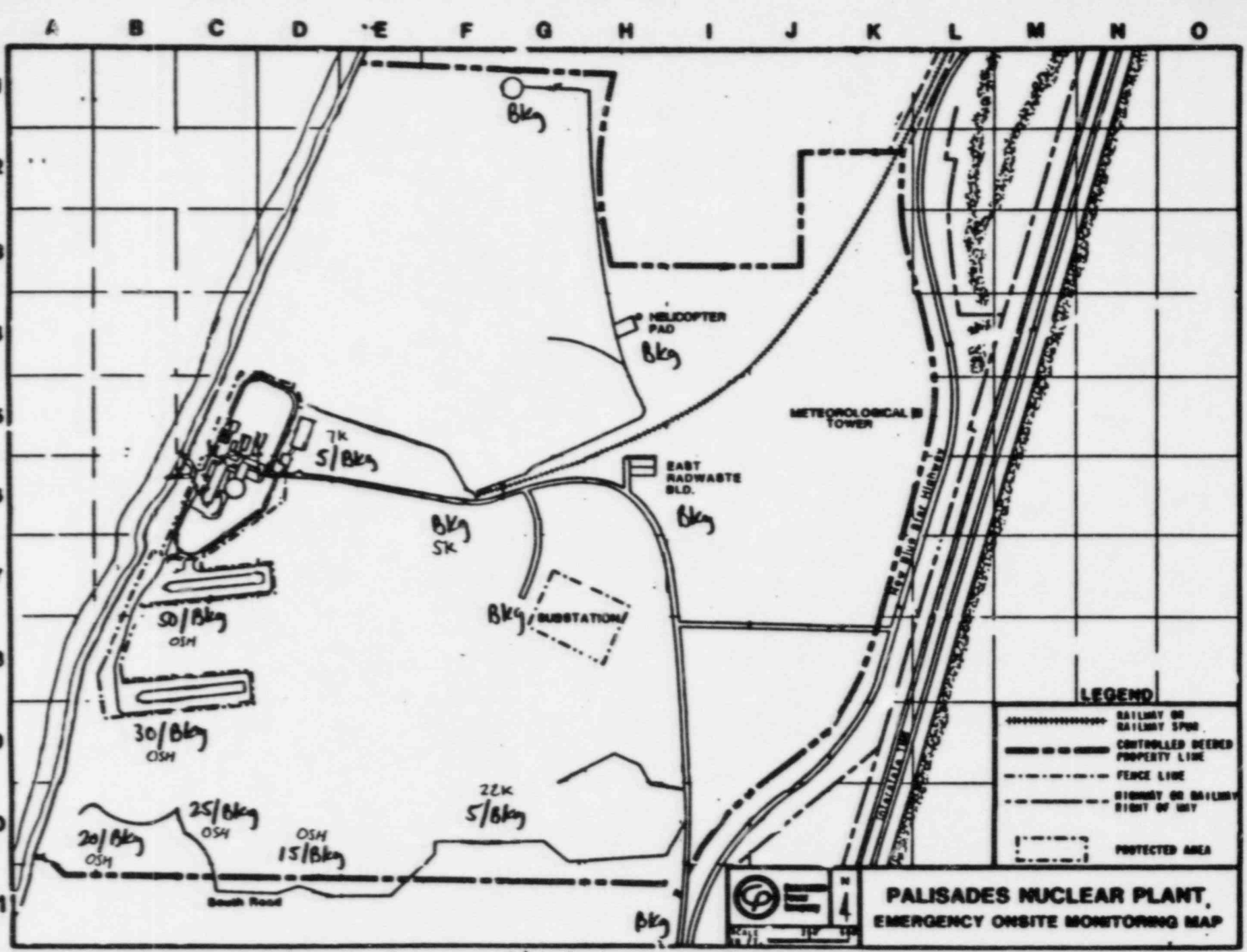
0 - 5MILE EMT MAP

TIME: 15:15 - 15:30



5 - 10 MILE EMT MAP

TIME: 15:15 - 15:30

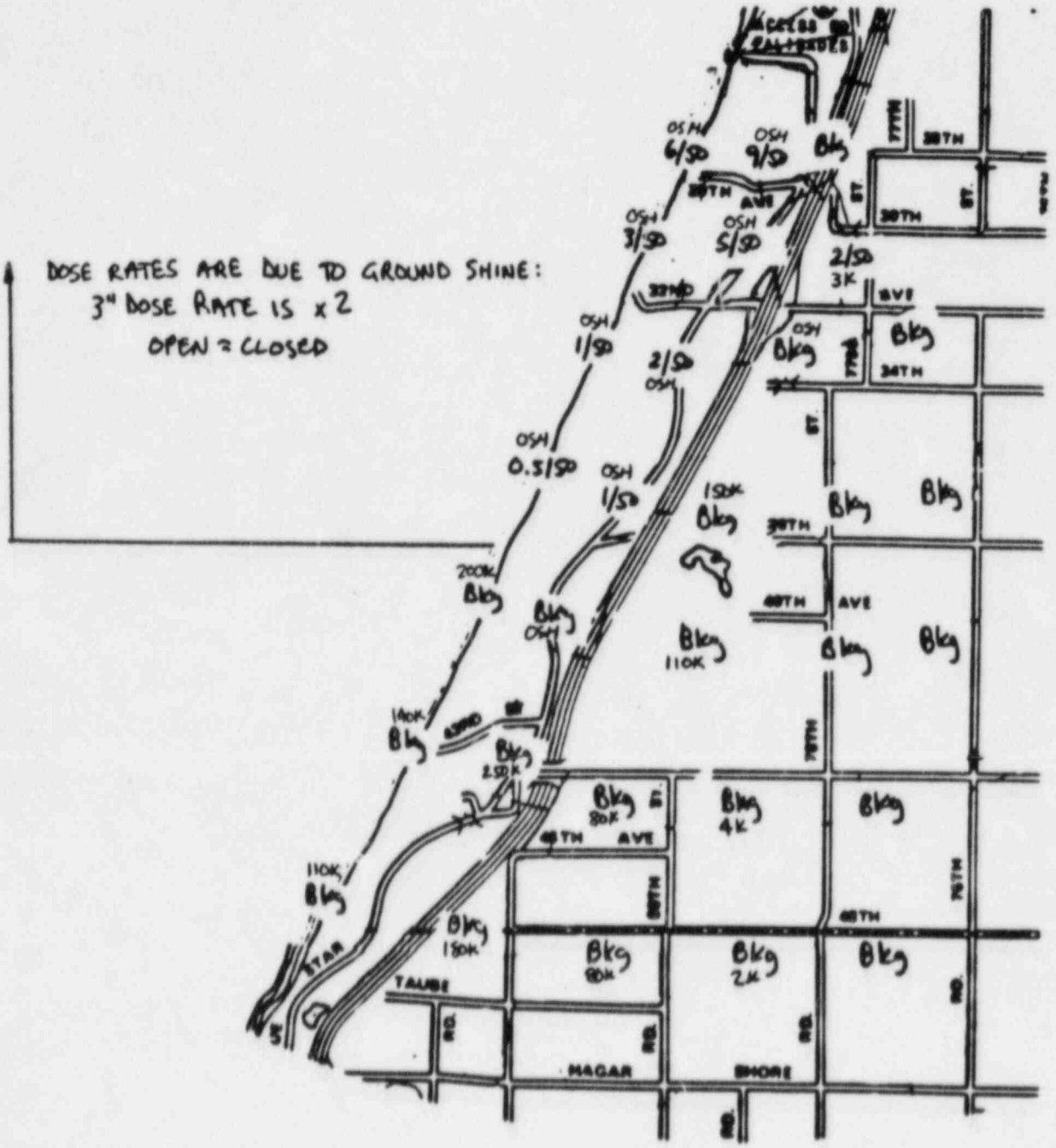


DOSE RATES FROM GROUND SHINE: 3" DOSE RATE IS x2 OPEN x CLOSED

TIME: 15:30 - 15:45

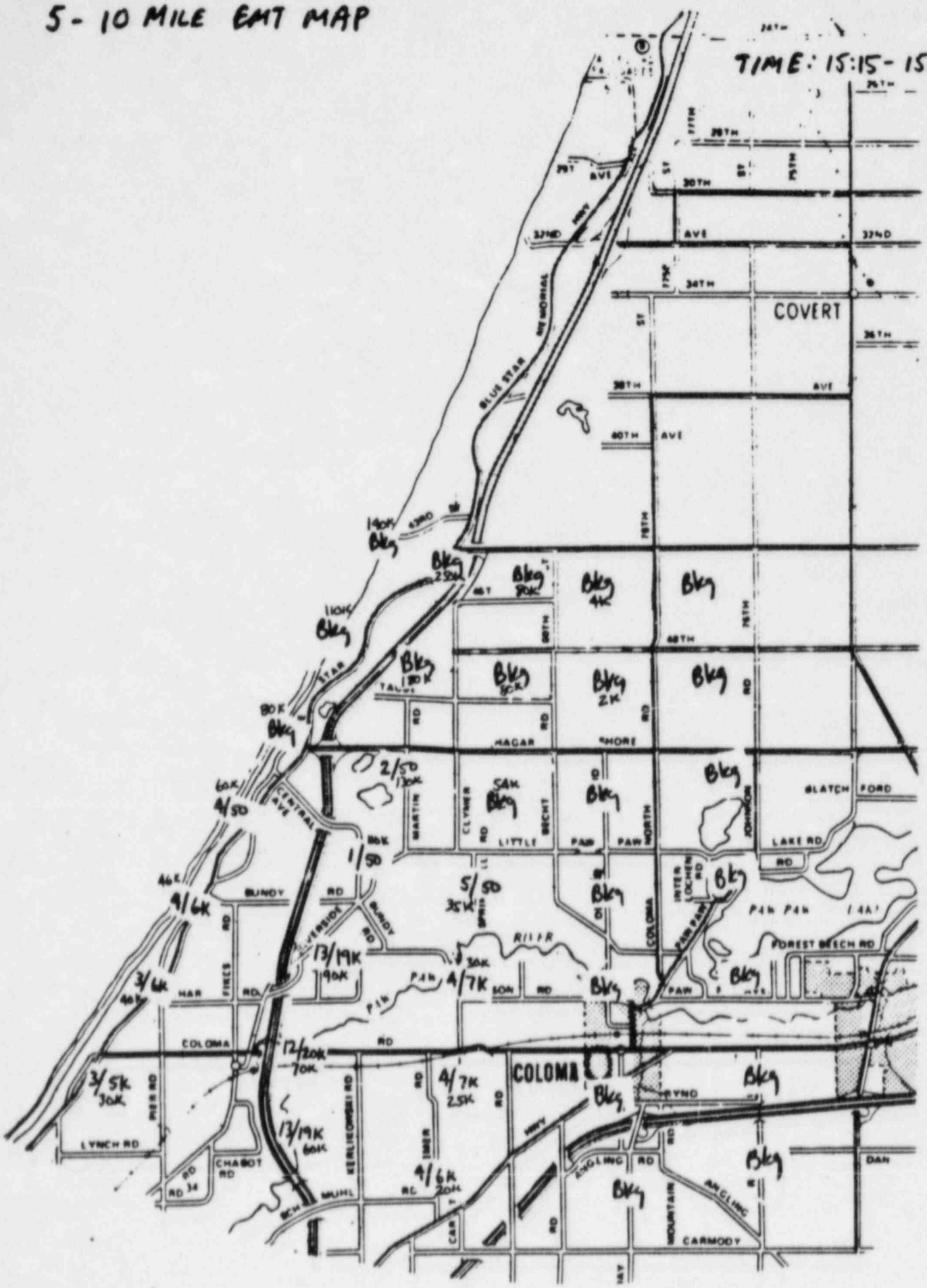
0 - 5 MILE EMT MAP

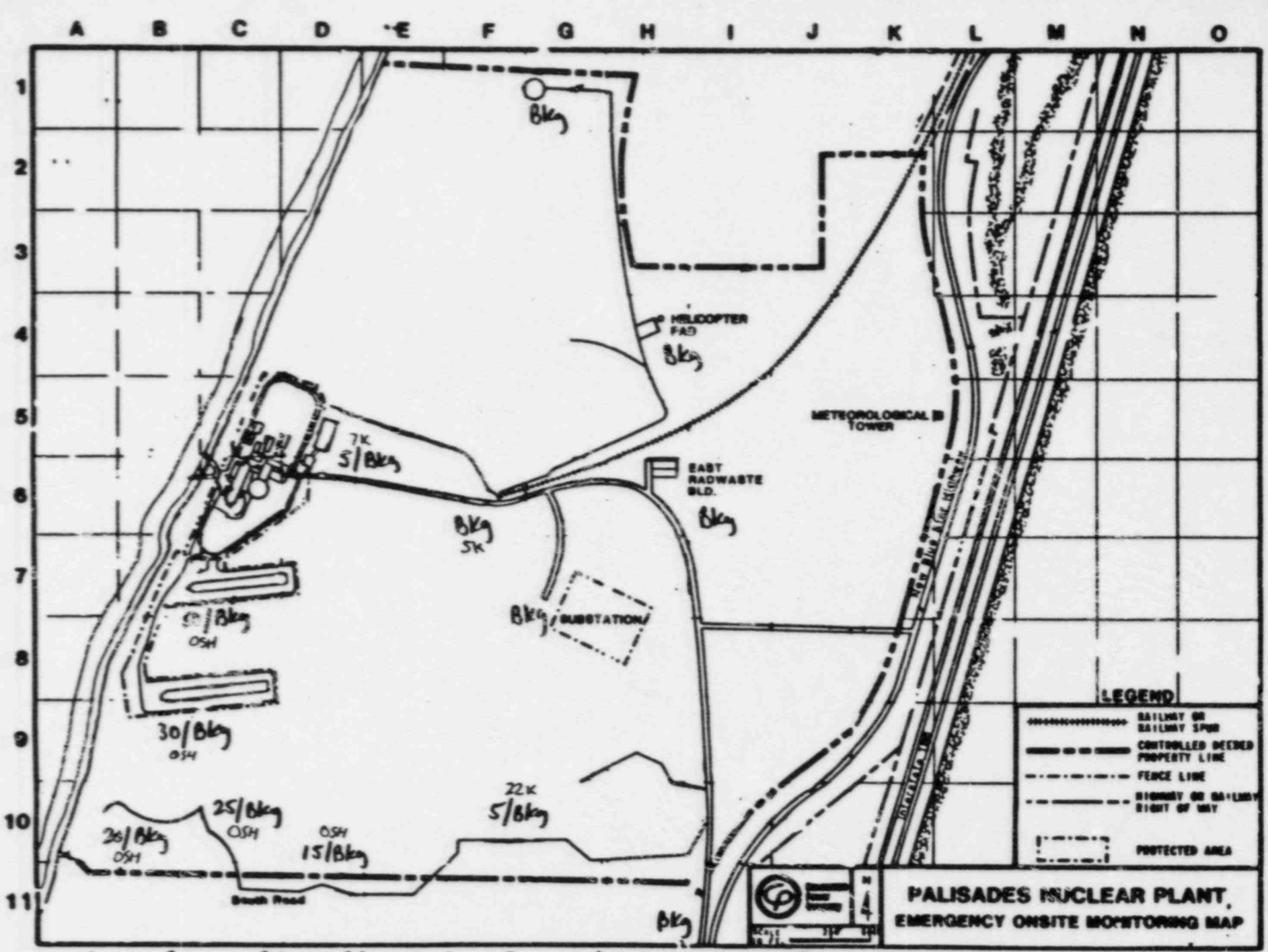
TIME: 15:30 - 15:45



5 - 10 MILE EMT MAP

TIME: 15:15 - 15:30





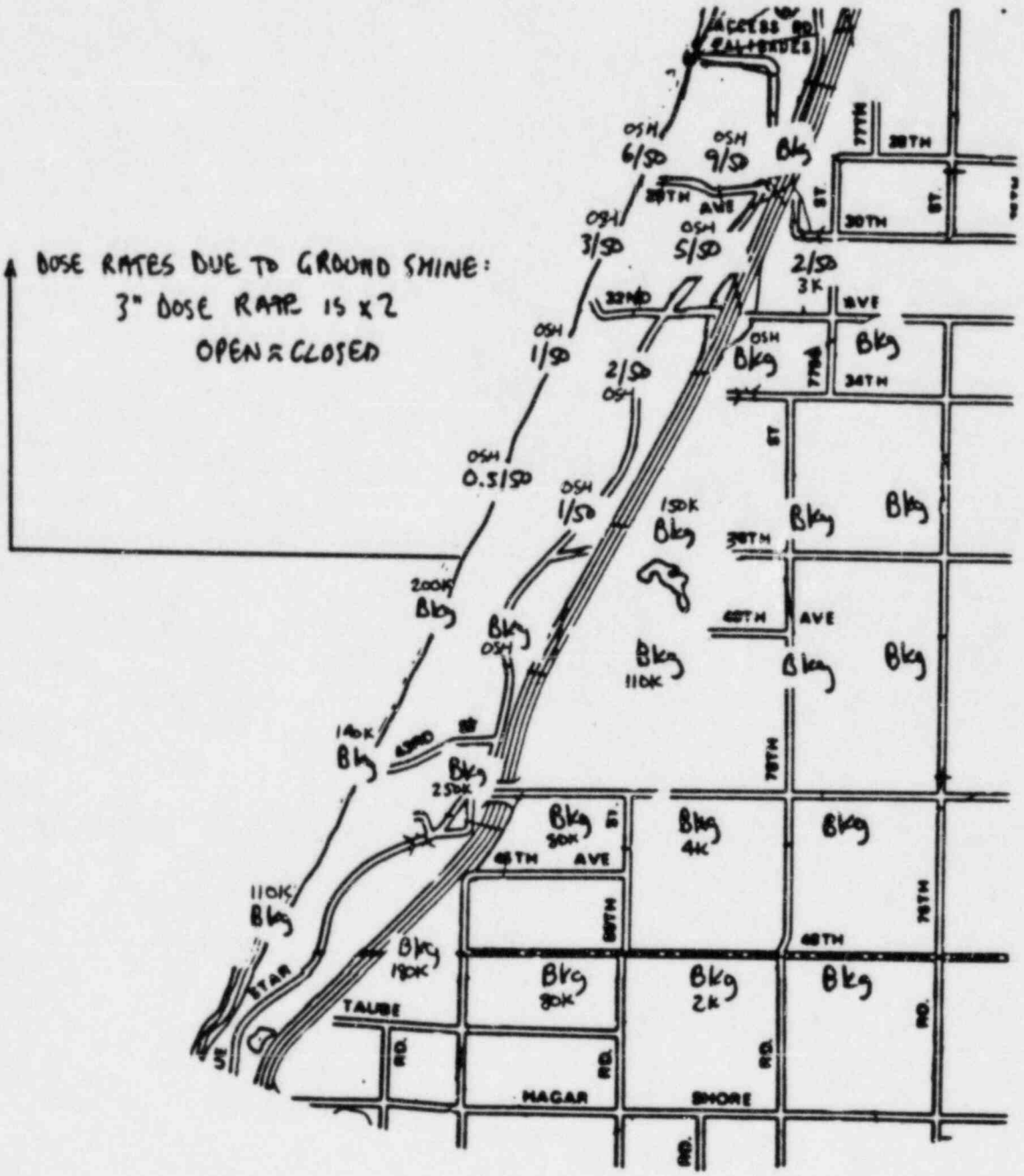
DOSE RATES FROM GROUND SHINE: 3" DOSE RATE IS x2

OPEN = CLOSED

···· TIME: 15:45 - 16:00

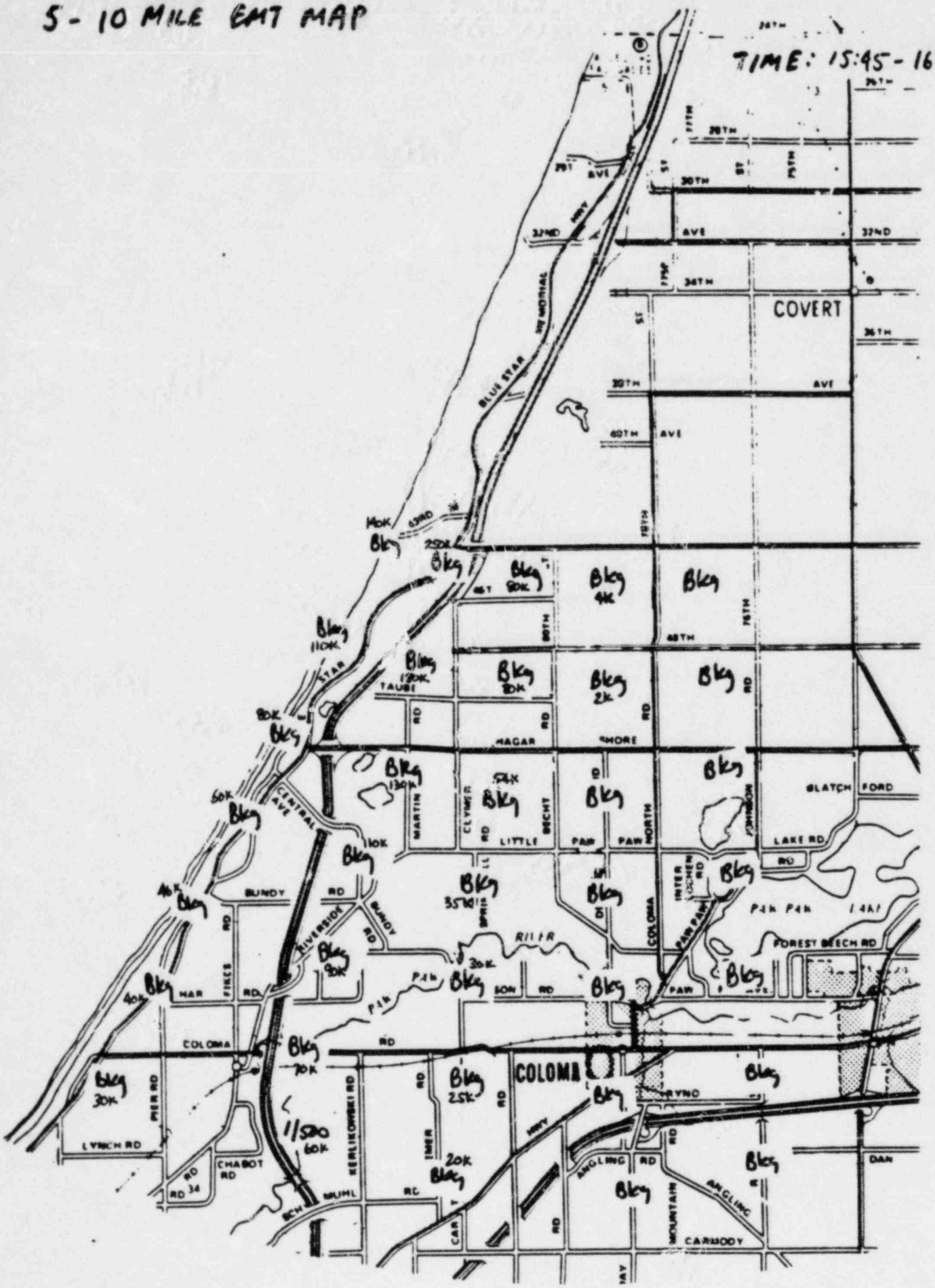
0 - 5MILE EMT MAP

TIME: 15:45 - 16:00



5 - 10 MILE EMT MAP

TIME: 15:45 - 16:00



ENVIRONMENTAL AND ACCIDENT TLDs AND FIXED OFFSITE AIR SAMPLER DATA

Because of the time required to retrieve and analyze these samples, the results are assumed unavailable until 12-24 hours following collection. Other environmental samples (milk, grass, soil, etc) require similar evaluation times (except those samples collected by the State covered in the Ingestion Pathway data); therefore, the results are not available in the time frame of the exercise.