

**GENERAL ELECTRIC COMPANY  
NUCLEAR ENERGY BUSINESS GROUP**

**CRITICALITY EMERGENCY PLAN  
VALLECITOS NUCLEAR CENTER**

**D-5**

**Plan Maintenance Responsibility:  
Radiological and Environmental Protection  
March 1978**

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**CRITICALITY EMERGENCY PLAN  
GENERAL ELECTRIC COMPANY  
VALLECITOS NUCLEAR CENTER  
Pleasanton, California**

### **1.0 PURPOSE**

The purpose of the Criticality Emergency Plan is to provide guidance and instruction in maintaining the objectives of the Nuclear Energy Business Group to protect personnel, Company property, and other interests in the event of a criticality accident. Authority for preparation of this plan is contained in NED OPG 100.5, dated March 15, 1976.

### **2.0 SCOPE**

This plan describes the program established to respond to a criticality emergency or any other emergency characterized by high exposure of personnel to any form of penetrating radiation. Not addressed are conditions affecting the welfare of the general public. Refer to Plan E-5 for information regarding response in this area.

Implementing procedures for this plan shall be established and maintained by each function responsible for a portion of the plan as described herein.

### **3.0 EMERGENCY EQUIPMENT AND FACILITIES**

#### **3.1 ASSEMBLY AREAS**

Emergency Assembly Areas, designated by appropriate signs, are provided around the Vallecitos Site as shown in Figures D-5-1 and D-5-2. These Emergency Assembly Areas are located as far as practical from fuel handling areas.

#### **3.2 EMERGENCY EQUIPMENT**

Emergency equipment is stored in cabinets located in Buildings 102, 103, 104, 105, 300, 400, GETR, and the Security Post at the entrance to VNC.

Survey instruments (types CP-5 and PIC-6) are available at Building 102 and GETR. In addition, the fire truck is provided with emergency equipment.

#### **3.3 DECONTAMINATION CENTERS**

Each emergency equipment cabinet contains a decontamination kit. In the event of major personnel contamination, certain rest room facilities may be designated by the Emergency Operations Commander (EOC) as decontamination centers.

### **4.0 RESPONSE TO CRITICALITY ALARMS**

A criticality at VNC will be treated to consist of two phases:

Phase I:	Initial Response
Phase II:	Secondary Response

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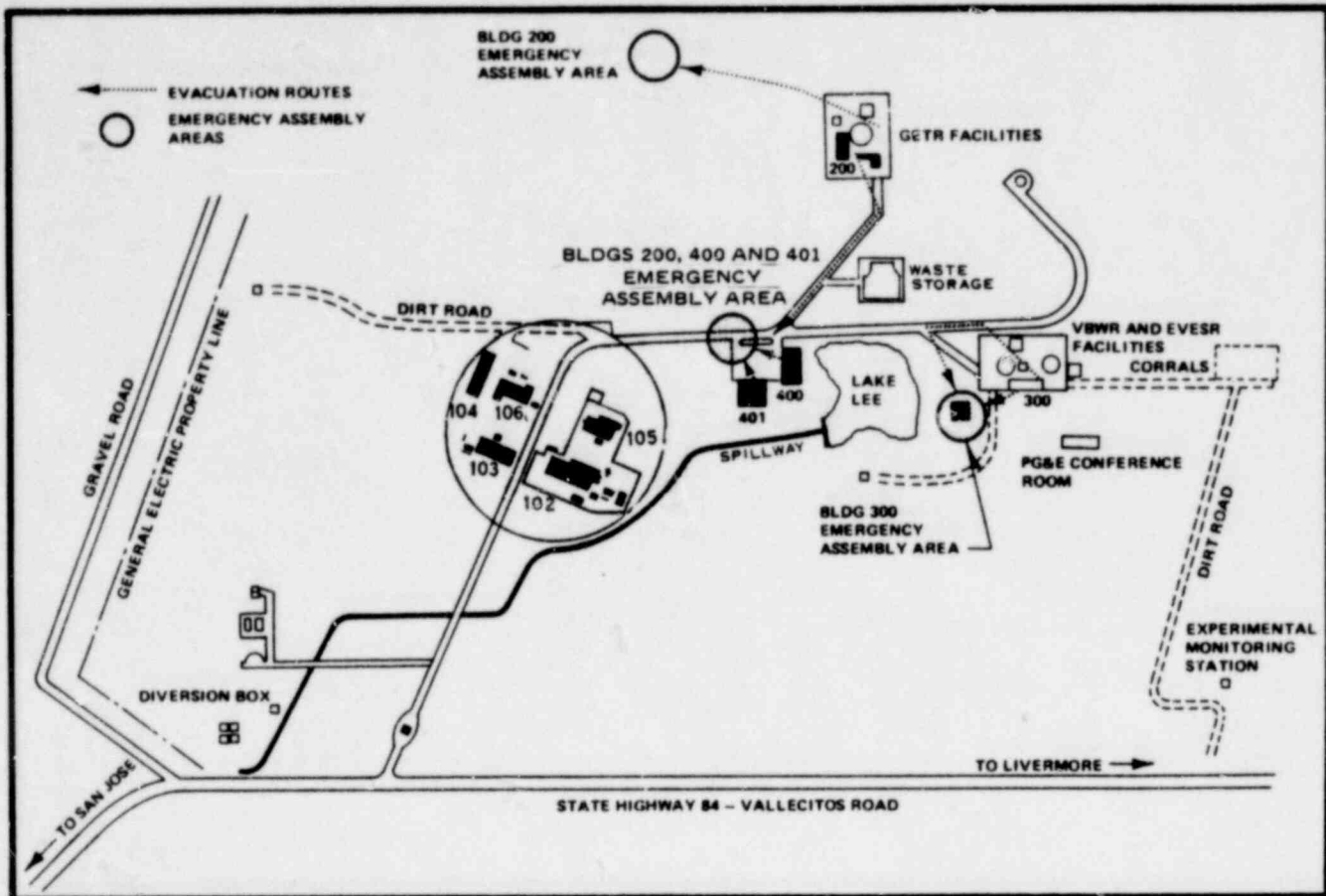


FIGURE D-5-1. VALLECITOS SITE PLOT PLAN - EMERGENCY ASSEMBLY AREAS

#### 4.1 REGULAR DAY SHIFT

##### 4.1.1 Initial Response

When high-level penetrating radiation is detected by the Criticality Monitoring System, local facility alarms will be activated as well as alarms in the GETR Control Room and the Security Building. The following actions will be taken immediately when the criticality alarm sounds:

1. All personnel will immediately evacuate the affected area. Removal of protective clothing and personnel surveys shall be delayed until arrival at the Assembly Area and until directed to perform such activities by the Radiation Monitor.
2. Evacuation will be away from the potential criticality area along routes clearly marked with EVACUATION ROUTE signs to the designated Assembly Area to await further instructions.
3. The GETR Shift Supervisor, acting as the temporary Emergency Operations Commander (EOC), will announce over the ALL CALL system, "ATTENTION, ATTENTION, CRITICALITY BUILDING (Area) \_\_\_\_\_, CRITICALITY BUILDING (Area) \_\_\_\_\_. EVACUATE BUILDING (Area) \_\_\_\_\_."

Should the alarm occur in the area of the Primary Control Center (GETR) resulting in the inability to use GETR as a control center, the Secondary Control Center (Security Building) will assume control and ensure that announcements are made.

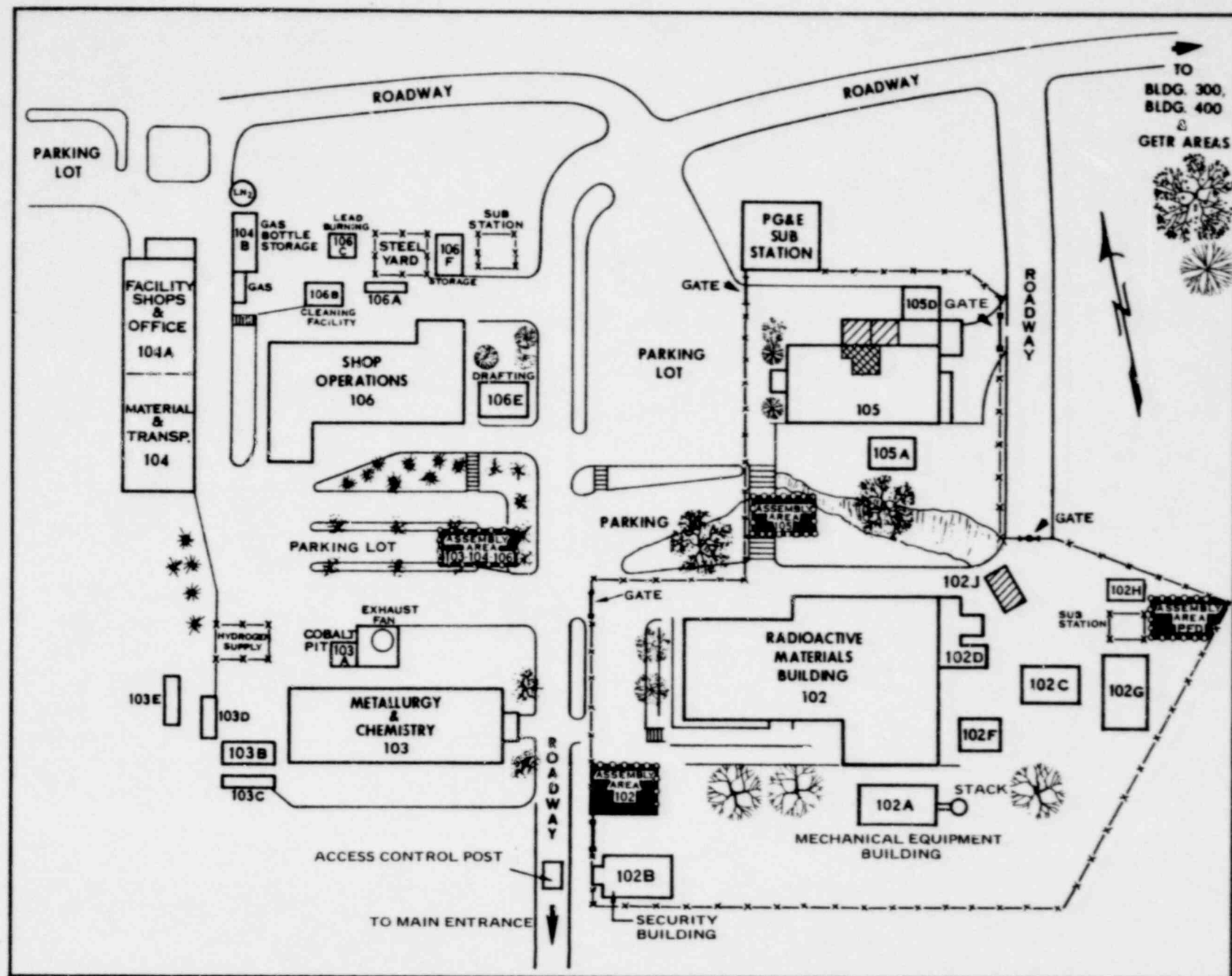


FIGURE D-5-2. VALLECITOS SITE PLOT PLAN - EMERGENCY ASSEMBLY AREAS - 100 AREA



#### 4.1.2 Secondary Response

1. Assigned Radiation Monitors and the Emergency Operations Commander shall respond to the alarm to evaluate if an actual emergency has occurred. All emergency teams shall remain at ready status and respond when requested by the Emergency Operations Commander.
2. A re-entry team consisting of a Radiation Monitor and one person assigned by the Building Emergency Coordinator shall re-enter the area, conduct a radiation survey, determine the cause for the alarm, manually reset the alarm and collect fixed dosimeters (if conditions permit), and report the results to the Emergency Operations Commander. If a criticality is suspected to have actually occurred, protective clothing and respiratory protection equipment should be donned before re-entry.

Only managers or supervisors may authorize entry into dose rates greater than 150 Rems/hour. In these cases whole body doses shall not exceed 25 Rems for purposes of protecting health and property or 100 Rems for saving human life.

3. If emergency conditions are confirmed, the decontamination team, dosimetry team, and environmental team may be summoned by the ALL CALL system at the request of the Emergency Operations Commander (EOC). All other available Nuclear Safety personnel including the Criticality Specialist should also respond when this announcement is made.
4. The Emergency Operations Commander, with consultation from other emergency team members, shall determine the course of action to be taken with regard to affected personnel and facilities, direct or assign responsibilities for recovery operations, and inform the Emergency Control Center of announcements to be made over the ALL CALL concerning further action to be taken.
5. If conditions permit the resumption of normal work, instructions to this effect will be announced over the ALL CALL paging system.

In no case shall general re-entry into the affected area be permitted until the cause for the alarm has been determined, corrected, or otherwise resolved, and only then when so directed by the Emergency Operation Commander.

#### 4.2 OFF SHIFT

The response of the Night Shift to emergency conditions shall be the same as for the Day Shift except as follows:

1. The GETR Shift Supervisor will notify the Emergency Operations Commander (EOC) and make other notifications as stipulated by the EOC. He will continue to coordinate available forces to combat the emergency until relieved upon arrival of the Emergency Operations Commander.
2. The GETR monitor and one other individual shall respond to the scene to evaluate if actual emergency conditions exist. This re-entry team shall conduct a radiation survey, determine the cause for the alarm, manually reset the alarm (if conditions permit), and report the results to the Emergency Control Center.

3. If a criticality is suspected to actually have occurred, re-entry into the area should be delayed until the emergency teams arrive, except in situations of personnel rescue.

## **5.0 ORGANIZATION AND RESPONSIBILITIES**

### **5.1 EMERGENCY OPERATIONS COMMANDER**

The Emergency Operations Commander (Specialist-Radiation Emergency Planning) shall have full responsibility for directing the emergency effort.

### **5.2 BUILDING EMERGENCY COORDINATOR**

The Building Emergency Coordinator (BEC) is responsible for the following actions:

1. Report to the Assembly Area and insure the HICON phone is manned.
2. Assure that all Building Emergency Team members are available for assignment.
3. Station employees at various locations to prevent unnecessary entrance into the evacuation zone.

Refer to Plan A-5 Appendix B for a listing of these personnel.

### **5.3 ASSEMBLY AREA LEADER**

The Assembly Area Leader is responsible for taking the following actions:

1. Maintain order in the Assembly Area and determine if everyone has evacuated. Report to the Building Emergency Coordinator and the Emergency Operations Commander the names of any individuals suspected of being trapped in the evacuation area due to injury or other reasons.
2. Prevent personnel from leaving the Assembly Area unless instructed to do so. Assistance can be obtained from Security personnel.
3. Assist emergency teams in collecting contaminated clothing and activated metal from evacuated personnel and sorting exposed and contaminated individuals.

Area managers are responsible for assigning an Assembly Area Leader for each Assembly Area for his facility.

### **5.4 RADIATION PROTECTION EMERGENCY TEAMS**

Emergency teams will be established and maintained by the Radiation Protection Function to handle personnel exposure and contamination.

The Emergency Dosimetry Team is responsible for obtaining maximum personnel dosimetry information following the accident and recommending to the Emergency Operations Commander actions to be taken concerning exposed individuals.

The Emergency Decontamination Team shall be responsible for establishing a decontamination center near the accident area, decontaminating individuals, and assisting in controlling the spread of contamination.

## **5.5 SPECIALIST, CRITICALITY SAFETY**

The Specialist, Criticality Safety shall proceed to the accident area upon confirmation of a criticality and advise the Emergency Operations Commander as to whether the accident source is subcritical, the probability for it to become critical again, and if possible, measures that should be taken to preclude subsequent criticality.

## **5.6 SECURITY FORCE PERSONNEL**

Security officers shall be assigned to prevent access and egress from the Site, to prevent personnel from entering the Criticality Evacuation Zone, and to maintain surveillance of personnel evacuated from Material Access Areas.

## **5.7 MAINTENANCE PERSONNEL**

Maintenance Personnel shall remain available for possible assignment to recovery operations by the Emergency Operations Commander.

## **5.8 MEDICAL PERSONNEL**

The Director, Medical Services and Company nurses shall report to the Site Dispensary. If the Site Dispensary cannot be used, the Emergency Operations Commander shall designate another site.

The Medical Director, with the assistance of Company nurses, shall have the following responsibilities:

1. Provide medical assistance, if required, to Assembly Areas.
2. Establish a quarantine area at or near the Site Dispensary for personnel who may have received significant contamination or exposure.
3. Ascertain needs for hospitalization and coordinate arrangements for admissions with the hospitals, and for obtaining ambulance service or other transportation.
4. Obtain medical assistance, equipment, and supplies as required.

### **NOTE**

Emergency medical supplies are stored in sealed trunks located at the Site firehouse near GETR and in the old guard post by the highway.

## **5.9 OTHER PERSONNEL**

All personnel will remain in the Assembly Areas and buildings not evacuated until notified that the Site will be evacuated, until the ALL CLEAR is sounded, or until other directions are received from the Building Emergency Coordinator or the Emergency Operations Commander by telephone, or by means of the Site ALL CALL System.

## **6.0 NOTIFICATION OF EXTERNAL AGENCIES**

The Emergency Operations Commander will authorize notifications of external agencies according to the below indicated guidelines. Telephone numbers are listed in Appendix A.



## **6.1 NUCLEAR REGULATORY COMMISSION (REGION V) AND STATE DEPARTMENT OF HEALTH**

### **6.1.1 Immediate Notification**

1. Exposure of the whole body of any individual to 25 Rems or more of radiation; exposure of the skin of the whole body of any individual of 150 Rems or more of radiation; or exposure of the feet, ankles, hands, or forearms of any individual to 375 Rems or more of radiation; or
2. The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5000 times the limits specified for such materials in Appendix B, Table II of 10CFR20; or
3. A loss of one working week or more of the operation of any facilities affected; or
4. Damage to property in excess of \$200,000.

### **6.1.2 Twenty-Four Hour Notification**

1. Exposure of the whole body of any individual to 5 Rems or more of radiation; exposure of the skin of the whole body of any individual to 30 Rems or more of radiation; or exposure of the feet, ankles, hands, or forearms to 75 Rems or more of radiation; or
2. The release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 500 times the limits specified for such materials in Appendix B, Table II of 10CFR20; or
3. A loss of one day or more of the operation of any facilities affected; or
4. Damage to property in excess of \$2000.

### **6.1.3 Notification Information**

Information for the NRC and State notifications should include, to the extent possible, the following:

1. Location of incident and name and telephone number of caller.
2. Date/time of incident.
3. Type of release (airborne, waterborne, surface spill) and estimated duration/impact times.
4. Estimate of quantity of radioactive material released or being released.
5. Chemical and physical form of released material, including estimates of the relative quantities and concentrations of noble gases, iodines and particulates.
6. Prevailing weather (wind velocity, direction, temperature, atmospheric stability data, form of precipitation, if any).
7. Projected dose at Site boundary.

8. Projected dose range for low population zone including sectors of zone affected.
9. Estimate of radioactive contamination if environmental surfaces are involved.
10. Emergency response procedures in effect.
11. Further emergency actions recommended, including protective measures.
12. Injured personnel requiring off-Site assistance.

## **6.2 NUCLEAR ENERGY LIABILITY PROPERTY INSURANCE ASSOCIATION (NEL-PIA)**

This VNC insurance underwriter requires notification in the event of a nuclear emergency requiring notification of Federal or State agencies (see Appendix B).

## **6.3 EMERGENCY ASSISTANCE**

The Specialist, Radiation Emergency Planning will maintain a listing of personnel located at either VNC or at General Electric facilities in San Jose who are qualified in matters of radiation protection or radiochemistry.

In extreme cases and at the discretion of the Manager, IPO, emergency organizations from the San Francisco Office of DOE and from the State Office of Emergency Service shall be contacted.

## **7.0 PREPAREDNESS**

Preparedness of emergency teams shall be maintained through the use of training sessions and drills developed and implemented by each responsible emergency function.

Annual exercises shall be planned and performed which implement and test the coordinated response of all emergency functions.

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**APPENDIX A**  
**TELEPHONE NUMBERS OF EXTERNAL AGENCIES**

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**APPENDIX A****TELEPHONE NUMBERS OF EXTERNAL AGENCIES**

<u>Name</u>	<u>Number</u>
Nuclear Regulatory Commission (Region V)	8*(415)486-3141
State Department of Health	8*(916)445-0931
NEL-PIA	8*(203)677-7305
San Francisco Office of DOE	8*(415)273-4237
State Office of Emergency Service	8*(916)421-4990
Valley Memorial Hospital (Livermore)	9*447-7000

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**APPENDIX B**

**NEL-PIA/MAELU INFORMATION BULLETIN  
NUCLEAR LIABILITY EMERGENCY RESPONSE**

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## APPENDIX B

NEL-PIA/MAELU INFORMATION BULLETIN  
NUCLEAR LIABILITY EMERGENCY RESPONSENEL-PIA/MAELU EMERGENCY ASSISTANCE (GENERAL)

*In the event of an extraordinary nuclear occurrence (as defined in the Price-Anderson Law) NEL-PIA and MAELU (the pools) have plans prepared to provide prompt "no fault" emergency funding to affected members of the public.*

The provisions of the Price-Anderson Law facilitate the pools' providing prompt assistance to members of the public who may be adversely affected in the event a nuclear incident were to occur at a NEL-PIA/MAELU/NRC indemnified facility. This arrangement is intended to alleviate the immediate financial burden which may be incurred by members of the public due, for example, to evacuation and relocation activities initiated as a consequence of a nuclear occurrence.

In providing emergency assistance to members of the public, the pools will promptly dispatch their representatives to commence the distribution of emergency assistance funds. The purpose of such emergency assistance is to enable members of the public to cope with and to otherwise defray the reasonable immediate expenses brought about by a nuclear incident.

Sudden and unexpected expenses, such as the costs of temporary lodging, transportation, food and emergency expenses of other types are probably not readily manageable on a short notice basis by all members of the public who may be affected. The pools' emergency response program is directed towards the mitigation of this initial financial impact upon the public.

NEL-PIA/MAELU EMERGENCY ASSISTANCE (CLAIMS HANDLING PROCEDURES)

*The pools' emergency assistance arrangements contemplate the mobilization and dispatch of emergency claims teams to directly dispense emergency assistance funds to affected members of the public.*

Following notification of a nuclear incident potentially involving bodily injury, evacuation of off-Site personnel or damage to off-Site property, the NEL-PIA staff will alert claims personnel of member companies. The information provided to us by the insured will be utilized to recommend appropriate emergency response actions. If the magnitude of the incident requires immediate financial assistance to members of the general population, pool representatives will be directed to establish an emergency assistance office at a convenient location. It is contemplated that establishment of such an office would be coordinated with the insured and local or state governmental authorities.

Applicants for emergency assistance will be required to fill out a simple form giving their name, address, and names of additional persons to be assisted. The application contains two basic provisions:

1. That the disbursement of emergency assistance funds does not constitute an admission of liability on the part of the insured; and
2. That the acceptance of emergency funds does not constitute a release on the part of the applicant.

The procedures outlined above are specifically directed towards immediate payment to members of the public for out-of-pocket transportation, living and other reasonable expenses incurred shortly after a nuclear incident. Subsequent to such immediate relief being provided the pools will service bodily injury and property damage claims which may be presented. Should the incident be declared and "extraordinary nuclear occurrence" by the NRC, virtually all legal defenses are waived by the insured and the pools which makes adjusting the claims much simpler. A claimant need only prove a causal connection between nuclear material at the insured location and his injury or loss.

### CRITERIA FOR EMERGENCY NOTIFICATION

*Under what circumstances should NEL-PIA be notified in order to activate the type of emergency assistance response described above?*

Condition 5, "Notice of Occurrence, Claim or Suit," of the Nuclear Energy Liability Policy (facility form) delineates the notification commitment of the insured to the insurer; however, the provisions of Condition 5 do not specifically describe the type of immediate financial assistance discussed above. Almost by definition, emergency financial assistance must be provided in a timely fashion. Timely assistance of course, implies timely notification. The NEL-PIA staff has developed the following guidance for use by insureds in determining when emergency notification of NEL-PIA should be effected.

"NEL-PIA should be notified in the event of a nuclear emergency requiring notification of State or Federal governmental agencies, or if the insured believes that off-Site persons may be affected and financial assistance of a nature discussed (under NEL-PIA Emergency Assistance above) may be required. In these instances we would expect notification at the earliest practical time within eight hours of the initiation of the emergency."

Even if it appears to be remote that off-Site persons will be affected, NEL-PIA should be notified in order that NEL-PIA's response plans can be initiated to the point of alerting teams of adjusters to stand by. NEL-PIA's response activity can be discontinued if it proves less severe and does not require NEL-PIA response.

Naturally, all nuclear occurrences of an emergency or non-emergency nature which may fall under the nuclear liability policy should be reported formally in writing as specified in Condition 5 of the facility form policy.

### EMERGENCY NOTIFICATION PROCEDURES

*In the event NEL-PIA emergency notification were required, it is important to establish clear lines of communication between your facility and the NEL-PIA co-ordinator in order to exchange all required information during a developing emergency situation.*

NEL-PIA maintains 24-hour coverage of our emergency notification number. This number is (203) 677-7305. During normal office hours (8:00 a.m. - 4:00 p.m.) this number will be answered by our receptionist who will transfer an incoming emergency call to an appropriate individual in the office. Outside of normal office hours this phone line is covered by an answering service. The answering service will intercept the call and obtain the name, affiliation and phone number of the caller. They will then notify a designated NEL-PIA staff member who will in turn call back the facility to obtain appropriate information\* regarding the nuclear accident.

\*Description of accident, prognosis, magnitude and disposition of off-Site releases, injuries, fatalities, evacuations, etc.

In closing, we would ask you to ensure that your emergency plans contain the proper phone number for NEL-PIA and that personnel assigned to notify us are familiar with our criteria for notification and the type of information which we will request.

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**APPENDIX C**  
**RADIATION ACCIDENT AGREEMENT**

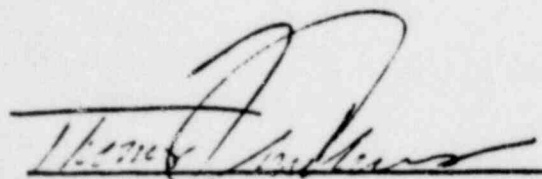
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APPENDIX C

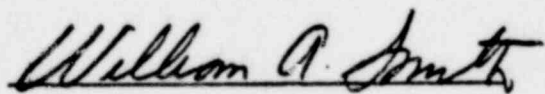
RADIATION ACCIDENT AGREEMENT

Vallecitos Nuclear Center and Valley Memorial Hospital have agreed upon the following conditions concerning the acceptance of radiation exposed or contaminated individuals requiring medical treatment by Valley Memorial Hospital:

1. Individuals not contaminated shall be accepted at the emergency entrance.
2. Contaminated individuals shall be isolated and treated in the hospital morgue.
3. The individual shall be decontaminated of all removable contamination before delivery to the hospital except in cases where delay of immediate medical attention will have serious consequences.
4. All individuals exposed to radiation or who are contaminated shall be accompanied by a qualified radiation monitor and appropriate instruments when delivered to Valley Memorial Hospital.
5. The radiation monitor shall assist the hospital staff in the control of contamination and shall be responsible for the complete decontamination of the area and personnel, if necessary.

  
 Mr. Tom Andrews, Director  
 Valley Memorial Hospital

9-8-77  
 (Date)

  
 Mr. William A. Smith, Manager  
 Nuclear Safety & Quality Assurance  
 Vallecitos Nuclear Center

August 29, 1977