



Portland General Electric Company

October 2, 1980

Trojan Nuclear Plant  
Docket 50-344  
License NPF-1  
Radiological Emergency Response Plan

Director of Nuclear Reactor Regulation  
ATTN: Mr. Robert A. Clark, Chief  
Operating Reactors Branch No. 3  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Sir:

On May 16, 1980, Portland General Electric Company (PGE) submitted a second draft of the Trojan Radiological Emergency Response Plan (RERP) for your review. Subsequently on July 28, 1980, the NRC Emergency Plan Review Team, headed by Mr. T. McKenna, visited the Trojan site to discuss the resolution of NRC comments on the draft RERP. The final NRC comments were forwarded to PGE on September 17, 1980.

We are hereby forwarding to you, attached to this letter, our responses to the remaining unresolved issues identified in the September 17, 1980 letter. In addition to resolving these issues, we are proposing the following further revisions to the RERP:

1. Page 2:6.4-5 refers to special telephone lists for schools, hospitals, etc., to be maintained to ensure rapid notification of these populations. Since a siren system will be used to warn the public within the plume exposure EPZ, these telephone notification lists are no longer necessary and will be deleted.
2. In the Emergency Action Level (EAL) tables (2:4.1-1 to 2:4.1-4) references to specific PRM readings for detecting iodine will be eliminated, since iodine PRMs are unreliable due to noble gas interference. In practice, the ranges of the iodine PRMs are too low to be of use in an accident

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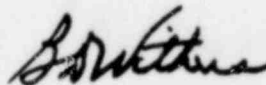
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situation, so this change will make no difference in  
the ability to rapidly quantify iodine releases.

We hope that this response adequately addresses your questions.

Sincerely,



Bart D. Withers  
Vice President  
Nuclear

BDW/TDW/SGG/lm/4c1988  
Attachments

c: Mr. Lynn Frank, Director           w/attach  
State of Oregon  
Department of Energy

Mr. Richard Donovan               wo/attach  
Federal Emergency Management  
Agency, Region X

ATTACHMENT 1

RESPONSES TO NRC COMMENTS

CHAPTER 1, OVERVIEW OF MANUAL

1. Reference: Section 6.0, Page 1:6-6

Comment

Revise to indicate that NRC inspectors are to be provided by the regional office.

Response

This revision will be made to Page 1:6-6.

2. Reference: Section 10.0, Page 1:10-1

Comment

- A. Describe the provisions for a "designee" to assure there is a capability for 15 min. activation of the alerting system.
- B. Restate the capabilities of the warning system in terms of design parameters.
- C. How was it assured that KEX (1190 AM) can be received (day and night throughout the plume EPZ)?

Response

- A. Page 3:6-2 of the Oregon Emergency Plan (Chapter 3 of the Manual) describes the Columbia County notification system in detail, as follows:

"Immediately upon receiving emergency notification from PGE, the Columbia County Central Dispatch dispatcher shall verify the authenticity of the notification and notify the appropriate Columbia County response organizations. The notification verification method is described in the Columbia County Procedures. The Director of the Columbia County Office of Emergency Services or, in his unavailability, his designee has the authority and responsibility to implement protective actions and can immediately release, via the KEX Radio Station, predetermined emergency messages describing the protective actions to be taken by the Columbia County public. The Director shall ensure that Columbia County emergency response organizations are notified and activated, as appropriate. A listing of the notification and activation of Columbia County response organizations by emergency classification is presented in Table 3:6-3. Emergency notification

responsibilities are shown in Figures 3:6-1 to 3:6-3. Normal County emergency communication systems, which are described in Section 7.2, shall be used for notifying Columbia County response organizations."

Section 6.1 of the Cowlitz County Emergency Plan describes the Cowlitz County notification system in detail, as follows:

"Immediately upon receiving an emergency notification from Trojan, the Communications Center dispatcher shall notify the Cowlitz County Sheriff and Emergency Services and Communications Director. The dispatcher shall verify the authenticity of the notification. In the event that notification is received from Trojan during other than normal working hours, or if the Sheriff is unavailable, the Sheriff's designee shall assume the Sheriff's emergency responsibilities until the Sheriff is available. The Sheriff, or in his absence the Sheriff's designee, has the authority and responsibility to implement protective actions and can immediately release, via the KEX Radio Station and local radio and television stations, predetermined emergency messages describing the protective actions to be taken by the public."

Section 10.0 will be revised to include these descriptions.

- B. The capabilities of the warning system will be restated in terms of the designed coverage and signal strength.
- C. A survey was taken within the plume exposure Emergency Planning Zone (EPZ) during the day and at night to ensure that KEX could be received at all locations. Subsequently, some questions have been raised by local government officials as to the adequacy of KEX coverage in some areas. This matter is under investigation, and adequate radio station coverage of the plume exposure EPZ will be assured by the time the RERP is submitted to the NRC (January 1, 1981).

3. Reference: Section 11.0, Page 1:11-1

Comment

- A. The provisions for public information must include:
  - 1. Information available for ready reference during an emergency.
  - 2. Information for transients (e.g., boaters, hotels).
  - 3. The actions parents are to take if children are at school.
- B. Indicate when the initial public education brochure will be submitted to the NRC.

### Response

- A. These provisions will be included in the public education brochure. Section 11.0 of Chapter 1 has been revised to include this information and is attached to this response (Attachment 2). A special education program is not considered necessary for boaters on the Columbia River. Many boaters in the plume exposure EPZ reside in the area and will receive the public education brochure. In addition, if there is an accident, the U. S. Coast Guard will warn boaters via helicopters with loudspeakers and notices to be dropped to boaters giving evacuation instructions (see Section 6.4 of Chapter 2).
  - B. The completed plan, which will contain the initial public education brochure, will be sent to the NRC by January 1, 1981.
4. Reference: Tables 1:6-2, -3, -4 and -5

### Comments

- A. Provide for closeouts (written and verbal) in accordance with NUREG-0610.
- B. Provide for prompt (2 hr. not acceptable) notification of offsite officials of Unusual Events.

### Response

- A. Verbal closeouts will be provided in accordance with NUREG-0610. Written closeouts will be provided by sending copies of reports required by Plant Technical Specifications to State and county authorities. The State and local officials have agreed to this approach as documented in the PGE letter to A. Schwencer dated March 18, 1980.
  - B. State and local officials have previously agreed to an initial notification time of 2 hr. for an Unusual Event as documented in the PGE letter to A. Schwencer dated March 18, 1980. Subsequent discussions have resulted in an agreement on a 1-hr. notification period. If an accident is determined to become an Emergency Alert, Site Emergency or General Emergency, notification to offsite agencies will be made within 15 min.
5. Reference: Appendix 1-A

### Comment

Revise to indicate that recommendation of plume protective actions beyond 10 miles may be required.

Response

This revision will be made to Appendix 1-A.

6. Reference: Table 1:A-1

Comment

- A. How will failure of Containment to isolate be detected?
- B. If outside monitoring is to be performed, state the criteria used to dispatch the monitoring individuals (see Comment on Section 6.2.2.1.1).
- C. How will release duration (long- or short-term) be determined?
- D. Clearly indicate that "shelter" applies to entire plume EPZ.
- E. Why is evacuation phase based on wind direction?
- F. How were the shelter factors of local buildings considered?
- G. How will evacuation time estimates be used and when will the time estimates be incorporated into the plan?
- H. An implementation schedule for the siren system must be provided to include estimated:
  - 1. Ordered date;
  - 2. Delivery date;
  - 3. Installation date; and
  - 4. Test date

Response

- A. Failure of Containment isolation will be detected by:
  - 1. Effluent monitors; or
  - 2. Containment isolation status panel alarms; or
  - 3. Monitoring outside the Plant.

These parameters are included in the EALs.

- B. See response to comment on Section 6.2.2.1.1.
- C. This parameter is usually impossible to predict accurately and must be a judgemental decision by the Plant operators

based on the source of the radioactivity release. For example, the release from rupture of a waste gas decay tank would be expected to be of short duration while the release due to failure of the Containment coupled with fuel melting could be long term.

- D. This revision will be made to Table 1:A-1.
- E. The evacuation phase is based on wind direction principally because of the population distribution and prevailing wind directions within the plume exposure EPZ. The prevailing wind directions are up and down the river valley in which the Plant is located and the majority of people within the EPZ are located in the river valley. In addition, meteorological analyses show that winds blowing in directions other than up and down the valley are of very short duration. Therefore, the population living within the river valley is given priority in evacuations in order to more effectively utilize the available local manpower to evacuate the population which is in the greatest potential danger first.
- F. The plan will be revised to include shielding factors for structures in offsite dose projections. The shielding factors will be used to determine doses and protective actions for persons who are sheltered.
- G. Evacuation time estimates for evacuation sectors will be compared with estimated time allowed to evacuate in order to determine whether an evacuation is to be ordered. These estimates will be included in Appendix 1-E and Appendix 1-A, and will be submitted to the NRC by January 1, 1981.
- H. The current schedule for the siren system is as follows:

Order date:	9/15/80
Delivery:	11/15/80 - 12/15/80
Installation:	11/1/80 - 3/1/81
Testing:	3/1/81 - 3/15/81
FEMA approval:	4/1/81

CHAPTER 2, PGE RADIOLOGICAL EMERGENCY RESPONSE  
PLAN FOR THE TROJAN NUCLEAR PLANT

7. Reference: Tables 2:4.1-1, -2, -3 and -4

Comment

- A. What is the basis for the assumptions used in the calculation of iodine doses? How will the iodine levels be confirmed during an event? (see comments on Section 6.2.2.1.1.)

- B. Indicate that an emergency will be declared if a condition exists that corresponds to the NUREG-0610 class description even if an EAL has not been established for that specific condition. This could be accomplished by addressing the following NUREG-0610 example initiating conditions:

Unusual Event #15;

Alert #9; and

Site #16.

- C. Describe how the EALs submitted are being revised and improved and specify when they will be submitted to the NRC.
- D. Describe how the EALs and their recognition will be incorporated into Plant procedures.
- E. Indicate why the Condition II and III occurrences analyzed in the FSAR are not specifically covered by the EALs.

Response

- A. See response to comments on Section 6.2.2.1.1.
- B. Implementing procedures containing the EALs (see answer to D. below) will include instructions to declare an emergency should conditions exist for which an EAL is not defined, but which corresponds to the NUREG-0610 class description.
- C. The EALs are being revised to incorporate NRC comments and to more accurately describe the Plant parameters and instrument readings which determine the EALs. In addition, the EALs will be modularized to assure fuller response preparation for more serious indicators.
- D. The EALs will be incorporated into Plant RERP implementing procedures. A step will be added in each existing Plant Emergency Instruction (EI) and Off-Normal Instruction (ONI) directing the operators to proceed to the RERP procedures.
- E. All occurrences evaluated in FSAR Chapter 15 were considered in writing the EALs. Condition II and III occurrences were found to be less severe than an Unusual Event. A statement to this effect will be added to Section 4.2.
8. Reference: Table 2:4.1-1

Comment

How were NUREG-0610 Unusual Event, Example Initiation Conditions 9, 11, 13 and 15 addressed?



Response

Conditions 9, 11, 13 and 15 will be included in the EALs as revised.

9. Reference: Tables 2:4.1-2 and 2:4.1-3

Comment

- A. How was NUREG-0610, Alert Condition #14, addressed?  
B. How was NUREG-0610, Site Condition #11, addressed?  
C. Why is 30 min. specified for Site Conditions 6 and 7 versus 15 min. as specified in NUREG-0610?

Response

- A. Alert Condition #14 will be included in the revised EALs.  
B. Site Condition #11 will be included in the revised EALs.  
C. Thirty min. is specified for Site Conditions 6 and 7 to allow sufficient time for operations personnel to diagnose and correct the problem.
9. Reference: Table 2:4.1-4

Comment

Condition 1 - Include results of field monitoring.

Response

Table 2:4.1-4, Condition 1 will be revised to include field monitoring.

10. Reference: Section 5.2.2.5, Page 2:5.2-17

Comment

Clarify who will recommend protective measures (ECC or Emergency Coordinator in TSC) once the TSC and ECC have been activated.

Response

The Emergency Coordinator recommends protective actions once the TSC and ECC are activated. Section 5.2.2.5 will be revised to clarify this point.

11. Reference: Section 5.2.3(6.4.1.1), Page 2:5.2-24

Comment

Make provision to assure that Plant evacuees will not be required to wait at the ECC for an excessive amount of time before monitoring and decontamination during the backshift.

Response

The ECC will be activated within 60 min. of the declaration of an Emergency Alert, Site Emergency or General Emergency on the backshift. Equipment for monitoring and decontamination are stored in the ECC. If Plant evacuation is ordered on the backshift, the ECC will be opened up and the monitoring equipment set up by Plant Security under the direction of the Security Watch Supervisor. Plant personnel evacuated to the ECC will perform self-monitoring until Radiation Protection personnel arrive. Decontamination will begin as soon as the Radiation Protection personnel arrive at the ECC (within 1 hr.). Section 6.4.1.2 will be revised to state this.

12. Reference: Section 5.3, Page 2:5.3-1

Comment

Identify the provisions for additional health physics support.

Response

Health physics support will be obtained from Washington Public Power Supply System, other utilities (through INPO) and through IRAP. Section 5.3 will be revised to state this.

13. Reference: Section 6.2.2.1.1, Table 2:5.2-1, Page 2:6-.2-3

Comment

- A. How will it be determined when the following personnel actions (tasks) required immediately to classify an event as part of the EALs will be performed?
1. Taking measurements outside Containment,
  2. Determination of iodine fraction in a release,
  3. Taking of "grab" samples, and
  4. Exclusion boundary monitoring.
- B. Assure that there are adequate qualified personnel available during the backshift to perform the above tasks in a timely manner. Revise Table 2:5.2-1 to show who will perform these tasks during the backshift.
- C. What assumptions will be used concerning the iodine levels if gross Containment radiation levels and leak rates are used to project offsite doses.

Response

- A. An examination of the EALs has determined that the C&RP Technician on duty on the backshift will not be required, as part of

classifying a release as part of the EALs, to perform more than one action at a time. To insure the availability of the C&RP Technician, the plan will be revised to state that determination of EALs will take priority over other duties that the C&RP Technician may have to perform on the backshift.

Section 6.2.2.1.1 will be revised to describe the actions to be taken for EALs to quantify a release in order of priority:

1. Use PRM readings (noble gases only)
  2. If noble gas PRMs are offscale or malfunctioning, dispatch a C&RP Technician to read external dose rate on sample line.
  3. Dispatch a C&RP Technician to collect iodine sample using silver zeolite cartridge and count for gross iodine.
  4. If the accident is in the Containment, the Containment is isolated and effluent samples cannot be taken (as in 2), use Containment ARM readings and Containment pressure readings to calculate release rate. If ARMs are offscale or malfunctioning, dispatch C&RP Technician to take external dose rate measurements outside the Containment.
  5. If the Containment is not isolated and PRMs cannot be used (unmonitored release), dispatch C&RP Technician to take external dose rate measurement at exclusion area boundary at plume center line in downwind direction plus external dose rate measurements outside the Containment. A C&RP Technician will take a sample of Containment atmosphere if possible. The effluent release rate can be calculated from these measurements.
  6. As soon as C&RP Technicians are available, take grab samples of effluent (if possible) and perform gamma spectroscopy analysis.
  7. As soon as field monitoring team is available (first two C&RP Technicians to arrive onsite on backshift) dispatch field team to perform exclusion area boundary monitoring.
- B. Revised Table 2:5.2-1 is attached to this response as Attachment 3.
- C. The principal means of determining the iodine fraction inside the Containment will be by analyzing a sample of the Containment atmosphere (see response A., above). If an estimate is needed before a sample can be taken, the following assumptions will be used to determine the iodine fraction:

Iodine release fraction from core is assumed to equal 50 percent of noble gas release fraction. Fifty percent of iodine released to Containment is assumed to plate out. If Containment sprays operate, an additional 99 percent of iodine is washed out (i.e.,  $0.50 * 0.50 * 0.01$  of iodine remains).

This method will only be used as a last resort. Section 6.2.2.1.1 will be revised to include this explanation.

14. Reference: Section 6.2.1.2, Page 2:6.2-4

Comment

Revised the method of determining meteorological parameters to represent current conditions.

Response

Page 2:6.2-4 will be revised to require the use of current readings of meteorological parameters, rather than hourly averages.

15. Reference: Section 6.2.2.1.2, Page 2:6.2-5

Comment

Revised the method used if meteorological instruments are inoperable to be more representative of current conditions.

Response

The meteorological instrumentation is located on two towers. Table 2:7.3-1 shows that wind speed, wind direction and stability can be determined from instrumentation on either tower. In the event that all tower instruments become inoperable, the following procedure will be used to estimate meteorological parameters:

1. Wind speed and/or wind direction will be estimated using instrumentation (anemometer and wind vane) mounted on the wind generator tower at the Visitors Information Center (ECC).
2. Stability will be estimated using the method outlined in Table 3.3 of Meteorology and Atomic Energy 1968, assuming "slight" insolation during the day, and  $\leq 3/8$  cloudiness at night.

16. Reference: Sections 6.2.2.1.3 and 6.2.2.1.4, Page 2:6.2-5, -7

Comment

Provide the assumptions used to develop the dose assessment equations specified in these sections.

Response

These sections will be revised to detail the specific assumptions used to develop the dose assessment equations. See Attachment 4 for details.

17. Reference: Section 6.2.2.1.3, Page 2:6.2-5

Comment

Revise the system outlined to estimate doses inside the exclusion area so that it will not result in overly conservative thyroid dose estimates.

Response

The dose equations for the exclusion area assume a  $u\chi/Q$  equal to the building wake factor ( $0.5/2340 \text{ m}^2$ ) (see Trojan FSAR Section 2.3.4). We believe that the use of this method to give a first estimate of doses inside the exclusion area is appropriate, particularly since these dose estimates are to be used to determine whether evacuation of the public from the exclusion area is to be ordered. Note that this dose projection will not be used to determine if Plant personnel are to be evacuated or ordered to use respiratory protection. These decisions will be based on measurements of radiation and airborne radioactivity levels.

18. Reference: Section 6.4.1.1, Page 2:6.4-1

Comment

- A. Provide the capability for personnel accounting with 30 min. of declaration of the emergency.
- B. Describe the provisions for continuing accountability.

Response

- A. Section 6.4.1.1 will be revised to provide the capability for personnel accounting within 30 min. of the declaration of the emergency. Personnel accounting will be performed by security personnel at the ECC. Plant and contractor personnel evacuated to the ECC will turn in their badges to the security personnel, who will check off their badge numbers versus the gatehouse list of active badges.
- B. Continuing accountability will be by security and access control procedures. A statement to this effect will be included in Section 6.4.1.1.

19. Reference: Section 6.4.1.2, Page 2:6.4-1

Comment

Provide for evacuation of nonessential personnel from exclusion area upon declaration of a "site" or "general" emergency.

Response

Section 6.4.1.2 will be revised to provide for exclusion area evacuation upon declaration of a Site or General Emergency.

20. Reference: Section 6.4.1.2, Page 2:6.4-3

Comment

Provisions to direct evacuees to offsite monitoring points (if necessary) must be provided.

Response

Plant evacuees report to the ECC for monitoring and decontamination (Section 6.4.1.2). The public will be directed to evacuate along predesignated routes. (See Section 6.4.1.2). State police located at roadblocks will direct the evacuees to assistance centers where monitoring will be provided if necessary. Plant personnel who cannot be monitored and/or decontaminated at the ECC due to accident conditions or other reasons will be directed to proceed to the Oregon State Emergency Workers Center, located at the PGE St. Helens Office, where monitoring and decontamination facilities are available. Section 6.4.1.2 will be revised to state this.

21. Reference: Section 6.5.1, Page 2:6.5-1

Comment

Clarify how the total dose received by Plant personnel and non-Plant personnel will be recorded.

Response

Doses received by Plant and non-Plant personnel will be measured using TLDs and pocket dosimeters and will be recorded using normal Plant procedures for maintaining dose records. Population doses to the public will be calculated at the Unified Dose Assessment Center using computer codes maintained at PGE Headquarters.

22. Reference: Section 6.5.2, Page 2:6.5.3

Comment

The second complete sentence at the top of this page indicates that the five following actions will be taken by the Radiation Protection Emergency Team. With respect to action Nos. 2 and 3, how can the Team request the team to survey the patient or direct the team to decontaminate?

Response

Page 2:6.5-3 will be revised to state that: "the Radiation Protection Supervisor will direct the Radiation Protection Emergency Team to perform the following actions:

- 1) Provide first aid to injured individuals.
  - 2) Survey the patient to determine the extent and location of contamination or direct radiation being emitted from the patient.
  - 3) Decontaminate the injured person as much as possible using standard methods, including:
    - a) Removal of the patient's clothes and wrapping him in a sheet.
    - b) Removal of all dosimetry devices for immediate processing and replacement with a pocket ionization chamber.
  - 4) Prepare the patient for ambulance transportation, if needed.
  - 5) Dispatch a team member to accompany the patient to the hospital and remain at the hospital to provide radiological services to the Environmental Health Physicist and hospital personnel.
23. Reference: Section 7.1.3, Page 2:7.1-2

Comment

At the top of this page it states that during the time required to set up the alternate ECC, the Manager, Operations and Maintenance assumes the role of Emergency Coordinator. The effect of this requirement is not clear because both the Plant General Manager, who is usually the Emergency Coordinator, and the Manager, Operations and Maintenance, are supposed to be in the Technical Support Center. The intent of this requirement appears to be no longer necessary because of the establishment of the Technical Support Center. However, there will be a need to temporarily transfer the duties and responsibilities of the ECC during the move to an alternate ECC site. The plan does not presently provide for such transfer.

Response

This section will be revised to state that the Technical Support Center will assume the functions of the Emergency Control Center during the time required to set up the alternate ECC.

24. Reference: Section 7.1.5, Page 2:7.1-2

Comment

Specify the expected travel time between the interim TSC and control room.

Response

Section 7.1.5 will be revised to state that the expected travel time between the interim TSC and the control room is approximately 3 to 4 min.

25. Reference: Section 7.1.7, Page 2:7.1-4

Comment

How will the ECC receive the meteorological data required to perform its functions?

Response

On an interim basis, the ECC will receive meteorological data from the TSC via telephone with an Executone backup. This will be stated on Page 2:7.3-1. Meteorological and effluent monitoring instrumentation readouts will be installed in the ECC by April 1982.

26. Reference: Section 7.2

Comment

Specify the range of the field monitoring team radios.

Response

Section 7.2 will be revised to state that PGE field monitoring team radios will have a range of at least 10 miles.

27. Section 7.3.1.1, Page 2:7.3-1

Comment

Where do instruments on the 33 ft. tower display?

Response

All meteorological instruments display in the control room.

28. Reference: Section 7.3.2.2, Page 2:7.3-7

Comment

Facilities and response times for an alternative laboratory to analyze samples containing large amounts of activity (primary water samples) must be specified.



Response

Page 2:7.3-6 will be revised to state that the USDOE contractor laboratories in Richland, Washington, are available through the IRAP to analyze highly radioactive samples. The response time is estimated by the USDOE to be less than 24 hr. from the time that a sample is received.

29. Reference: Table 2:7.3-9

Comment

An instrument for use in very high radiation field should be assigned to the rescue team(s).

Response

Table 2:7.3-9 describes the Teletector Model 6112, which has an upper exposure rate limit of 1000 R/hr. This instrument is available to rescue teams.

30. Reference: Section 8.1.1, Page 2:8.1-1

Comment

Describe how personnel will demonstrate the ability to perform their assigned tasks (qualification) and how it will be documented.

Response

Section 8.1.1 will be revised to state that personnel will demonstrate their ability to perform their assigned tasks through:

1. Practical drills
2. Annual exercises of the RERP.

Drills will consist of a hands-on demonstration of the ability to perform assigned emergency tasks. During the practical drills, on-the-spot correction of the erroneous performance shall be made and a demonstration of the proper performance offered by the instructor. A record of each individual's performance in training sessions, drills, and exercises shall be kept by the organization conducting the training. Records shall be retained for a period of 5 yr.

31. Reference: Section 8.1.2

Comment

An annual test of the public warning system must be provided.

Response

Section 12.2 of Chapter 1 shall be revised to state that after the system has been installed, an annual test of the public warning system will be provided in conjunction with the annual exercise.

32. Reference: Section 8.1.2.1, Page 2:8.1-5

Comment

The radiological monitoring drill must be revised to include collection of all sample media.

Response

Section 8.1.2.1 will be revised to include collection of all sample media in radiological monitoring drills.

33. Reference: Appendix A

Comment

- A. The agreements with the State and local governments and Coast Guard must be revised to endorse the Plan or updated to reflect the provisions of the Plan.
- B. Specify when revised agreements and revised State and local plans will be submitted to the NRC.

Response

- A. All agreements with State and local governments and the U. S. Coast Guard will be updated to reflect the provisions of the RERP as necessary. A list of agreements and revision dates will be contained in Appendix A.
- B. Revised State, county and Coast Guard agreements and plans submitted to the NRC by January 1, 1981.

34. Reference: Appendix C

Comment

Procedures do not need to be included if described and the relationship between the plan and procedure specified.

Response

Implementing procedures will be cross-referenced to sections of the RERP in Appendix C.

35. Reference: General

Comment

- A. The plan submitted to the NRC should not include specific individuals' names or phone numbers.
- B. Provide an updated submittal schedule for those items not contained in the May 1980 draft.

Response

- A. The plan submitted to FEMA and NRC will not include individuals' names or phone numbers.
- B. All items not contained in the May 1980 draft will be submitted to the NRC by January 1, 1981.

## ATTACHMENT 2

### 11.0 PUBLIC EDUCATION

Columbia and Cowlitz Counties shall institute a continuing public education program with the concurrence of the Oregon DOE and Washington DES to ensure that members of the public within the 10-mile plume exposure EPZ around the Trojan Nuclear Plant are: (a) able to recognize radiological emergency notification (eg, sirens); and (b) knowledgeable of the proper, immediate actions (eg, return to home, close windows and turn on radio) to be taken. This program shall include education on protective actions to be taken if shelter is prescribed and the general procedures to follow if an evacuation is required. The program shall inform the public of the conditions under which they are not to evacuate, but take shelter in their homes and wait for instructions on the radio.

Columbia County Office of Emergency Services, Oregon Department of Energy, Cowlitz County Department of Emergency Services and PGE shall cooperate in conducting the program, which shall include:

- 1) Public meetings
- 2) Press briefings
- 3) Annual mailouts of a public education brochure
- 4) A continuing education program.

#### 11.1 PUBLIC MEETINGS

Coincident with the implementation of the plan, public meetings will be held in Columbia and Cowlitz Counties to inform the public of the existence of the plan and of the information and instructions contained within the public education brochure (Section 11.3). The meetings will be publicized in advance to allow interested members of the public within the plume exposure EPZ an opportunity to attend.

## 11.2 PRESS BRIEFINGS

As part of the public education and training programs, news media briefings will be held in the local area of the Plant and in the vicinity of the State EOCs coincident with the issuance of the public education brochure and annually thereafter. The objectives of the briefings are to:

- 1) Provide the local news media with an overview of the plan.
- 2) Provide training for the news media as to their roles and responsibilities during an emergency at the Trojan plant.
- 3) Provide additional public education, via the news media, on the plan itself, the emergency notification system and the actions the public are to take in the event of an emergency.

The local news media will include newspapers, radio and television stations with coverage within the plume exposure EPZ.

## 11.3 PUBLIC EDUCATION BROCHURE

The principal means of public education will be the public education brochure. The public education brochure will be mailed out to all residences within the plume exposure EPZ coincident with the implementation of the plan and approximately annually thereafter. The brochure will contain the following information:

- 1) A description of the Trojan Nuclear Plant.
- 2) Basic information about radiation and its effects on humans.

- 3) Identification of the emergency notification system and emergency radio station.
- 4) Instructions as to the actions to take:
  - a) Immediately when the notification system is activated (eg, go indoors, close doors and windows, and turn on radio).
  - b) To insure maximum protection if sheltering is ordered.
  - c) If evacuation is ordered.
- 5) Instructions for parents with school-age children.
- 6) Maps showing evacuation routes and directions.

The brochure will be sized to fit inside a telephone book and will also be made available at the local PGE offices in St. Helens and Rainier, Oregon, and the Trojan Visitors Information Center. A sample of the public education brochure to be distributed initially to the public is shown in Appendix 1-C.

#### 11.3.1 Special Populations

In addition to mailouts to all residences, public education brochures will be mailed to special populations, including:

- 1) Schools and day care centers
- 2) Hospitals and nursing homes
- 3) Motels and hotels
- 4) Large industries.

These mailouts will consist of packets of brochures, with a cover letter to the administrator or person in charge, instructing them to make the brochures available to their workers and/or tenants. Motel and hotel owners will be instructed to make the brochure available to lodgers.

A special program has been developed for boaters on the Columbia River. If there is an accident requiring evacuation (the only protective action for boaters), the U. S. Coast Guard will notify boaters by helicopter that they are to evacuate the river and will drop leaflets which direct the boaters to appropriate boat ramps and include a map showing evacuation routes (see Section 6.4 of Chapter 2). In addition, many boaters in the plume EPZ reside in the area and will receive the public education brochure.

#### 11.4 CONTINUING PUBLIC EDUCATION PROGRAM

In addition to the initial press briefings and public meetings, and the annual public education brochure mailout, a continuing public education program will be developed by the Columbia County Office of Emergency Services, the Oregon Department of Energy, the Cowlitz County Department of Emergency Services and PGE. The program will consist of a slide show presentation, and will be suitable for presentation to schools, civic groups and other organizations. The presentation will be included in the education program operated out of the Trojan Visitors Information Center and will also be available to Columbia and Cowlitz County Emergency Services personnel.

## ATTACHMENT 3

TABLE 2:5.2-1

## AUGMENTATION OF OFF-HOURS SHIFT EMERGENCY ORGANIZATION

Function Area	Personnel Assignments					
	Off-Hours Shifts			As Augmented Within 60 Min.		
	Location	Position Title	Manning <sup>[a]</sup>	Location	Position Title	Manning <sup>[a]</sup>
Plant Operations	Control Room	Shift Supervisor	1	Control Room	Shift Supervisor	1
		Shift Technical Advisor	1		Shift Technical Advisor	1
		Control Operator	1		Control Operator	1
		Assistant Control Operator	1		Assistant Control Operator	1
		Auxiliary Operators A, B and C	3		Auxiliary Operators A, B and C	3
Dose Assessments	Control Room	Assistant Control Operator	1	TSC <sup>[b]</sup>	Duty Manager, Technical Services	1
		Auxiliary Operator A	1		Duty Maintenance Supervisor	1
					Engineering Emergency Team	2
Determination of Recommended Protective Actions	Control Room	Shift Supervisor	1	TSC	Duty Plant General Manager	1
Offsite Communications:						
Notification	Security Building	Security Watch Supervisor	1	ECC	Duty Manager, Plant Services	1
Updates	Control Room	Shift Supervisor	1	ECC	Duty Manager, Plant Services	1

See Sheet 4 of 4 for footnotes.



TABLE 2:5.2-1

Function Area	Personnel Assignments					
	Off-Hours Shifts			As Augmented Within 60 Min.		
	Location	Position Title	Manning <sup>[a]</sup>	Location	Position Title	Manning <sup>[a]</sup>
Plant Security	Security Building	Security Watch Supervisor	1	ECC	Security Watch Supervisor	1
		Security Personnel	[c]		Security Personnel	[c]
Personnel Accountability and Site Access Control	Security Building	Security Watch Supervisor	1	ECC	Security Watch Supervisor	1
Effluent Release Measurements (in Order of Priority) <sup>[d]</sup>						
A. 1) Measurement of noble gas release rate from dose rate on sample line <sup>[e]</sup>	In Plant	C&RP Technician	1	In Plant	C&RP Technician	2
2) Measurement of gross iodine release rate using dose rate from grab sample of effluent	In Plant	C&RP Technician	1	In Plant	C&RP Technician	2
B. Measurement of dose rate outside Containment <sup>[f]</sup>	In Plant (or Out of Plant)	C&RP Technician	1	In Plant (or Out of Plant)	C&RP Technician	2

See Sheet 4 of 4 for footnotes.

TABLE 2:5.2-1

Function Area	Personnel Assignments					
	Off-Hours Shifts			As Augmented Within 60 Min.		
	Location	Position Title	Manning <sup>[a]</sup>	Location	Position Title	Manning <sup>[a]</sup>
C. Measurement of whole body dose rate at Exclusion Area Boundary <sup>[g]</sup>	Out of Plant	C&RP Technician	1	Out of Plant	C&RP Technician	2
D. Field Monitoring	-	-	-	Out of Plant	Field Monitoring Team <sup>[h]</sup>	2
E. Gamma Spectroscopy Analysis of grab samples	-	-	-	In Plant	C&RE Technicians	2
Radiological Monitoring and Decontamination of Onsite Personnel Being Evacuated	In Plant	C&RP Technician <sup>[i]</sup>	1	In Plant	C&RP Technician	2
	ECC			ECC	C&RP Technician <sup>[j]</sup>	2
First Aid	In Plant	C&RP Technician <sup>[k]</sup>	1	In Plant	C&RP Technician	2
Fire Fighting	In Plant	Designated Licensed Operator	1	In Plant	Designated Licensed Operator	1
		Security Personnel	4 <sup>[l]</sup>		Security Personnel	4 <sup>[l]</sup>
Repair and Corrective Actions	In Plant	Auxiliary Operator B	1	In Plant	Maintenance Emergency Team	2

See Sheet 4 of 4 for footnotes.

TABLE 2:5.2-1

Function Area	Personnel Assignments					
	Off-Hours Shifts			As Augmented Within 60 Min.		
	Location	Position Title	Manning <sup>[a]</sup>	Location	Position Title	Manning <sup>[a]</sup>
Technical Support of Plant Operations and Direction of Emer- gency Organization	-	-	-	TSC	Duty Plant General Manager	1
					Duty Manager, Technical Services	1
					Duty Maintenance Supervisor	1
					On-call Shift Technical Advisor	1

[a] Manning values indicate total number of persons of each position onsite, not number performing a particular task (ie, one person may perform more than one task). Augmented manning values indicate total number of persons guaranteed to be onsite within 60 min.

[b] Until activation of dose assessment capability at ECC.

[c] As described in Trojan Security Plan.

[d] "In order of priority" means that A. should be attempted before B., and B. before C., etc.

[e] To be done only if PRMs are offscale or cannot be used.

[f] Measurement can be taken either in-Plant at Containment wall or out of Plant at 50-ft. distance.

[g] This is only a quick measurement to allow estimation of release rates; it is not the same as field monitoring.

[h] First two C&RP Technicians arriving at ECC from offsite.

[i] C&RP Technician will perform decontamination only (if not needed for effluent release measurements); all Plant personnel are trained to perform self-monitoring for contamination.

[j] As available if not needed for in-Plant duties.

[k] As available if not needed for effluent release measurements.

[l] Indicates number of security personnel on fire brigade, not total number onsite.

ATTACHMENT 4

OFFSITE DOSE CALCULATION MODELS

Equations (6-2) and (6-6) of Section 6.2.2.1 are based on the semi-infinite cloud model:

$$R_w = (0.23E_\beta + 0.25E_\lambda) \frac{Q_G(u_x/Q)}{u} * 3600 \text{ (rem/hr) (Ref: FSAR Section 15.5.1.2)}$$

Equations (6-3) and (6-7) are based on the standard inhalation dose model:

$$R_I = Q_I * Br * DCF_T * \left(\frac{u_x/Q}{u}\right) * 3600 \text{ (rem/hr) (Ref: FSAR Section 15.5.1.3)}$$

where:

$E_\beta$  = average beta energy, Mev

$E_\lambda$  = average gamma energy, Mev

Br = breathing rate (m<sup>3</sup>/sec)

DCF<sub>T</sub> = Inhalation dose conversion factor in thyroid  
(rem/Ci)

3600 = sec/hr

$Q_I/Q_G$  = release rates of iodine and noble gases  
(Ci/sec)

u = wind speed (m/sec)

$u_x/Q$  = Atmospheric dispersion factor, (1/m<sup>2</sup>)

For locations within the exclusion area, a conservative  $u_x/Q$  value of  $8.6E-4$  1/m<sup>2</sup> is assumed = building wake (0.5/2340 m<sup>2</sup>). (Ref: FSAR Section 2.3.4.)