

CURRENT
EMERGENCY PLAN
IMPLEMENTING PROCEDURES

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Volume 3A

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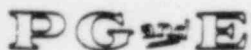
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Pacific Gas and Electric Company



DEPARTMENT OF NUCLEAR PLANT OPERATIONS

DIABLO CANYON POWER PLANT UNIT NO(S) 1 AND 2

TITLE: EMERGENCY OPERATING PROCEDURE
LOSS OF CHARGING

NUMBER EP OP-18A

REVISION 1

DATE 1/27/84

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IMPORTANT
TO
SAFETY

APPROVED: _____

R. E. Thompson
PLANT MANAGER

4-4-84

DATE

SCOPE

This procedure provides instructions for loss of charging flow to the reactor coolant system due to charging pump trouble or charging line failure.

Section A	Charging Pump Trouble - pg. 1
Section B	Charging Line Failure - pg. 4
Section C	Charging Line Failure on RHR - pg. 9

This procedure and changes thereto require PSRC review.

A. CHARGING PUMP TROUBLE

SYMPTOMS

1. Charging Pump Trip (blue light)
2. Charging header low pressure
3. Charging header flow indicator, FI-128A (CC2) indicates low flow.
4. Possible Annunciator Alarms:
 - a. RECIP CHARGING PUMP 13 (PK 04-16)
 - 1) Charging pump trouble alarms
 - b. CENTRIFUGAL CHARGING PUMP (PK 04-17, 18)
 - 1) Charging pump trouble alarms
 - c. LETDOWN PRESS/FLO TEMP (PK 04-21)
 - 1) Regen Hx Temps Hi
 - d. RCP No. ____ (PK 05-1, 2, 3, & 4)
 - 1) RCP Seal Wtr Flo Lo

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e. PZR LEVEL HI/LO CONTROL (PK 05-22)

1) Pzr Lo Lvl Charging Flo Demand

f. PZR LEVEL HI/LO (PK 05-21)

1) PZR Lvl Lo From Ref.

AUTOMATIC ACTION

1. Letdown line isolation due to no charging pump running (breaker position).

OBJECTIVES

1. Return charging flow to RCS.

ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

IMMEDIATE ACTIONS

- | | |
|--|---|
| 1. Start the standby charging pump. | 1. Start any other available charging pump. |
| 2. Verify charging flow, pressure and RCP seal injection. | |
| 3. Verify PZR level control in AUTO. | |
| a. Pressurizer Level being maintained or returning to the programmed band. | a. Place charging pump flow control to MANUAL. |
| | 1) Increase charging flow to return pressurizer level to the programmed band. |

TITLE: LOSS OF CHARGING

ACTIONS/EXPECTED RESPONSESUBSEQUENT ACTIONS

1. Verify adequate RCP seal water injection flow 6 to 8 gpm per RCP.
2. Restore normal RCS letdown flow.
3. Verify VCT parameters being maintained in AUTO.
 - a. VCT LEVEL (14-87%)
 - b. If level is $\leq 14\%$ verify Auto makeup occurring.
 - c. VCT Pressure (18 to 65 psig)

RESPONSE NOT OBTAINED

1. Adjust HCV 142 as necessary to provide adequate seal water injection flow.
- b. Take MANUAL control of VCT makeup system to return VCT level to the programmed band.
- c. If VCT pressure outside of band.
 - 1) Open CVCS-8101 (VB2) vent to waste gas system if pressure high.
 - 2) Dispatch operator to VCT Room to verify H₂ makeup is proper if pressure low.

TITLE LOSS OF CHARGING

B. CHARGING LINE FAILURE (BREAK)SYMPTOMS

1. Possible charging Hi flow.
2. Low charging header pressure.
3. Charging header flow indicator, FI-128A (CC2) indicates low flow, if break is upstream of FE-128.
4. Possible Annunciator Alarm:
 - a. LETDOWN PRESS/FLO TEMP (PK 04-21)
 - 1) Regen HX Temps Hi
 - b. RCP No. ____ (PK 05-1, 2, 3, & 4)
 - 1) RCP Seal Wtr Flo Lo
 - c. PZR LEVEL HI/LO CONTROL (PK 05-22)
 - 1) Pzr Lo Lvl Charging Flo Demand
 - d. PZR LEVEL HI/LO (PK 05-21)
 - 1) PZR Lvl Lo From Ref.
 - e. VOLUME CONTROL TK PRESS/LVL TEMP (PK 04-24)
 - 1) Volume Cont TK Lvl Lo-Lo
 - f. HIGH RADIATION (PK 11-21)
 - 1) Aux Bldg Rad Alarm
 - 2) Charging pp Room Rad Alarm

AUTOMATIC ACTION

1. Letdown line isolation valves close and pressurizer heaters trip on low pressurizer level (17%).
2. Possible charging pump suction swap from VCT to RWST (5%).

TITLE LOSS OF CHARGING

OBJECTIVES

1. Determine location of failure and isolate.
2. Provide alternate charging path, if possible.
3. Restore RCP seal water flow, if necessary.
4. Restore RCS (Pressurizer) level.
5. Restore Volume Control tank level.

ACTIONS/EXPECTED RESPONSERESPONSE NOT OBTAINEDIMMEDIATE ACTIONS

CAUTION: If at any time during the course of this procedure the reactor trips GO TO EP OP-5.

- | | |
|---|--|
| <ol style="list-style-type: none">1. Verify the VCT makeup control system is in AUTO.2. CLOSE letdown orifice isolation valves CVCS 8149 A, B and C and letdown isolation valves LCV-459 and LCV-460.3. CLOSE CVCS-8146, normal charging line stop valve. | <ol style="list-style-type: none">1. Place the reactor makeup system in AUTO and go to START on the Makeup Control Switch. |
|---|--|

SUBSEQUENT ACTIONS

- | | |
|---|--|
| <ol style="list-style-type: none">1. Monitor Pressurizer Level and pressure throughout the procedure.<ol style="list-style-type: none">a. DECREASING OR STEADY
- GO TO EP OP-20,
Excessive RCS Leakage. | <ol style="list-style-type: none">a. Continue with Subsequent Actions. |
|---|--|

TITLE: LOSS OF CHARGING

ACTIONS/EXPECTED RESPONSERESPONSE NOT OBTAINEDSUBSEQUENT ACTIONS CON'T

2. Monitor Charging Header Pressure.
 - a. Pressure returned to normal.
 - 1) OPEN CVCS-8147
 - 2) Reestablish letdown
 - 3) GO TO STEP 7 of Subsequent Actions

NOTE: Perform Step 3, 4 and 5 simultaneously.

3. CLOSE HCV-142.

4. Place charging pump flow control to MANUAL and reduce flow while maintaining adequate flow to each RCP seal.

4. If charging pressure or adequate flow to each RCP cannot be maintained the leak is upstream of HCV-142. Take the following steps:

- a. If centrifugal charging pump is operating swap to the reciprocating charging pump.
- b. CLOSE FCV-128.
- c. If charging pressure and seal injection rate returns to normal perform the following steps:

- 1) Shutdown CCP(s)
- 2) OPEN HCV-142
- 3) OPEN CVCS-8146
- 4) CLOSE CVCS-8388 B, downstream isolation of FCV-128
- 5) Establish normal letdown
- 6) GO TO Step 7 of Subsequent Actions.

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ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

SUBSEQUENT ACTIONS CON'T

- d. If injection flow is not reestablished by performing the above steps "a" and "b", the leak is down stream of FCV-128. Perform the following steps:

- 1) STOP reciprocating charging pump.
- 2) Start one centrifugal charging pump.
- 3) Maintain FCV-128 in the closed position.

NOTE: It is necessary to establish communications between the Auxiliary Building and the Control Room to coordinate charging operations for PZR level control through BIT Bypass, CVCS-8969.

- 4) Open Boron Injection Tank bypass valve (CVCS-8969) to establish a means of inventory control of Primary System coolant.

CAUTION: Excess letdown flow to the VCT through HCV-123 should be controlled slowly due to the effect on backpressure on the RCP seals.

- 5) Establish excess letdown as required after pressurizer level is restored to at least 22%.
- 6) Since seal water to RCP was secured verify CCW to RCP Thermal Barrier and closely monitor RCP bearing temperatures.

TITLE: LOSS OF CHARGING

ACTIONS/EXPECTED RESPONSERESPONSE NOT OBTAINED

5. Monitor charging header pressure.
6. Place Excess Letdown Heat exchanger in service as follows to control pressurizer level in programmed band:
 - a. Check CVCS-8143 in NORMAL (return to VCT).
 - b. Open FCV-361.
 - c. Check HCV-123 CLOSED.
 - d. OPEN CVCS-8166 and 8167.
 - e. SLOWLY Open HCV-123.

c. CLOSE HCV-123.

NOTE: DO NOT exceed 190°F as indicated in TI-122. Since there are no FLOW indicators, an increase in pressure and temperature indicates flow.

- f. Adjust HCV-123 as necessary for letdown flow.
7. Minimize load changes and increase the frequency of the reactor coolant gross activity analyses to every 4 hours.
8. Ensure the requirements of Technical Specifications 3.1.2.3 or 3.1.2.4 and/or 3.5.2. or 3.5.3 are satisfied.
9. Refer to Emergency Procedure R-5, Radioactive Liquid Spill, to combat any uncontrolled radioactive leakage.

TITLE: LOSS OF CHARGING

C. CHARGING LINE FAILURE (BREAK) WHILE ON RHR:SYMPTOMS:

1. Possible charging Hi flow.
2. Low charging header pressure.
3. Charging header flow indicator, FI-128 (CC2) indicates low flow, if break is upstream of FE-128.
4. Possible Annunciator Alarms:
 - a. LETDOWN PRESS/FLO TEMP (PK 04-21)
 - 1) Regen HX Temps Hi
 - b. RCP No. _____ (PK 05-1, 2, 3, & 4)
 - 1) RCP Seal Wtr Flo Lo
 - c. PZR LEVEL HI/LO CONTROL (PK 05-22)
 - 1) PZR Lo Lvl Charging Flo Demand
 - d. PZR LEVEL HI/LO (PK 05-21)
 - 1) PZR Lvl Lo From Ref.
 - e. VOLUME CONTROL TK PRESS/LVL TEMP (PK 04-24)
 - 1) Volume Control TK Lvl Lo-Lo

AUTOMATIC ACTION

1. Letdown line isolation valves close and pressurizer heaters trip on low pressurizer level (17%).
2. Possible charging pump suction swap from VCT to RWST (5%).

OBJECTIVES

1. Determine location of failure and isolate.
2. Provide alternate charging path, if possible.
3. Restore RCP seal water flow, if necessary.
4. Restore RCS (Pressurizer) level.
5. Restore Volume Control Tank level.

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TITLE: LOSS OF CHARGING

ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

IMMEDIATE ACTIONS

1. Shutdown any Reactor Coolant Pumps which are in operation.
2. STOP all charging pumps that are running.
3. CLOSE CVCS-8146, normal charging line stop valve.
4. CLOSE HCV-133, RHR letdown.

3. CLOSE CVCS-8107, charging line penetration isolation valve.

SUBSEQUENT ACTIONS

1. Monitor Pressurizer Level and RCS pressure.
 - a. DECREASING - Reestablish charging
 - 1) Reestablish charging via BIT
 - 2) Start centrifugal charging pump
 - 3) Recover RCS pressure and PZR level
 - 4) Reexamine symptoms and rediagnose casualty.
 - b. STEADY - Maintain RCS pressure with pressurizer heaters.
 - c. Isolate the break.
 - d. If plant condition requires a RCP, restart the required RCP(s).

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TITLE: LOSS OF CHARGING

ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

SUBSEQUENT ACTIONS CON'T

2. Increase the frequency of the reactor coolant gross activity analysis to every 4 hours.
3. Ensure the requirements of Technical Specifications 3.1.2.1 and 3.5.3 are satisfied.
4. Refer to Emergency Procedure R-5, Radioactive Liquid Spill, to combat any uncontrolled radioactive leakage.

DIABLO CANYON POWER PLANT UNIT NO(S) 1 AND 2

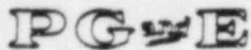
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TITLE LOSS OF CHARGING

APPENDIX Z

NOTIFICATION INSTRUCTIONS

1. When this procedure has been activated and upon direction from the Shift Foreman, proceed as follows:
 - a. Designate this event a Notification of Unusual Event. Notify plant staff and response organizations required for this classification by implementing Emergency Procedures G-2 "Establishment of the On-Site Emergency Organization" and G-3 "Notification of Off-Site Organizations" in accordance with Emergency Procedure G-2 "Accident Classification and Emergency Plan Activation."



Pacific Gas and Electric Company



DEPARTMENT OF NUCLEAR PLANT OPERATIONS

DIABLO CANYON POWER PLANT UNIT NO(S) 1 AND 2

TITLE: EMERGENCY OPERATING PROCEDURE
LOSS OF NORMAL LETDOWN

NUMBER EP OP-18B

REVISION 1

DATE 1/30/84

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IMPORTANT
TO
SAFETY

APPROVED:

R. E. Thompson
PLANT MANAGER

4-4-84
DATE

SCOPE

This procedure provides instructions for loss of normal letdown from the reactor coolant system due to inadvertent valve closure or letdown line failure.

- Section A. Valve Closure Due To PZR Level Channel Failure - pg 1
- Section B. Inadvertent Valve Closure - pg 3
- Section C. Letdown Line Failure - pg 4
- Section D. Letdown Line Failure On RHR - pg 8

This procedure and changes thereto require PSRC review.

A. VALVE CLOSURE DUE TO PZR LEVEL CHANNEL FAILURE

SYMPTOMS

1. Pressurizer level channels do not agree.
2. Volume control tank level decreasing.
3. Charging flow indicator, FI-128A indicates high flow.
4. Letdown flow indicator, FI-134A indicates low flow.
5. Letdown pressure indicator PI-135 indicates low pressure.
6. Possible annunciator alarms:
 - a. VOLUME CONTROL TK PRESS/LVL TEMP (PK 04-24)
 - 1) Volume Cont. TK Lo-Lo
 - b. PZR LEVEL HI/LO (PK 05-21)
 - 1) PZR Lvl HI from Ref.
 - 2) PZR Lvl Lo from Ref.

TITLE: LOSS OF NORMAL LETDOWN

c. PZR LEVEL HI/LO CONTROL (PK 05-22)

1) PZR Lvl Backup Htrs OFF

AUTOMATIC ACTIONS

1. Charging pump speed increase or decrease.
2. Automatic makeup initiates.
3. Letdown line isolation valves close on low pressurizer level (17%).
4. Possible transfer of charging pump suction from the VCT to the RWST on VCT low level.

OBJECTIVE

1. Restore letdown flow from RCS.

ACTIONS/EXPECTED RESPONSERESPONSE NOT OBTAINEDIMMEDIATE ACTIONS

None.

SUBSEQUENT ACTION

1. Switch pressurizer level control channel and recorder channel to an operable level transmitter.
2. Place PCV-135 in Manual and open to 70% (allow at least 30 seconds for the valve to stroke open).
3. Raise TCV-130 (VB-2) to the full open position.
3. GO TO PART C - Letdown Line Failure, Subsequent Actions Step 4.
4. Open letdown valves LCV-459 and/or LCV-460.
5. Open one 75 gpm letdown orifice valve.

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TITLE: LOSS OF NORMAL LETDOWN

ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

SUBSEQUENT ACTION CONTINUED

6. Adjust PCV-135 manually to establish approximately 350 psig on PI-135 (VB2).
7. Place PCV-135 in AUTO.
8. Return the pressurizer level controller to AUTO and verify normal operation.
9. If the level transmitter has failed refer to EP OP-37 for bistable trip.

B. INADVERTENT VALVE CLOSURE

SYMPTOMS

1. Pressurizer level and RCS pressure increasing.
2. Volume control tank level decreasing.
3. Charging flow indicator, FI-128A indicates low flow.
4. Letdown flow indicator, FI-134A indicates low flow.
5. Letdown pressure indicator PI-135 indicates low pressure.
6. Possible annunciator alarms:
 - a. VOLUME CONTROL TK PRESS/LVL TEMP (PK 04-24)
 - 1) Volume Cont TK Lo-Lo
 - b. PZR LEVEL HI/LO (PK 05-21)
 - 1) PZR Lvl Hi from Ref.
 - c. PZR LEVEL HI/LO CONTROL (PK 05-22)
 - 1) PZR Lvl Backup Htrs On

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TITLE: LOSS OF NORMAL LETDOWN

AUTOMATIC ACTIONS

1. Charging pump speed decrease.
2. Automatic makeup initiates.
3. — Possible transfer of charging pump suction from the VCT to the RWST on VCT low level.

OBJECTIVES

1. Restore letdown flow from RCS.

ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

IMMEDIATE ACTIONS

1. STOP Unit Load Changes

SUBSEQUENT ACTIONS

1. Attempt to reestablish letdown.
2. If letdown is reestablished no additional action is required.
1. GO TO PART C, Letdown Line Failure, Subsequent Actions Step 4.

C. LETDOWN LINE FAILURE

SYMPTOMS

1. Pressurizer Level and RCS pressure decreasing.
2. Possible Hi Area Radiation Levels
 - a) Containment
 - b) Auxiliary Bldg.
 - c) Charging Pump Room
3. Letdown flow indicator, FI-134A, indicates abnormal flow.

TITLE: LOSS OF NORMAL LETDOWN

4. Volume control tank level decreasing.
5. Possible annunciator alarms:
 - a. LETDOWN PRESS/FLO TEMP (PK 04-21)
 - 1) Letdn Flo Hi
 - 2) Letdn HX Outlet Press Hi
 - 3) Letdn HX Outlet Temp Hi Divert
 - 4) Letdn Regen HX 1-1 Temp Hi
 - 5) Letdn HX Outlet Temp Hi
 - b. VOLUME CONTROL TK PRESS/LVL TEMP (PK 04-24)
 - 1) Volume Cont TK Lo-Lo
 - c. PZR LEVEL HI/LO (PK 05-21)
 - 1) PZR Lvl Lo from Ref.
 - d. PZR LEVEL HI/LO CONTROL (PK 05-22)
 - 1) PZR Lo Lvl Letdn Iso All Htrs Off

AUTOMATIC ACTIONS

1. Charging pump speed increase.
2. Automatic makeup initiates.
3. Letdown line isolation valve closes on low pressurizer level (17%).
4. Possible transfer of charging pump suction from the VCT to the RWST on VCT low level.

OBJECTIVES

1. Isolate failure.
2. Provide alternate letdown path.
3. Restore RCS (pressurizer) level.
4. Restore Volume Control Tank level.

TITLE: LOSS OF NORMAL LETDOWN

ACTIONS/EXPECTED RESPONSERESPONSE NOT OBTAINEDIMMEDIATE ACTIONS

CAUTION: If at any time during the course of this procedure the reactor trips, go to EP OP-0.

1. STOP unit load change.
2. CLOSE the letdown orifice isolation valves CVCS-8149 A, B, and C.
3. CLOSE the RCS letdown valves LCV-459 and LCV-460.
4. Monitor Pressurizer Level
 - a. DECREASING OR STEADY go to EP OP-22, Excessive RCS Leakage.

a. GO TO Subsequent Actions

SUBSEQUENT ACTIONS

1. Place the charging pump flow control in MANUAL and reduce charging flow to minimum.
2. Close charging header isolation valves CVCS-8107 and CVCS-8108.
3. Adjust charging flow as necessary to maintain adequate RCP seal injection flow.
4. Establish excess letdown flow to the VCT as follows:
 - a. Check divert valve CVCS 8143 in normal position (to seal water heat exchanger).

TITLE: LOSS OF NORMAL LETDOWN

ACTIONS/EXPECTED RESPONSERESPONSE NOT OBTAINEDSUBSEQUENT ACTIONS CONTINUED

- b. Cut in component cooling water to heat exchanger by opening return valve FCV-361.
- c. Verify HCV-123 closed, then open excess letdown isolation valves CVCS-8166 and 8167.
- d. Slowly open HCV-123 to warm up heat exchanger. Do not exceed 190°F as indicated on TI-122.

NOTE: Since flow detectors are located on this line, an increase in pressure and temperature indicates flow.

- e. Adjust HCV-123 as necessary for letdown flow requirements.

NOTE: Excess letdown system is rated at approximately 20 GPM at normal operating pressure.

- 5. Verify pressurizer level in programmed band.
- 6. Increase the frequency of gross activity analysis to every 4 hours.
- 7. Refer to Emergency Procedure R-5, Radioactive Liquid Spill, to combat any uncontrolled radioactive leakage.

- 5. Adjust charging and excess letdown to maintain:

- a. Pressurizer Level
- b. Adequate RCP seal injection

TITLE: LOSS OF NORMAL LETDOWN

D. LETDOWN LINE FAILURE (BREAK) WHILE ON RHRSYMPTOMS

1. Pressurizer level and RCS Pressure Decreasing
2. Possible Hi Area Radiation Levels
 - a) Containment
 - b) Auxiliary Bldg.
 - c) Charging Pump Room
3. Letdown Flow Indicator, FI-134A, Indicates Abnormal Flow
4. Volume Control Tank Level Decreasing
5. Possible Annunciator Alarms:
 - a) LETDOWN PRESS/FLO TEMP (PK 04-21)
 - 1) Letdn Flo Hi
 - 2) Letdn HX Outlet Press Hi
 - 3) Letdn HX Outlet Temp Hi Divert
 - 4) Letdn Regen Hx 1-1 Temp Hi
 - 5) Letdn HX Outlet Temp Hi
 - b) VOLUME CONTROL TK PRESS/LVL TEMP (PK 04-24)
 - 1) Volume Cont TK Lo-Lo
 - c) PZR LEVEL HI/LO (PK 05-21)
 - 1) PZR Lvl Lo from Ref.
 - d) PZR LEVEL HI/LO CONTROL (PK 05-22)
 - 1) PZR Lo Lvl Letdn Iso All Htrs Off

TITLE: LOSS OF NORMAL LETDOWN

AUTOMATIC ACTIONS

1. Automatic makeup system initiates.
2. Letdown line isolation valves close on low pressurizer level (17%).
3. Possible transfer of charging pump suction from the VCT to the RWST on VCT low level.

OBJECTIVES

1. Isolate failure.
2. Provide alternate letdown path.
3. Restore RCS (pressurizer) level.
4. Restore Volume Control Tank level.

ACTIONS/EXPECTED RESPONSERESPONSE NOT OBTAINEDIMMEDIATE ACTIONS

1. Stop any running RCP (in anticipation of losing #1 seal delta-p).
2. Stop any running charging pump (solid plant consideration).
3. Close HCV-133.
4. Verify pressurizer level and pressure steady and not decreasing.
4. Reexamine symptoms and rediagnose for possible LOCA or RHR System break.

SUBSEQUENT ACTIONS

1. Locate break and isolate.
2. Refer to Emergency Procedure R-5, Radioactive Liquid Spill for additional guidance.

DIABLO CANYON POWER PLANT UNIT NO(S)

1 AND 2

NUMBER EP OP-18B

REVISION 1

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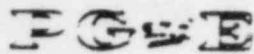
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APPENDIX Z

NOTIFICATION INSTRUCTIONS

1. When this procedure has been activated and upon direction from the Shift Foreman, proceed as follows:
 - a. Designate this event a Notification of Unusual Event. Notify plant staff and response organizations required for this classification by implementing Emergency Procedures G-2 "Establishment of the On-Site Emergency Organization" and G-3 "Notification of Off-Site Organizations" in accordance with Emergency Procedure G-2 "Accident Classification and Emergency Plan Activation."



Pacific Gas and Electric Company



DEPARTMENT OF NUCLEAR PLANT OPERATIONS

DIABLO CANYON POWER PLANT UNIT NO(S) 1 AND 2

TITLE EMERGENCY PROCEDURE
EVACUATION OF NONESSENTIAL SITE PERSONNEL

APPROVED

R. C. Thompson
PLANT MANAGER

3-26-84

DATE

NUMBER EP G-5

REVISION 1

DATE 3/13/84

PAGE 1 OF 13

IMPORTANT
TO
SAFETY

SCOPE

This procedure provides guideline information pertinent to evacuation of onsite personnel including Company, contractor, and visitors, who are not engaged in recovery actions following an emergency. This procedure and changes thereto requires PSRC review.

GENERAL

In the event of an emergency situation at Unit 1, it may be desirable to minimize the number of nonessential personnel onsite. If the emergency involves a radiological release or the potential for a release then evacuation of nonessential personnel is desirable, or may be required, to minimize exposure to radioactive material.

The organization of this procedure provides guidance in three distinct areas: 1) Determination of the need for site evacuation, 2) determination of the evacuation route and assembly area, and 3) conducting the evacuation and subsequent assembly, monitoring and release of personnel in an orderly manner. The first two of these areas are provided in the section "Guidance for the Site Emergency Coordinator. The latter is provided in the section "Guidance for the Evacuation Coordinator.

This procedure assumes the emergency occurs during normal working hours when the greatest numbers of nonessential personnel are onsite. It is also applicable however, during off-normal hour, weekends and holidays.

NOTE: This procedure is intended to apply to evacuations where persons may receive abnormal external exposure and/or persons or automobiles may be contaminated. It is recognized that in the event of an emergency it may be desirable to send persons home before they are exposed to significant radiation and/or contamination levels. A case of this nature would be handled as an early dismissal from work. An orderly sequence of dismissal should be given by the Site Emergency Coordinator and security should provide traffic control in this event.

TITLE: EVACUATION OF NONESSENTIAL SITE PERSONNEL

INITIATING CONDITIONS

The Shift Foreman declares that the plant is in an emergency condition (Unusual Event, Alert, Site Area Emergency or General Emergency) or determines that personnel assembly and accountability are desirable, and sounds the site emergency alarm.

Personnel on site will assembly at their designated assembly areas following sounding of the site emergency alarm in accordance with Emergency Procedure G-4, "Personnel Assembly and Accountability." This action will result in essentially all personnel onsite assembling in one of eleven locations.

1. Control Room
2. Technical Support Center
3. Cold Machine Shop
4. Access Control
5. Security Building
6. Temporary Training Building
7. Security Training Trailer
8. Access Training Trailer
9. Unit 1 Visitors Parking Lot
10. Biology Lab
11. Contractor and Site Visitor Assembly Areas

A list of plant staff personnel assembled in, or adjacent to, Unit 1 will be developed as will a list of unaccounted for personnel assembled in the contractor and visitor assembly areas in accordance with Emergency Procedure G-4, "Personnel Assembly and Accountability."

GUIDANCE FOR THE SITE EMERGENCY COORDINATOR

1. The Site Emergency Coordinator will assess the need for, or the potential need for, evacuation of nonessential personnel. Appendix 1 "Evacuation Criteria" provides guidance in making this

TITLE EVACUATION OF NONESSENTIAL SITE PERSONNEL

determination for radiological emergencies. Generally evacuation will be conducted for incidents at the Site Area Emergency or General Emergency Classification Levels regardless of whether a release is occurring. The assessment for radiological emergencies may be delegated.

2. The Site Emergency Coordinator will appoint an Evacuation Coordinator to supervise the evacuation. He should be chosen from among the personnel assembled at the Temporary Training Building or Security Building. The preferred order is:

- a. Security Supervisor
- b. Security Training Representative
- c. Security Shift Supervisor
- d. Senior Power Production Engineer (staff)

The basic responsibilities of the Evacuation Coordinator are as follows:

- a. Communicating with the Site Emergency Coordinator to determine the conditions of the emergency and the evacuation plan.
- b. Providing information on the number of vehicles and personnel involved in the evacuation and any further personnel accountability required at the site prior to the evacuation.
- c. Transmitting information to assembled personnel and coordinating the evacuation with General Construction.
- d. Providing required onsite traffic control measures such as:
 - 1) Notifying Avila Gate of the evacuation.
 - 2) Sequencing the departure of personnel to avoid congestion.
 - 3) Notify guard force to direct traffic on and off of the site to assure that personnel stay on the proper evacuation route and that members of the general public do not get involved unnecessarily.

TITLE EVACUATION OF NONESSENTIAL SITE PERSONNEL

- e. Communicating with the Emergency Radiological Advisor (or the Emergency Evaluation and Recovery Coordinator) to obtain qualified personnel to direct monitoring and/or decontamination at the offsite evacuation assembly area.
- 3. The Site Emergency Coordinator will designate the evacuation route and offsite evacuation assembly area. Appendix 2 "Evacuation Route Determination" provides guidance in this determination.
- 4. The Site Emergency Coordinator will direct notification of the San Luis Obispo County Sheriff's Office of the evacuation. This notification should include the following information:
 - a. Update on plant emergency status including the information on Form 18-10262 "Radiological Emergency Status Form." (See Emergency Procedure G-3, "Notification of Offsite Emergency Organizations.")

NOTE: The status information should permit determination of the need for protective actions for the general public in the near site area.

- b. Notification of the intent to evacuate personnel including:
 - 1) The intended evacuation route
 - 2) The designated offsite assembly area
 - 3) The need for traffic control or clearing of parking areas
 - 4) The approximate number of personnel and vehicles to be evacuated
 - 5) The anticipated need for decontamination of personnel or vehicles and whether any assistance required for this function (fire trucks or medical assistance) will be involved at the assembly area.
 - 6) Any assistance needed to monitor and/or decontaminate farm workers, or other visitors at the assembly area

NOTE: All notifications should be logged on Form 69-9221 "Emergency Notification Record."

TITLE EVACUATION OF NONESSENTIAL SITE PERSONNEL

5. If the PGandE Information Center is to be used as an assembly area, the Director of this facility should be notified (during hours it is open) so that he can begin clearing the parking lot. When this facility is closed a corporation key may be used to gain access to the parking lot.
6. Determine the personnel to be retained onsite and personnel to be assigned to offsite emergency response locations or relief shift duty. In general personnel retained onsite will have chemistry and radiation protection, maintenance or clerical assignments for the site emergency organization.
7. Provide evacuation instructions to the Evacuation Coordinator. These instructions should include:
 - a. Evacuation route
 - b. Offsite assembly area
 - c. Anticipated vehicle or personnel monitoring and decontamination requirements.
 - d. Arrangements with offsite response agencies.
 - e. Personnel to remain onsite.

GUIDANCE FOR THE EVACUATION COORDINATOR

The Evacuation Coordinator, after receiving instructions on the evacuation route and assembly location from the Site Emergency Coordinator, shall:

1. Contact the Emergency Radiological Advisor (or Emergency Evaluation and Recovery Coordinator) and assure that qualified monitoring personnel are dispatched to monitor at the offsite assembly area(s) (either from onsite or offsite). Generally one monitor for each major assembly area will be utilized. Monitors should accompany each group if dispatched from onsite. Monitors or the Assembly Area Leader should be equipped with permanent and self-reading dosimeters to determine doses received during evacuation.

NOTE: Operations personnel assembled in the Temporary Training Building may be assigned monitoring duties if not otherwise needed onsite.

TITLE EVACUATION OF NONESSENTIAL SITE PERSONNEL

2. Coordinate with the Designated Assembly Area Supervisor (DAAS) of each Unit 1 assembly area to move personnel to be evacuated to the Temporary Training Building. Personnel to remain onsite should generally be located at Access Control or the Operational Support Center (OSC).
3. Appoint an evacuation leader for each major assembly area. The Construction Force Assembly Coordinator will assist for areas under his control. The leader should be provided a plant frequency portable radio, if not already equipped. Generally, this will provide a supervisor for 1) the Temporary Training Building, 2) the upper parking lot, 3) the warehouse area and 4) the west parking lot if personnel are assembled at all of these areas. Notify the Emergency Liaison Coordinator of the leader assigned to each area.
4. Send one emergency kit or one evacuation kit to each offsite assembly area. These may be dispatched with the vehicles described in steps 5 and 6 or may be sent with the lead evacuation group.

NOTE: Additional emergency kits are located at the Information Center, and Morro Bay Power Plant and SLO Sheriff's Office.

5. Dispatch a vehicle to clear the south access road of any personnel working along the road, or farm workers. If conditions warrant, a qualified monitor should be assigned to this vehicle to monitor these personnel and their vehicles. This vehicle should proceed to the offsite assembly area for traffic control.
6. Determine from the Site Emergency Coordinator where site assistance is requested by the County to notify members of the general public along the north access road. If assistance is requested, dispatch a second vehicle along the north access road to notify members of the general public of the evacuation and their assembly area as designated by county personnel. If the north road is to be used as the site evacuation route, they should be so informed by the lead vehicle. If conditions warrant, a qualified monitor should be assigned to this vehicle to monitor personnel and their vehicles.
7. Inform each evacuation leader of the following:
 - a. Route to follow

TITLE EVACUATION OF NONESSENTIAL SITE PERSONNEL

- b. Offsite assembly area
 - c. Onsite traffic pattern (one or two lane egress)
 - d. Sequence of evacuation (generally this will be 1) warehouse area, 2) General Contractor (G.C.) parking lot, 3) West parking lot (G.C. then Plant Staff).
 - e. Instructions for personnel evacuating. These generally are:
 - 1) Proceed in caravan fashion along the designated route to the offsite assembly area.
 - 2) Personnel without transportation should obtain a ride with a driver in their assembly area. Arrangements to get home can be made at the offsite assembly area.
 - 3) At the offsite assembly area, each assembly area evacuation leader should assure that personnel are accounted for, and remain to be monitored and cleared before release.
8. Activities at Assembly Area
- a. Upon arrival at the evacuation area, the monitor(s) shall begin a program of surveying personnel and vehicles for contamination. The results should be recorded on Form 69-9310 and 69-9311, and the overall results should be reported to the Site Emergency Coordinator.
 - b. If public parking lots are utilized as evacuee assembly areas, and the lots cannot be completely cleared prior to arrival of evacuees, the owners names and/or vehicle license numbers of cars still in the lot will be recorded and the vehicles will be surveyed before being allowed to leave.
 - c. As a minimum, the names and addresses of any evacuees suspected of having received doses in excess of 250 mR and those requiring any decontamination shall be obtained before the persons are allowed to leave the assembly area.
 - d. In general, personnel shall be given permission to leave the assembly area only after the following conditions are met:

TITLE EVACUATION OF NONESSENTIAL SITE PERSONNEL

- 1) The person and his vehicle have been surveyed or a sufficient number of persons in the group have been surveyed in order to determine that radioactive contamination is not a factor.
- 2) Self-reading dosimeter results have been recorded and the names of exposed persons recorded.
- 3) The above results have been reported to the Site Emergency Coordinator for his evaluation.

APPENDICES

1. Evacuation Criteria
2. Evacuation Route Determination

ATTACHMENTS

1. Station Construction Site Evacuation Plan
2. Form 69-9310, "Post Evacuation Vehicle Monitoring Data"
3. Form 69-9311, "Evacuee Monitoring Data"
4. Form 69-9221, "Emergency Notification Record"
5. Personnel Accountability and Site Evacuation
 - a. Appendix A - Evacuation Areas
 - b. Appendix C - Accountability for PGandE General Construction
 - c. Appendix D - Visitor Information

SUPPORTING PROCEDURES

- G-3, "Notification of Offsite Emergency Organizations"
- G-4, "Personnel Assembly and Accountability"

TITLE EVACUATION OF NONESSENTIAL SITE PERSONNEL

APPENDIX 1EVACUATION CRITERIA

The decision to evacuate any, or all, of the personnel covered by this procedure shall be made by the Site Emergency Coordinator. Personnel shall not evacuate an assembly area unless instructed to do so by the person in charge in the area, and this individual shall, in turn, receive his instructions from the Site Evacuation Coordinator¹ who, in turn, receives instructions from the Site Emergency Coordinator.

1. Unit 2 Construction Personnel, Visitors, Clerical Plant Personnel (Nonradiation Workers)

In keeping with "low as reasonably achievable" philosophy, personnel who are not contributing substantially to recovery actions (which generally includes visitors, contractors and clerical personnel) should be evacuated if such action can prevent significant exposure, provided that trained personnel are available to conduct the evacuation and can be spared for this task without jeopardizing accident mitigation activities. However, the following should be considered as upper limit evacuation criteria:

<u>WHOLE BODY DOSE RATE</u>	<u>AIRBORNE ACTIVITY CONCENTRATION²</u>	<u>CONSIDER EVACUATION WITHIN</u>
2-10 mrem/hour	1-4 x MPC	48 hours
10-50 mrem/hour	4-20 x MPC	10 hours
50-100 mrem/hour	20-40 x MPC	5 hours
100-500 mrem/hour	40-200 x MPC	1 hours
500 mrem/hour	200 x MPC	Immediately

¹The person in charge in an assembly area may order the movement of personnel from an assembly area to prevent injury to the assembled personnel. This action shall be reported to the Site Emergency Coordinator as soon as practical.

²Where MPC is the maximum permissible concentration for areas as defined in Column 1, Table I, Appendix B to 10CFR20. This calculation will allow 200 MPC-hrs. which conservatively limits internal exposure. This criteria is based on personnel not wearing respiratory equipment.

TITLE EVACUATION OF NONESSENTIAL SITE PERSONNEL

APPENDIX 1 (Cont'd)

The decision to evacuate or not must include the following considerations:

- a. Whether or not the emergency can be mitigated prior to a dose of 500 mrem or 200 MPC-hrs. being reached.
- b. If personnel involved are not immediately essential for handling the emergency, they should be evacuated at levels near the low end of each range to minimize their doses. This will prevent giving unnecessary doses to personnel who may be needed for assistance later in the emergency.
- c. Any time personnel are to be evacuated, the dose expected during evacuation must be weighed against that expected if the person is not evacuated. In some cases, (i.e., personnel assembled in access control, or the security building) evacuation may give personnel a higher dose than remaining in a shielded or protected area.
- d. Depending on conditions, the Site Emergency Coordinator may elect to allow selected personnel to exceed those guidelines to accomplish critical actions.

2. Radiation Workers Not Engaged in Recovery Actions

In general, nonessential radiation workers should be evacuated right along with nonradiation workers in the event of a general site evacuation under the provisions of 2 above. If their assistance is anticipated to be required, these persons should not be allowed to exceed their occupation quarterly or annual exposure limits (3 rem WB or 5 rem thyroid per quarter, 5 rem WB or 15 rem thyroid per year). Since many of these persons will have received some occupational exposure prior to the accident, the maximum exposure which can be permitted may vary depending on the date in the quarter and the exposure history from one person to another. Therefore, the considerations of b and c above must be weighed in the decision.

Essential radiation worker may be authorized to receive exposures in excess of established quarterly and annual limits. The Site Emergency Coordinator has the sole onsite authority to authorize emergency exposure limits. However, if time permits, such authorization should be made by the Corporate Recovery Manager.

TITLE EVACUATION OF NONESSENTIAL SITE PERSONNEL

APPENDIX 2EVACUATION ROUTE DETERMINATIONEVACUATION ROUTE DESCRIPTION

There are two basic evacuation routes which may be utilized when an evacuation is required. The specific route to be followed shall be determined by the Site Emergency Coordinator on the basis of wind direction, dose rates, and other pertinent factors existing at the time. These routes are shown on Figure 1.

Description of Routes and Assembly Areas

i. Southern Route to Port San Luis Gate

The preferred route if evacuation from the site is required, is south along the access road to the Port San Luis Gate, and then to an appropriate assembly area. The assembly area will depend on the number of vehicles involved, the availability of space at the assembly area, and the extent of decontamination of vehicles anticipated. The suggested assembly areas in order of preference are:

- a. PGandE Visitors' Information Center - room for around 60 cars, can be cleared out on short notice when open. A "corporation key" is required to enter the parking lot at off hours.
- b. Frontage Road along U.S. 101 north of Information Center - room for several hundred cars, seldom used and easily controlled. Decontamination may require movement of vehicle into the Visitors' Center Parking Lot or the PSEA clubhouse parking lot.
- c. Port San Luis Parking Lot - room for around 250 cars, parking lot is crowded on nice days and during summer.
- d. Parking lot behind Avila Beach Post Office - room for around 250 cars, is crowded on pleasant summer days, but is empty most of the time.

The general locations of these areas are shown in Figure 1.

TITLE EVACUATION OF NONESSENTIAL SITE PERSONNEL

2. Northern Route through Montana de Oro State Park

If radiation levels make the use of the southern evacuation route undesirable, an alternate route to the north is available. The route will involve traveling through private property up this road to the park.

There are two locked gates and one normally unlocked gate which must be passed through on this route. The locks are a combination type and the combination should be available from security. If the combination is not available the chain on the plant boundary gate may be cut and the gate re-secured with a company lock. The combination for the lock at the Montana de Oro State Park boundary can be obtained from people at the ranch or it may be similarly cut and re-secured.

The assembly point may be either the State Park parking area or preferably further north to the Morro Bay Power Plant and Switching Center via South Bay Boulevard to Highway 1, then exit at Main Street and enter the Switching Center gate off Main Street. These areas are also shown on Figure 1.

CRITERIA FOR SELECTION OF EVACUATION ROUTE

The southern route is the preferred route because the quality of the road is better, the route is shorter, the bulk of the southern route traverses land to which access is controlled by the Company, and because the normal onsite parking lots are located on the southern side of the plant. The southern route shall be utilized under the following circumstances:

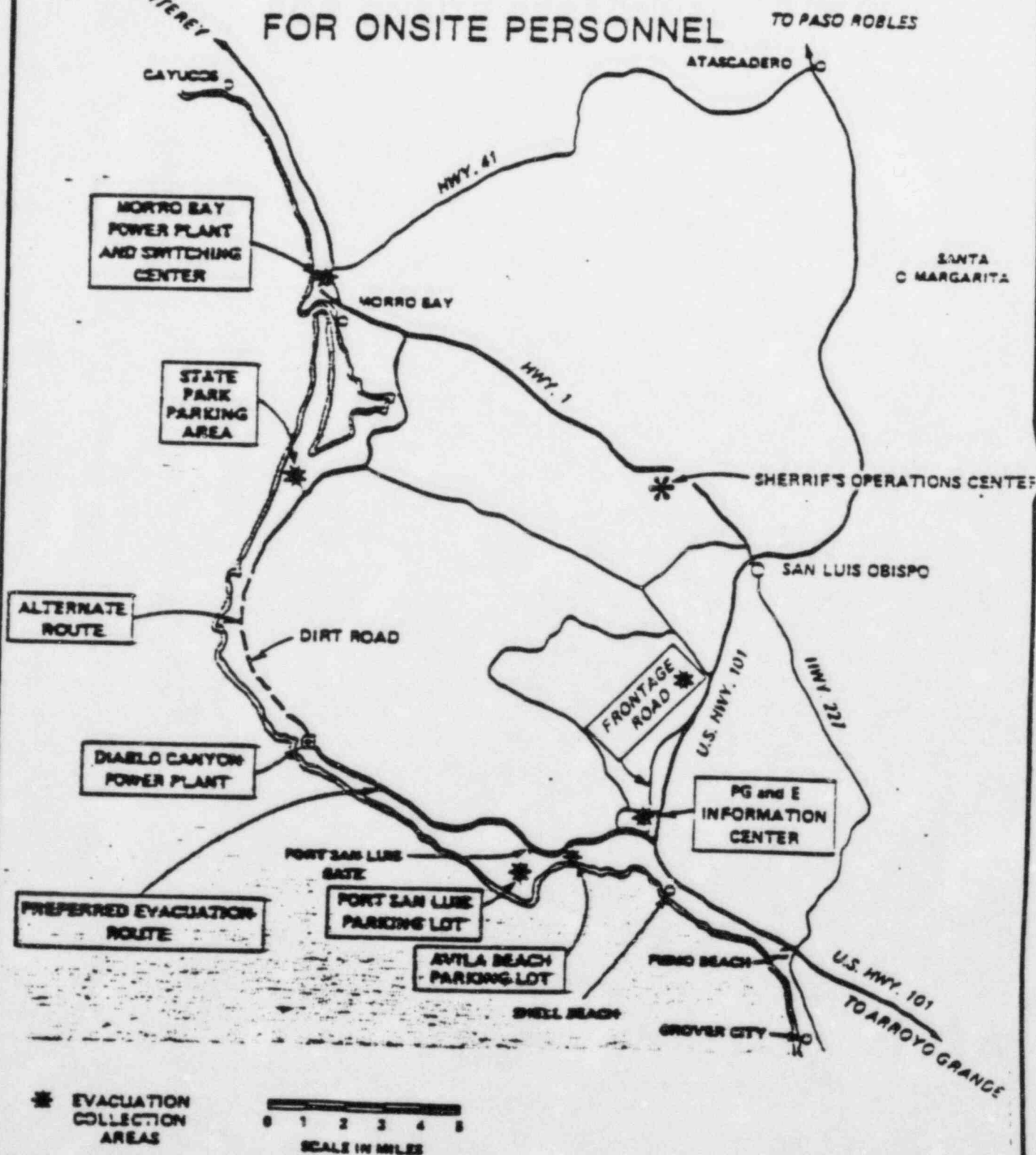
1. All evacuations where the dose rate is <500 mR/hr or the M.P.C. concentration is <200 (i.e., all cases where the dose rates were not high enough to require immediate evacuation should be carried out over the southern route).
2. All evacuations carried out when the winds are calm, variable, or from the south.
3. Any time it is raining (the northern road may be impassable under adverse weather conditions).

The northern route shall be used when the above criteria are not met or the southern route is not passable for any reason.

TITLE EVACUATION OF NONESSENTIAL SITE PERSONNEL

APPENDIX 2 (Cont'd)

FIGURE 1
 EVACUATION ROUTES
 FOR ONSITE PERSONNEL



PACIFIC GAS AND ELECTRIC COMPANY
STATION CONSTRUCTION DEPARTMENT
DIABLO CANYON PROJECT

UNITS 1 & 2

SITE EVACUATION PLAN

RESPONSIBILITY

During the period of time while major construction activities remain in progress, the General Construction Project Superintendent or his designated alternate will have general responsibility and authority over general construction personnel, contractor and subcontractor personnel, representatives, visitors, and guardforce personnel assigned to construction activities. In this capacity, he or his alternate will be designated as the Construction Force Assembly Coordinator, whose basic responsibilities are as follows:

1. Communicating with Site Emergency Coordinator to determine the conditions of emergency. This communication is normally via, the Unit 1 Security Building through the Shift Security Supervisor.
2. Personnel accountability at the site prior to the evacuation.
3. Transmitting information to contractor and other Construction Force related personnel.
4. Providing required traffic control measures.

The decision to evacuate, the type of evacuation (immediate, within 2 hours or within 5 hours), the evacuation route (north or south), and the method (vehicle or on foot) will be made by the Site Emergency Coordinator and conveyed to the Construction Force Assembly Coordinator.

PROCEDURE

Any evacuation of the Diablo Canyon site will begin from the Emergency Evacuation assembly areas as shown in the Diablo Canyon Power Plant Emergency Procedures, General Appendix-3 "Emergency Assembly and Accountability". All personnel covered by this procedure are instructed to proceed to these assembly areas on foot upon activation of the emergency signal and to wait there for further instructions.

The Construction Force Assembly Coordinator will implement the Site Emergency Coordinator's evacuation decision and see that various groups are released sequentially and in an orderly manner so that traffic congestion is minimized and traffic flows smoothly away from the site. Guardforce personnel will assist by directing traffic out of the lots and controlling key intersections.

PROCEDURE - Continued

All evacuations whether by vehicle or on foot, will be led by guardforce personnel. Accompanying each assembly area group will be the person who will be in charge of personnel accountability and release at the offsite assembly area. Guardforce personnel will be radio equipped and in contact with the Evacuation Coordinator and the Site Emergency Coordinator.

Once off the site, the evacuation will be led to the offsite assembly area by a Sheriff's vehicle (if available). One of the lead guards will transfer to the vehicle with his portable radio and ride to the offsite assembly area in the Sheriff's vehicle so that continuous communications are maintained.

In the event of an evacuation on foot, guards or P G and E personnel with radios and first aid kits will be interspersed at appropriate intervals in the group to maintain communication and provide first aid, if necessary.

DEPARTMENT OF NUCLEAR PLANT OPERATIONS
DIABLO CANYON POWER PLANT UNIT NOS. 1 & 2
POST-EVACUATION VEHICLE MONITORING DATA

LOCATION _____ DATE _____

INSTRUMENT USED _____ BACKGROUND CPM _____

PERSON MAKING SURVEY _____

[illegible]

¹ Multiply net cpm by 91 for HP-240 (window open), for HP-210 and 260, multiply by 25 to convert CPM to dpm/dm². A = area smeared, square feet

$$^2 \text{ Smearable dpm/dm}^2 = \frac{(0.11)(\text{cpm}_{\text{net}})}{(\epsilon)(A)}; \epsilon = 0.018 \text{ for HP-240}$$

$$\epsilon = 0.20 \text{ HP-210 and 260}$$

EVACUEE MONITORING DATA

INSTRUMENT USED _____ BACKGROUND CPM _____

PERSON READING SURVEY _____

[illegible]

¹ Multiply net cpm by 91 for HP-240 (window open), for HP-210 and HP-260, multiply by 25 in order to convert CPM to dpm/dm².

EMERGENCY NOTIFICATION RECORD

EMERGENCY IDENTIFICATION

MAIL

17115

[illegible]

PACIFIC GAS AND ELECTRIC COMPANY
STATION CONSTRUCTION DEPARTMENT
DIAULO CANYON PROJECT

UNITS 1 & 2

PERSONNEL ACCOUNTABILITY AND SITE EVACUATION

SCOPE

This procedure describes the plant Emergency Signal and the immediate actions to be taken by General Construction and contractor personnel and their visitors in the event of a plant emergency designated by sounding of the emergency signal.

1. EMERGENCY SIGNAL

A. Identification

- 1) The signal is produced by electronic warblers placed at numerous locations throughout the plant. It has a characteristic sound which is a rapid rise in pitch followed by a slower drop. The sound cycle is repeated continuously for as long as the signal remains energized.
- 2) Flashing red lights have been provided in the containment since the background noise level would not permit audible perception of the electronic warblers.
- 3) Under an emergency situation the alarm should sound for a minimum of one minute.

B. Testing

The emergency signal will be actuated for test purposes every Friday at 12:10 p.m. for a period of approximately ten (10) seconds.

2. RESPONSIBILITIES

- A. The General Construction Project Superintendent or his designated alternate will have general responsibility and authority over general construction personnel, contractor and subcontractor personnel, representatives, visitors, and guardforce personnel assigned to construction activities. The Project Superintendent or his designated alternate will keep the Site Emergency Coordinator advised as to the status of accountability of all personnel covered under this procedure via the Shift Security Supervisor.

2. RESPONSIBILITIES - Continued

- B. Each Contractor is responsible for the accountability of all employees he has working at the site. An accountability program must be implemented by each Contractor to enable the Project Superintendent to know how many construction personnel are on site at any given time, and their general location on the project.
- C. Subcontractors will be responsible for implementing their main Contractor's accountability program. Each Subcontractor will be responsible for the accountability of his employees.

3. PROCEDURE

A. P G and E, Contractors and California Department of Fish and Game

P G and E General Construction personnel, Contractor personnel and California Department of Fish and Game personnel will evacuate from the plant buildings and adjacent work areas and proceed immediately to their assigned assembly areas, via their respective assigned badge alleys. Assigned alleys are those entrances where the site photo badge is kept for each category of worker. A listing of all categories of personnel governed by the procedure and maps showing assigned assembly areas and evacuation routes will be found in Appendix A.

ALL UNIT-I CONSTRUCTION PERSONNEL WILL EVACUATE THROUGH THE PLANT SECURITY BUILDING EXCHANGE THEIR UNIT-I BADGES FOR THEIR SITE PHOTO I.D. BADGES AND PROCEED TO THEIR ASSIGNED ASSEMBLY AREA VIA THEIR ASSIGNED BADGE ALLEY.

All personnel will be accounted for by issuance and control of the individual's site photo I.D. badge. In route to their assembly areas each employee will deposit the I.D. badge at the proper alley of entry. Each contractor will assign a staff member to report to the badge alley to assist in the accounting of their personnel and resolution of any discrepancies.

Upon arrival at their assigned assembly areas, all personnel will have further instructions issued depending on the nature of the emergency. Appendix C outlines the methods to be used in accounting for P G and E personnel. Within one hour of the signal sounding, an accurate tally must be available to the Project Superintendent or his designated alternate indicating missing personnel and their last known location on the project.

B. Escorted Visitors

Escorted visitors will respond to the signal and will proceed along with their escorts to their specified assembly area. Accountability will be maintained by checking off those escorted visitors at the assembly areas against the visitor sign-in-log maintained at the security office. Escorts themselves will proceed to their own department or company assembly areas after escorting their visitors to the visitor assembly area.

C. Unescorted Visitors

Unescorted visitors will also report to their assigned assembly area. Upon arrival and check in at the project, these persons will be provided with a map and written instructions explaining what they are to do and where they are to go in the event of a site evacuation (refer Appendix D). As in the case of escorted visitors, accountability will be maintained by checking off unescorted visitors at the assembly areas against the visitor sign-in-log maintained at the security office. Persons with vehicles will leave them where parked and proceed on foot to their designated areas.

D. Common Carriers

Common carriers will be handled in the same manner as unescorted visitors with the exception that they will be logged in and out and provided with a map and instructions at the plant site guard post as opposed to the security office. Drivers will leave their vehicles and proceed on foot to their designated area.

E. Pinkerton Guards

Construction Force, Pinkerton Guard personnel will remain on their posts with the exception of mobile and building foot patrols and the Sergeant, all of whom will report to the sergeants trailer which will serve as the G.C. guard command post. The security office will immediately, upon the initiation of the signal, contact the Shift Security Supervisor and relay to him the specific location of the guards remaining on post to determine the necessity of immediate evacuation of these posts. Guards on posts to be included in the evacuation will be notified by radio and ordered to respond to the sergeants trailer for reassignment. Parking lot guards remaining on post will attempt to limit access to personal vehicles until instructions to the contrary are received. Guards will be instructed to take direction only from the Site Emergency Coordinator, the Project Superintendent or his designated alternate, P G and E Security personnel, and their own chain of command. The guard Captain is responsible for the accountability of all guards assigned to construction activities and he will report directly to the Project Superintendent of his designate.

4. ASSEMBLY AREA ACCOUNTABILITY

The Project Superintendent or his designate will appoint P G and E General Construction staff to contact all of the various groups by area to determine whether or not all persons covered by this procedure are accounted for, and if not, their last known location on site. This final tally will be relayed to the Site Emergency Coordinator via Shift Security Supervisor. Appendix E shows the forms to be used for making this tally.

4. ASSEMBLY AREA ACCOUNTABILITY - Continued

This procedure or any portion of it may be altered by the Site Emergency Coordinator if a situation arises in which the following of it could cause injury or death to one or more individuals.

APPENDIX A
EVACUATION AREAS

"A" AREA

A1
Plant Thorpe
Smith Industries

A2
Pullman Power Products

"B" AREA

H.F. Foley and their Subcontractor
Lundeen/Kruse Metals

"C" AREA

F.G. and E. General Construction

C1
Engineering Services
Quality Control Group
Ecology Lab Personnel

C2
Mechanical Group
Startup Group
G.O. Engineering Group

C3
Electrical Group
Civil Group

C4
Administration Group

"D" AREA

Co-ordinator
Visitors (Escorted and Unescorted)
Common Carriers
Vendors and Service Companies

"E" AREA

Station Construction Crew
Line Dept./Paint Crews

"C" AREA

Contractors

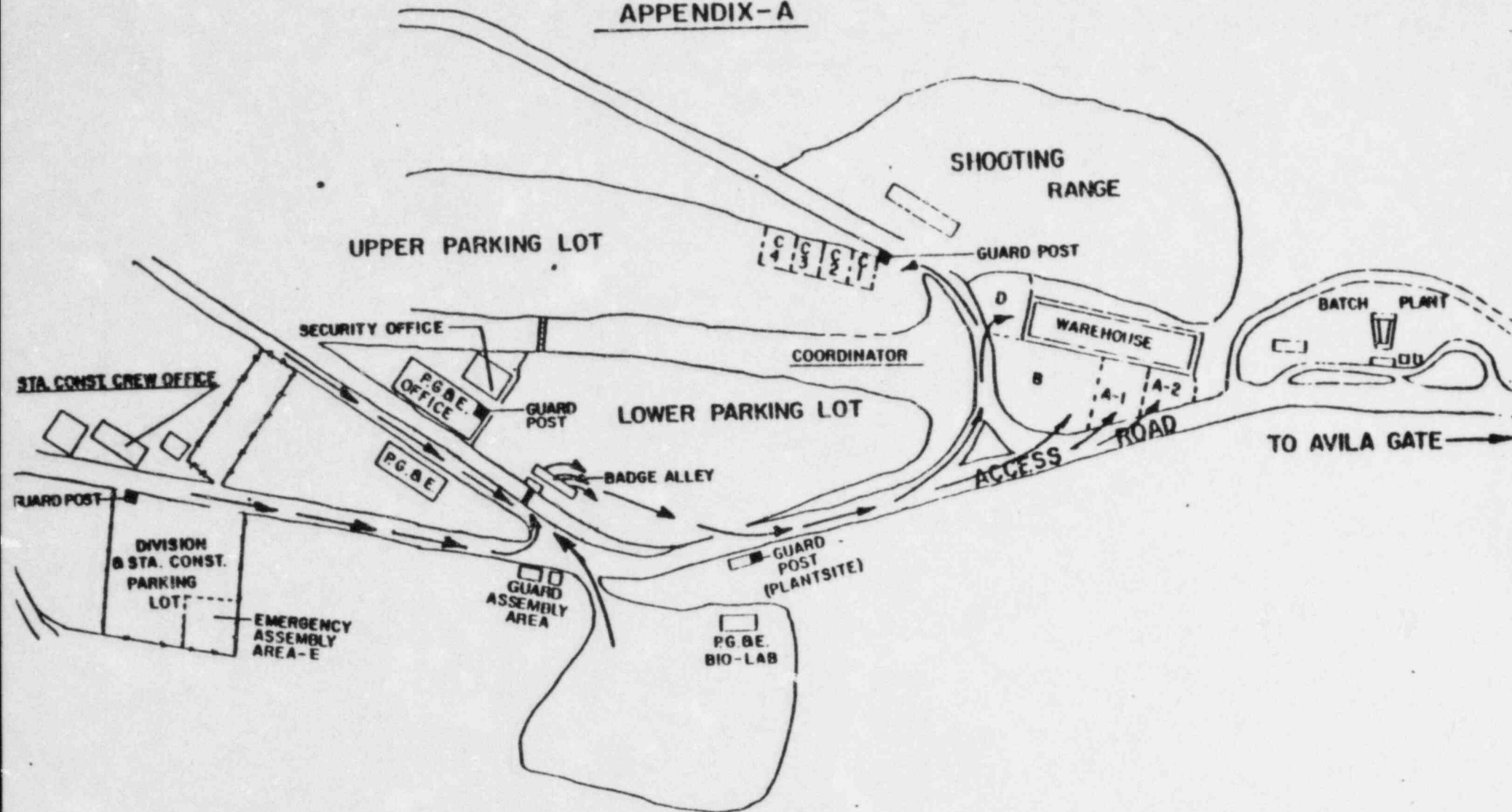
C1
Cal-Poly Foundation
Dept. of Fish & Game
Kaiser/Lockheed/Terra/Ecomar/
Telos

C2
Waltek
Betchel
Code-3

C3
Thermon
Towill Inc./Ames & Assoc.

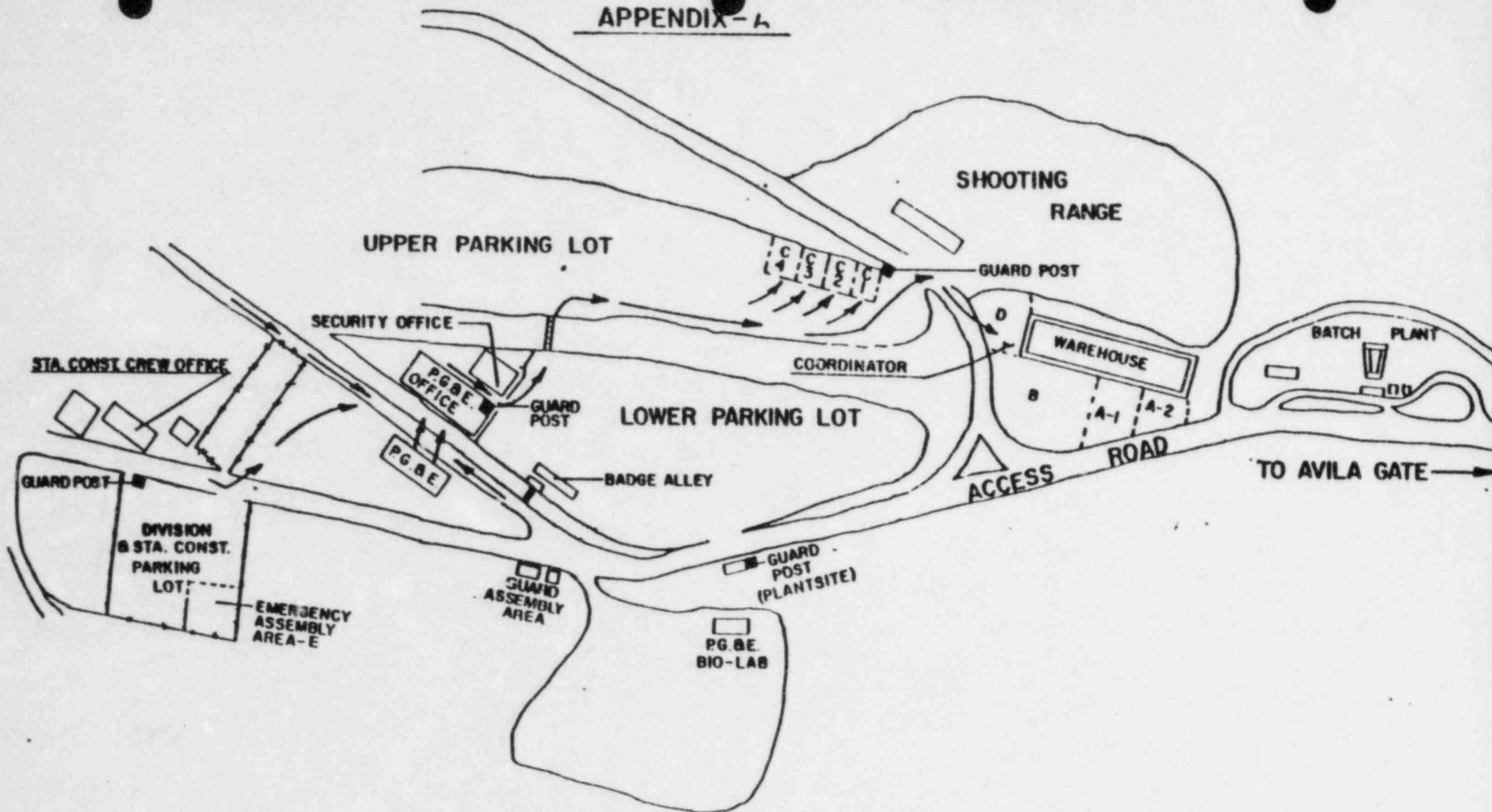
"E" AREA CONTRACTORS
Westinghouse Nuclear

APPENDIX - A



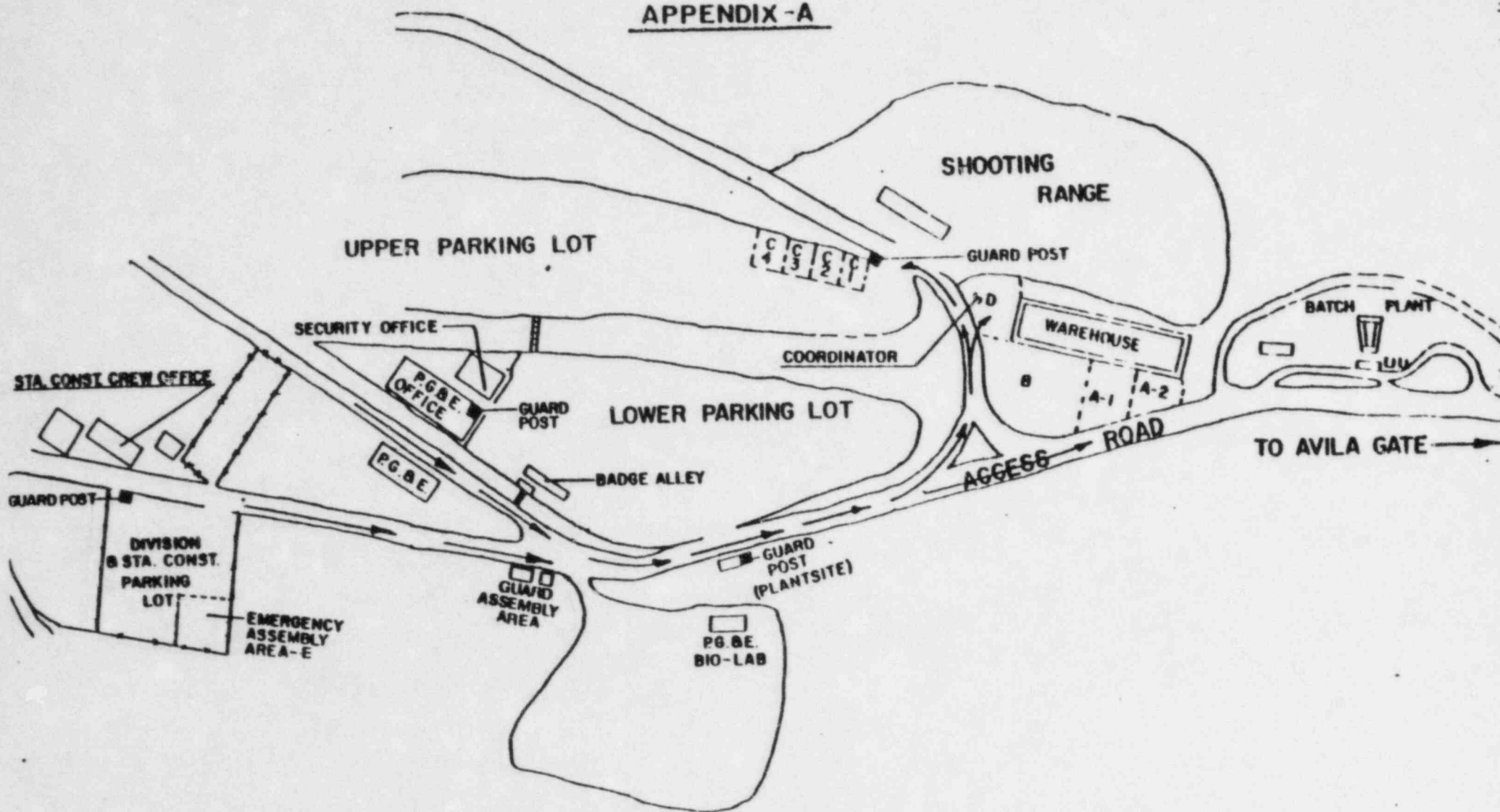
ARROWS INDICATE EVACUATION ROUTE FOR CONTRACTOR PERSONNEL (EXCLUDING (W) NUCLEAR)

APPENDIX - 4

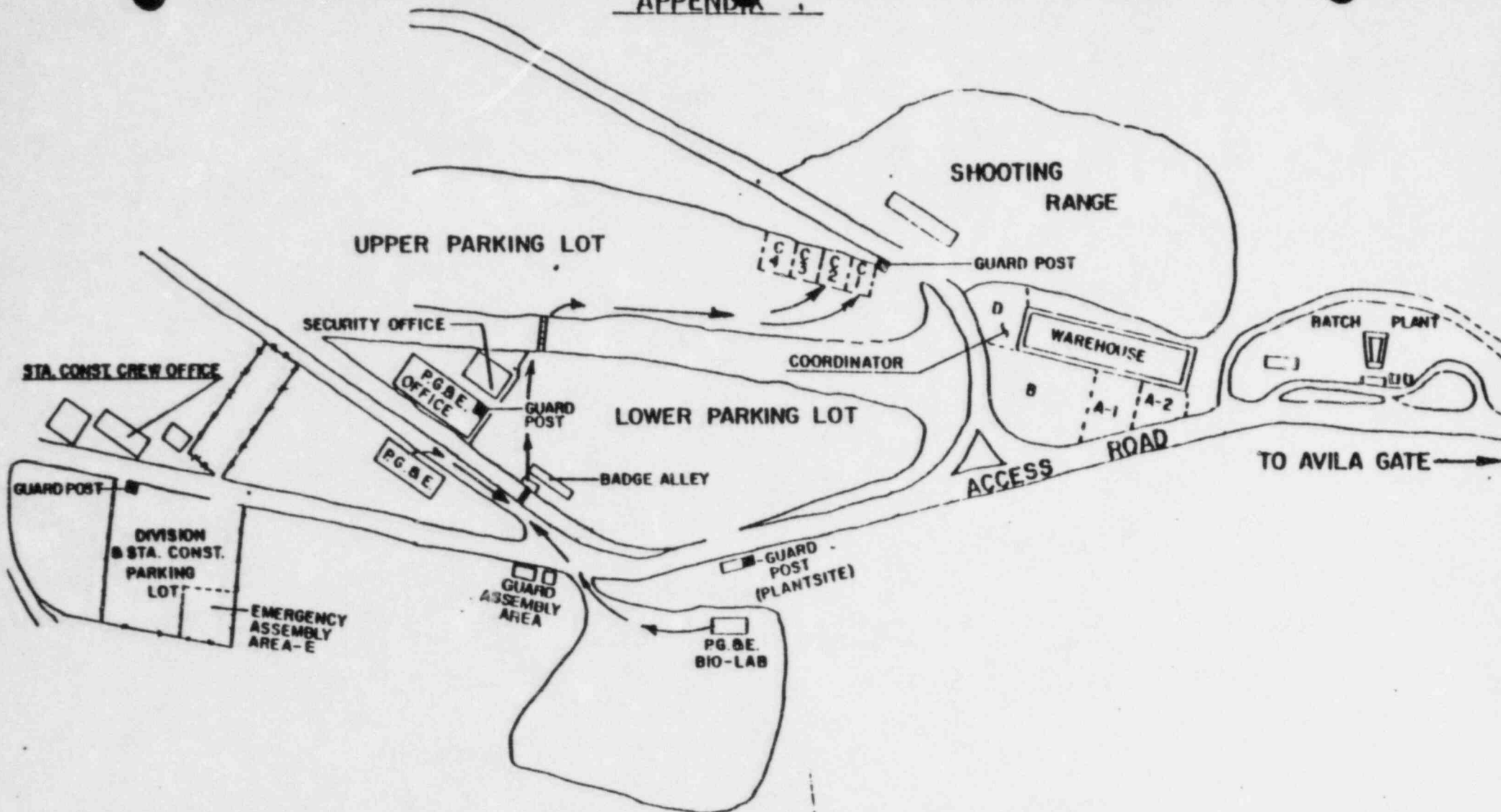


ARROWS INDICATE EVACUATION ROUTE FOR PG&E-G.C. PERSONNEL (EXCLUDING STATION CONSTR. AND LINE DEPT. CREWS), VISITORS SIGNED IN THRU THE G.C. SECURITY OFFICE & ONSITE G.O. ENGINEERING AND BETCHEL.

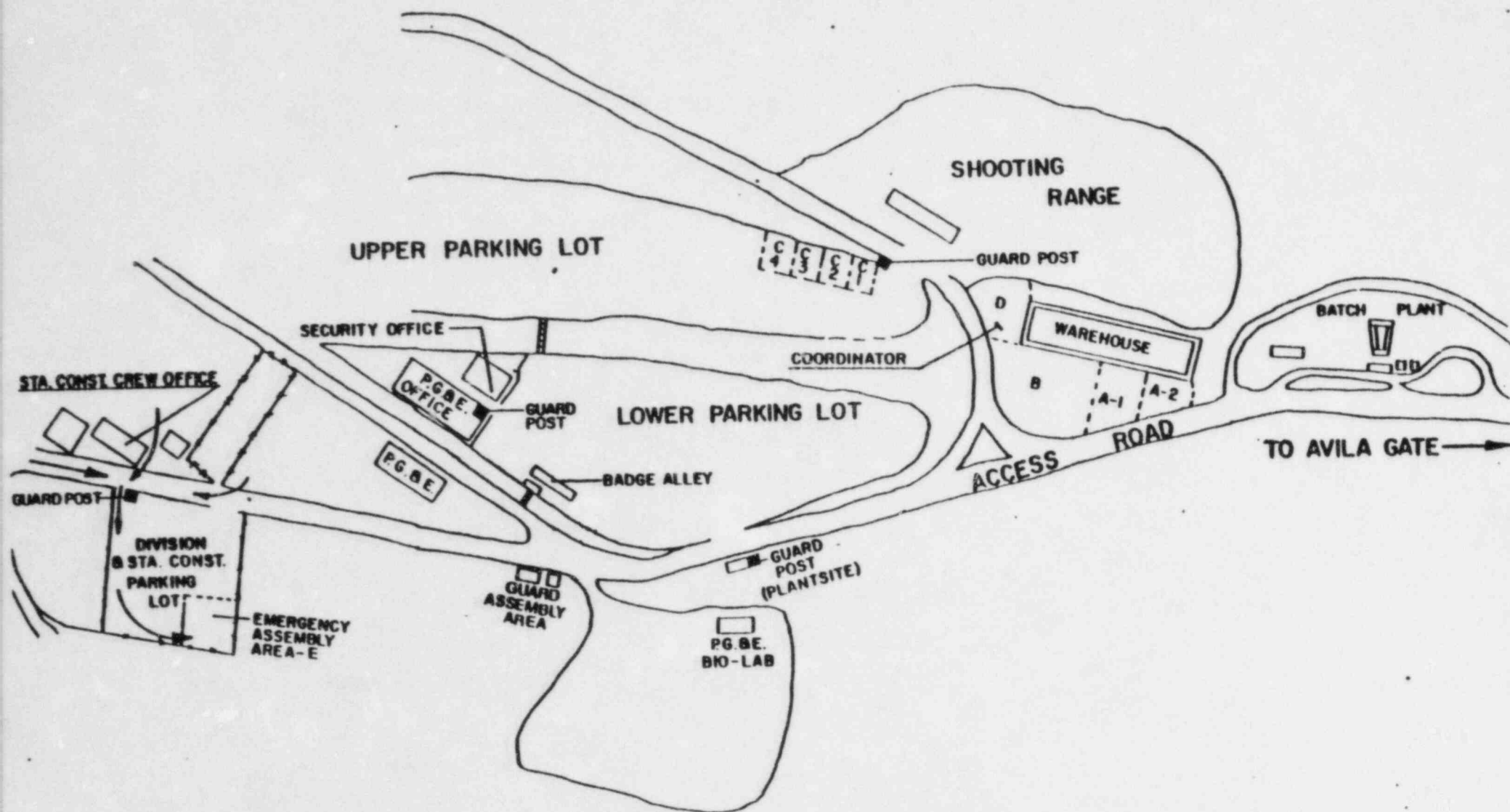
APPENDIX -A



ARROWS INDICATE EVACUATION ROUTE FOR VENDORS, SERVICE COMPANIES, COMMON CARRIERS WITH BADGES ISSUED AT PLANTSITE, CONTRACTORS AND OTHERS WITH BADGES NORMALLY STORED AT PLANTSITE.



ARROWS INDICATE EVACUATION ROUTE FOR PG&E, BIO-LAB PERSONNEL, CAL POLY FOUND., WALTER & CODE-3 EMPLOYEES.



ARROWS INDICATE EVACUATION ROUTE FOR PG&E.
STATION CONSTRUCTION CREWS, ONSITE LINE DEPT.
CREWS AND WESTINGHOUSE (NUCLEAR DIVISION)
EMPLOYEES.

APPENDIX C

EMERGENCY EVACUATION ACCOUNTABILITY FOR P.G. AND E. GENERAL CONSTRUCTION:
ADMINISTRATION, ELECTRICAL, MECHANICAL, CIVIL AND STARTUP DEPARTMENTS;
STATION CONSTRUCTION CREW, LINE DEPT. CREW, BIO-LAB CREW AND CAL POLY
FOUNDATION EMPLOYEES, CODE-3, WALTER, AND P.G. AND E.G.O. ENGINEERING
GROUP.

I. Procedure to Identify Personnel On-Site:

A. General

All personnel will be accounted for by the issuance and control of the individual's project photo I.D. Badge.

I.D. Badges will be issued and controlled at one of the following designated project "Points of Entry":

- A. Administration Building Guard Station: (All G.C. Employees Excluding Station Construction and Line Dept.)
- B. Lower Lot Entrance Gate: via Alley #8 (Bio-Lab & Cal Poly Foundation, Walter and Code-3 Employees)
- C. Upper lot-upper road station: (Warehouse & Camp Work Employees)
- D. Division-Station Construction Lot Entrance: (Station Construction, Line-Dept. Crews)

At the beginning of a shift personnel will pick up their photo badges at the appropriate Guard station where they normally enter the project. Immediately after shift change each of the Guards at the controlling entry stations will determine the status of the employees covered by their Post.

The day shift Guards (on normal work days) will fill out a form listing the employees NOT ON SITE, by Departments. The swing shift, graveyard and weekend Guards will fill out a form listing the employees ON-SITE, by Departments. These lists will be kept current at all times during the shifts by additions or deletions of those entering or leaving the project, and will be supplied to the Resident Engineers when required.

Personnel leaving the site will badge out and back in at the Guard Post where they normally enter the project, except personnel (such as Station Construction and Line Dept. Crews) leaving the site in Company vehicles for off site work will leave their badges with the Guard at the Plant Site Entrance to the lower parking lot.

APPENDIX C (Continued)

It is the responsibility of each Supervisor to know the general location of his subordinates at any time. Should a Supervisor be absent, the Resident Engineer or Group Supervisor will assign another Supervisor to fill in during his absence.

B. Camp Residents

At all times, during non-work hours, personnel living in camp will be logged in and out through the upper lot Guard Post any time they enter or leave the project, to insure their accountability.

C. Line Crews (Off-Site) Not assigned To Diablo Canyon Work Forces:

P.G. and E. General Construction Line crews working on the project will report their personnel and work location on a daily basis to the Security Office. Crews working other than day shift will be logged in and out at Avila Gate.

:: Procedure For Accountability:

Upon the activation of the emergency evacuation signal, all personnel will exit from the project thru the guard station where they normally enter, deposit their badge, and proceed on foot to their designated on-site assembly area.

ALL UNIT-1 CONSTRUCTION PERSONNEL WILL EVACUATE THROUGH THE PLANT SECURITY BUILDING EXCHANGE THEIR UNIT-1 BADGES FOR THEIR SITE PHOTO I.D. BADGES AND PROCEED TO THEIR ASSIGNED ASSEMBLY AREA VIA THEIR ASSIGNED BADGE ALLEY.

The Security Department will rack the badges and then provide each supervisor with a list of personnel on-site who did not badge out of the project. The supervisor will double check the personnel in the site assembly area for anyone listed as not badged out. All personnel must be accounted for. The supervisor will identify personnel not accounted for by name and last known work location to the Project Superintendent or his alternate. This final tally will be relayed to the Site Emergency Coordinator, via the Security Shift Supervisor.

Portions of the Station Construction & Line Crews and others working outside the inner project, as well as Camp Residents, will report directly to the appropriate assembly area. These persons may be in the outlying areas in a vehicle, which may be driven to the upper lot and parked and the personnel report to their assembly area.

(REFERENCE APPENDIX "A" FOR ASSEMBLY AREAS AND EVACUATION ROUTE DRAWINGS)

APPENDIX D

VISITOR INFORMATION

Welcome to Diablo Canyon --

As a visitor to this site, there are several rules and procedures which you should be aware of. They have been designed for your safety and must be strictly complied with.

1. If you have been issued a hard hat wear it at all times.
2. The visitor badge issued to you is to be worn in plain view at all times. (In certain areas on the site you may be asked to surrender this badge; however, you will be provided with another badge in exchange.)
3. Persons who desire to enter the operating areas of the plant will be provided with additional instructions governing their actions while in these locations, prior to entry.

Emergencies

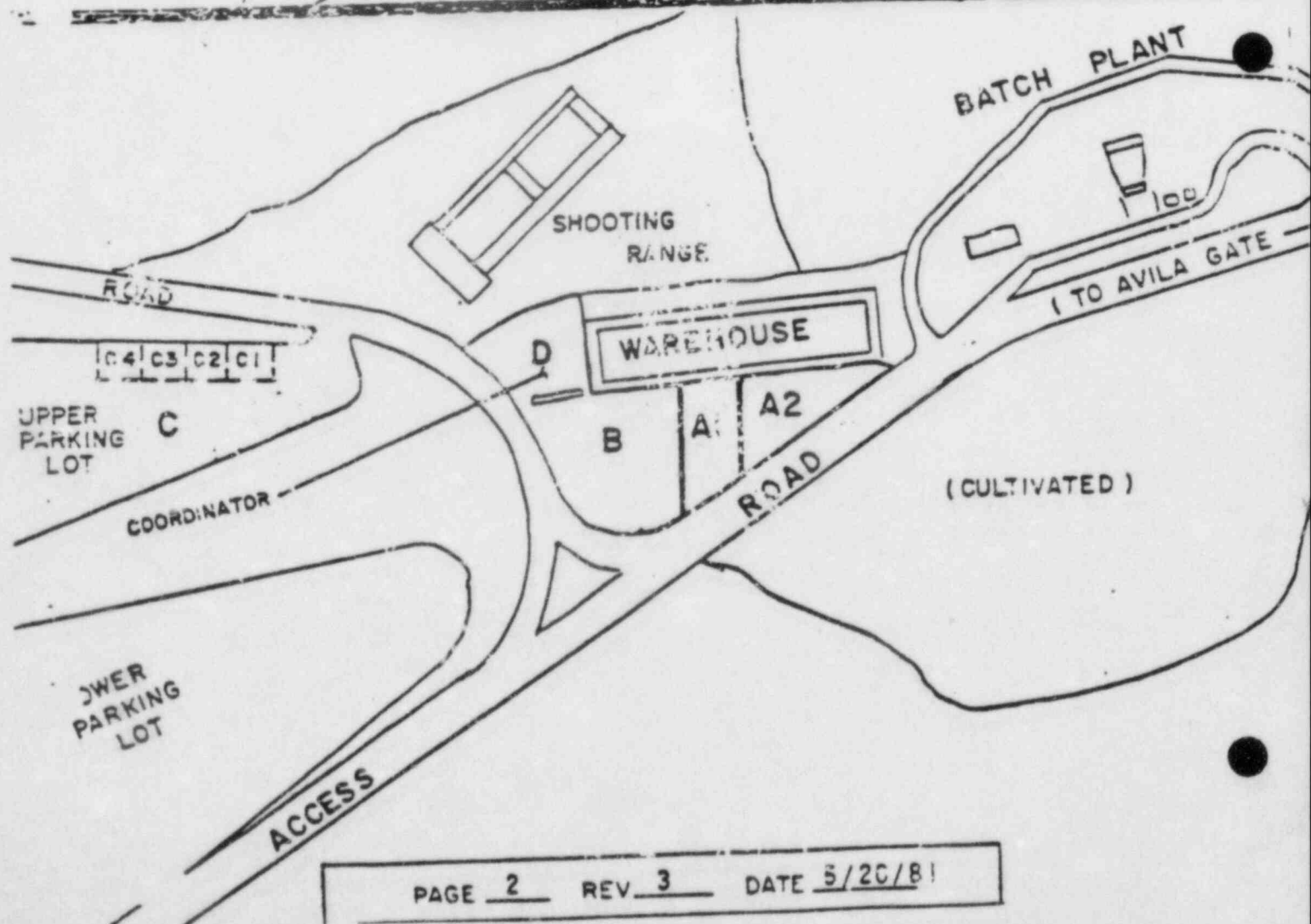
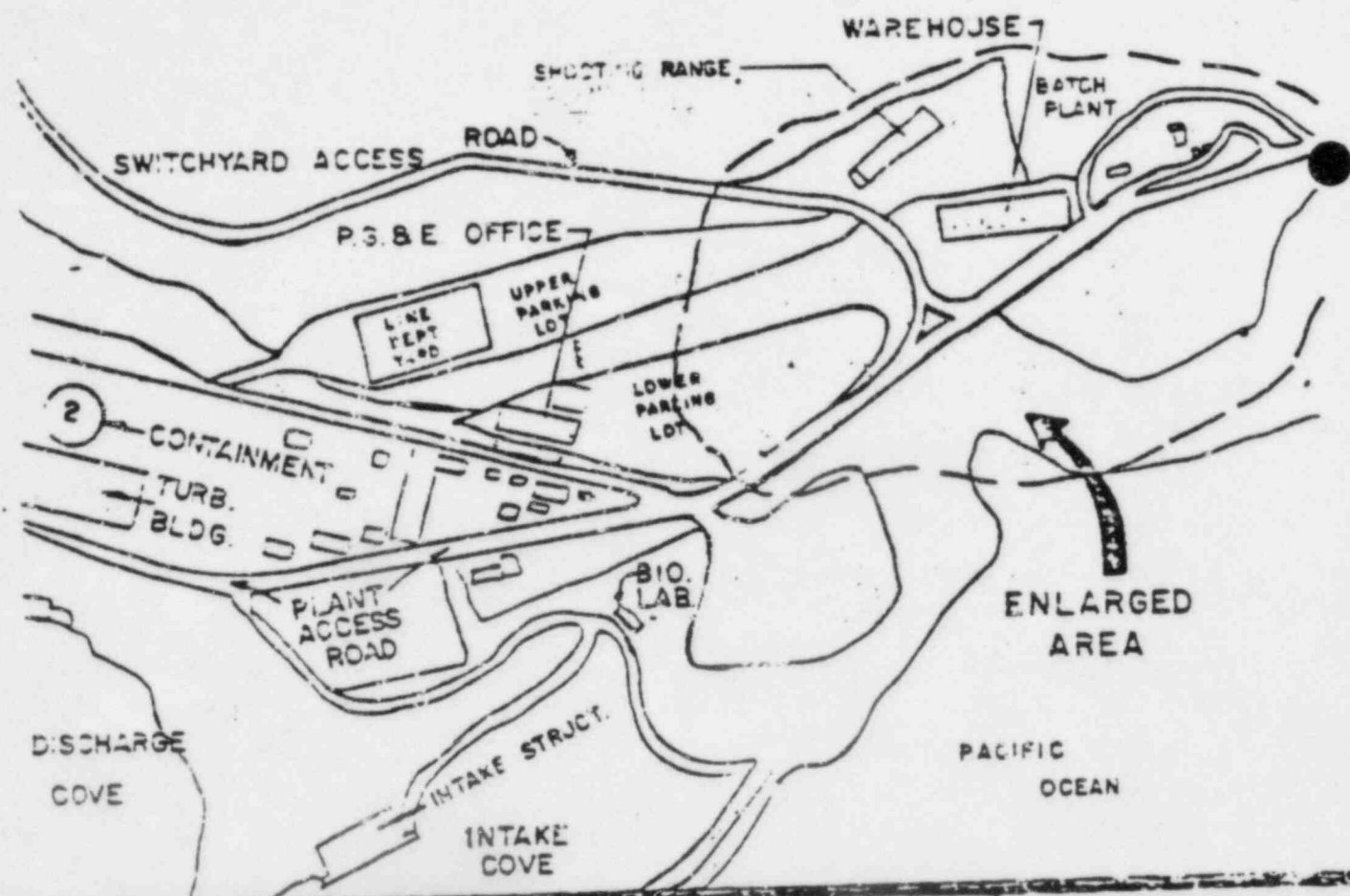
Should a situation arise which requires the evacuation of this site, the plant emergency signal will be activated. The signal is produced by electronic warblers placed at numerous locations throughout the plant. It has a characteristic sound which is a rapid rise in pitch followed by a slower drop. The sound cycle is repeated continuously for as long as the signal remains energized.

Flashing red lights have been provided in the containment since the background noise level would not permit audible perception of the electronic warblers.

Under an emergency situation the alarm should sound for a minimum of one minute.

The emergency signal will be actuated for test purposes every Friday at 12:10 p.m. for a period of approximately ten (10) seconds.

Should the signal be activated during your visit other than at the test time, proceed on foot to the area marked "D" on the map provided you and wait for further instructions.





Pacific Gas and Electric Company



DEPARTMENT OF NUCLEAR PLANT OPERATIONS

DIABLO CANYON POWER PLANT UNIT NO(S) 1 AND 2

EMERGENCY PROCEDURE

NONEMPLOYEE INJURY OR ILLNESS (THIRD PARTY)

TITLE

NUMBER EP M-2

REVISION 10

DATE 2/21/84

PAGE 1 OF 4

**IMPORTANT
TO
SAFETY**

APPROVED

R. E. Thompson
PLANT MANAGER

4-4-84
DATE

SCOPE

This procedure describes the actions which are to be taken in the event of an injury or illness involving a nonemployee which is incurred in connection with Company operations either on or in the vicinity of the plant site. This procedure and changes thereto requires PSRC review.

APPLICABILITY

This procedure is to be followed for incidents involving non-employees who are on or near the site at the request of the Nuclear Plant Operations Department (such as a Xerox serviceman). In the event of an incident involving other non-employees at or near the site (such as a construction worker), perform only the asterisked (*) steps in this procedure.

IMMEDIATE ACTIONS

The employee(s) who are at the scene shall:

- *1. Render all necessary first aid.
- *2. Notify the control room (Shift Foreman) as soon as practical.

NOTE: The Shift Foreman may be notified by dialing Ext. [1234] or [779 + 61]. Dialing [779 + 61] activates the fire alarm and medical emergency code call. The caller must remain on the phone to enable the Shift Foreman to dial into a conference call.

SUBSEQUENT ACTIONS

The Shift Foreman shall direct all subsequent actions until relieved by the Long Term Site Emergency Coordinator (if the situation warrants it). Such actions should include the following:

- *1. Sound emergency signal, code override, or other general warning signal to clear the area if the situation warrants it.

TITLE NONEMPLOYEE INJURY OR ILLNESS (THIRD PARTY)

- *2. Dispatch additional first aid personnel such as the project construction EMT [Ext. 1212 or 595-7273], to the scene of the injury or illness if required. Personnel who have not been instructed to provide assistance at the scene should remain on their jobs and stay clear of the affected area.
- *3. Call an ambulance or physician if the situation warrants it. The practices which are to be followed if this step is necessary are given in the following section of this procedure.
- 4. Secure the names and addresses of all witnesses (both Company and noncompany).
- *5. Perform the notifications required by Appendix Z.
- 6. An accident report should be completed as soon as practical either on Form 62-6226 "Report of Miscellaneous Accident," or Form 62-4542, "Report of Automobile Accident," as is appropriate. The accident report should be forwarded to the plant clerk for processing.

POLICIES TO BE FOLLOWED WHEN REQUESTING OUTSIDE ASSISTANCE

If a third party requires medical care, the following policies should be followed by Company personnel who secure assistance.

- 1. If the injured or ill individual is in a condition where he can speak for himself, call the physician which he requests. If an ambulance is required, call the ambulance which he requests.
- 2. If the injured or ill individual cannot speak for himself, but friends, relatives, or his employer are present, leave the matter of his care to them.
- 3. If an injured or ill individual cannot speak for himself, and friends, relatives, or employer, or public officials are not present or will not take charge, call a local ambulance service and have the injured or ill person sent to the San Luis Obispo General Hospital for treatment.
- 4. Whenever a physician or an ambulance is called, it should be clearly stated by the employee making the call that this is not Company responsibility and is made not on behalf of the Company but of the injured or ill person or for his benefit, or until family, friends, employer, or public officials can take charge.

TITLE NONEMPLOYEE INJURY OR ILLNESS (THIRD PARTY)

5. An injured or ill third party should only be transported in a Company vehicle in the event of an extreme emergency when the delay associated with securing an ambulance might result in a significant deterioration of the injured person's condition.

POLICIES TO BE FOLLOWED IN THE EVENT OF RADIOACTIVE CONTAMINATION

If the injured or ill individual is significantly contaminated with radioactive material or overexposed, the matter will be treated in the same manner as would a similar incident involving a Company employee (see Emergency Procedure R-1 "Personnel Injury (Radiologically related) and/or Overexposure).

REFERENCES

1. PGandE Standard Practice 250.
2. PGandE Claims Department Circular Letter No. 19, 10/1/49.
3. NRC Information Notice 80-06, "Notification of Significant Events."

ATTACHMENTS

1. Form 62-6226, "Report of Miscellaneous Accident."
2. Form 62-4542, "Report of Automobile Accident."

TITLE NONEMPLOYEE INJURY OR ILLNESS (THIRD PARTY)

APPENDIX Z

1. When this emergency procedure has been implemented for injuries or illnesses occurring within the plant gate, and upon direction from the Shift Foreman, proceed as follows:

- *a. Notify the Plant Manager or his designated alternate.
- b. Contact the Division Field Claims Investigator:

Mr. C. O. Schreijl
at
Office [665-451
544-3334] Ext. 4
Home [541-3329]

If the Field Claims Investigator cannot be promptly reached (at office, home, or on mobile division radio), the General Office Department of Safety, Health, and Claims shall be immediately notified in his place. A list of appropriate personnel is attached to Emergency Procedure M-1 or notification of appropriate personnel will be handled by the System Dispatcher if requested.

- *c. Review the circumstances causing the injury or illness against the criteria for reports to NRC contained in Administrative Procedure C-11, Supplement 1, "Supplement 1 to Non-Routine Notification and Reporting to the NRC and Other Governmental Agencies," Appendix I.19, "Reporting of Significant Operating Events." If circumstances warrant, designate the event in accordance with the criteria contained in Procedure C-11.
- *d. Also notify the following, if NRC is notified, Supervising Nuclear Generation Engineer (Personnel and Environmental Safety) or his alternate in the Department of Nuclear Plant Operation:

Mr. W. H. Fujimoto
PGandE [222-4004
3277
(415) 799-5080]
Plant Ext.
Home

NOTE: If the above General Office person cannot be promptly reached, request the Systems Dispatcher to contact alternate personnel.

PG&E

REPORT OF MISCELLANEOUS ACCIDENT

CONFIDENTIAL**FOR USE BY COMPANY ATTORNEYS ONLY**

FORWARD REPORT TO:

ACCIDENT REPORT NUMBER

DEPARTMENT (CHECK)	GAS	ELECTRIC	STEAM	WATER	OTHER	ALPHA	YEAR	SEQ NUMBER	DIV USE
	1	2	3	4	5				

CHECK #2 ELECTRIC — FOR ALL POWER PLANTS AND WATER COLLECTING
CHECK #3 STEAM HEAT — FOR COMMERCIAL STEAM HEAT ONLY

1. LOCATION OF ACCIDENT:

STREET HIGHWAY, MILEPOST OR OTHER SPECIFIC LOCATION, CITY, NEAREST TOWN, POWER HOUSE, ETC. AND COUNTY

2. DATE OF ACCIDENT:

(MONTH—DAY—YEAR)

3. TIME

HOURS

4. DATE COMPANY WAS NOTIFIED:

(MONTH—DAY—YEAR)

- 5. INCIDENT BEING REPORTED:** ☐ CAR-POLE ☐ TRIP-FALL ☐ FIRE ☐ ELECTRIC CONTACT
☐ EXPLOSION ☐ MOTOR BURNOUT ☐ STORM ☐ DIG-IN ☐ OTHER _____

REPORT: If necessary, use reverse side of this form for explanatory sketch or additional information.

WERE PHOTOS TAKEN OF THE ACCIDENT?

☐ YES ☐ NO

WAS ANY PHYSICAL EVIDENCE SECURED IN CONNECTION WITH THIS INCIDENT?

☐ YES ☐ NO**6. NAME AND ADDRESS OF**

1. INJURED PERSON 2. PERSON DAMAGING COMPANY PROPERTY OR 3. OWNER OF DAMAGED PROPERTY OTHER THAN PG&E PROPERTY.....

(INDICATE NUMBER IN SQUARE)

☐
☐
☐

NAME

ADDRESS

CITY, STATE

PHONE NUMBER

NAME

ADDRESS

CITY, STATE

PHONE NUMBER

NAME

ADDRESS

CITY, STATE

PHONE NUMBER

7.

WITNESSES. IMPORTANT — Secure names, addresses and phone numbers of all witnesses—If no eye witness, give names of those who can give information. show "none" if there were no witnesses.

PG&E EMPLOYEE'S NAME, DEPT., PHONE NUMBER:

NON-EMPLOYEE'S NAME, ADDRESS, PHONE NUMBER:

8. ESTIMATED TOTAL DOLLAR DAMAGE TO PG&E COMPANY PROPERTY \$**9. WAS THERE ANY DAMAGE TO PROPERTY OF OTHERS?**☐ YES ☐ NO ☐ UNKNOWN

IF YES, ESTIMATE TOTAL DOLLAR DAMAGE \$

10.

NAME OF FIRE SUPPRESSION UNIT

☐ USFS☐ COUNTY☐ FIRE DISTRICT☐ CDF☐ MUNICIPAL☐ UNKNOWN☐ NONE**11.**IS COLLECTION ACTION BY THE COMPANY RECOMMENDED? ☐ YES ☐ NO

DIVISION, G.O. OR GENERAL CONSTRUCTION

DEPARTMENT

REPORT PREPARED BY (PRINT NAME)

REPORT REVIEWED BY (MANAGER, Supt. FOREMAN, ETC.)

TRICT & TOWN

DATE

SIGNED

PRINT NAME

PHONE NO

LOCATION OR ITEM NO

ACCOUNT NO

JOB IN PROGRESS AT TIME OF ACCIDENT (G.M. W.O. M. D & C)

JOB NO ISSUED TO COVER REPAIRS (W.O. M. D & C)

R.C. NO

FORWARD REPORT TO:

For Use by Company Attorneys Only REPORT OF AUTOMOBILE ACCIDENT

1 OTHER DRIVER

Name _____
 Address _____ (Street, City, State)
 Phone No. _____ ☐ Male ☐ Female
 Date of Birth _____ Operator's Lic. No. _____ State _____
 Insurance Company _____

ACCIDENT REPORT NUMBER

Alpha	Year	Seq. Number	Div. Us

2 OTHER VEHICLE OR PROPERTY OWNER

Name _____
 Address _____ Phone No. _____
 Vehicle: Make _____ Type _____ Year _____ Lic. No. _____ Color _____

3 PASSENGERS IN OTHER VEHICLES, WITNESSES, OR INJURED PERSONS

NAME	ADDRESS	PHONE No.	PASSENGER	WITNESS	INJURED OR FATAL
1. _____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. _____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. _____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. _____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. _____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. _____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4 PASSENGERS IN COMPANY VEHICLE

NAME	ADDRESS	PHONE No.	EMPLOYEE YES NO	INJURED OR FATAL
1. _____	_____	_____	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
2. _____	_____	_____	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
3. _____	_____	_____	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
4. _____	_____	_____	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>

5 DATE, TIME AND LOCATION OF ACCIDENT

On _____ (Date) at _____ (Time) Hours, On _____ (Street or rural highway)
 at/near _____ (Intersecting street, house number or highway location) In _____ (City or County, State)

6 DESCRIPTION OF ACCIDENT

Complete details of how accident occurred

Other vehicle was ☐ stopped ☐ moving _____ (Direction) on _____ (Street) at _____ (Speed) MPH
 Company vehicle was ☐ stopped ☐ moving _____ (Direction) on _____ (Street) at _____ (Speed) MPH

(If necessary, use additional sheet to complete story)

Describe weather, road and light conditions _____
 Number of seat belts in Company vehicle _____ Number of seat belts in use at time of accident _____
 Indicate which investigating agency will prepare a report: ☐ CHP ☐ Sheriff ☐ City Police ☐ None ☐ Other _____

7 VEHICLE & PROPERTY DAMAGE

DESCRIBE DAMAGE TO: Other Vehicle(s) or Property _____ Cost if known _____ or estimate: ☐ Under \$50 ☐ Over \$50 ☐ Over \$100
 \$ _____

DESCRIBE DAMAGE TO: ☐ Company Vehicle ☐ Lease/Rental Vehicle ☐ Personal Vehicle Cost if known _____ or estimate: ☐ Under \$100 ☐ Over \$100 ☐ Over \$500
 \$ _____

Were photos taken of accident scene and damage? ☐ Yes ☐ No

8 COMPANY DRIVER & VEHICLE INFORMATION

Company Driver _____ Home Address _____ Company Phone No. _____
 Age _____ Occupation _____ Reporting to Local Office at _____
 Cal. Driver's Lic. No. _____ Class _____ Expiration Date _____
 Division or G.O. Dept. _____ District _____ Department _____
 Vehicle No. _____ Lic. No. _____ Lic. No. _____ Type _____ Year _____ Odometer Reading _____

Driver's Signature _____

Date this report _____ 19 _____ Countersigned _____ Mgr., Supr., Gen. Foreman, etc. Company Phone No. _____

LOCATION OR ITEM No.

ACCOUNT No.

JOB IN PROGRESS AT TIME OF ACCIDENT (G.M., W.O., D. & C.)

JOB No. ISSUED TO COVER REPAIRS (W.O., M.D. & C.)

R.C. No.

INSTRUCTIONS

All accidents arising out of the operation of Company-owned, leased or rented vehicles, as well as employee-owned, leased or rented vehicles used on Company business, must be reported to the Supervisor in charge immediately. All injuries to persons or serious damage to property of others involving above vehicles must be reported to the Safety, Health and Claims Department Field Investigator or, if he is unavailable, the General Office Safety, Health and Claims Department. Such notification shall be by the fastest means of communication and this report prepared the same day. Answer each question fully. When blank spaces are not sufficient for full statements, answer each on separate sheets and attach hereto.

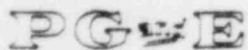
PREPARE A SKETCH OF ACCIDENT BELOW: Sketch should show:

- 1) POSITION OF VEHICLES, BUILDINGS, STRUCTURES, ETC.
- 2) STREET NAMES, DIRECTIONS OF TRAVEL, STOP OR WARNING SIGNS, ETC.
- 3) LANE WIDTHS, SKID MARKS, POINT OF IMPACT, INCLUDING MEASUREMENTS AS APPROPRIATE

CURRENT
EMERGENCY PLAN
IMPLEMENTING PROCEDURES
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04/25/84



Pacific Gas and Electric Company



DEPARTMENT OF NUCLEAR PLANT OPERATIONS

DIABLO CANYON POWER PLANT UNIT NO(S) 1 AND 2

TITLE EMERGENCY PROCEDURE
OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

NUMBER EP EF-6

REVISION 2

DATE 01/03/84

PAGE 1 OF 45

IMPORTANT
TO
SAFETY

APPROVED

R. E. Thibault
PLANT MANAGER

4-4-84
DATE

SCOPE

This procedure provides startup instructions and operating flow diagrams for any HP-9845C station capable of functioning as a controlling station for the Emergency Assessment and Response System (EARS). These EARS stations include the Control Room (CR), Technical Support Center (TSC), and Emergency Operations Facility (EOF).

In addition a discussion of the terminology used, and a brief overview of some of the support software and data file contents and structure used in the EARS is included.

For detailed instructions on operation of the support EARS software for the HP-9845C's see the Operator's Manual (Applied Physical Technology, Inc. Operator's Manual for Emergency Assessment and Response System EARS/9845C, June, 1982).

Startup and operating instructions for the EARS TSC HP-1000F computer are contained in procedure EP EF-8.

This procedure and changes thereto requires PSRC review.

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TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

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DISCUSSION

The purpose of the EARS is to assist the Company Emergency Response Organization and offsite authorities in quantifying offsite radiological consequences should radioactive isotopes be released during an accident at the DCP. The system gathers data on meteorological parameters, onsite and offsite real time radiation monitor readings. It performs dispersion computations, disseminates information and displays data to various onsite and offsite stations. These stations include the CR, the TSC, the EOF, the Corporate Incident Response Center (CIRC), and the State Office of Emergency Services (OES) stations.

The CR, TSC, and EOF are all capable of being the controlling station; although only one can be the controller at any one time. Any station that is not functioning as the controller can receive calculational results from the EARAUT (EARS automatic) program via communication links. If the links are disrupted, EARS can function by means of the manual EARS program (EARMAN), using data obtained via voice communication with the controlling station operator.

This procedure provides the necessary information for CR, TSC, and EOF operators to start up the EARS computer hardware and run the three primary EARS programs (STATUS, EARAUT, EARMAN) on the HP-9845C desktop computer at the respective station.

The structures and contents of all EARS data files at the CR, TSC, and EOF EARS stations is given in Ref. 1.

PROCEDURE1. EARS Hardware at Controlling Stations

All HP hardware at the CR, TSC and EOF is covered by a service maintenance agreement with Hewlett-Packard, Inc. (see Appendix A for a complete list of hardware). In case of any hardware failure, contact the System Manager of the EARS and explain the problem to him. If the System Manager or his alternate cannot be contacted, the EARS operator may call Hewlett-Packard service [805]964-3390 directly during business hours (8 a.m. to 5 p.m., Monday thru Friday).

TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS2. Start-Up Procedures

The following start-up procedures assume that all power to the computer hardware is off when the EARS operator arrives at an EARS station.

- a. Set the power strip switch on. All of the equipment at each station is connected to one power strip which is located on the back of the desk console, except at the TSC-CC where it is attached to the console underneath the HP-9845C. This should turn everything on if the station was left in proper order, with all of the individual component switches set to the "ON" or "1" position. Check to see that all of the switches on all of the components are set to "ON" or "1" at this point.
- b. Check to see that the 7906 disc drive RUN/STOP switch is set to "RUN". After about one minute the front panel of the 7906 should display 'DRIVE READY'.
- c. Check to see that the HP-9845C computer power switch (on the right side of the computer) is set to "1". The CRT should beep and begin a self-test ("MEMORY TEST IN PROGRESS" message should appear on the CRT). When the self-test is completed, the "9845 READY FOR USE" message and a flashing cursor will appear on the CRT indicating the computer is ready for use.
- d. After the entire system at this station is turned on, check the paper reserve in the HP-9845C internal printer. Instructions on how to load a new roll of thermal paper into the HP-9845C internal printer is given in Appendix B.

3. Shut-Down Procedures

- a. Place the 7906 disc drive RUN/STOP switch to the STOP position, and wait for the 'DOOR UNLOCKED' light to appear on the front panel of the disc.
- b. Turn the power strip switch to off position. This should turn off all of the equipment.

4. Power Failure

Should the power to the system be lost during operation, the system must be shut-down as described in section 3 before power is restored.

Any data in the computer memory is erased by power failure.

TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS5. EARS Software and Flow Diagrams

There are three primary EARS programs stored on the HP-7906 disc drive (select code: C:12): 1) "STATUS: for non-emergency (or idle) mode operations; 2) "EARAUT" automatic EARS program; and 3) "EARMAN" - manual EARS program for emergency mode operations.

There are two basic modes in which the EARAUT program can be operated: CONTROL and NON-CONTROL. Only the CR and the TSC EARS stations at DCP, and the EOF EARS station at the Sheriff's Office in San Luis Obispo can be operated in the CONTROL mode. Only one station can serve as the controller at any one time. Data is transmitted to all NON-CONTROL stations in fixed data strings containing information about the accident, instrument readings, calculated dose results, and messages.

Once the EARS station is activated, the operator should start running the STATUS program. If the emergency mode of EARS has already been established at another controlling station, EARAUT program will automatically be loaded from the disc and be run on the HP-9845C.

The flow diagrams following each program description are intended to give an EARS operator a general overview of the operator logic flow for each of the main EARS programs. The numbers in the flow diagrams reference other "KEY SETS" within the same program, whereas the letters reference specific entry points within the same or other programs.

a. STATUS

When EARS is not operated in the emergency mode, this program allows all HP-9845C stations to log onto the system for data polling purposes. As long as this station stays 'logged on' to the system, it can be 'scheduled' automatically to go into emergency mode by a CONTROL station when an emergency is declared.

When 'logged on', this program allows the operator to poll the HP-1000 at the TSC for meteorology (MET), plant radiation monitors (RMS), or pressurized ion chambers (PIC) data. It also allows the operator to determine the system network status, such as which stations are currently logged on the system, and when they are logged on or off. In addition, the site and area maps can be displayed and 'dumped' to the thermal printer on the HP-9845C.

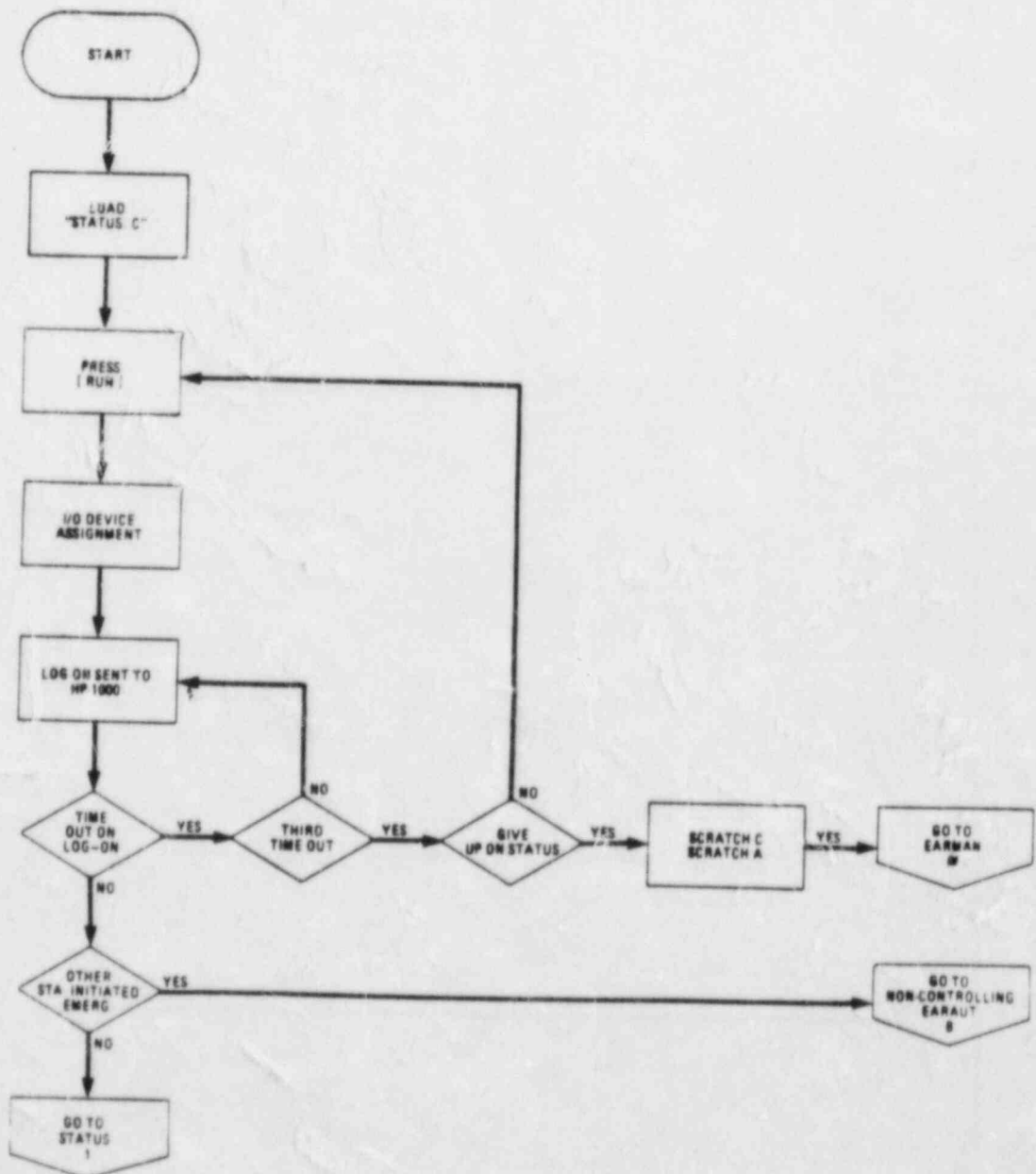
Once logged on, the operator of one of the CONTROL stations can initiate the emergency mode of EARS by pressing the key under the CRT labeled **EMERGENCY**. This will load EARAUT and thereby begin the actual assessment of the emergency.

TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

- 1) After the computer system at this station is up and running STATUS can be loaded and run by entering the following commands from the HP-9845C keyboard.
 - a) Type in 'SCRATCH A', press [EXECUTE].
 - b) Type in 'SCRATCH C', press [EXECUTE].
 - c) Type 'LOAD "STATUS: C"' and press [EXECUTE] key.
 - d) Wait for the run light on the lower-right corner of the CRT to go off.
 - e) Press the [RUN] key.
- 2) The following three pages are flow diagrams for STATUS.

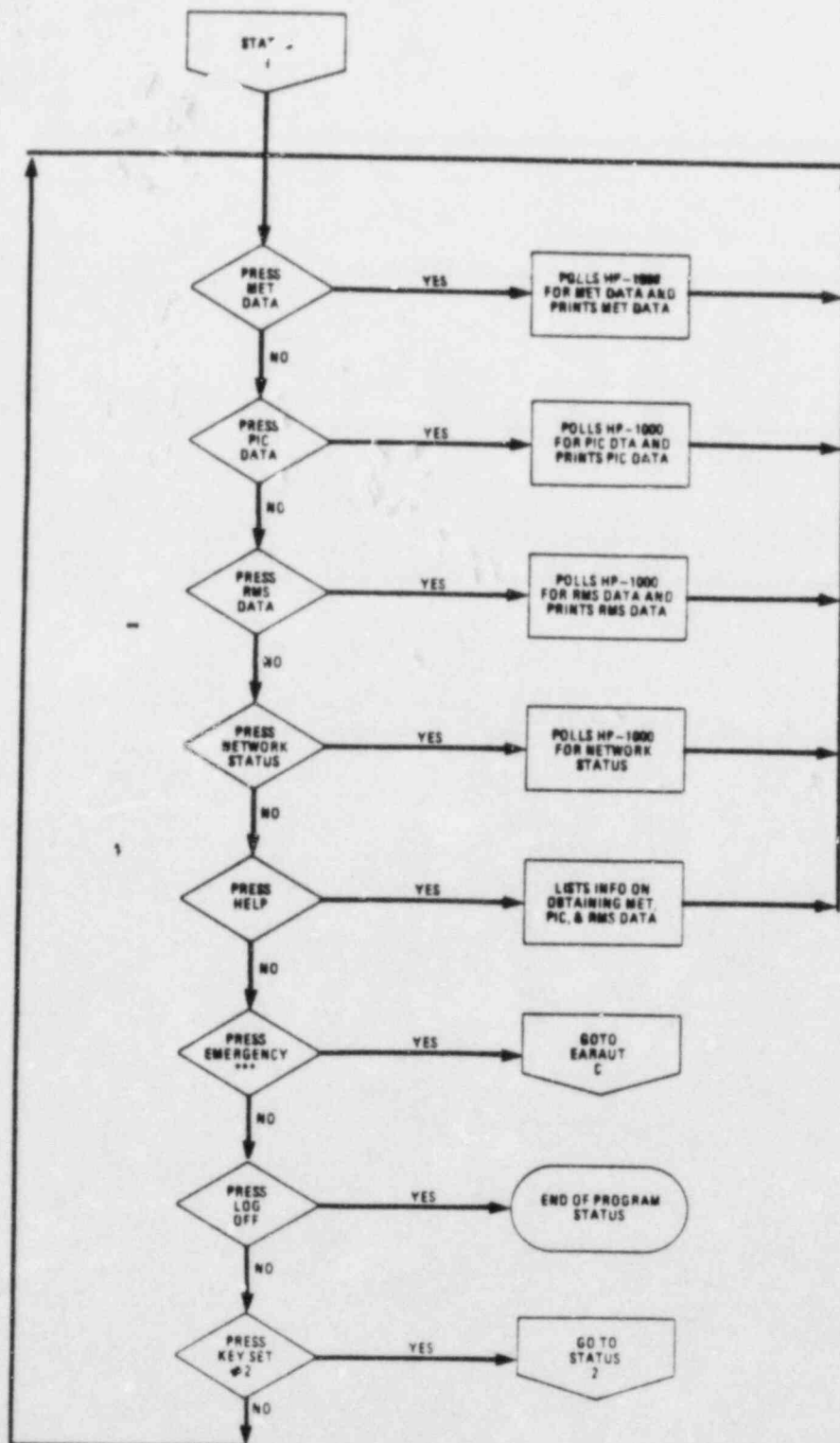
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

STATUS



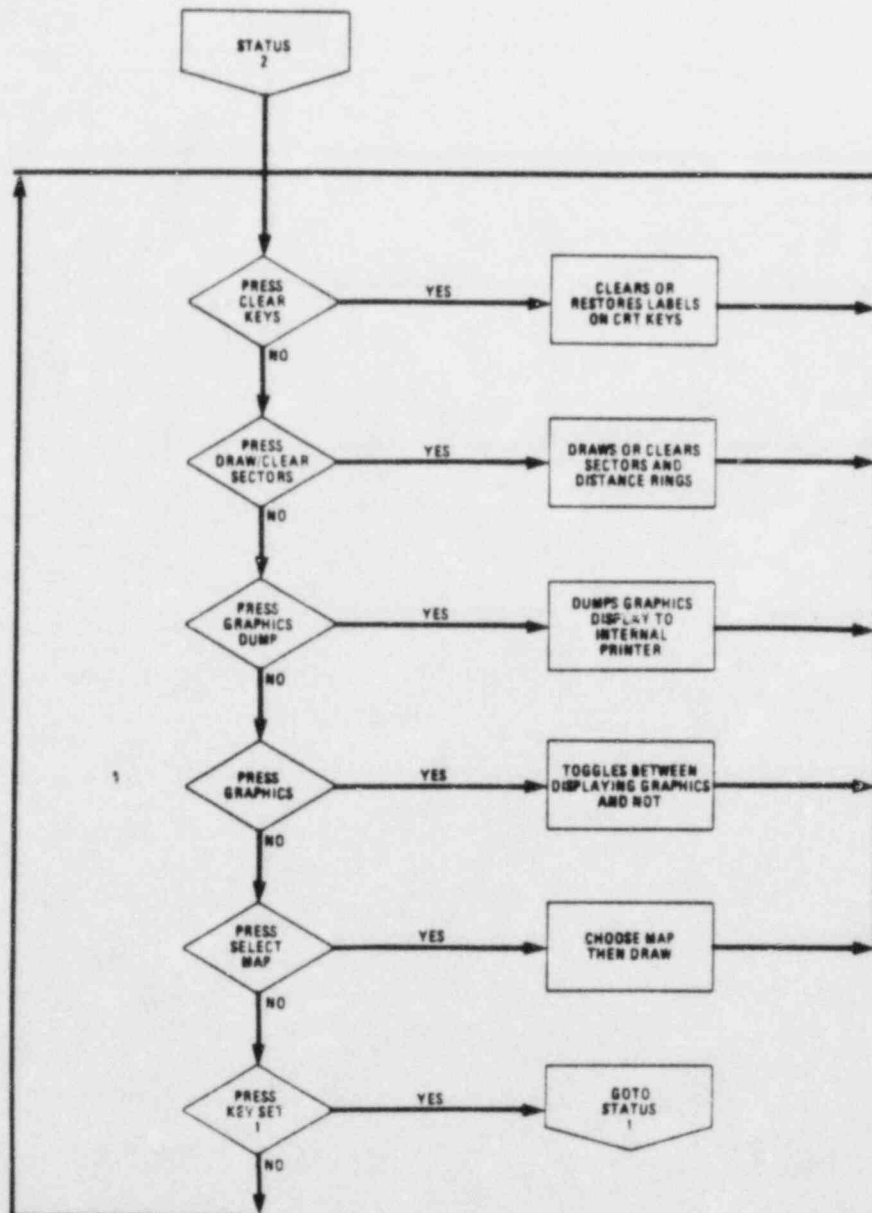
TITLE: OPERATING PROCEDURES FOR EARS 9845C
 CONTROLLING STATIONS

STATUS KEY SET #1



TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

STATUS KEY SET #2



TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONSb. EARAUT PROGRAM (Controller)

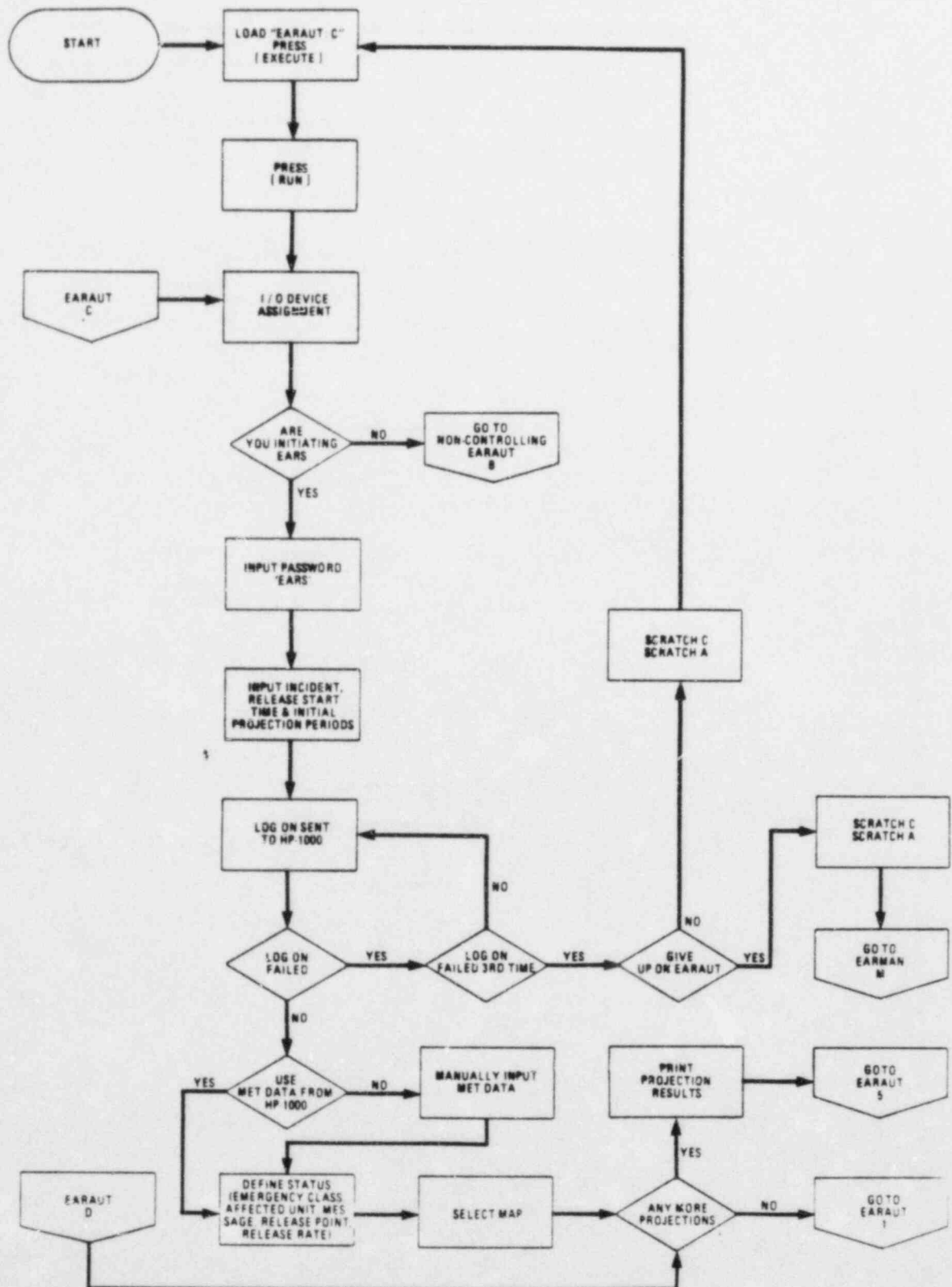
The EARS automatic (EARAUT) controller program consists of three subprograms: EARADC (Central processing program for Controlling stations), EARGdc (Graphics subprograms), and EARrdc (Release rate calculation subprogram), in addition to the EARAUT main entry program. These subprograms are loaded in and out of the HP-9845C as needed.

EARAUT can be loaded and run as the CONTROLLING station either by pressing the '**EMERGENCY**' softkey in the STATUS program, or by manually loading the program from disc and running it. Should you load EARAUT with the intentions of becoming the CONTROLLER, but someone else has already assumed that function from another station, you will automatically be logged on as NON-CONTROLLER when running the program.

1. After the computer system at this station has been started up EARAUT can be loaded and run by entering the following commands from the HP-9845C keyboard.
 - a. Type in 'SCRATCH A', press [EXECUTE].
 - b. Type in 'SCRATCH C', press [EXECUTE].
 - c. Type 'LOAD "EARAUT: C"' and press the [EXECUTE] key.
 - d. Wait for the run light in the lower right corner of the CRT to go off.
 - e. Press the [RUN] key.
2. The following nine pages are flow diagrams for controlling EARAUT.

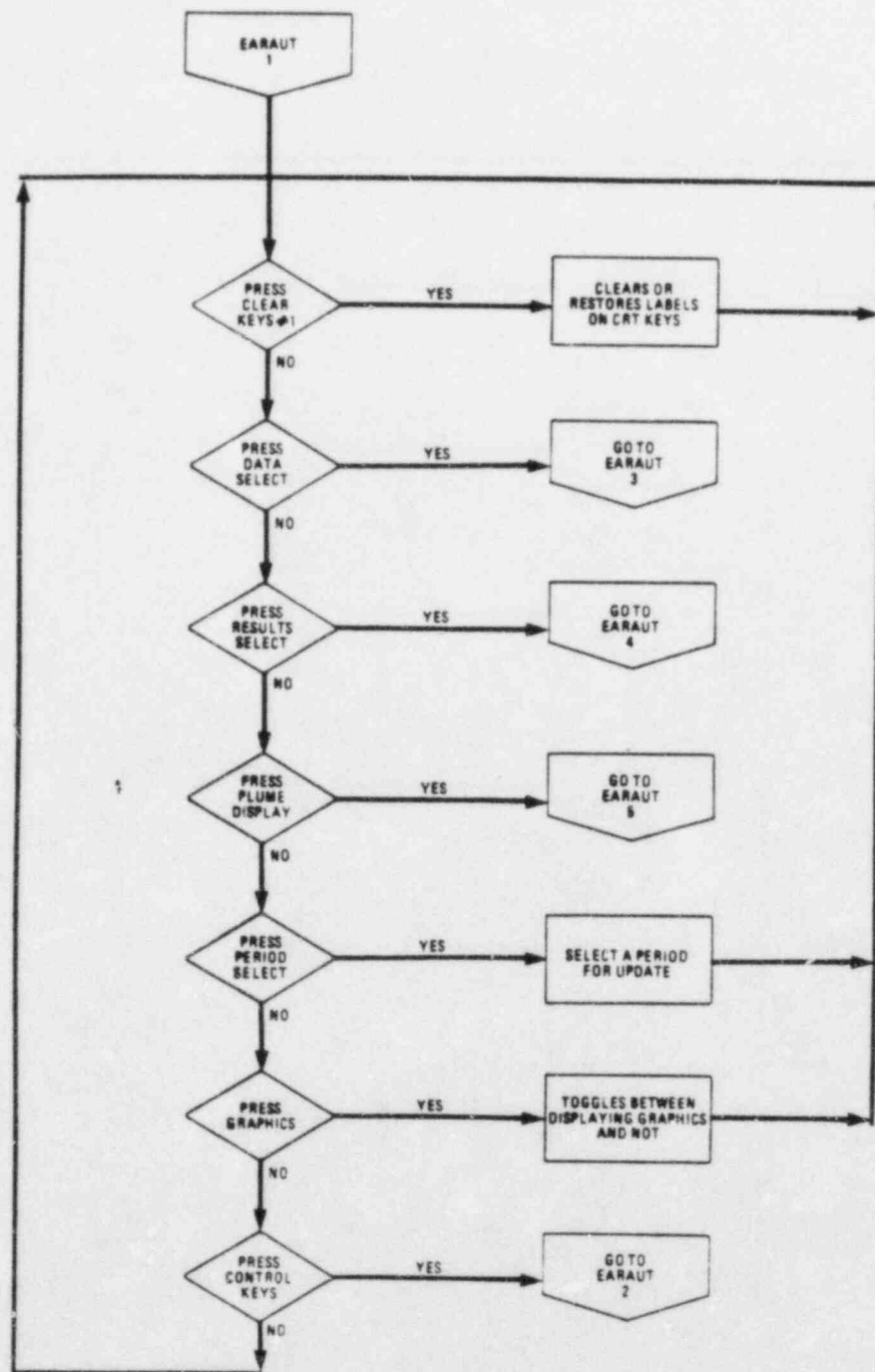
TITLE: OPERATING PROCEDURES FOR EARS 9845C
 CONTROLLING STATIONS

EARAUT FOR CONTROLLING STATIONS



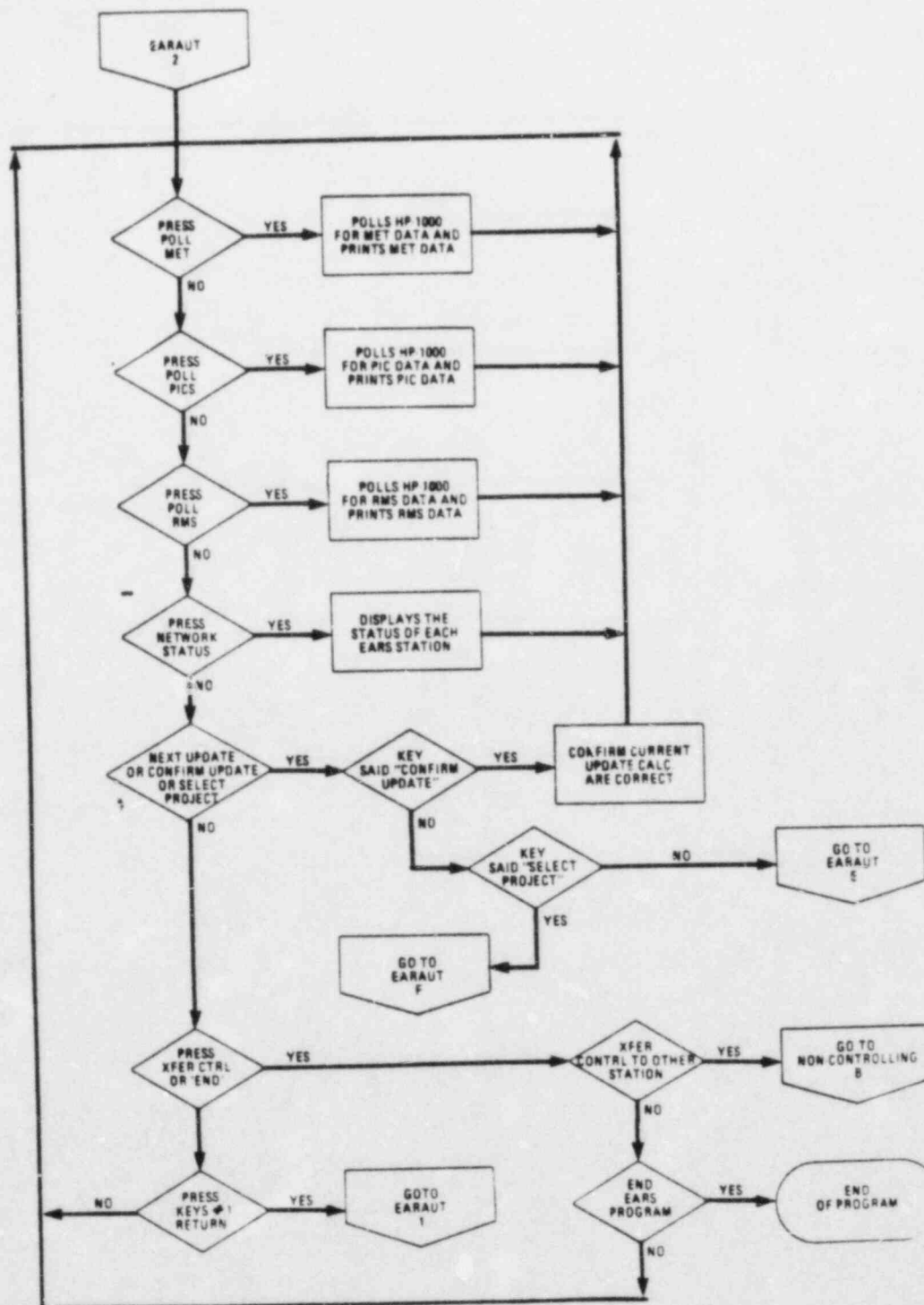
TITLE: OPERATING PROCEDURES FOR EARS 9845C
 CONTROLLING STATIONS

EARAUT CONTROL KEY SET #1



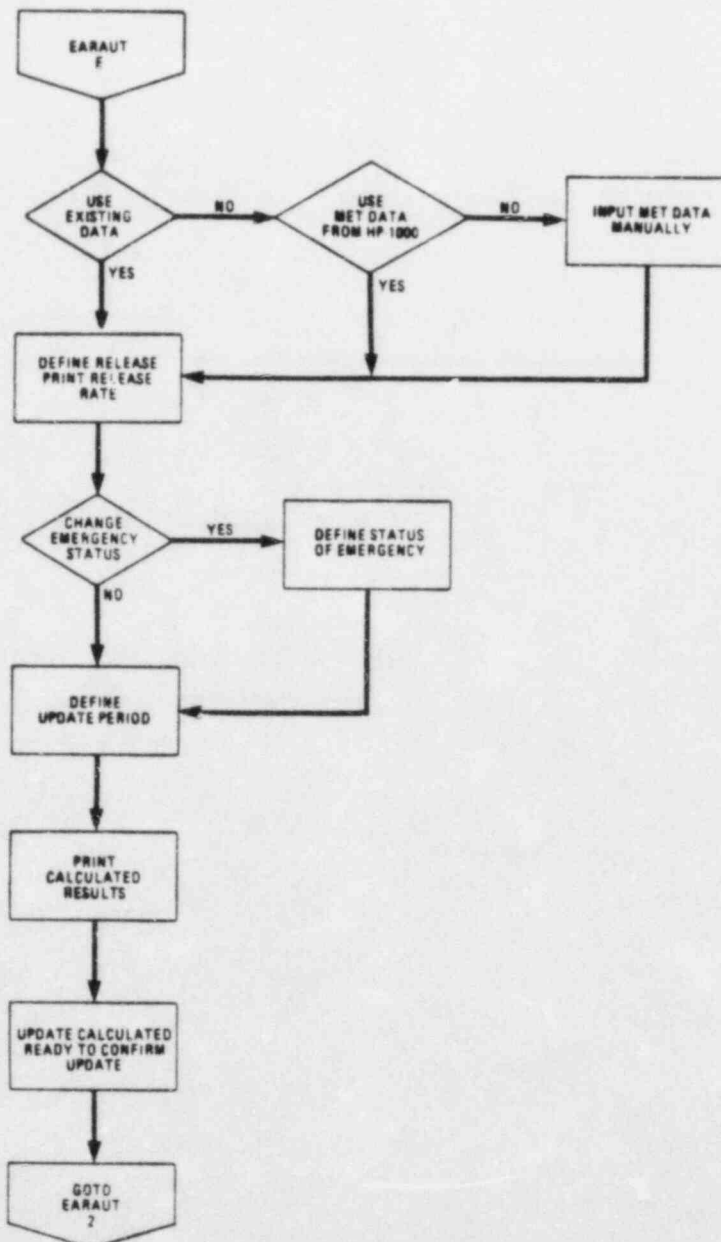
TITLE: OPERATING PROCEDURES FOR EARS 9845C
 CONTROLLING STATIONS

EARAUT CONTROL KEY SET #2



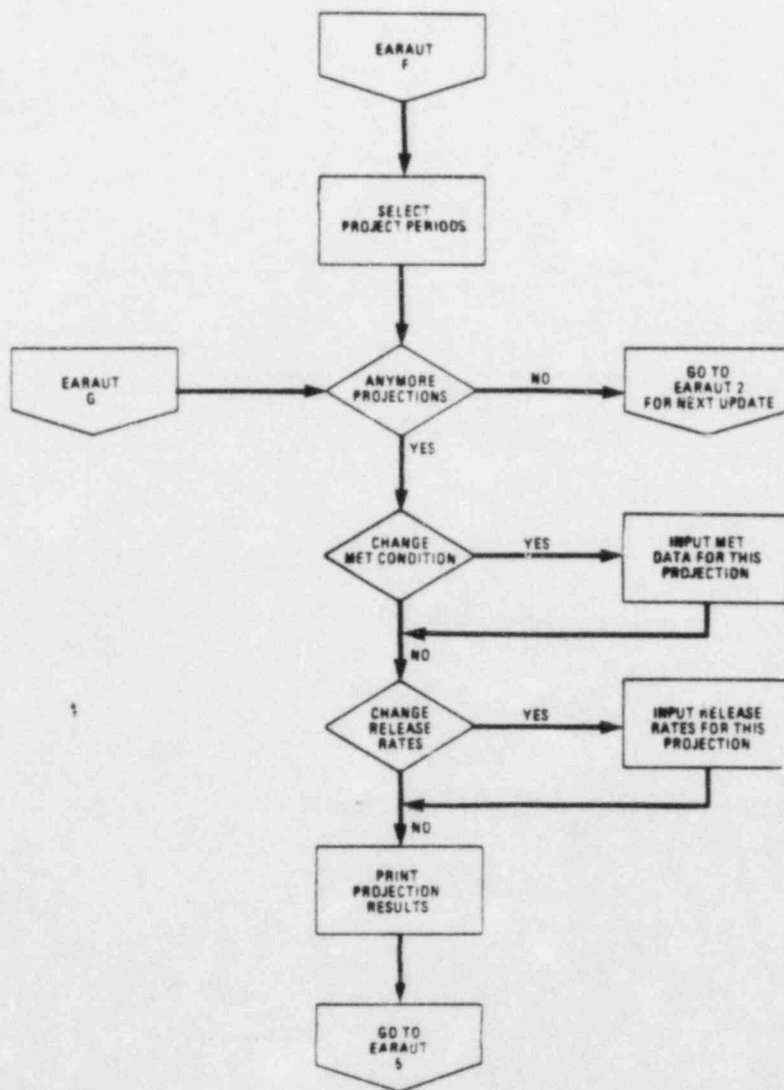
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARAUT CONTROL NEXT UPDATE



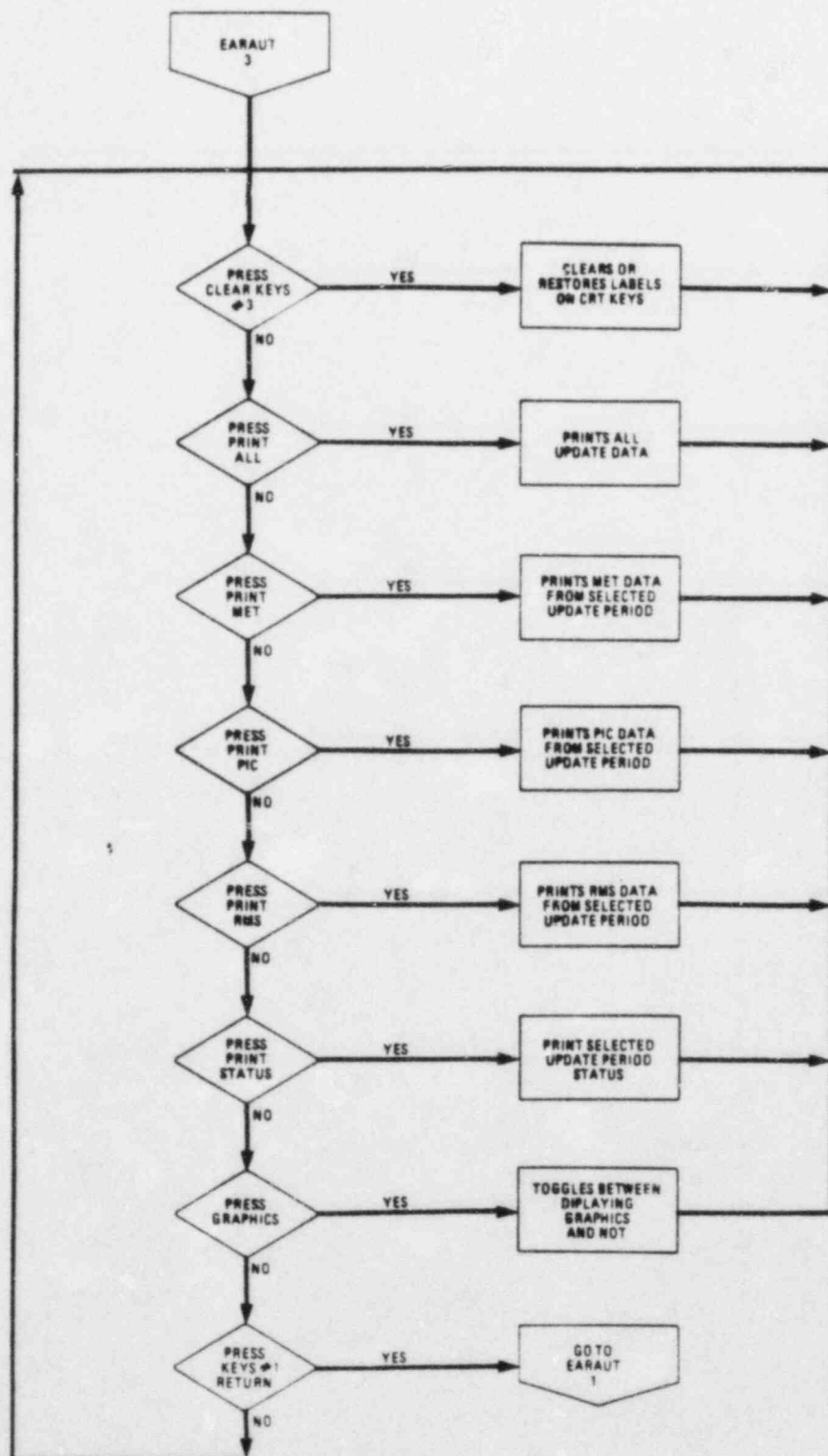
TITLE: OPERATING PROCEDURES FOR EARS 9845C
 CONTROLLING STATIONS

EARAUT CONTROL SELECT PROJECTION



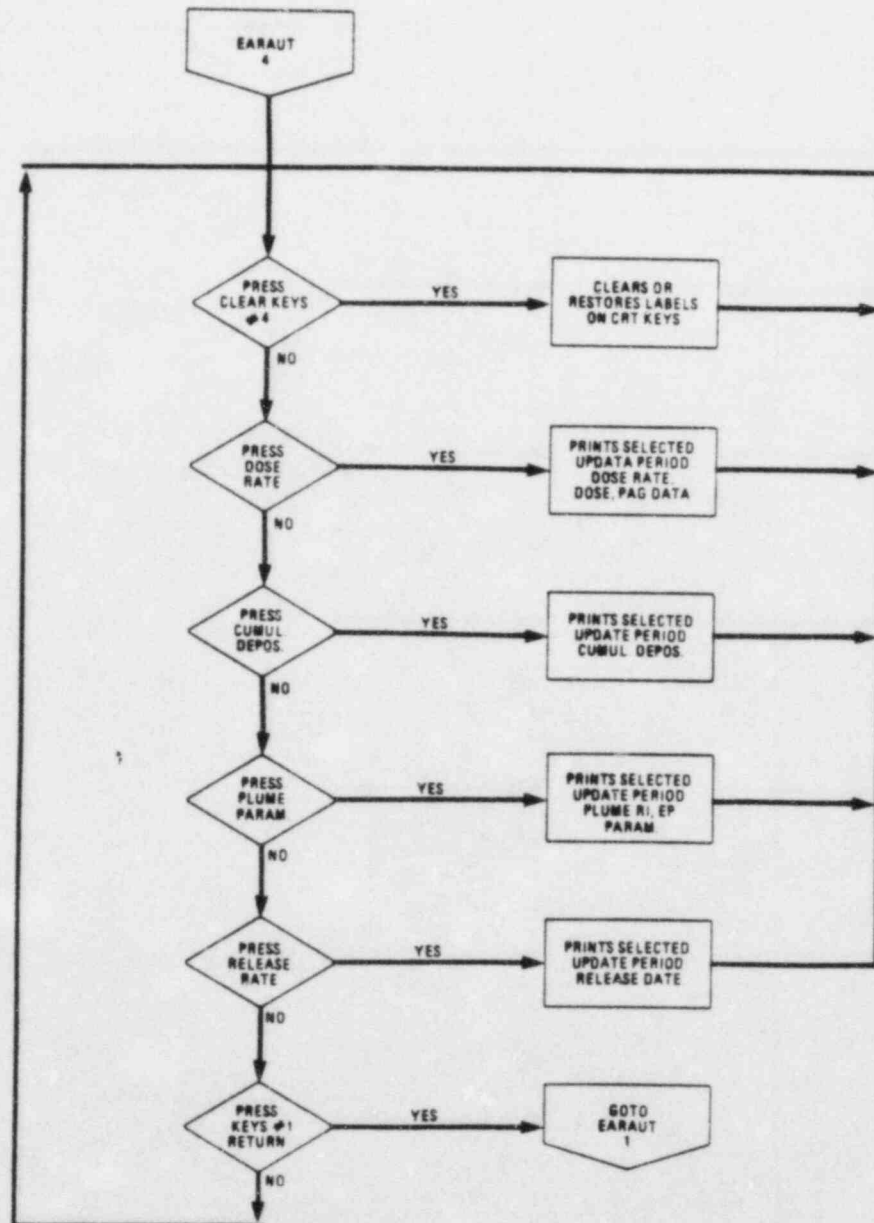
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARAUT CONTROL KEY SET #3



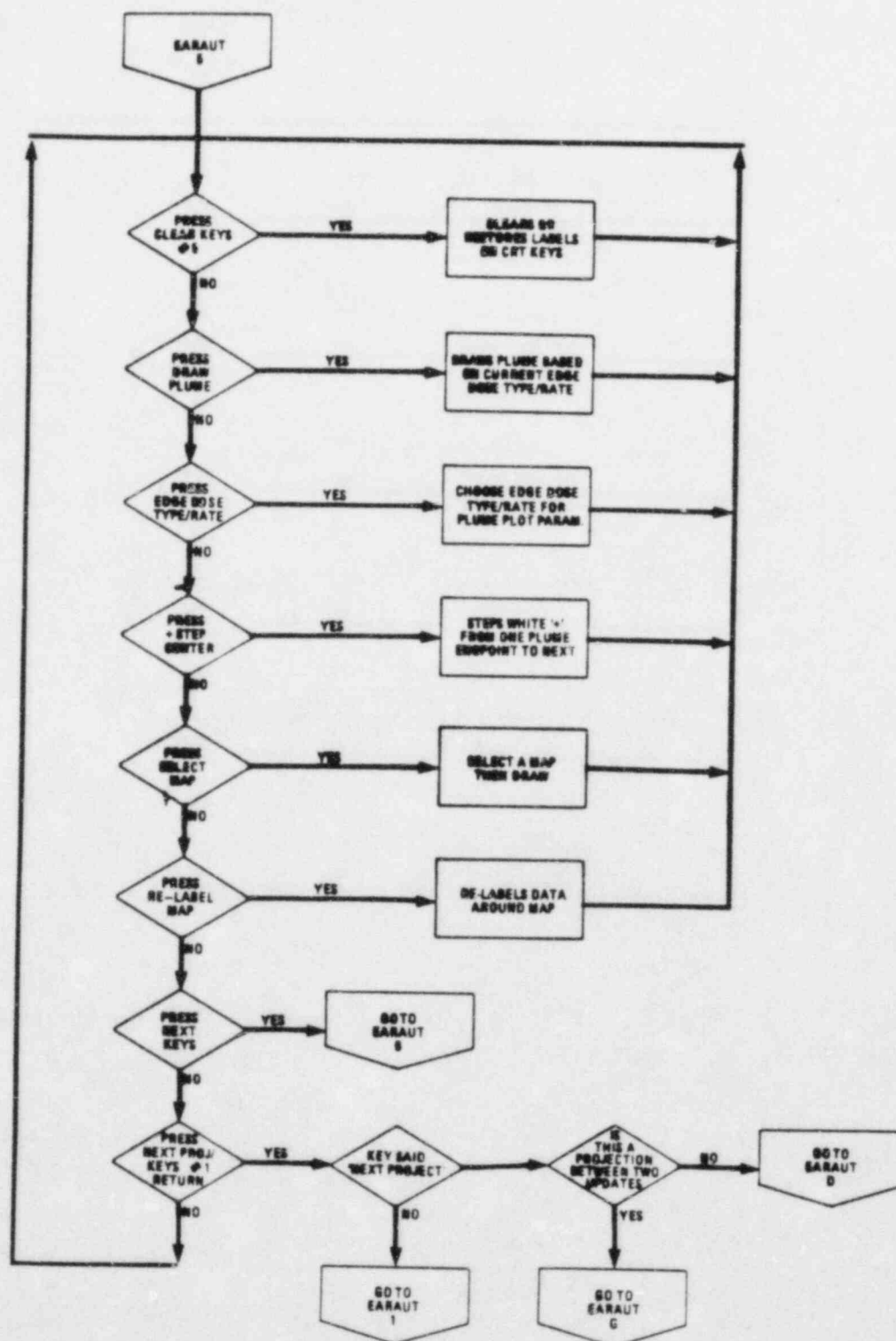
TITLE: OPERATING PROCEDURES FOR EARS 9845C
 CONTROLLING STATIONS

EARAUT CONTROL KEY SET #4



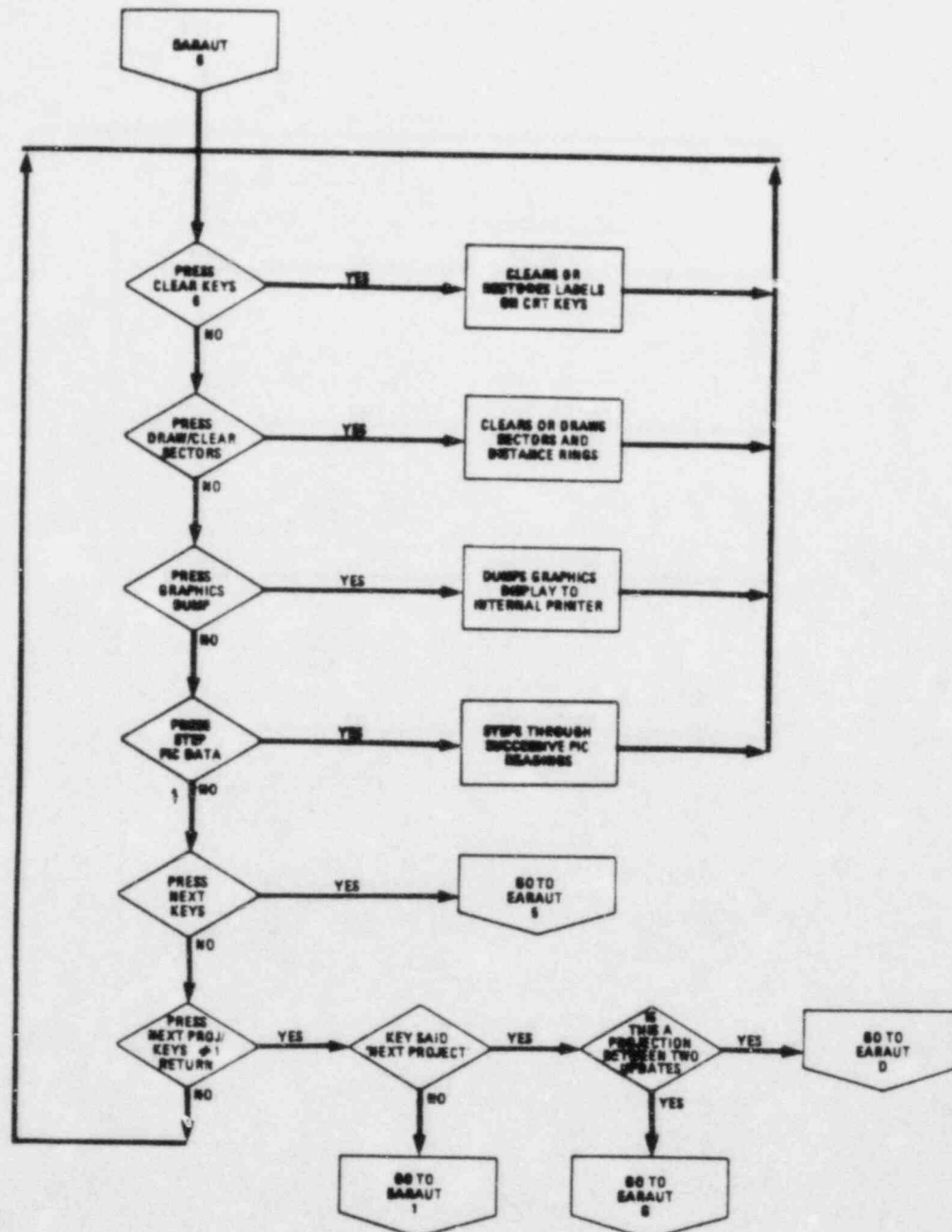
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARAUT CONTROL KEY SET #5



TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARAUT CONTROL KEY SET #6



TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONSc. EARAUT PROGRAM (Non-Controller)

The EAPS automatic (EARAUT) non-controller program consists of three subprograms: EARNDG (Central processing program for Non-Controlling stations), EARGdc (Graphics subprogram), and EARrdc (Release rate calculation subprogram), in addition to the EARAUT main entry program. These subprograms are loaded in and out of the HP-9845C as needed.

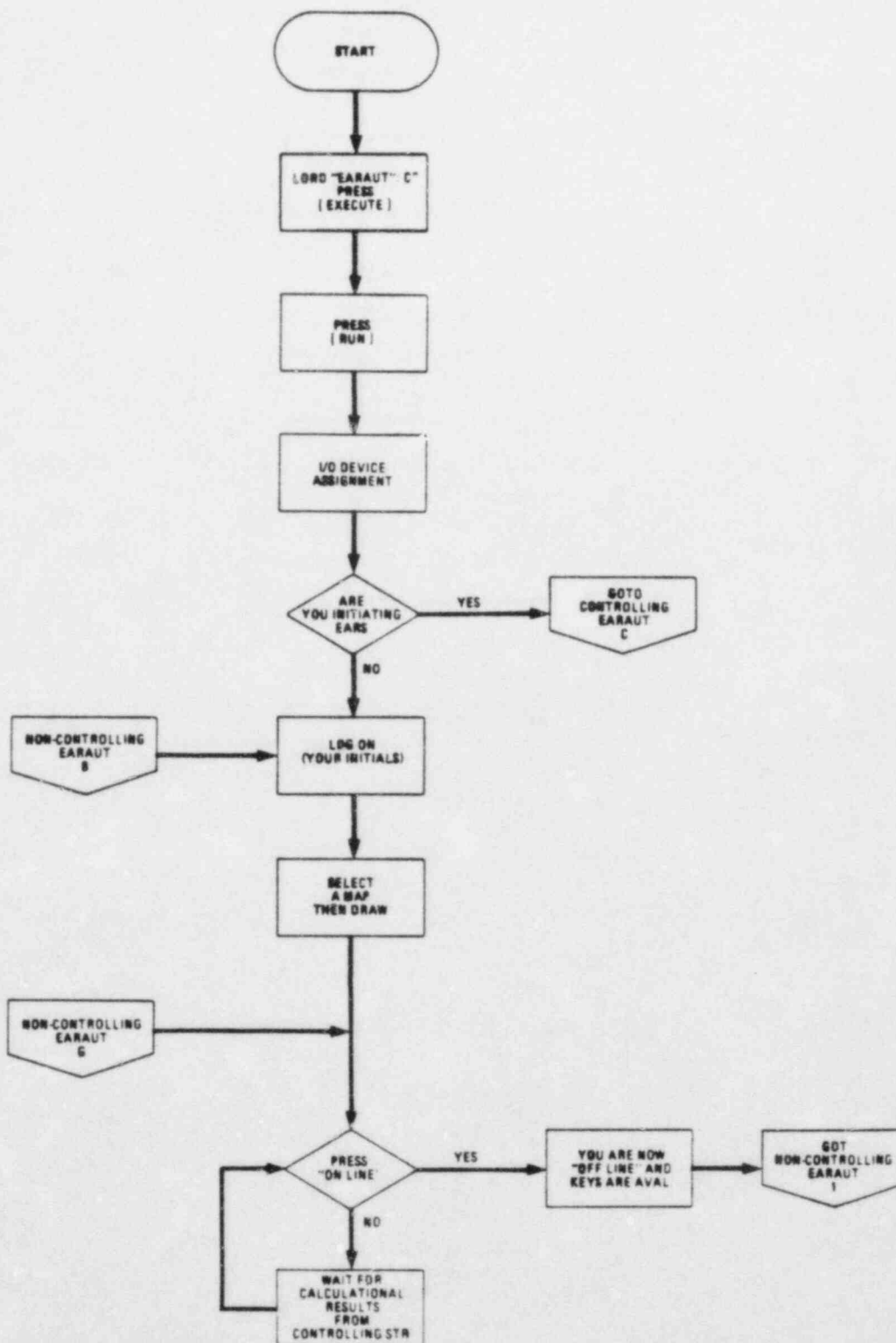
The function of EARAUT as a non-controller is to receive periodic updates of plume release parameters, and observe the resulting plume displays, as based on input from a EARS CONTROL station.

EARAUT (Non-controller) can be run in either one of two ways. The user can load the STATUS program and wait for one of the 'CONTROL' stations to log on as the 'CONTROLLER', or the user can load the EARAUT program and specify a non-controlling mode.

1. After the computer system at this station has been started up EARAUT can be loaded and run independently of the 'STATUS' program by entering the following commands from the HP-9845C keyboard.
 - a. Type in 'SCRATCH A', press [EXECUTE].
 - b. Type in 'SCRATCH C', press [EXECUTE].
 - c. Type in 'LOAD "EARAUT: C"' and press the [EXECUTE] key.
 - d. Wait for the run light in the lower right corner of the CRT to go off.
 - e. Press the [RUN] key.
2. The following SEVEN pages are flow diagrams for non-controlling EARAUT.

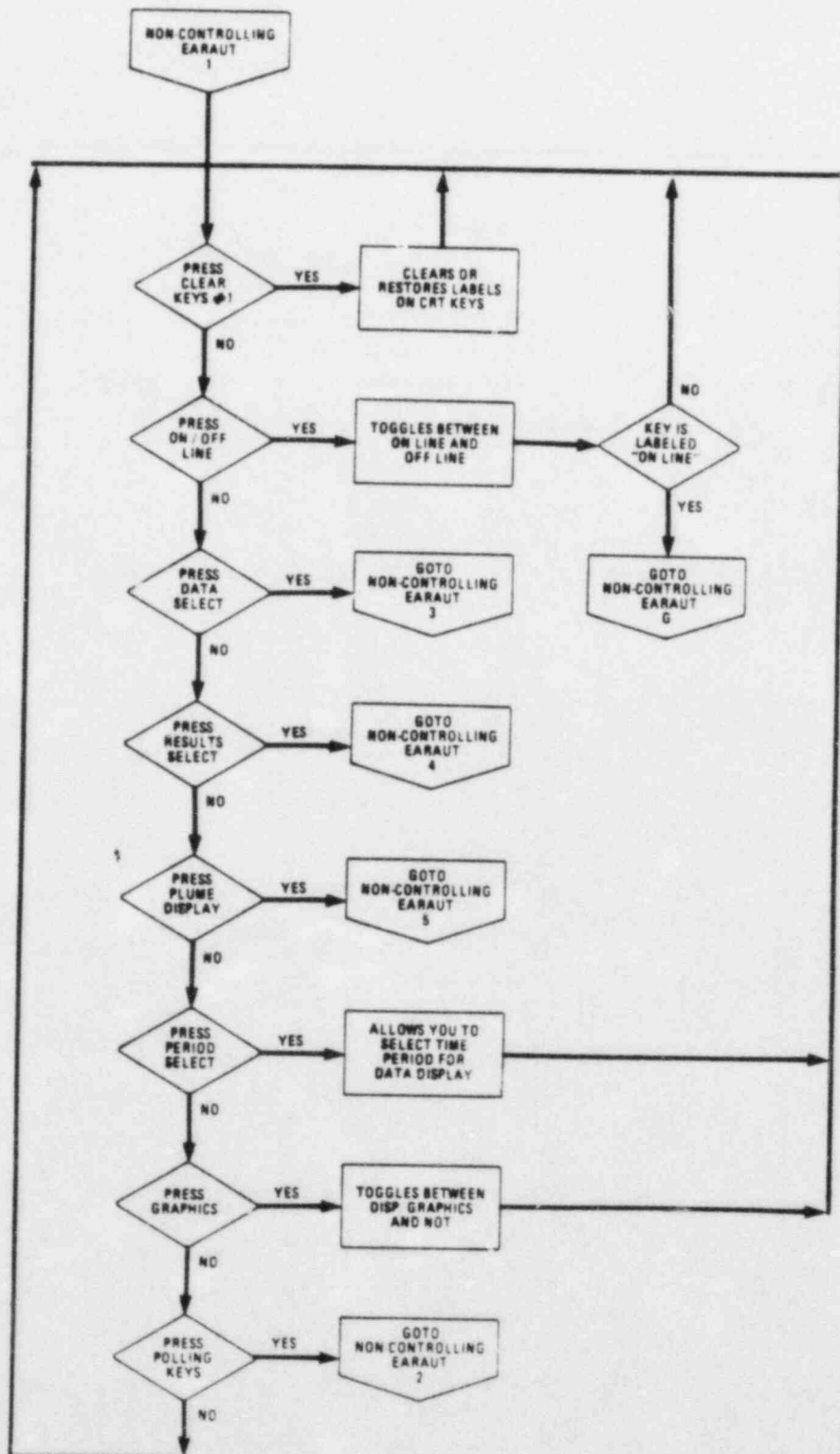
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARAUT FOR NON-CONTROL STATIONS



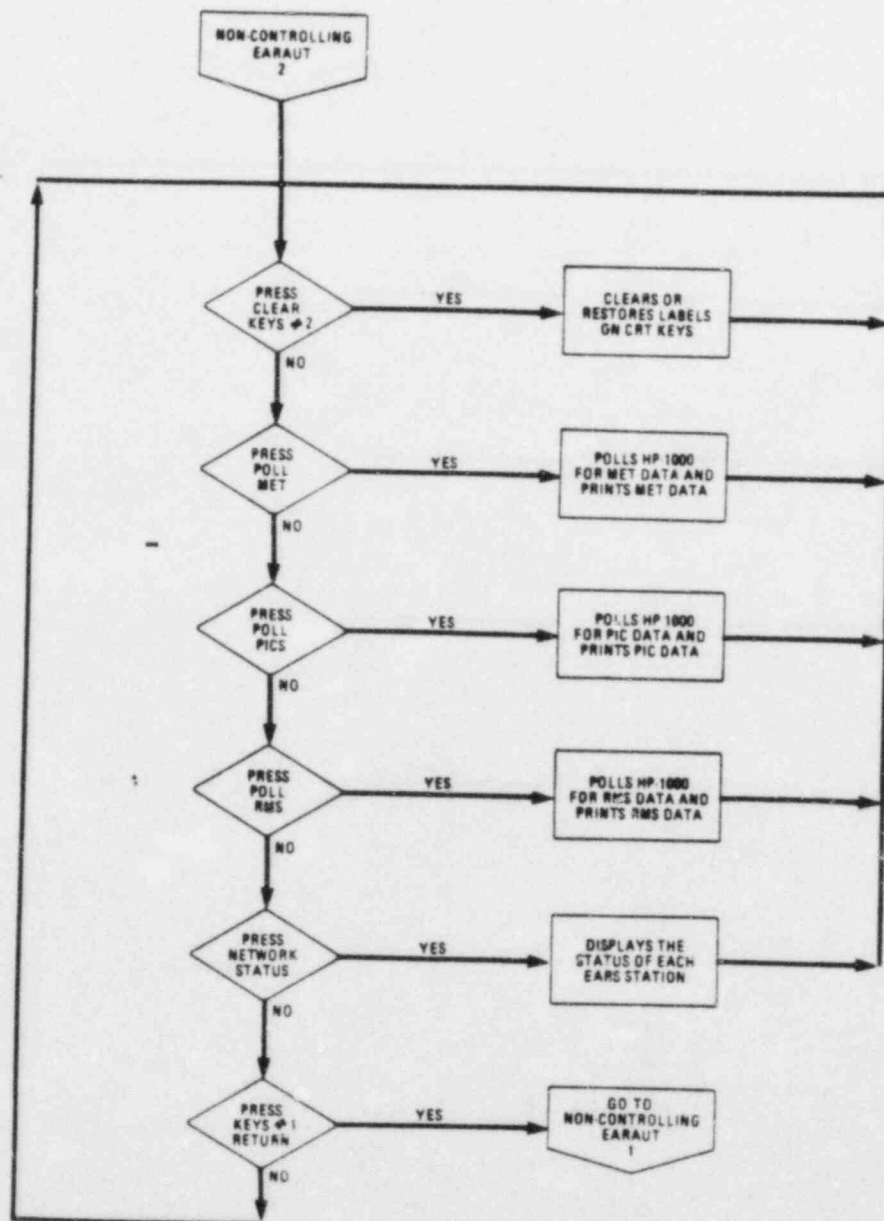
TITLE: OPERATING PROCEDURES FOR EARS 9845C
 CONTROLLING STATIONS

EARAUT NON-CONTROL KEY SET #1



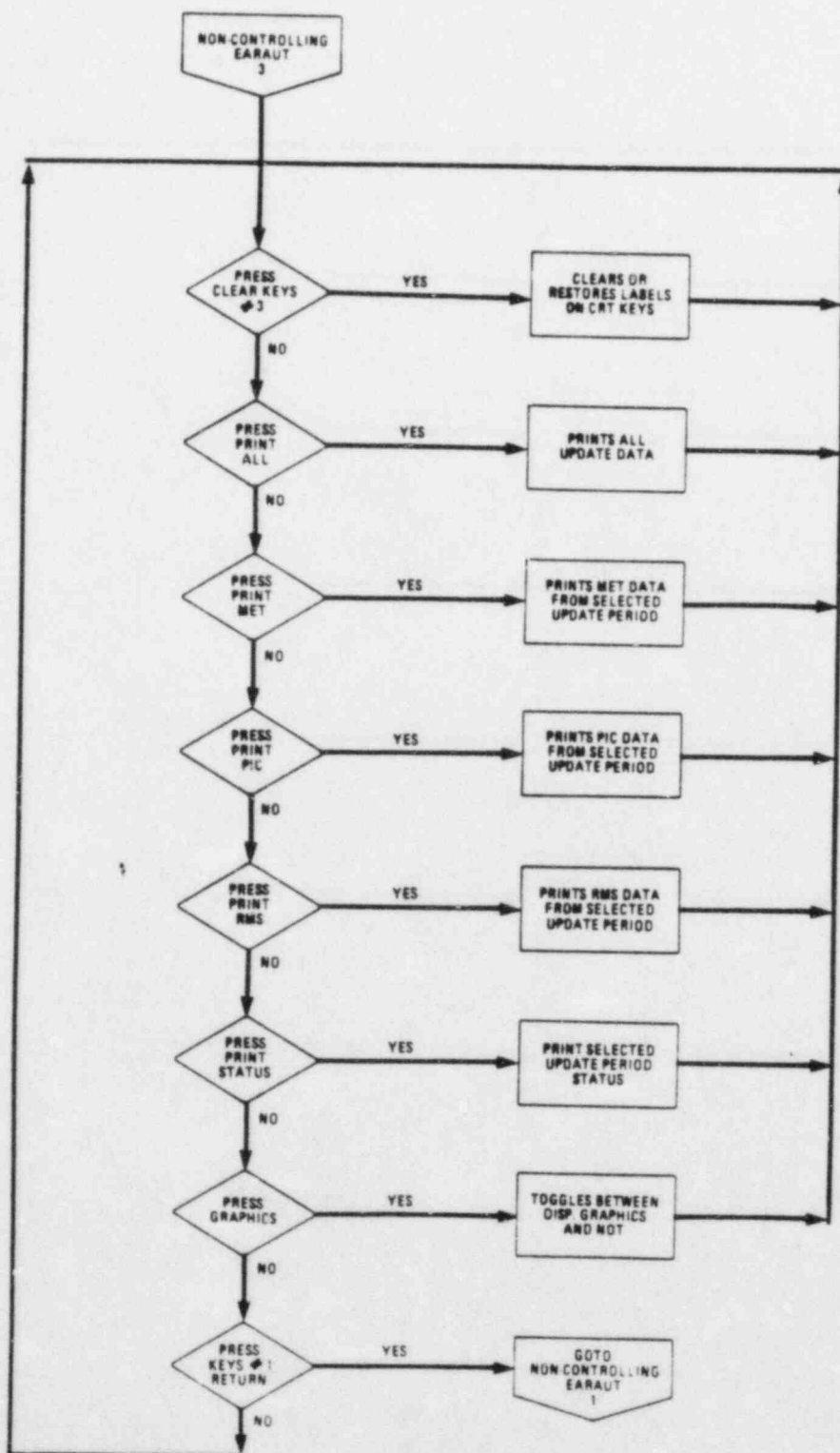
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARAUT NON-CONTROL KEY SET #2



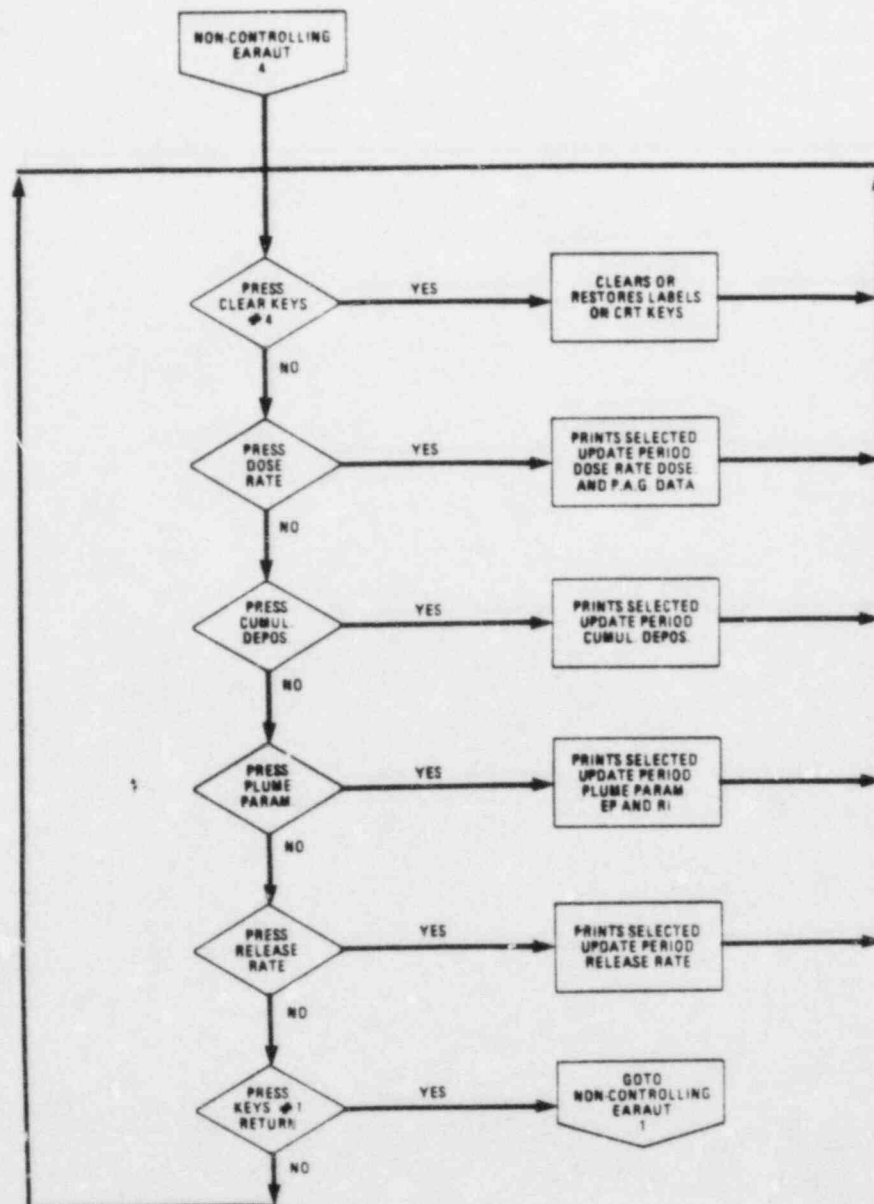
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARAUT NON-CONTROL KEY SET #3



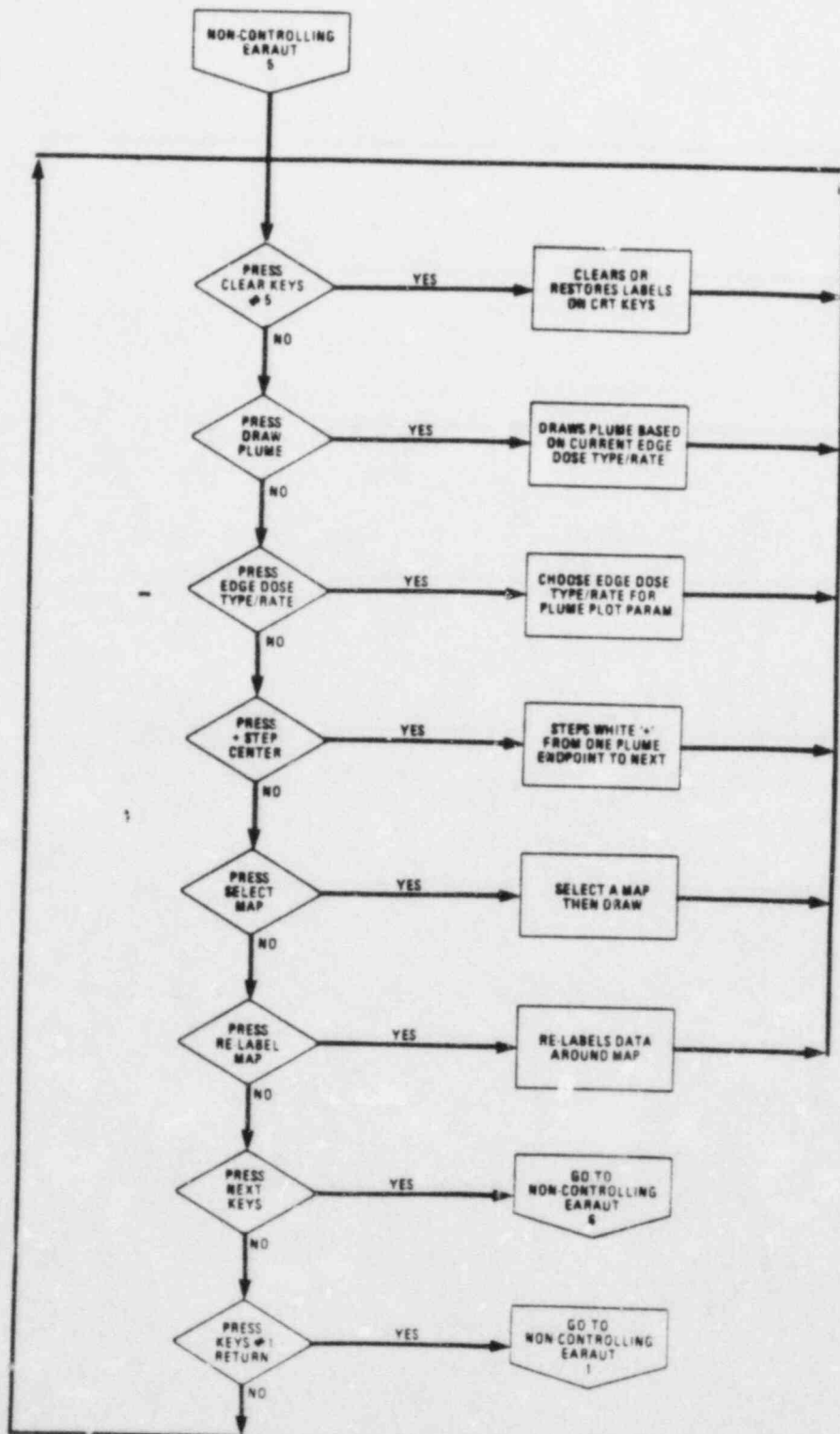
TITLE: OPERATING PROCEDURES FOR EARS 9845C
 CONTROLLING STATIONS

EARAUT NON-CONTROL KEY SET #4



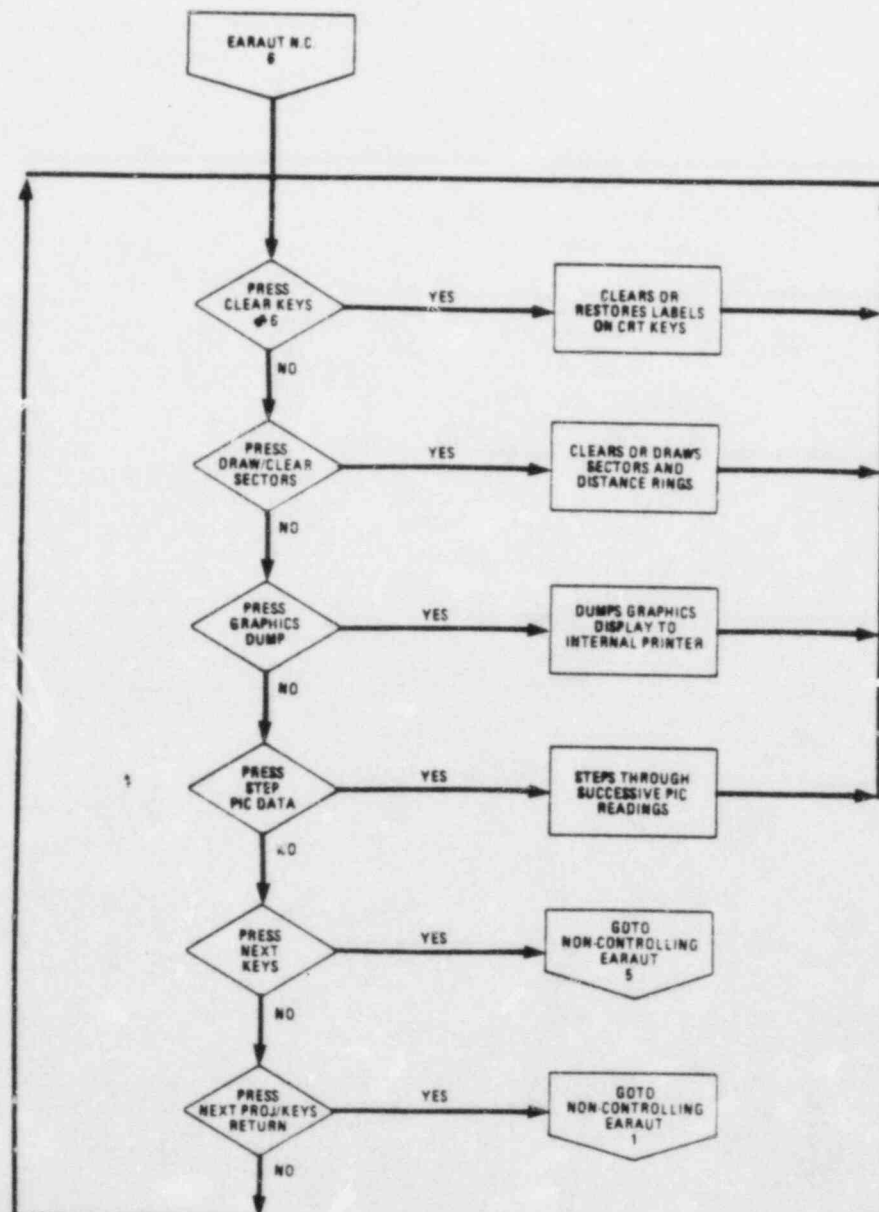
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARAUT NON-CONTROL KEY SET #5



TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARAUT NON-CONTROL KEY SET #6



TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

d. EARMAN PROGRAMS

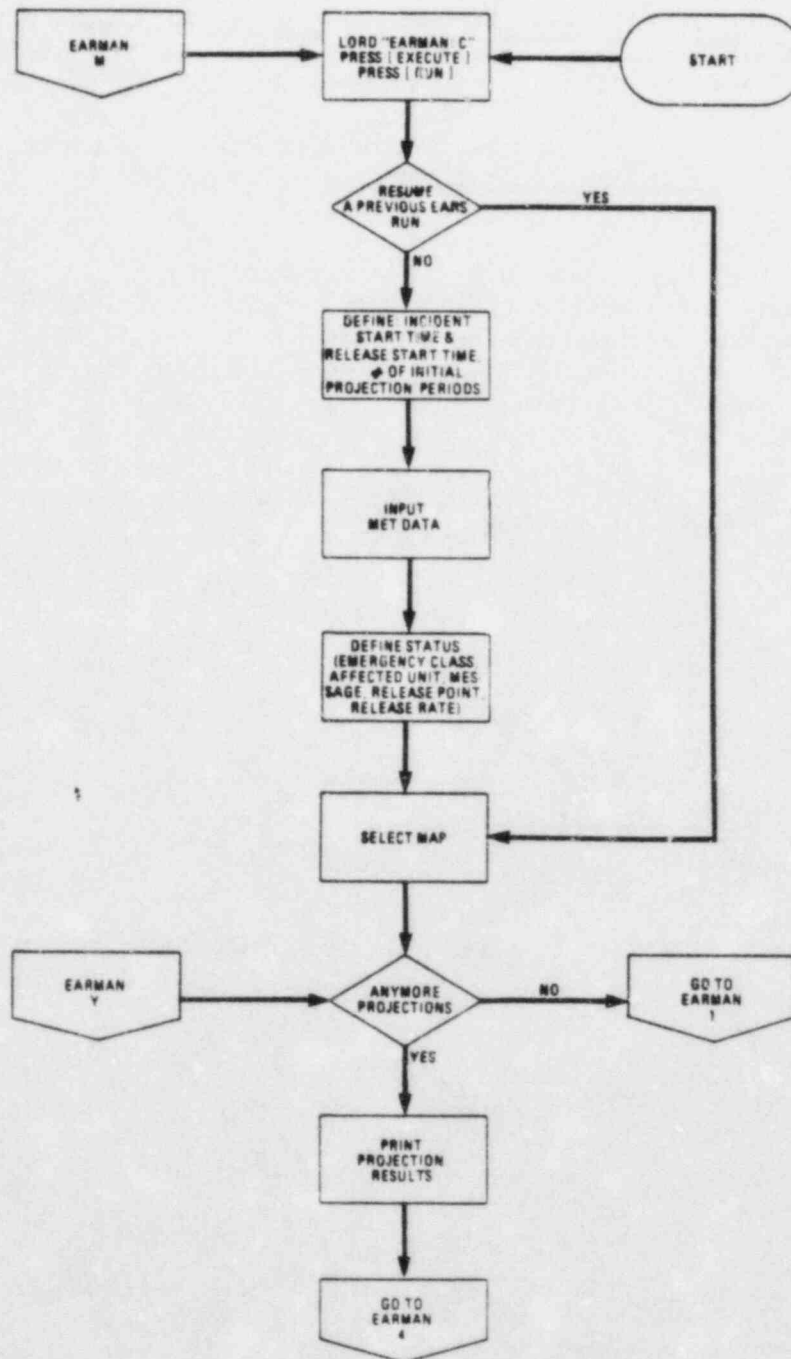
The EARS Manual (EARMAN) program is the manual version of the EARS programs. All of its functions are performed at the individual HP-9845C stations independent of the operation of the other stations and the HP-1000 at the TSC. Any data input such as MET data or release rate data is manually entered from the keyboard. In addition no data is transmitted to or from a station that is operating EARMAN. EARMAN consists of three separate subprograms: EARMDC (Core subprogram), EARGDC (Graphics subprogram), and EARRDC (Release rate definition subprogram), in addition to the initial entry program EARMAN.

In the event of a hardware failure of the HP-1000 at the TSC and/or the loss of communications between various HP-9845C EARS stations and the HP-1000, EARMAN program can be initiated. Essential data can be obtained by telephone communication via PGandE or PT&T lines with EARS operators at the other 'CONTROLLING STATIONS' (CR, TSC, or EOF).

1. To load and run the EARMAN program type in the following commands from the keyboard.
 - a. Type in 'SCRATCH A', press [EXECUTE].
 - b. Type in 'SCRATCH C', press [EXECUTE].
 - c. Type in 'LOAD "EARMAN: C"', and press [EXECUTE].
 - d. Wait for the run light in the lower right corner of the CRT to go out.
 - e. Press [RUN].
2. The following nine pages are flow diagrams for EARMAN.

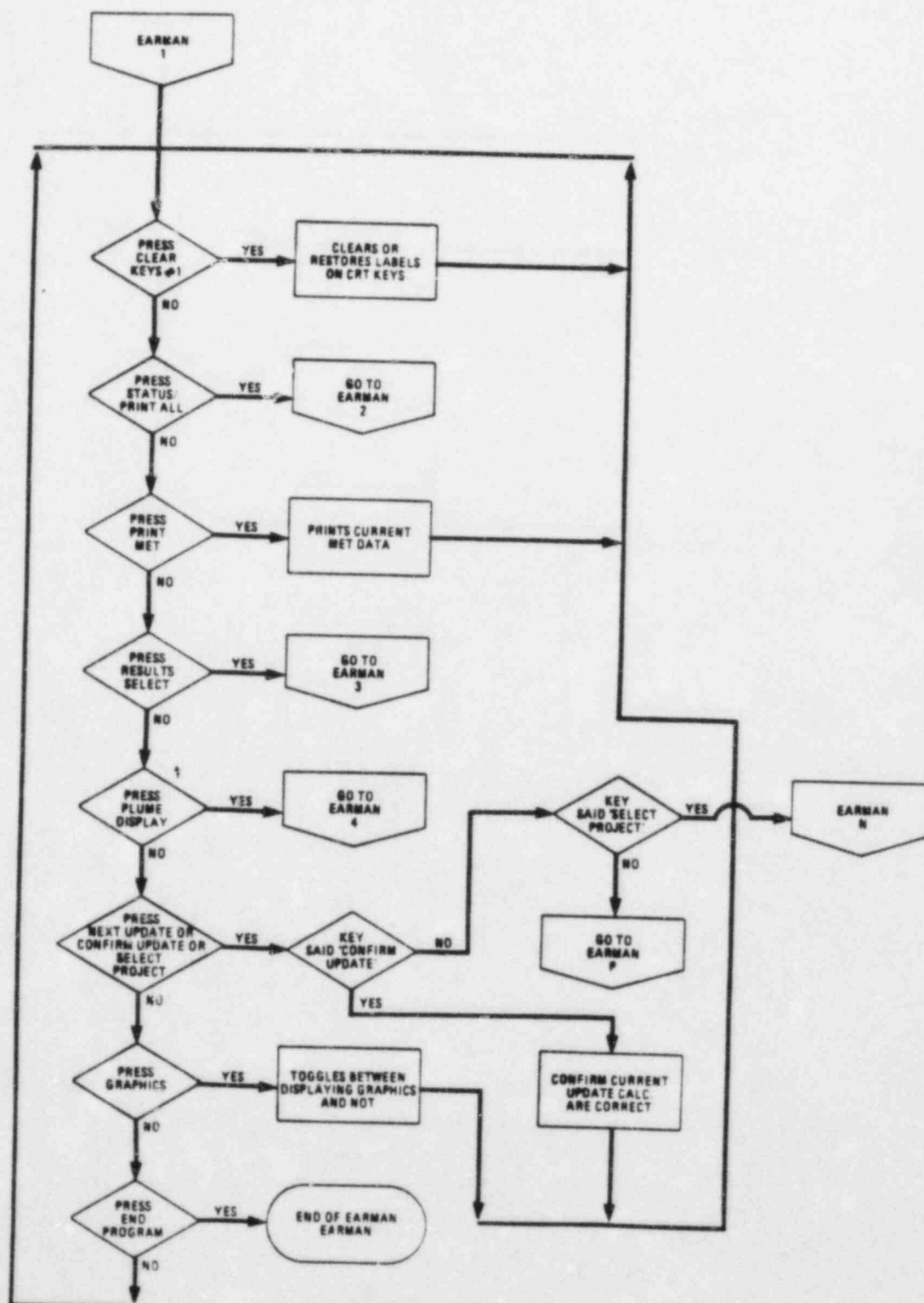
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARMAN



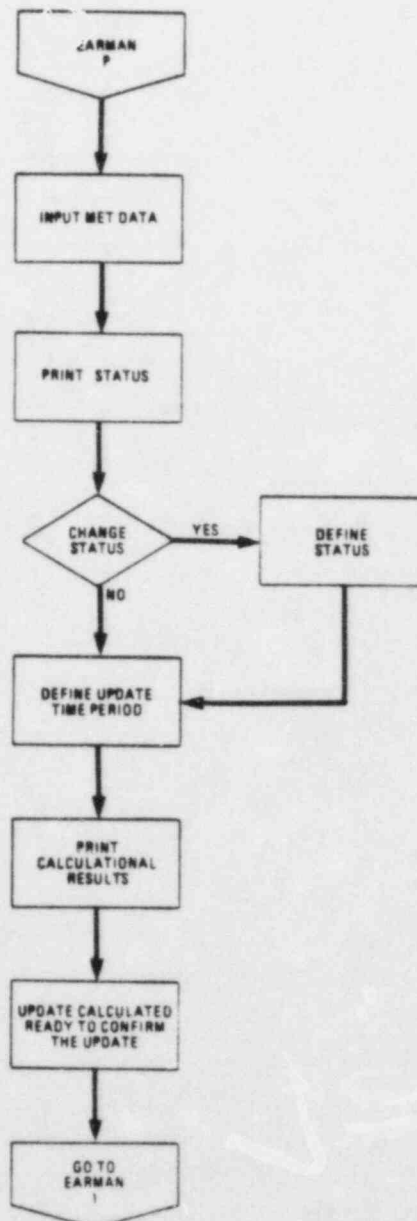
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARMAN KEY SET #1



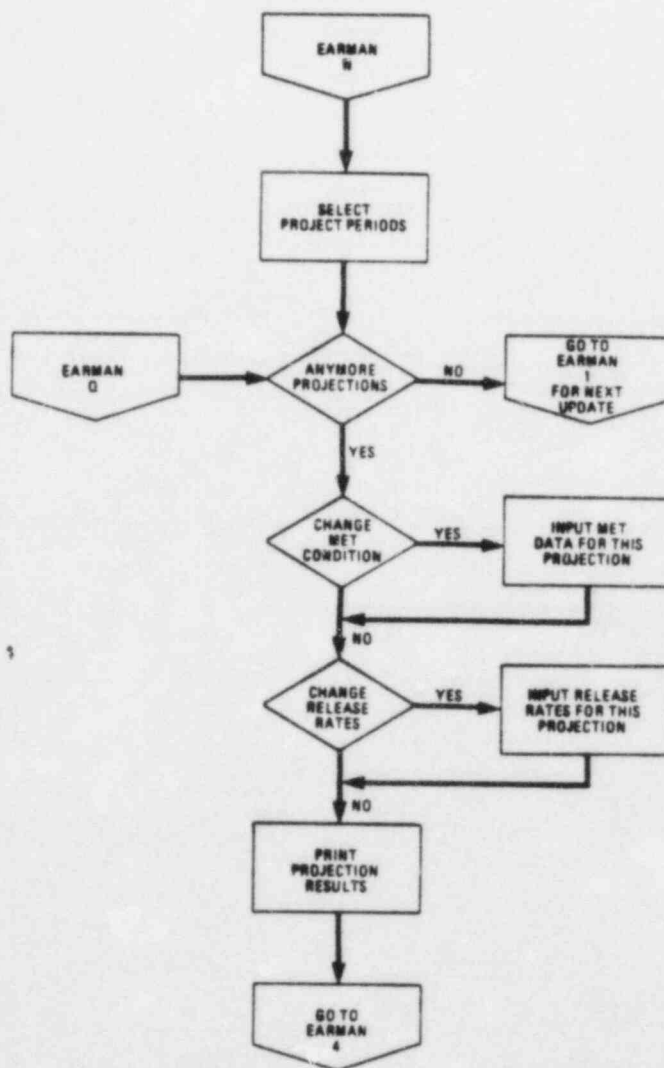
TITLE: OPERATING PROCEDURES FOR EARS 9845C
 CONTROLLING STATIONS

EARMAN NEXT UPDATE



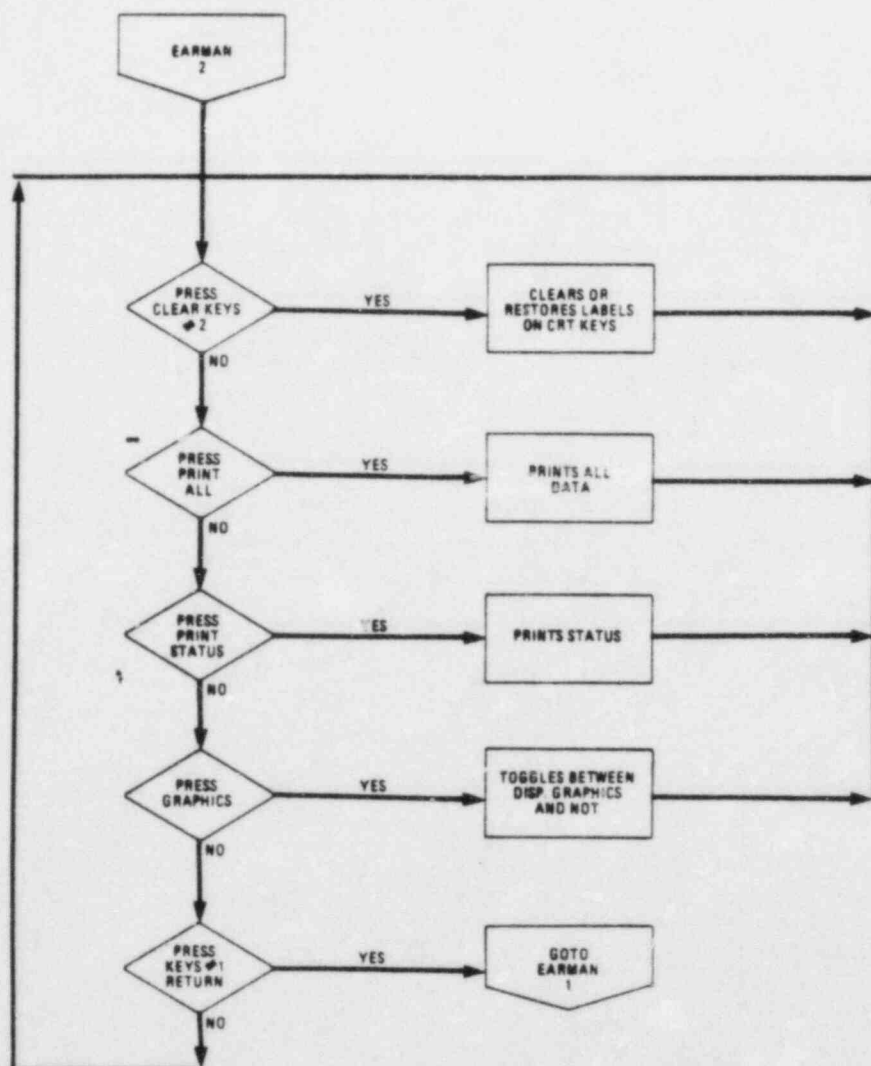
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARMAN SELECT PROJECTION



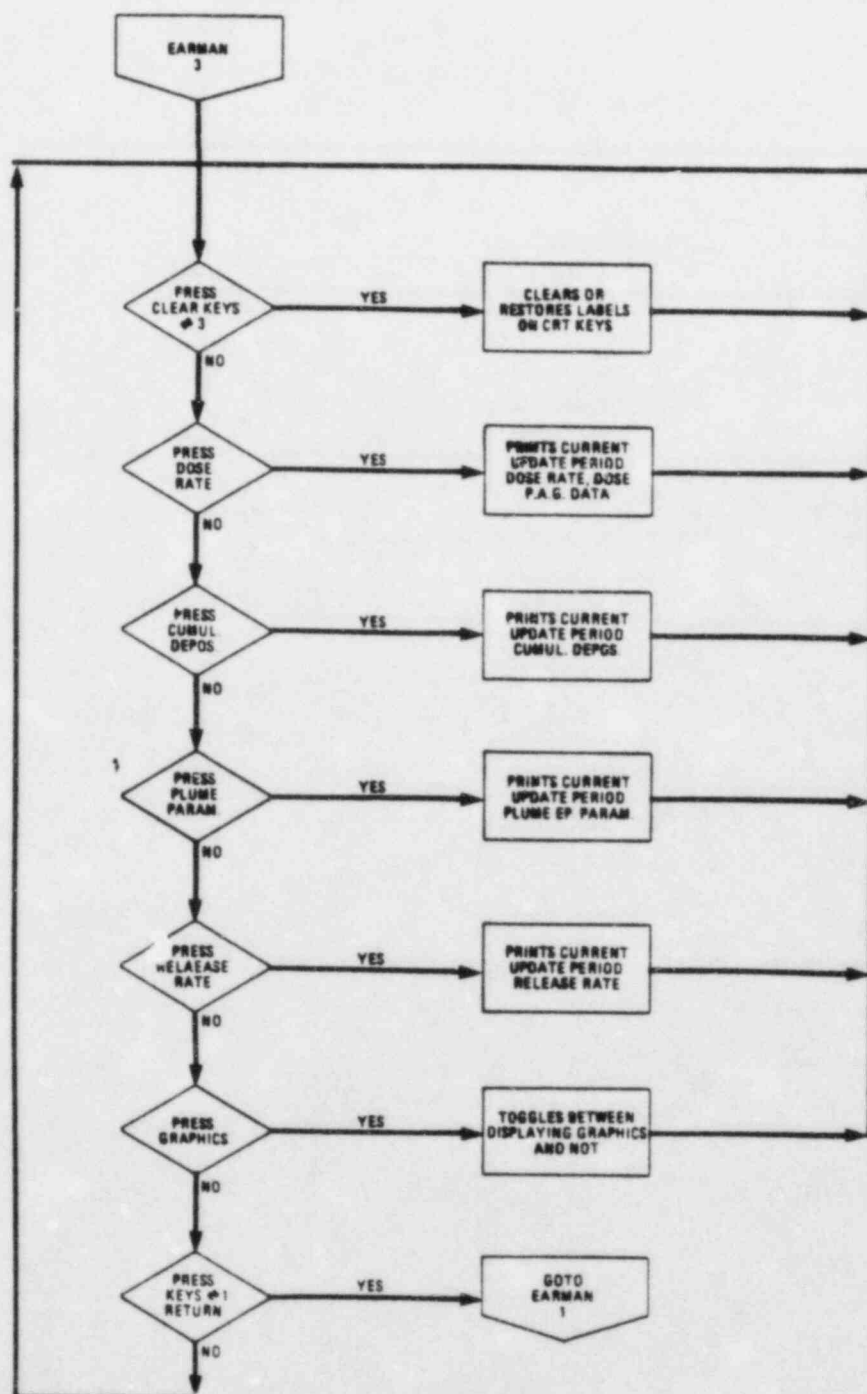
TITLE: OPERATING PROCEDURES FOR EARS 9845C
 CONTROLLING STATIONS

EARMAN KEY SET #2



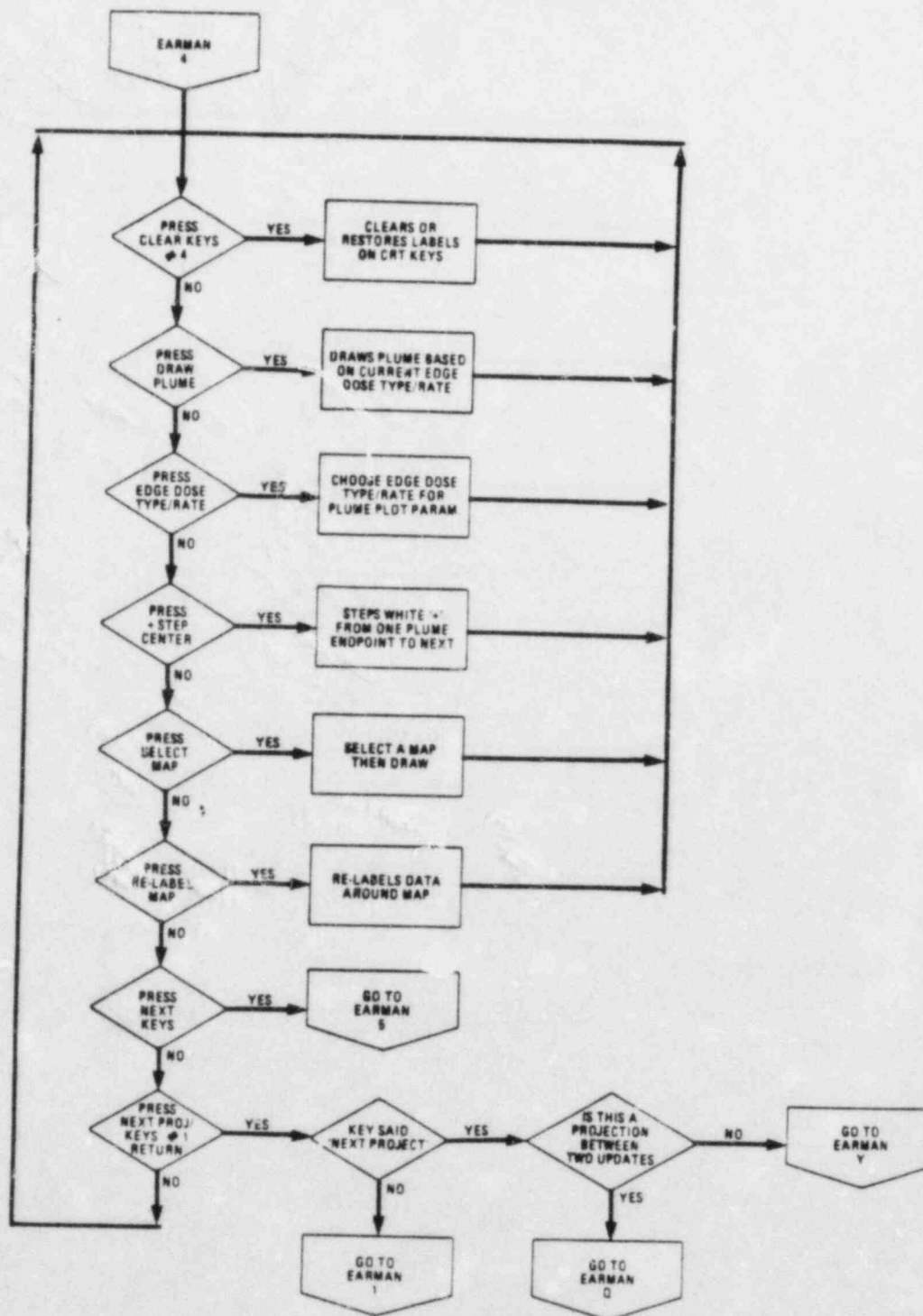
TITLE: OPERATING PROCEDURES FOR EARS 9845C
 CONTROLLING STATIONS

EARMAN KEY SET #3



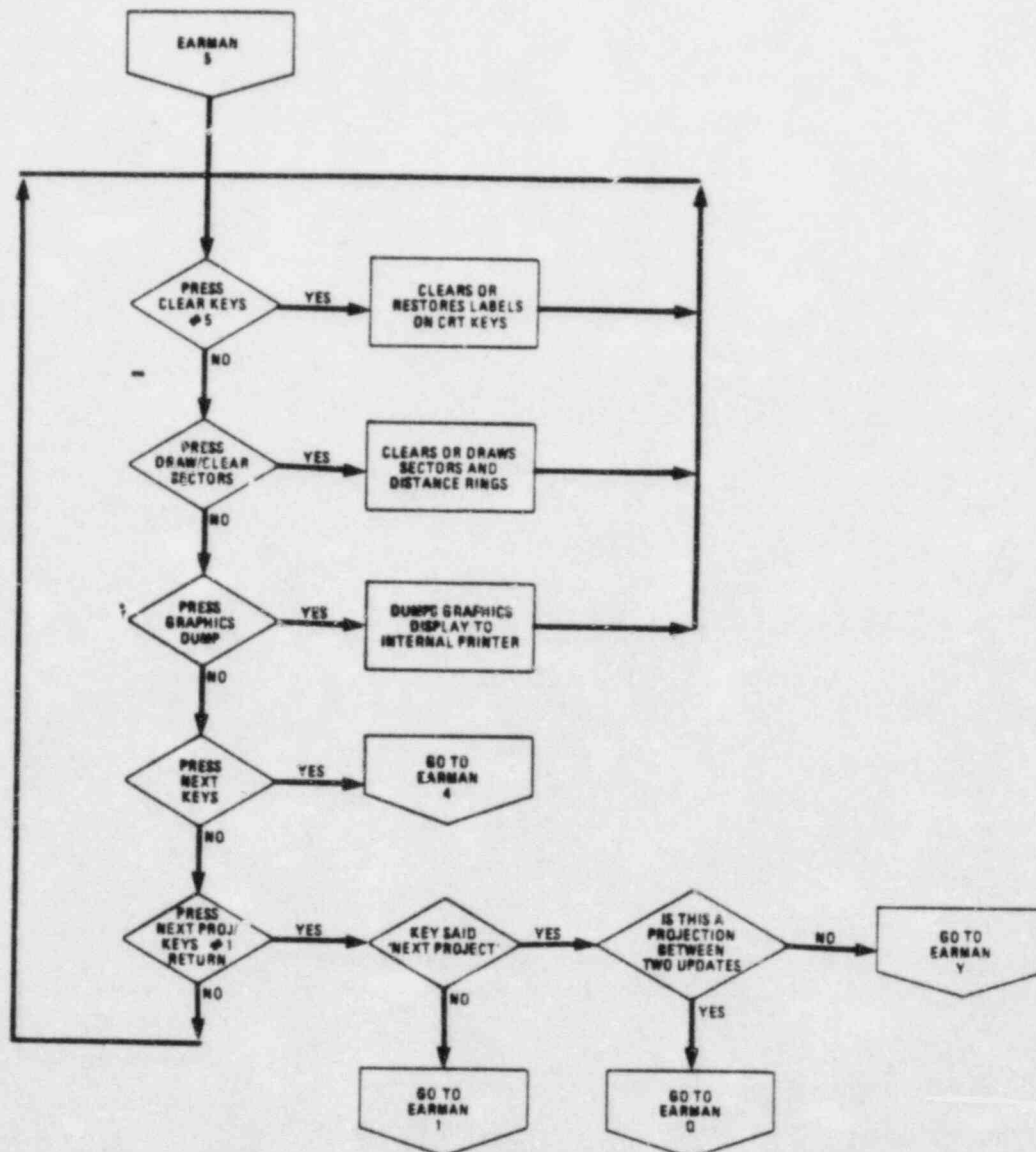
TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATION

EARMAN KEY SET #4



TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARMAN KEY SET #5



DIABLO CANYON POWER PLANT UNIT NO(S) 1 AND 2

NUMBER EP EF-6

REVISION 2

DATE 01/03/84

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TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

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TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS6. Terms Common to EARAUT and EARMANMeteorological Data Input

Meteorological data from the primary and the backup MET towers are sent to the HP-1000 computer at the TSC. Both STATUS and EARAUT programs can 'poll' the HP-1000 for MET data (averaged, previous or current), including wind direction, wind speed, lapse rate, precipitation, and mixing height.

If EARMAN program is run, the operator has to enter all MET data manually.

Release Estimate

The DCPD Emergency Procedure RB-9 (Ref. 2) is the technical basis for the EARS release rate calculations. The radionuclide distribution, release rate and accident classification are determined by the appropriate software running on the HP-9845C, using one or more of the following techniques:

- A. Plant vent monitors and vent flow indication. Appropriate conversions specific to each monitor are made by multiplying a given monitor reading in cpm by the Ci/unit volume per cpm to yield Ci/unit volume. This term is then multiplied by the monitored pathway exhaust flow rate in unit volume/sec to yield the release rate in Ci/sec.
- B. Containment area monitors and derived release rate based on containment leak rate, etc.
- C. Isotopic analyses of selected plant containers and systems performed prior to the accident.

At present time, results for techniques A, B, and C are manually computed then input into EARRDC or EARRdc.

D. Final Safety Analysis Report (FSAR)(Ref. 3) accident scenarios:

- Steam Generator Tube Rupture Accident
- Loss of Coolant Accident (LOCA)
- Fuel Handling Accident
- Control Rod Ejection Accident
- Locked Pump Rotor Accident
- Loss of Offsite Power Accident
- Steam Line Break Accident
- Volume Control Tank Rupture Accident
- Waste Gas Decay Tank Rupture Accident
- Liquid Holdup Tank Rupture Accident

TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

When using the FSAR cases, the operator must exercise judgement as to whether the 'expected case' or the 'design basis' estimates are appropriate to adequately describe the accident. The DCP Emergency Procedure RB-11 (Ref. 4) indicates that unless actual release data is available, the operator should initially choose the 'design basis' (more conservative) values in determining initial accident classification.

- E. If none of the FSAR accident types is appropriate, the 'Manually Specified Release Rate' or 'Tank or Building Inventory' permits manual entry of radionuclide release data, either by isotope or as total noble gases and iodines.

P.A.G. Table

The Protective Action Guide (PAG) criteria used in the EARS programs are from Table 5.1 of Reference 5. They apply to the total dose (or 'dose commitment') up to the time of interest. The criteria are:

1. No action needed if Whole Body < 1 rem and Thyroid < 5 rem.
2. Sheltering recommended if Whole Body ≥ 1 rem and Whole Body < 5 rem, or Thyroid ≥ 5 rem and Thyroid < 25 rem.
3. Evacuation recommended if Whole Body ≥ 5 Rem or Thyroid ≥ 25 rem.

Projections and Updates

It is possible to run up to five class A 'dose projections' before the first update and between two consecutive updates, and forty segmented Gaussian modeled, near 'real-time' dose updates. A 'projection' is made over a specified time period from projection start time assuming no change in the assumed release rate or dispersion conditions. It is generally best to limit the number of projections to one or two, due to the unreliability of longer projections and the amount of time needed to run them.

An 'update' is a complete set of dose calculations initiated either from a CONTROL station by polling the HP-1000 for most recent MET, RMS and PIC data as in the EARAUT operation, or entering the most recent MET data via the HP-9845C keyboard as in the EARMAN operation.

In both EARMAN and CONTROL EARAUT operations, at the end of either projection or update calculations, a set of output tables is automatically printed.

TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONSEdge Dose Rate

The edge dose rate is the plume exposure rate at the edge of the plume as displayed for the dose type (thyroid or immersion) selected. This is displayed on the right-side of the CRT graphics area. If the edge dose rate value chosen is greater than the plume center dose rate, message "Edge dose rate > Centerline dose rate" is displayed. When a new edge dose rate is chosen, a plume with this new dose rate will be drawn. This is to prevent confusion regarding the parameters selected and the particular plume displayed.

The edge dose rate is always in mrem/hr. The default value in the EARS is 0.1 mrem/hr. It can be changed by pressing the EDGE DOSE TYPE/RATE soft key and entering a new edge dose rate.

Dose Type

Two different dose types can be selected: thyroid or immersion. Whenever a new dose type is selected and a previous plume is already displayed, the new plume will be redrawn for the new dose type.

Radius and Plume Center

The value displayed as '+Radius' on the right-side of the CRT graphics area is the minimum distance in meters from the plume segment center (denoted by a small white cross on the graphics) to the edge of the plume for a given edge dose rate. This marker is used to indicate the 'centers' of the plume segments, starting from the earliest (generally the outermost segment) to the latest segment (generally the innermost or closest to the site). The plume center-line dose rate is indicated in mrem/hr under the '+Center Dose Rate' label on the right-side of the CRT graphics area.

Each time the STEP CENTER soft key is pressed, the white cross will move to the next plume segment center and the corresponding center-line dose rate and radius will change accordingly, cycling from the earliest segment to the latest.

Sector Element

The cumulative deposition data are listed for each of 96 'sector elements'.

A sector element is an area bounded by a division of the compass into 16 sectors (from number 1 centered on North to number 16 on NNW) with radial distances as 800 meters to 2 miles, 2 to 5 miles, 5 to 10 miles, 10 to 15 miles, and 15 to 20 miles.

TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONSCumulative Deposition

The cumulative deposition listed as Ci/m**2 of 'Cs-137 equivalents' is the quantity of Cs-137 which would yield a direct radiation exposure rate from ground plane deposition equal to the decay-corrected sum of all deposition which has occurred for that period. Due to uncertainties involved in calculating both wet and dry deposition, this information is meant just to provide guidance to field survey teams as to where deposition is likely to have occurred. The values listed have relatively large uncertainties and should be used together with accurate field survey data in determining appropriate protective actions.

Output Tables

The EARS output is listed in tabular forms as:

Table 1 (EARMAN) or Table 1A (EARAUT or STATUS) - MET data (wind speed, wind direction, sigma theta, lapse rate, precipitation, stability classes, and mix height);

Table 1B (EARAUT or STATUS) - PIC data;

Table 1C (EARAUT or STATUS) - RMS data;

Table 2 - Release rate data in Ci/sec;

Table 3 - Emergency status data (emergency class, projection or update duration, incident and release start times, accident type and any message);

Table 4 (EARMAN) - Plume segment radial intercept (RI) points dose rates and endpoints (EP) dose rates and doses eata; A RI point is the intersection of a plume segment centerline with one of the radial rings: 800 m, 2, 5, 10, 15 or 20 miles.

Table 4A (EARAUT) - Plume segment radial intercept (RI) points dose rates data;

Table 4B (EARMAN or EARAUT) - Plume segment centerline endpoint (EP) dose rates data;

Table 5 (EARMAN or EARAUT) - Dose rates, doses and P.A.G.'s at specific locations;

Table 6 (EARMAN or EARAUT) - Deposition data by sector elements.

TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS7. EARS Support Software

The function of the EARS support programs is to initialize, edit or review the EARS data files. These programs include EARED, EARSE, EARSDP, EARKSP, EARKDC and EARDOC, and are all stored on the HP-7906 disc drive at the stations. These programs are not normally used during emergency conditions.

EARED - Data File Edit Program

The EARED program is used to setup, edit, or print the fixed data files used by the EARS for system parameters, isotope specific parameters, FSAR release rate data, site boundary locations, fixed PIC locations, RMS parameters, etc. This program can also duplicate from one msus to another all of the data files used by the EARS.

The data files accessed by this program are ERDSYS, ERNCLS, ERNRMS, ERRTXY, ERDISO, ERNRPT, ERBNDR, ERPLOC, ERNMAP, ERDMET, ERNSTN, ERNMAP, ERDGRD and ERSTDC.

EARSE - Data String File Edit Program

The EARSE program allows the operator to access the data base to print, edit or initialize the projection and update string data stored on ERDSTA and ERDSTR, respectively. Rather than decoding the strings, this program edits or prints the ASCII characters of the string for each of the parameters. EARSE can also purge old data on ERDSTA or ERDSTR.

EARSDP - Calculational Parameters Plot Program

The EARSDP program allows the operator to print the immersion dose correction factors and to plot sigma y, sigma z and plume depletion curves used in the EARS calculations. Data files accessed by this program are ERDSIG, ERDDEP and ERDIMR.

EARKSP - Soft Key Functions Defining Program

The EARKSP program is used to create and edit the soft key labels used in EARAUT, EARMAN, and STATUS programs. Labels for the soft keys are stored in a string array that is read from a data file on the program mass storage media (7906 disc cartridge).

Data files EARSKY, EARACK, and EARKEY are used in program; STATUS, EARAUT, EARMAN, respectively.

TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

EARKDC - Graphics Documentation Program

The EARKDC program is a documentation program used to describe the CRT screen layout and soft key functions of the EARMAN, EARAUT and STATUS programs.

EARDOC - File Documentation Program

The EARDOC is a documentation program that lists all types of data files in the HP-9845C software. For each data file or type of data file, the file name, size, contents and general purpose can be listed.

TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONS

8. REFERENCES

1. "EARS User's Operating Manual for CIRC Station", Rev. 2, November, 1983.
2. PGandE: "DCPP Emergency Procedure RB-9 - Determination of Release Rates", Rev. 1, 1983.
3. PGandE: "DCPP Final Safety Analysis Report", Chapter 15.
4. PGandE: "DCPP Emergency Procedure RB-11 - Emergency Offsite Dose Calculations", Rev. 1, 1983.
5. EPA: "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents"; EPA-520/1-75-001, 1975.

TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONSAPPENDIX AEARS HARDWARE

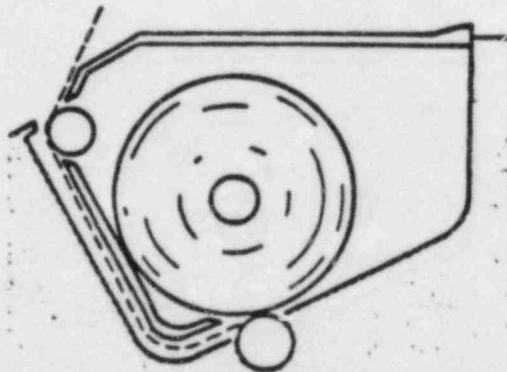
The EARS computer hardware at CR, TSC, and EOF EARS stations includes:

<u>MODEL</u>	<u>DESCRIPTION</u>	<u>FUNCTION</u>
HP-9845C	Desktop Computer w/graphics ROM, I/O ROMs, Mass storage ROM, Assembly execution ROM	EARS graphics computer at this station
HP-7906MR	Disc Drive	Mass storage unit
HP-98041A	Disc Interface	Interface the 9845C with the 7906
HP-13037C	Disc Controller	Controls 7906 operation
HP-98036A	Serial Interface (select code 5 at TSC & CR) (select code 4 at EOF)	Interface the 9845C with the modem to the TSC

TITLE: OPERATING PROCEDURES FOR EARS 9845C
CONTROLLING STATIONSAPPENDIX BLOADING HP-9845C INTERNAL PRINTING PAPER

Printer paper is loaded by using the following procedure. To perform the following steps, the computer must be switched "ON".

1. Lift or remove the access cover on the top of the printer by pushing down on the raised surface at the rear of the door. The door can be removed by lifting up and pulling it toward you. It is reinstalled by placing it on the hinge pins and pushing until it snaps into place.
2. Remove and discard the paper core of any previous roll. If the remaining roll is small and a new roll is to be used, remove the old roll by:
 - a. Unrolling and lifting it upwards until the roll is above the printer, then,
 - b. Holding the roll firmly and pulling it upward and forward; the paper guide will tear the paper off.
3. If any paper remains in the printer mechanism, remove it by pressing the PAPER ADVANCE key until the paper stops moving.
4. Remove the first layer of paper from a new roll. Be sure the paper has a cleanly torn or cut edge, as paper with a ragged edge may not load properly. The corners can be folded back to form a point for easier loading.
5. Insert the new roll such that the free end is positioned as shown. Press the PAPER ADVANCE key until paper appears at the front of the printer, then close the access door.





DEPARTMENT OF NUCLEAR PLANT OPERATIONS

DIABLO CANYON POWER PLANT UNIT NO(S)

1 AND 2

NUMBER EP RB-1

REVISION 0

DATE 1/9/84

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TITLE EMERGENCY PROCEDURE
PERSONNEL DOSIMETRYIMPORTANT
TO
SAFETY

APPROVED

R. E. Thompson

PLANT MANAGER

4-4-84

DATE

SCOPE

This procedure addresses the issuance of personnel dosimetry under emergency conditions classified as an Alert, Site Area Emergency or General Emergency. Methods and guidelines for the issuance, use, control and evaluation of personnel dosimetry are described.

PRECAUTIONS

1. If conditions permit, all personnel (e.g., contractors and General Office) should complete the unescorted radiation worker training requirements prior to requesting plant access and the issuance of personnel dosimetry devices. However, during emergency conditions, these training requirements may be waived, and plant access and dosimetry issuance granted upon the approval of the Site Emergency Coordinator.
2. Precautions should be taken to prevent the contamination, damage or loss of personnel monitoring devices. Personnel assigned such devices are responsible for exercising these precautions.
3. For the purpose of exposure control, individuals shall not enter any area where dose rates are unknown without Radiation Protection monitoring, or enter areas which are beyond the range of instruments being used. Personnel shall wear dosimeters appropriate for measurement of anticipated exposure levels, including thermoluminescent dosimeters (TLDs) or film badges to permanently record the whole body exposures and two (2) direct-reading pencil dosimeters (one low range, e.g., 0-500 mR and one mid-range, e.g., 0-5R) for whole body exposure.
4. As described in Procedure EP RB-2, "Emergency Exposure Guides", plant administrative exposure limits shall not be exceeded except with the authorization of the Site Emergency Coordinator (and if available, the concurrence of the Recovery Manager) for a life-saving or urgent plant emergency situation.

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5. Individuals authorized to receive planned emergency exposures shall wear dosimeters appropriate for the measurement of anticipated exposure levels, including TLDs or film badges to permanently record whole body exposure and two (2) direct-reading pencil dosimeters (one mid-range, e.g., 0-5R and one high range, e.g., 0-100R) for whole body exposure.
6. Personnel with assigned badges (e.g., plant staff) should have an exposure update prior to entrance into a Controlled Area. Previous exposure shall be verified by recalling the most recent TLD evaluation list and the current daily dose record list. This information will provide an estimation of current exposure status.
7. Protective clothing and respirators should be used, as appropriate, to minimize internal exposure and skin contamination.
8. Potassium Iodine (KI) tablets should be administered to personnel if thyroid exposure in excess of 10 Rems is anticipated. Refer to procedure EP RB-3, "Stable Iodine Thyroid Blocking" for guidance in the issuance and use of KI.
9. Administrative methods used during normal operations to minimize personnel exposure (such as Special Work Permits, and ALARA measures) should remain in force to the extent consistent with the performance of timely rescue operations, corrective actions, and protective actions in accordance with procedure EP RB-4, "Access To and Establishment of Controlled Areas Under Emergency Conditions".

PROCEDURE

- 1.0 The Emergency Radiological Advisor (ERA) should be notified of all requests to enter a Controlled Area to insure implementation of appropriate methods to minimize personnel exposure.
- 2.0 Personnel Dosimetry Issuance - Plant Personnel
 - 2.1 Plant personnel include all persons who have a current plant access badge (e.g., PGandE NPO, NRC Resident and selected Region V personnel, NPO consultants and contractors.)
 - 2.2 Plant personnel shall obtain their normal issue dosimetry devices at the Security Building. Special issue dosimetry can be obtained from the radiological access control point. Dosimetry can be issued from the plant gate, if directed by the Site Emergency Coordinator.

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- 2.3 Dosimetry devices shall be returned to the radiological access control point in effect.
- 2.4 Returned TLDs shall be segregated until they can be evaluated by the Department of Engineering Research (DER) Personnel Dosimetry Unit.
- 2.4.1 Evaluation of TLDs is performed in the Technical Support Center (TSC) lab. Other locations may be used with the concurrence of the ERA.
- 2.4.2 In accordance with DER Procedure PD-11, the Personnel Dosimetry Unit Dosimetry Supervisor shall promptly inform the ERA upon completion and approval of dose evaluation.
- 2.5 If an individual's TLD is not available, a new TLD or film badge may be issued after that individual's dosimetry record has been checked.
- 3.0 Personnel Dosimetry - Non-plant Personnel
- 3.1 Non-plant personnel include all persons who do not have a plant access badge (e.g., new contractors, General Office personnel).
- 3.2 If conditions permit, each individual shall complete Form 69-9378, "Radiation Exposure History" and a visitor's card.
- 3.2.1 If an exact radiation exposure history is not known, but an estimate can be provided by the individual, dosimetry may still be issued with approval of the ERA, but radiation exposure for the current quarter will be limited to 1000mR.
- 3.2.2 If the individual cannot provide an estimate of his radiation exposure history, dosimetry may still be issued with approval of the ERA, but radiation exposure for the current quarter will be limited to 300 mR.

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3.3 The radiological access control shift Chemistry and Radiation Protection technician shall insure that the individual is entered into the plant Personnel Exposure Records System (PERS).

3.3.1 If the PERS computer is inoperative, the individual's records shall be maintained on paper.

3.4 A pocket dosimeter and a TLD or film badge may then be issued to the individual with the approval of the ERA.

3.5 Requests for additional TLDs beyond normal Chemistry and Radiation Protection inventory should be directed through the ERA to the Dosimetry Supervisor of the Personnel Dosimetry Unit of DER.

4.0 Special Issue Dosimetry

4.1 If required, special badges can be issued at the discretion of the Site Chemistry and Radiation Protection Coordinator in accordance with procedure RCP G-2, "Personnel External Exposure Dosimetry and Control".

4.2 Special dosimetry such as finger rings, should be issued from the radiological access control point in effect.

4.3 Special badges shall be returned to the issuing facility.

5.0 Planned Emergency Exposures

5.1 Planned emergency exposures will be in accordance with procedure EP RB-2, "Emergency Exposure Guides".

5.2 As soon as possible, the dosimetry devices used for planned emergency exposures shall be collected and evaluated.

6.0 Dosimetry Incidents

6.1 Dosimeters that operate erratically or read off-scale shall be reported to the Site Chemistry and Radiation Protection Coordinator.

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6.2 Lost or damaged dosimeters shall be reported to the Site Chemistry and Radiation Protection Coordinator and documentation completed in accordance with procedure RCP G-14, "Lost or Damaged TLD's/Film Badges".

6.3 Whenever an over-exposure is suspected, the individual's TLD shall be processed and, his pocket dosimeter read immediately and the results recorded.

6.3.1 Any individual suspected of receiving an over-exposure shall not be allowed to reenter a radiologically controlled area prior to verification that his exposure was within guidelines.

6.4 Personnel receiving an over-exposure of 25 Rem or greater shall be transported to French Hospital for medical treatment and observation in accordance with Procedure EP R-1, "Personnel Injury or Illness (Radiologically Related) and/or Over-Exposure".

6.4.1 If needed, perform decontamination in accordance with procedure EP RB-5, "Personnel Decontamination".

7.0 Record Keeping

7.1 The ERA is responsible for the issuance of personnel dosimetry and shall insure that record keeping is implemented and maintained in accordance with Procedures RCP D-1, "External Dosimetry Requirements and Records", RCP D-14, "Responsibilities for Personnel Dosimetry Reports and Record Keeping" and RCP G-2, "Personnel External Exposure Dosimetry and Control".

REFERENCES

1. Title 10, Code of Federal Regulations, Part 20.
2. "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", USEPA, September 1975 (Revised June 1980).

SUPPORTING PROCEDURES

1. DCPD Procedure RCP D-1, "External Dosimetry Requirements and Records".

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2. DCPD Procedure RCP D-14, "Responsibilities for Personnel Dosimetry Reports and Record Keeping.
3. PGandE Radiation Control Standard RCS-1, "External Radiation Dose Control".
4. PGandE Radiation Control Standard RCS-2, "Internal Dose Control".
5. DCPD Procedure RCP G-2, "Personnel External Exposure Dosimetry and Control".
6. DCPD Procedure EP R-1, "Personnel Injury or Illnesses (Radiologically Related) and/or Over-Exposure".
7. DCPD Procedure EP RB-2, "Emergency Exposure Guides".
8. DCPD Procedure EP RB-3, "Stable Iodine Thyroid Blocking".
9. DCPD Procedure EP RB-4, "Access To and Establishment of Controlled Areas Under Emergency Conditions".
10. DCPD Procedure EP RB-5, "Personnel Decontamination".
11. DCPD Procedure EP G-2, "Establishment of the Onsite Emergency Organization".
12. PGandE Department of Engineering Research Procedure PD-11, "Emergency Procedures".

TABLES

None.

ATTACHMENTS

None.