(14)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

April 25, 1984

NOTE TO: Lawrence J. Chandler
Deputy Assistant Chief Hearing Council
Office of the Executive Legal Director

FROM: Edward L. Jordan, Director
Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement

SUBJECT: DIABLO CANYON - COMMISSION ORDER REGARDING CONSIDERATION OF EARTHQUAKES AND EMERGENCY PLANNING

This is in reply to ELD's April 9, 1984 request. Enclosed is a proposed staff response to Issues 1 and 2 of the subject order.

Edward L. Jordan, Director
Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement

Enclosure:
Response to Issues 1 & 2

cc: R. C. DeYoung, IE
J. M. Taylor, IE
S. A. Schwartz, IE
J. N. Grace, IE
D. B. Matthews, IE
F. G. Pagano, IE
K. Perkins, IE
John B. Martin, Region V
Robert Minogue, RES
Robert Bernero, RES

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Issue 1

> "Whether NRC emergency planning regulations can and should be read to require some review of the complicating effects of earthquakes on emergency planning for Diablo Canyon;"

Consistent with the Commission ruling in the San Onofre case (CLI-81-33), the staff still considers that the NRC regulations do not, and should not, contain requirements for considering the effects of earthquakes on emergency planning for nuclear power plants. The applicable emergency planning regulations in 10 CFR 50.47 and in Appendix E to Part 50 contain no explicit reference to any seismic considerations.

Although previous correspondence to the Commission contained documentation of the basis for the staff's position, it also contained a staff statement which may have clouded whether the staff continued to hold to the above position and whether this is a closed item. The staff statement appeared in the memorandum dated January 13, 1984 to the Chairman from William J. Dircks:

> "Further clarification or refinement of current requirements and guidance might reduce the impairment of emergency response to consequences resulting from earthquakes beyond the SSE, but the value of such reduction is uncertain."

This statement can be generalized to almost any area having an impact on protection of the public health and safety. However, because of the cost benefit considerations, this statement was in no way intended to precipitate changes to the NRC's rules and regulations regarding emergency planning. Rather, it was part of a summary statement characterizing the staff's consideration of the subject--it was not a recommendation to promulgate additional regulatory requirements.

The staff holds to the treatment of this subject as presented in the January 13 memorandum, including the summary conclusions, but wishes to iterate a conclusion reached earlier in that same memorandum:

> "For those risk dominant earthquakes which cause very severe damage to both the plant and the offsite area, emergency response would have marginal benefit because of its impairment by offsite damage. The expenditure of additional resources to cope with seismically caused offsite damage is of doubtful value considering the modest benefit in overall risk reduction which could be obtained."

Based on our previous consideration of this issue, the staff believes that the current residual risk is acceptable and that a review of the complicating effects of earthquakes on emergency planning for Diablo Canyon is not required nor worthy of further consideration. The staff also concludes that no additional regulations are required in the area of emergency planning to address the potential impacts of seismic events on emergency response capability.

Issue 2

"If the answer to Issue 1 is no, should such a review be performed for Diablo Canyon on the ground that it presents special circumstances under 10 CFR 2.758. If so, what are the special circumstances that would permit consideration of the effects of earthquakes on emergency planning for Diablo Canyon?"

The seismic design criteria for Diablo Canyon were selected based on seismic activity and severity for that site. These criteria resulted in the safety related portions of the reactor facility being designed and constructed to withstand a more severe earthquake than reactors sited in areas of lower seismic activity. Because of accomodation of site specific seismic considerations in the reactor facility design, the staff is of the view that there is no ground for application of special circumstances under 10 CFR 2.758.

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of	)	
	)	
PACIFIC GAS AND ELECTRIC COMPANY	)	Docket Nos. 50-275 OL
	)	50-323 OL
(Diablo Canyon Nuclear Power Plant Units 1 and 2)	)	
	)	

NRC STAFF'S MEMORANDUM REGARDING
CONSIDERATION OF EFFECTS OF
EARTHQUAKES ON EMERGENCY PLANNING (CLI-84-4)

Lawrence J. Chandler
Special Litigation Counsel

May 3, 1984

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of	)	
	)	
PACIFIC GAS AND ELECTRIC COMPANY	)	Docket Nos. 50-275 OL
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NRC STAFF'S MEMORANDUM REGARDING CONSIDERATION OF EFFECTS OF EARTHQUAKES ON EMERGENCY PLANNING (CLI-84-4)

Lawrence J. Chandler
Special Litigation Counsel

May 3, 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of	)	
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PACIFIC GAS AND ELECTRIC COMPANY	)	Docket Nos. 50-275 OL
	)	50-323 OL
(Diablo Canyon Nuclear Power Plant Units 1 and 2)	)	

NRC STAFF'S MEMORANDUM REGARDING CONSIDERATION OF EFFECTS OF EARTHQUAKES ON EMERGENCY PLANNING (CLI-84-4)

I. INTRODUCTION

By Order issued on April 3, 1984, the Commission requested that the parties to this proceeding provide their views on the following issues:

> 1. whether NRC emergency planning regulations can and should be read to require some review of the complicating effects of earthquakes on emergency planning for Diablo Canyon;
>
> 2. if the answer to question (1) is no, should such a review be performed for Diablo Canyon on the ground that it presents special circumstances under 10 C.F.R. § 2.758. If so, what are the special circumstances that would permit consideration of the effects of earthquakes on emergency planning for Diablo Canyon?
>
> 3. if the answer to (1) or (2) is yes, then the following information should be provided:
>
> > (a) The specific aspects of emergency planning at Diablo Canyon on which the impacts of earthquakes should be considered.
> >
> > (b) The specific deficiencies in the consideration already given to the impacts of earthquakes on emergency plans for Diablo Canyon. . . .
> >
> > (c) The appropriateness of limiting to the Safe Shutdown Earthquake the magnitude of the largest earthquake to be considered.
> >
> > (d) The substantive criteria for reviewing the effects of earthquakes on emergency planning.

(e) The necessity for litigation of this matter, including the general scope of (i) proceedings, if any, that should be held, and (ii) issues that should be litigated.

CLI-84-4, slip op. at 2-3.

The views of the NRC staff follow.

II. DISCUSSION

Issue 1

Whether NRC emergency planning regulations can and should be read to require some review of the complicating effects of earthquakes on emergency planning for Diablo Canyon.

NRC Staff's Views

Consistent with the Commission's ruling in the San Onofre proceeding, CLI-81-33, 14 NRC 1091 (1981), the NRC's regulations cannot and should not be read to require review of the complicating effects of earthquakes on emergency planning for nuclear power plants including Diablo Canyon. The applicable emergency planning regulations in 10 C.F.R. § 50.47 and in Appendix E to 10 C.F.R. Part 50 contain no explicit reference to any seismic considerations. See, San Onofre, supra, 14 NRC at 1092. Moreover, NUREG-0654/FEMA-REP-1, Rev. 1, (NUREG-0654), which provides guidance for implementing the foregoing regulations, contains no provisions for substantive protective measures or actions or for evaluations which are expressly intended to address the complicating effects of earthquakes.[1/]

The bases for the Staff's position were alluded to in the Staff memorandum of January 13, 1984, attached to the Commission's Order. There

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1/ Those provisions of NUREG-0654 cited by the Staff in its January 13, 1984 memorandum that do explicitly address seismic considerations, II.H.5.a and II.H.6.a, do so from the standpoint of equipment necessary to determine the occurrence of an initiating event.

appears to be some misunderstanding of the Staff's position; contrary to the Commission's statement (Order at 2), the Staff does not "believe that some specific consideration of the effects of seismic events on emergency planning may be warranted for plants located in areas of relatively high seismicity." While such statement was made by the Staff in its 1982 memorandum, the subsequent 1984 memorandum intended to make clear that such consideration is no longer deemed warranted.[2/] The rationale underlying the Staff's position must be understood in light of the different levels of earthquakes which were addressed by the Staff in the January Memorandum - earthquakes up to the Operating Basis Earthquake (OBE); earthquakes above the OBE but less than or equal to the Safe Shutdown Earthquake (SSE), and earthquakes exceeding the SSE. As discussed therein, the probability of the coincident occurrence of an earthquake up to the SSE and an independently caused accident with offsite radiological releases sufficient to warrant emergency response is sufficiently low (i.e. less than 10^{-6}) that it need not be considered in emergency planning. (Cf., Public Service Electric and Gas Company, Atlantic City Electric Company (Hope Creek Generating Station, Units 1 and 2), ALAB-429, 6 NRC 229, 234 (1977) (facility need not

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2/ While the Staff states, in the January 13, 1984 Memorandum, that "Seismic events are considered and evaluated to a limited extent as part of our current emergency planning reviews," the Staff's efforts in this regard, are informal and do not reflect a required licensing element which must be satisfied in order to warrant issuance of a license. Such reviews are of necessity performed on an ad hoc basis, there being no established review criteria. Stated otherwise, deficiencies found in this area may, in circumstances not present here, constitute a basis for imposing additional requirements on the basis of "special circumstances" but in the absence of such special circumstances, no further consideration or requirements are warranted. See, e.g., 10 C.F.R. § 2.758. It is with this in mind that the Staff cited NUREG-0654, II.D-4 and II.J.10.k in the January 13 Memorandum (at 4; see also Memorandum at 5).

be designed for event, the probability of which is less than about 10^{-6}.)) (See January 13, 1984 Memorandum at 3).[3/]

The third level of earthquake includes events exceeding the SSE. These events, much as an OBE or SSE, are considered as initiating events (see NUREG-0654, Appendix 1 at 1-13, item 15.a., and 1-19, item 7.) The probability of such events is significantly less than the probability of an SSE, but the absolute probabilities of events at and beyond the SSE level are subject to large uncertainties. (Id.) Nevertheless, from a risk perspective, the Staff has concluded:

3/ For Diablo Canyon, the OBE is 0.2g and the SSE is 0.75g. While the OBE is considered an initiating event for purposes of emergency planning (see NUREG-0654, Appendix 1, at 1-5, item 13.a.), its occurrence would not itself be expected to cause an accident leading to a radiological release. The return period for such event at Diablo Canyon is approximately 275 years, ALAB-644, 13 NRC 903, 992 (1981), or, stated another way, the frequency of an OBE at Diablo Canyon is approximately 3.6×10^{-3} per year. The frequency of occurrence of a severe core damage or core melt event with offsite releases sufficient to require emergency response is generally estimated to be about 1×10^{-5} per year. See e.g., Technical Guidance For Siting Criteria Development, NUREG/CR-2239, SAND81-159 (1982), Foreword, also at 2-11, n.a., and Table C-1. Thus, the combined frequency of occurrence of an OBE and an independently caused severe core damage or core melt event with offsite consequences is at most the product of the frequencies or approximately 10^{-8} per year. Of course, if one wished to calculate this value with precision, one would also have to factor in the conditional probability of the coincidental occurrence of these two events which would significantly reduce the probability of occurrence.

As with the OBE, the occurrence of an SSE, while an initiating event for purposes of emergency planning, (see NUREG-0654, Appendix 1, at 1-10, item 17.a), would not in and of itself be expected to result in the occurrence of an accident with offsite radiological consequences. The frequency of occurrence of the SSE is typically estimated to be on the order of one in a thousand or one in ten thousand per year. (January 13, 1984 Memorandum at 3.) The frequency of the coincident occurrence of the SSE and an independently caused accident with potential offsite radiological consequences in approximately one in a million per year or less. (Id.)

> Based upon the PRA results, the staff finds that for most earthquakes (including some earthquakes more severe than the SSE) the power plant would not be expected to pose an immediate offsite radiological hazard. For earthquakes which would cause plant damage leading to immediate offsite radiological hazards but for which there would be relatively minor offsite damage, emergency response capabilities around nuclear power plants would not be seriously affected. For earthquakes which cause more severe offsite damage, such as, for example, disabling a siren alerting system, the earthquake itself acts as an alerting system. For those risk dominant earthquakes which cause very severe damage to both the plant and the offsite area, emergency response would have marginal benefit because of its impairment by offsite damage. The expenditure of additional resources to cope with seismically caused offsite damage is of doubtful value considering the modest benefit in overall risk reduction which could be obtained.

January 13, 1984 Memorandum at 5.[4/]

Based on its consideration of this issue, the Staff believes that the current residual risk is acceptable and that consideration of the complicating effects of earthquakes on emergency planning for Diablo Canyon is not required.

4/ Although the Staff's previous memoranda to the Commission contained documentation of the basis for the staff's position, it also contained a staff statement which may have clouded the issue of whether the staff continued to hold the above position. The staff statement appeared in the memorandum dated January 13, 1984 to the Chairman from William J. Dircks:

> "Further clarification or refinement of current requirements and guidance might reduce the impairment of emergency response . . . [resulting from earthquakes beyond the SSE,] but the value of such reduction is uncertain." Memorandum at 6. See also, Memorandum at 5.
>
> This statement can be generalized to almost any area having an impact on protection of the public health and safety. However, because of the cost benefit considerations, this statement was in no way intended to recommend changes to the NRC's regulations regarding emergency planning. See January 13, 1984 Memorandum at 5. Rather, it was part of a summary statement characterizing the staff's consideration of the subject.

Issue 2

If the answer to question (1) is no, should such a review be performed for Diablo Canyon on the ground that it presents special circumstances under 10 C.F.R. § 2.758. If so, what are the special circumstances that would permit consideration of the effects of earthquakes on emergency planning for Diablo Canyon?

NRC Staff's Views

The seismic design criteria for Diablo Canyon were selected based on seismic activity and the severity thereof for that site. These criteria resulted in the safety-related portions of the reactor facility being designed and constructed to withstand a more severe earthquake than reactors sited in areas of lower seismic activity. Because of the accommodation of site specific seismic considerations in the reactor facility design, the Staff is of the view that no basis has been shown in this proceeding for application of special circumstances under 10 C.F.R. § 2.758. See, ALAB-728, 17 NRC 777, 795-796 (1983); LBP-81-17, 13 NRC 1122 (1981) (the proximity of Diablo Canyon to the Hosgri fault does not give rise to special circumstances warranting analysis of Class 9 accidents). It also warrants mention that there is no significant difference in the seismic considerations applicable to Diablo Canyon and San Onofre pertinent to this issue; both facilities are located in California in the near field of potentially high magnitude earthquakes. None of the parties has previously established any factual distinction that would otherwise warrant a departure from the Commission's San Onofre decision.

Issue 3

If the answer to (1) or (2) is yes, then the following information should be provided:

(a) The specific aspects of emergency planning at Diablo Canyon on which the impacts of earthquakes should be considered.

(b) The specific deficiencies in the consideration already given to the impacts of earthquakes on emergency plans for Diablo Canyon. . . .

(c) The appropriateness of limiting to the Safe Shutdown Earthquake the magnitude of the largest earthquake to be considered.

(d) The substantive criteria for reviewing the effects of earthquakes on emergency planning.

(e) The necessity for litigation of this matter, including the general scope of (i) proceedings, if any, that should be held, and (ii) issues that should be litigated.

NRC Staff's Views

In light of the Staff's responses to Issues 1 and 2, no response to Issue 3 is necessary. If, however, the Commission desires, the Staff will provide a response to this issue.5/

5/ Prior to the Commission's decision in San Onofre, the Staff filed several documents which provide some perspective on Issue 3(a), (c) and (d). In particular, we would draw the Commission's attention to NRC Staff Views With Respect To Questions Posed By The Atomic Safety and Licensing Board In The Area of Emergency Planning, June 22, 1981, at 2-10, and attached Affidavit of Brian K. Grimes at 1-7; Affidavit of Robert T. Jaske (FEMA) transmitted by letter from Richard K. Hoefling to James L. Kelley, et al. dated June 23, 1981, at 2; NRC Staff Comments With Respect To the Board's Order of July 29, 1981 Raising An Issue Concerning Earthquakes and Emergency Planning, August 4, 1981 and attached Affidavit of Brian K. Grimes; and, NRC Staff's Response To Applicants' Request For Certification To The Nuclear Regulatory Commission, dated August 31, 1981. Copies of the foregoing are attached.

IV. CONCLUSION

Based on the foregoing, it is the Staff's position that: (1) the Commission's regulations cannot and should not be read to require consideration of the complicating effects of earthquakes on emergency planning for Diablo Canyon, and (2) such review is not warranted for Diablo Canyon on the basis of special circumstances under 10 C.F.R. § 2.758.

Respectfully submitted,

Lawrence J. Chandler
Special Litigation Counsel

Dated in Bethesda, Maryland
this 3rd day of May 1984

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 23, 1981

James L. Kelley, Esq., Chairman
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Mrs. Elizabeth B. Johnson,
Administrative Judge
Oak Ridge National Laboratory
P.O. Box X, Building 3500
Oak Ridge, TN 37830

Dr. Cadet H. Hand, Jr.,
Administrative Judge
c/o Bodega Marine Laboratory
University of California
P.O. Box 247
Bodega Bay, CA 94923

In the Matter of
Southern California Edison Company, et al.
(San Onofre Nuclear Generating Station, Units 2 and 3)
Docket Nos. 50-361 OL, 50-362 OL

Dear Licensing Board Members:

On June 22, 1981, the NRC Staff served the "NRC Staff Views with Respect to Questions Posed by the Atomic Safety and Licensing Board in the Area of Emergency Planning." The "Affidavit of Robert T. Jaske" is an attachment to that pleading but was not included in the materials served. Enclosed is a copy of that affidavit.

Sincerely,

Richard K. Hoefling

Richard K. Hoefling
Counsel for NRC Staff

Enclosure
As Stated

cc: See Page Two

2pp

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cc w/encl:
Janice E. Kerr, Esq.
J. Calvin Simpson, Esq.
Lawrence Q. Garcia, Esq.
David R. Pigott, Esq.
Samuel B. Casey, Esq.
John A. Mendez, Esq.
Edward B. Rogin, Esq.
Alan R. Watts, Esq.
Daniel K. Spradlin
Richard J. Wharton, Esq.
Mrs. Lyn Harris Hicks
Charles R. Kocher, Esq.
James A. Beoletto, Esq.
David W. Gilman
Robert G. Lacy
Phyllis M. Gallagher, Esq.
Charles E. McClung, Jr., Esq.
A. S. Carstens
Atomic Safety and Licensing Board Panel
Atomic Safety and Licensing Appeal Board
Secretary

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
SOUTHERN CALIFORNIA EDISON COMPANY	)	Docket Nos. 50-301 O.L
	)	50-362 O.L.
(San Onofre Nuclear Generating	)	
Station, Units 2 and 3	)	
	)	

Affidavit of Robert T. Jasko

I am the Acting Director, Radiological Emergency Preparedness Division, Federal Emergency Management Agency.

This affidavit is intended to set forth the position of the Radiological Emergency Preparedness (REP) staff of the Federal Emergency Management Agency (FEMA) with respect to areas of concern identified by the Licensing Board on the above captioned proceeding with respect to the proper determination of Emergency Planning Zones and to the proper consideration to be given to off-site planning for earthquakes.

FEMA has applied the 10 and 50 mile Emergency Planning Zone sizes in accordance with NUREG-0654/FEMA-REP-1 REV-1 and the Nuclear Regulatory Commission's regulations, specifically 10 CFR 50.47 and 10 CFR Part 50, Appendix E. These zones are established by emergency planning officials and are examined for adequacy by the FEMA REP staff when conducting its review of site-specific plans. With respect to the detailed application of EPZs to specific sites insofar as Federal actions are concerned, the FEMA REP staff interperts the zone sizes as being roughly circular with allowable variations in demography, topography, land characteristics, access routes and local jurisdictional bounderies to assure that the boundaries are clearly defined, can be readily communicated to the public and account for local conditions near the nominal 10 mile or 50 mile boundary.

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With respect to earthquakes it is the FEMA REP staff view that earthquake effects must be taken into account in the off-site emergency plans, given the seismic situation in California. The FEMA REP staff accepts as adequate for planning purposes an earthquake not more severe than the Safe Shutdown Earthquake (SSE) as defined in 10 CFR Part 100.

No special seismic design of public alerting and notification systems or environmental capability is contemplated. In its evaluation, the FEMA REP staff believes there should be assurance of continued communication between the power station and outside agencies in order to obtain damage estimates both to the site and to transportation and communication facilities off-site as part of the coordinated response. Emergency Operating Centers (EOC) of each of the jurisdictions involved in the emergency planning effort should have suitably distant backup facilities to permit continued functioning of a jurisdiction's emergency response including notification to the public, given the possibility of failure of a primary EOC or its associated communications.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 23, 1981.

Robert T. Jaske

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KPerkins
NRC/FEMA
Steering Commit

BGrimes
FPagano
PTam
TMcKenna
GErtter (EDO-09707)
SCavanaugh (NRR-4375)
EPeyton
Attorney, OELD

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RVollmer

MEMORANDUM FOR: Chairman Ahearne
Commissioner Gilinsky
Commissioner Hendrie
Commissioner Bradford

THRU: William J. Dircks (Signed) William J. Dircks
Executive Director for Operations

FROM: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

SUBJECT: EXTREME NATURAL PHENOMENA CONSIDERATIONS IN FEMA EMERGENCY PREPAREDNESS REVIEWS

This is to inform the Commissioners that the Federal Emergency Management Agency (FEMA) is being requested to provide assistance in reviewing the impact of earthquake and volcano eruption on emergency plans for certain sites. A copy of the letter sent to FEMA is attached for your information. This action is being taken in response to the October 9, 1980 memo from the Secretary's office regarding the considerations of volcanic activity in the Trojan site area and also in response to interest expressed in earthquake hazards at California sites.

The evaluations received from FEMA will allow us to address the volcanic eruption issue in evaluation of the Trojan emergency plans and the earthquake issue in our evaluation of the emergency plans at and around California nuclear power plant sites.

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosure:
Memo dtd. NOVEMBER 3 1980
to FEMA

cc w/enclosure:
OPE
OGC
SECY

XA

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CF/SUBJ/ID&R-S-1EM

OFFICE	NRR:EPPO	OELD	NRR:D/DIR	NRR:DIR	EDO	
SURNAME	BGrimes:esp	J.R. GRAY	EGCase	HRDenton	WJDircks	
DATE	10/23/80	10/27/80	10/ /80	10/ /80	10/ /80	

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NOVEMBER 3 1980

MEMORANDUM FOR: John McConnell, Assistant Associate Director for Population Preparedness, FEMA

FROM: Brian K. Grimes, Program Director, Emergency Preparedness Program Office, NRR

SUBJECT: REQUEST FOR FEMA ASSISTANCE TO REVIEW EFFECTS OF EARTHQUAKE AND VOLCANIC ERUPTION ON STATE/LOCAL EMERGENCY PLANS

As we have discussed, in the course of our review of licensed utility emergency plans, volcanic eruptions and catastrophic earthquakes have emerged as two issues of high public interest. To insure that these issues are being adequately addressed, we request that FEMA review the State and local planning efforts for the areas around California nuclear power plant sites and the Trojan site with respect to the complications which might arise in the event of extreme natural phenomena and how these can best be addressed in the planning process.

In conjunction with the Trojan plant evaluation for compliance with the new NRC emergency planning regulations, the Commission has directed that the problems of effective protective measures and evacuation during or soon after volcanic eruption (giving due consideration to the possible effects of severe ashfall, mudflows, floods, and landslides) be closely examined. In this regard, we are requesting the licensed utility to revise its emergency plan to explicitly address the possible problems associated with an eruption. This will include considerations of site access during an emergency, assured communications and appropriate revision of the evacuation time estimates used in protective action determinations. The Oregon State Department of Energy, has already addressed the feasibility of implementing effective protective measures during an eruption (enclosure 1).

The earthquake issue has particular relevance to nuclear plants in California (i.e., Diablo Canyon, Humboldt Bay, Rancho Seco and San Onofre). We understand from the FEMA news release of September 29, 1980 that FEMA will lead a team consisting of personnel from Federal, State and local agencies to accelerate efforts towards improving the state of readiness to cope with potential major earthquakes in California. In this regard we request that FEMA include in its evaluation of offsite emergency plans, a qualitative evaluation of complicating factors which might be caused by earthquakes for California nuclear power reactor sites. Specifically,

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such evaluation should include the impacts on State/local emergency plans due to potential disruption of communications networks and evacuation routes. In this regard, we are requesting the affected licensees to revise their emergency plans to explicitly address the possible problems associated with an earthquake to include the type of potential complications discussed above for the Trojan facility.

Thank you for your assistance in these matters.

Brian K. Grimes, Program Director
Emergency Preparedness Program Office
Office of Nuclear Reactor Regulation

Enclosure:
Oregon DOE Study
Report Measures

Docket No. 50-344

Department of Energy

LABOR & INDUSTRIES BUILDING, ROOM 102, SALEM, OREGON 97310 PHONE 378-4040

9/15/80

To: Paul Yundt, Trojan

[redacted]

Robert Engelken, NEC, Region V
Don Hull, ODOGMI
Harvey Latham ODES
Marshall Parrott, OSHD

From: Bill Dixon, ODOE

On August 8, 1980, the Physicians for Social Responsibility (PSR) transmitted their petition to EFSC requesting the Trojan Site Certificate be withdrawn due to volcanic activity at Mt. St. Helens. On September 11, 1980, the EFSC Chairman and ODOE Director responded to the petition via the attached letter and report. If the other EFSC members concur, the petition will be formally denied. The EFSC chairman, ODOE, and PSR will be meeting on September 17, 1980 to discuss this matter.

Ltr. PSE (William Zimmerman) has copies of report.

	ADD:	LE	ADD:	LE
	R BOSNAK	"	H LEFEVRE	"
	H BRAMMER	"	R JACKSON	"
	T McKENNA	"	W BIVINS	"
	B GEARS	"	Y. LI	"
	F PAGANO	"		

ADD'S 1/1

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PDR/ADOL/SO 50-344

VICTOR ATIYEH
GOVERNOR

Department of Energy

LABOR & INDUSTRIES BUILDING, ROOM 102, SALEM, OREGON 97310 PHONE 378-4040

September 11, 1980

Dr. Beth Packer
Portland Chapter of Physicians for
Social Responsibility
1715 S.E. Pine
Portland, OR 97214

Dear Dr. Packer:

At the Energy Facility Siting Council (EFSC) meeting on August 8, 1980 you resubmitted a petition from the Portland Chapter of Physicians for Social Responsibility (PSR) requesting that the site certificate for Trojan be immediately revoked due to volcanic activity of Mt. St. Helens. The resubmitted petition was identical to the one you submitted at the July 11, 1980 EFSC meeting except for some additional signatures. The original submittal was responded to by a letter from the EFSC Chairman to you on July 14, 1980. That letter stated that based on review of an Oregon Department of Energy (ODOE) staff report on this matter, EFSC and the ODOE Director had determined that no breach of warranty, failure to comply with EFSC rules or site certificate conditions, or clear and immediate danger to the public exists. A copy of the ODOE staff report was provided to you. In your oral presentation resubmitting the petition you contended that several issues have not been adequately considered by EFSC and ODOE.

The EFSC Chairman and the ODOE Director have evaluated your verbal contentions and conclude that they do not provide a substantive basis for either revoking Trojan's site certificate or ordering curtailment of operations. Specifically, no breach of warranty, failure to comply with EFSC rules or site certificate conditions, or clear and immediate danger to the public was identified. Also, we do not believe any rules or regulations of the Nuclear Regulatory Commission (NRC) have been violated. Recent actions by NRC to deny similar petitions support this belief. The basis for this decision are documented in the attached report. We will discuss any comments that you have on this issue at our meeting with PSR on September 17, 1980.

At the two EFSC meetings where you submitted the petition, you requested immediate action, but you also called for a scientific approach to address this matter. As the EFSC Chairman stated to you on August 8, 1980, these demands are not consistent. It is unreasonable to pose several technical questions and then demand immediate and carefully considered answers and actions. We urge that if you have further concerns on this matter that you review them with our staff and others knowledgeable in the particular areas of concern. If you have substantive concerns that are not resolved it would then be appropriate to submit them to us for consideration. Such submittal should document in writing your concerns and the basis for them.

Sincerely,

Raphael Wilson

Brother Raphael Wilson
Chairman, EFSC

Lynn Frank

Lynn Frank
Director, ODOE

BW:LF:BD:aj/md
9054A
Attachment

EFSC/ODOE Response
to Additional PSR Concerns Regarding Potential Effects of
Mt. St. Helens Eruptions on Trojan

Background

At the April 1980 Energy Facility Siting Council (EFSC) meeting the Oregon Department of Energy (ODOE) staff presented an evaluation of the potential effects of a volcanic eruption of Mt. St. Helens on the Trojan Nuclear Plant. The ODOE staff concluded that Trojan had been adequately designed for volcanic hazards and that appropriate precautionary measures have been taken or will be implemented such that volcanic activity in conjunction with operation of Trojan does not present an undue risk to the public health and safety. Mt. St. Helens subsequently began experiencing major eruptions on May 18, 1980.

At the July 11, 1980 EFSC meeting Dr. Beth Packer of the Portland Chapter of the Physicians for Social Responsibility (PSR) petitioned EFSC to revoke the Trojan site certificate based on contentions that Trojan was not adequately designed to withstand the effects of volcanic eruptions and that the Trojan emergency response plan was inadequate.

In a letter to Dr. Packer on July 14, 1980, the EFSC Chairman stated that volcanic activity at Mt. St. Helens was being closely monitored to ensure that the safety of Trojan was not degraded. Regarding the PSR petition, he stated that EFSC had reviewed a detailed report prepared by ODOE staff on this subject. The ODOE staff report concluded that Trojan had been properly designed to prevent eruptions of Mt. St. Helens from causing an accident at Trojan. EFSC concluded that the ODOE staff report adequately responded to the PSR contentions. Further, the EFSC concluded that no breach of warranty or failure to comply with EFSC rules or site certificate conditions had been identified. The letter also noted that the ODOE Director concluded that a clear and immediate danger does not exist. The Chairman then encouraged Dr. Packer to provide EFSC with any further specific information she might have that ODOE staff did not adequately consider in the report.

In telegrams dated July 27, 1980 to EFSC and the ODOE Director, Dr. Packer again requested that Trojan be ordered immediately shut down due to volcanic activity of Mt. St. Helens. In a letter to Dr. Packer dated July 28, 1980, the ODOE Director stated that after consultation with the EFSC Chairman, both EFSC and ODOE concluded that the telegrams offered no substantive basis for reaching a conclusion different from the earlier EFSC and ODOE conclusion that no breach of warranty, failure to comply with EFSC rules or site certificate conditions had been identified or that a clear and immediate danger to the public does not exist.

At the August 8, 1980 EFSC meeting, Dr. Packer resubmitted the original PSR petition with additional signatures. The written petition contained no further contentions. However, in her oral presentation, Dr. Packer stated five reasons for resubmitting the petition. These reasons were related to alleged inadequacies in the ODOE staff report of July 14, 1980 and the manner in which it was prepared, and failure of the EFSC to do its duty by allowing the ODOE Director to unilaterally decide on the petition.

Dr. Michael Wall, PSR and Barbara LaMontecella, concerned citizen spoke in support of Dr. Packer's concerns.

Conclusion

EFSC and ODOE have reviewed each of the PSR concerns and conclude that there is no substantive basis for reaching a conclusion different than that previously reached by EFSC and ODOE. On August 5 and 13, 1980, NRC responded to several similar petitions and concluded that "the Trojan site remains suitable from a volcanic hazards viewpoint." In a discussion on August 13, 1980, John Beaulieu, Deputy State Geologist, stated that both Donald Hull, State Geologist, and he continue to believe that the assessment of volcanic hazards assumed during Trojan design remains valid and conservative in view of the actual volcanic activity experienced and therefore they continue to support the earlier EFSC/ODOE conclusion.

Each of the PSR concerns are discussed separately in detail below. The following discussion also refers to the ODOE staff report of July 14, 1980. No information has been developed that would cause ODOE to change that report.

Contention 1: EFSC did not do its duty in evaluating the PSR petition but rather allowed the ODOE Director to unilaterally decide on the petition.

As stated at the July 11, 1980 EFSC meeting, EFSC requested the ODOE staff to prepare a detailed report documenting the earlier conclusions prior to startup of Trojan. The EFSC Chairman stated the report would be distributed to all EFSC members and that he would consult with each member prior to responding to PSR. The ODOE staff completed and delivered the report to the EFSC members on July 13, 1980. The EFSC Chairman consulted with the other EFSC members on July 14, 1980. In a letter to Dr. Packer dated July 14, 1980 the EFSC Chairman stated: "We appreciate your concerns and that you articulated specific areas that required review. We believe the staff has responded to them in their report." Regarding breach of warranty or failure to comply with EFSC rules or site certificate conditions, he stated: "Our reading of your petition did not identify any allegations that such conditions exist."

In response to the PSR telegrams of July 27, 1980, the ODOE Director stated: "I have reviewed this matter again with Brother Wilson. Your telegrams, while reaffirming your earlier concerns, offer no substantive basis for reaching a different conclusion."

At the August 8, 1980 EFSC meeting, the EFSC Chairman and other EFSC members clearly stated to Dr. Packer that they had reviewed this matter and reached the same decision separately from the decision of the ODOE Director.

The above discussion demonstrates that the EFSC reached its own conclusion on the petition.

Contention 2: The ODOE staff report of July 14, 1980 only addressed a simultaneous eruption and radiological accident. PSR intended the following cases be addressed:

a. A radiological accident caused by an eruption.

b. A radiological accident occurring simultaneously with, but not related to, an eruption.

c. Evacuation around Trojan complicated by ashfall, mudflows, and flooding.

The ODOE staff report of July 14, 1980 stated that evacuation during or immediately after a major volcanic eruption with consequences in the vicinity of Trojan could be difficult but that appropriate protective action through either evacuation or sheltering would be possible. This statement applies regardless of whether a radiological accident is caused by an eruption or occurs simultaneously with, but is unrelated to, an eruption.

Regarding ashfall, local and state law enforcement and transportation officials in Washington who experienced the effects of the May 18, 1980 eruption state that although not desirable, it would be possible for people to travel in automobiles on roads during or immediately after a heavy ashfall. These officials likened the effects on road conditions of the May 18, 1980 eruption to be equivalent to or less severe than the effects of recent ice storms.

Regarding mudflows and flooding, these effects may also complicate evacuation but do not make it impossible. The basis for this statement results from an evaluation of the worst-case volcanic induced flood (which has wider area effects than mudflows). For the worst-case volcanic induced floods, (resulting from failure of all three dams on the Lewis River) local portions of Highway 30 and Interstate 5 south of Trojan and large portions of the Longview and Kelso areas could be flooded. However, Highway 30 and Interstate 5 north of Trojan and Highway 411 out of the Longview/Kelso area would remain open. In addition, most of the smaller roads leading away from Trojan would remain open. Therefore, if flooding and mudflows were to occur, they would not foreclose evacuation. As stated in the ODOE staff report of July 14, 1980, to minimize the probability and consequences of this worst-case flood, the water level of at least one of the reservoirs contributing to such flood has been lowered.

Based on the above discussion, evacuation during or immediately after a major volcanic eruption with consequences in the vicinity of Trojan could be difficult but not impossible. However, the discussion of evacuation under such circumstances does not recognize the small probability of a simultaneous accident and eruption or that other protective actions, such as sheltering, may be more appropriate than evacuation. For example, for a single puff release of radioactive noble gases, sheltering would probably result in less radiation exposure than evacuation under such circumstances since sheltering would provide less contact time and possibly better shielding.

As discussed in the ODOE staff report of July 14, 1980 the need to evacuate for radiological reasons during or immediately after an eruption is extremely unlikely for the following reasons:

1. Technical evaluations by ODOE, NRC, and PGE of the potential effects of an eruption upon Trojan conclude there should be no adverse effects upon plant operation.

2. In the event an eruption does affect Trojan operation, the plant can be safely shut down. ODOE and NRC monitor plant operations to ensure appropriate actions are taken.

3. In the event of an eruption that has severe effects in the Trojan area, PGE may decide to shut down Trojan due to the lack of need for power since industrial users may not be operating or difficulty that Trojan employees may experience in driving to the plant.

4. In the event that a radiological accident occurs at the same time or immediately after an eruption, all specific details at that time would be evaluated to determine what, if any, protective actions will be taken. The specific details include the amount, type, and duration of radioactivity released from the plant (if any); the stability of plant conditions and likelihood of future releases; meteorology; population density in direction of release; and road conditions. If protective actions are required, the actions will be chosen on the basis of minimum risk. For the unlikely conditions postulated by PSR, sheltering would probably be chosen as the protective action in lieu of evacuation since:

   a. evacuation could be complicated by the effects of an eruption upon transportation,

   b. sheltering is an effective protective action to reduce radiation exposures,

   c. in general, because of ashfall, people would already be indoors with the windows and doors closed.

Contention 3: The ODOE staff report of July 14, 1980 was hastily drawn up and only the ODOE Director made the decision on the PSR petition.

This contention is similar to contention 1 and therefore the above response applies. Further, ODOE, EFSC, NRC, and PGE began evaluating this subject up to nearly two months prior to the first major eruption on May 18, 1980.

Contention 4a: The ODOE staff report of July 14, 1980 only considered evacuation complicated by ashfall. The complicating effects of mudflows, flooding, food control, and fires need to be considered. The annual evacuation drill should simulate these effects.

This contention is similar to contention 2 and therefore the above response applies. The control of radioactively contaminated foodstuffs could be complicated by the effects of an eruption. On the other hand, the disruption effects of such an eruption would tend to help prevent movement of contaminated foodstuffs to the market. However, as stated above, a simultaneous eruption and radiological accident (especially one releasing large amounts of radioactivity from the plant that would require large-scale control of foodstuffs) is unlikely. The effects of fires in such an event would probably be small and localized. Further, this risk is always present at any other time.

The annual emergency response drill has in the past simulated evacuations. Future drills will include simulation of events which tend to complicate evacuation and of alternate protective actions, such as sheltering, which may be more appropriate.

Contention 4b: The ODOE staff report of July 14, 1980 states that during a simultaneous eruption and radiological accident evacuation of people could be difficut. Would evacuation be difficult or impossible?

This contention is similar to contentions 2 and 4a and therefore the above responses apply. Evacuation under such circumstances would be difficult but not impossible. However, even in these extremely unlikely circumstances, sheltering would probably be chosen as the protective action since it would result in the least risk and in some cases would be the preferred course of action to minimize radiation exposure.

Contention 4c: The ODOE staff report of July 14, 1980 states that in the unlikely event of loss of cooling water from the intake structure that adequate cooling can be maintained by backup means. Can adequate cooling be provided for both the reactor core and spent fuel pool simultaneously using the backup means?

Yes. The statement on page 10 that "adequate cooling can be provided for a minimum of 165 hours (nearly a week) by the circulating water system and the cooling tower basin" applies to all simultaneous heat sources.

Contention 4d: The FSAR didn't consider the possibility that a downstream river (the Cowlitz River) could affect the river bottom at Trojan. What effect does the observed 15-foot decrease in river depth have upon the FSAR flooding analyses? Is it valid to predict the effects of future eruptions when the river contour may be continually changing?

While the FSAR did not consider the possibility that a downstream river could affect the river bottom at Trojan, the FSAR addressed a more severe case of flooding and mudflows from an upstream river. Therefore the conclusions in the FSAR are valid and conservative. The FSAR concluded safe operation of Trojan would not be degraded by volcanic induced flooding and mudflows.

The effect of the change in the Columbia River bottom contour as a result of the May 18, 1980 eruption has been evaluated. This evaluation concludes that the effect upon the flooding analysis and results contained in the Trojan FSAR is negligible and therefore the FSAR remains valid.

In general, the Columbia River basin in the vicinity of Trojan has a wide flood plane (several miles wide). For floods around Trojan, the limiting restriction occurs about 2 miles downstream at Carroll's Bluff. The flood plane at Carroll's Bluff at an elevation sufficient to cause flooding at Trojan is greater than 1 mile wide. The cross sectional area at this point has been increased slightly from that assumed in the FSAR flooding analysis due to improved measurements and additional dredging since the FSAR flooding analysis was done in the early 1970's and has been decreased slightly due to deposition of mud and silt from the May 18, 1980 eruption. At the worst time after the May 18, 1980 eruption, the cross-sectional area had a conservatively calculated net decrease of less than 1%. The cross-sectional area of the flood plane at Trojan also decreased less than 1%, indicating that the limiting area for flooding remains at Carroll's Bluff. These reductions are within the analytical accuracy and therefore are negligible. Dredging since the May 18, 1980 eruption has further reduced the magnitude of this effect.

In a discussion on September 5, 1980, George Holme, Chief District Hydrologist, Army Corps of Engineers stated that separate analysis done by them conclude that there is a negligible effect upon flooding along the Columbia River due to the observed bottom contour changes. Also, in a discussion on September 5, 1980, David Weiss, Hydrologist, U.S. Geologic Survey, agreed this conclusion appears reasonable. In a discussion on September 11, 1980, Donald Kuehl, River Forecast Center, National Weather Service, stated that separate analysis by them support this conclusion.

Regarding the effects of future eruptions on the river bottom contour and flooding at Trojan, it is not expected that subsequent eruptions will involve significantly greater effects than the May 18, 1980 eruption due to the large amount of material removed from Mt. St. Helens during that eruption and the resulting weak spots which would tend to channel future

major eruptions to the same area of the mountain for which much of the available material has already been removed. However, there are mudflows which did not enter the Columbia River which could enter it later due to subsequent eruptions or heavy precipitation. The Army Corps of Engineers is closely monitoring this situation and a significant change in the river bottom contour will be apparent since the deepwater ship channel will fill first thereby restricting ship traffic. As an overcheck, PGE is conducting monthly soundings of the river in the vicinity of Trojan.

EFSC and ODOE will require PGE to evaluate the effects of future major changes in the Columbia River bottom contour upon the FSAR flooding analysis. If the results of the analysis are significantly altered by changes in the river bottom contour, PGE will be required to implement appropriate actions.

Contention 4e: PSR contends that the ODOE staff report of July 14, 1980 did not consider internal radiation exposure due to inhalation of ash that can be suspended and resuspended in air.

As discussed on pages 16 and 17 of the ODOE staff report of July 14, 1980, ODOE did consider internal radiation exposure due to inhalation of ash. Using the highest ash concentrations reported in the Portland area, ODOE calculated an initial internal dose rate of 0.0015 mrem/hour. ODOE noted that this dose rate would then decrease to insignificant levels. This decrease is due to the relatively short half lives (on the order of 30 minutes) of the significant dose-contributing isotopes and therefore the ODOE conclusion applies regardless of whether the ash settles or is continuously suspended in air. ODOE noted that use of masks would eliminate this source of radiation exposure.

Contention 4f: The ODOE staff report of July 14, 1980 states that during periods of impending or significant volcanic activity, PGE is immediately notified. PSR contends that this is not the case. Specifically, for July 22, 1980 changes in seismic activity were detected at 9 a.m., the eruption occurred at 5:13 p.m., and PGE was notified at 5:28 p.m. For August 7, 1980 changes in seismic activity were detected at noon, the eruption occurred at 4:26 p.m., and PGE was notified at 4:32 p.m. The report states that Trojan has not detected any seismic forces due to volcanic activity. The University of Washington in Seattle, 200 miles from Mt. St. Helens, has detected such seismic activity. Why doesn't Trojan equipment detect such activity?

The following is the notification chronology for the last two major eruptions:

Date	Time	Event	Reference
7/22/80	10:00 am	Series of shallow earthquakes detected	Washington Department of Emergency Services (WDES) message to Federal Emergency Management Agency (FEMA) and Oregon Emergency Services Division (OESD)
	2:00pm-5:00pm	Increasing frequency and magnitude of earthquakes	
	5:14 pm	Eruption to 45,000 ft.	
	5:20 pm	Trojan notified of eruption by PGE	PGE(Zimmerman)
	5:35 pm	Trojan(Taylor) notified ODOE(Dixon) of eruption	ODOE Trojan Log
	5:35 pm	U.S. Forest Service (USFS) notified Oregon State Police (OSP) and OESD of eruption	OESD Incident Report
8/7/80	1:45 pm	USFS notified Trojan of increased seismic activity	PGE(Zimmerman)
	2:50 pm	Trojan(Yundt) notified ODOE(Dixon) of potential eruption	ODOE Trojan Log
	4:23 pm	Eruption to 44,000 ft.	WDES message to FEMA/OESD
	4:28 pm	USFS notified OESD of eruption	OESD Incident Report
	4:30 pm	USFS notified Trojan of eruption	PGE(Zimmerman)
	4:40 pm	PGE(Zimmerman) notified ODOE(Dixon) of eruption	ODOE Trojan Log

Based on the above chronology, PGE is being notified of impending or significant volcanic activity. Oregon is also being notified on a timely basis by at least two separate sources.

Regarding detection of seismic activity at Trojan, the installed instruments are triaxial accelerometers which are designed to detect seismic forces at the plant site as small as 0.01 g. An earthquake of this magnitude during the day would be felt indoors by many, outdoors by few. At night some people would be awakened. As stated in the ODOE staff report of July 1980 even though sizeable earthquakes occur on Mt. St. Helens, these have not been felt at Trojan due to the localized nature of volcanic seismic forces, the damping effect of the ground between Mt. St. Helens and Trojan, and the apparent sturdiness of the bedrock upon which Trojan is built. In discussions with John Beaulieu, Deptuy State Geologist and Dick Couch, Associate Professor of Geophysics, Oregon State University, both men stated they are familiar with the type of equipment installed at Trojan, consider it appropriate for its intended function, and believe that it should not have detected any of the seismic forces from Mt. St. Helens.

Regarding the instrumentation at the University of Washington in Seattle, Beaulieu and Couch stated that a system of seismographs are installed throughout Oregon and Washington, including some in the vicinity of Mt. St. Helens, for which the measurements are transmitted to Seattle. These instruments have a sensitivity two orders of magnitude less than human detectability (down to 0.0001 g). Therefore they would expect the University of Washington in Seattle to detect seismic forces that Trojan does not. The U.S. Geological Survey has a similar system which feeds information to Menlo Park, California.

Contention 5a: PSR is concerned that the evacuation plan for the ten-mile radius around Trojan has not yet been approved by the NRC.

On August 19, 1980, NRC published a rule to become effective on November 3, 1980 that specified requirements for emergency response plans. The rule stated that within 60 days of its effective date, revised emergency response plans meeting these requirements must be submitted to NRC. The NRC must find these plans provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. By April 1, 1981 these revised plans must be implemented. Any deficiencies that still exist at that time must be corrected within four months.

Prior to adoption of this rule there were no specific requirements or NRC approval needed for emergency response plans.

While the plan and agreements as they exist today provide an adequate framework for responding to a Trojan radiological emergency revisions are being made to comply with the NRC rule and efforts will continue to make further improvements.

Contention 5b: PSR is concerned that the control building modifications have not yet been completed.

The control building modifications are being made to allow continued operation after an earthquake up to 0.15 g. Currently, the plant is required to shut down after an earthquake of 0.08 g. The Atomic Safety and Licensing Board, NRC, ODOE, and PGE all agree that adequate strength exists for Trojan structures and equipment so that a safe shutdown condition can be achieved and maintained following a large earthquake up to 0.25 g.

Therefore, the only significance of these modifications is that they will permit PGE to continue operating Trojan during and after larger magnitude earthquakes than they currently are permitted to do so. Even without these modifications, safe shutdown for large earthquakes is possible. This issue was addressed in the ODOE staff report of July 14, 1980 on page 5.

Contention 5c: PSR is concerned that on August 7, 1980 the red zone around Mt. St. Helens was expanded to 20 miles. Therefore, Trojan is only 11 miles away from the red zone. If the red zone was expanded another 5 miles, Trojan would only be 6 miles away from the red zone.

The size of the controlled access area around the volcano has no direct bearing on the safety of Trojan operation. The controlled access area has been periodically adjusted depending on recent or expected volcanic activity and to facilitate ease in access control. As discussed above, Trojan is advised of significant or impending changes in volcanic activity and takes appropriate actions.

Further, the information presented by PSR on the distance between Trojan and the red zone and the change to the red zone size are not accurate.

The PSR contention assumes Trojan is 31 miles from Mt. St. Helens, In actuality, the distance is approximately 34 miles.

Access around Mt. St. Helens is controlled in the Gifford Pinchot National Forest by the U.S. Forest Service (USFS) and in other areas by the Washington Department of Emergency Services (WDES). In a discussion on August 14, 1980, Paul Stenkamp, Director, Emergency Coordination Center, USFS, stated the following:

a. On March 25, 1980, access was restricted (i.e., red zone established) above the timberline on Mt. St. Helens (2 to 3 mile radius).

b. On April 30, 1980, access was restricted (i.e., red zone expanded) in all of Gifford Pinchot National Forest except the Mineral area. The radius of this restriction was up to 30 miles. (In the direction of Trojan, the restriction was about 16 miles.)

c. On June 4, 1980, the restriction was lifted (i.e., red zone reduced) for National Forest land north of Highway 12 (this had no effect on the restriction distance in Trojan's direction).

d. On July 25, 1980, the restriction was reduced (i.e., red zone reduced) to about 14 miles in all directions. The recreational restriction zone (i.e., blue zone), which permits industrial activity but prohibits recreation, was also reduced accordingly to about 20 miles.

In a discussion on August 13, 1980 Ken Olsen, Red Zone Coordinator, WDES, stated the following regarding the state-imposed access restrictions (i.e., red zone):

a. On April 1980, WDES restricted access to permit only permanent residents and emergency workers within 20 miles of Mt. St. Helens.

b. On July 29, 1980, the restriction was reduced to about 16 miles from the volcano in Trojan's direction to allow access to Lake Merwin.

c. WDES is currently considering further reductions in the restrictions.

Based on the above, it is apparent that the access restrictions around Mt. St. Helens have recently been reduced instead of increased as stated in the contention.

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Attachment
Incoming
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PGE Portland General Electric Company

Release

July 30, 1982

Trojan Nuclear Plant
Docket 50-344
License NPF-1

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, DC 20555

Dear Mr. Clark:

Radiological Emergency Response Planning

On October 9, 1980, the NRC denied a petition concerning the safety of the Trojan Nuclear Plant following a volcanic eruption of Mount St. Helens. In doing so, the Commission directed the NRC Staff to examine the effects of volcanic eruptions on emergency response planning at the Trojan site (Attachment 1).

In response to this request, the NRC Staff requested the Federal Emergency Management Agency, on November 3, 1980, to examine the effects of volcanic eruptions on State and local emergency planning around the Trojan site (Attachment 2). In the same letter, FEMA was also requested to examine the effects of earthquakes on State and local emergency planning around the nuclear power plant sites in California.

On December 1, 1980, FEMA forwarded the request to FEMA Region X (Attachment 3). However, this letter requested a study of the effects of both volcanic eruptions and earthquakes on State and local emergency planning within the region (ie, around the Trojan Nuclear Plant). This was apparently a misinterpretation of the NRC request. This misinterpretation has not been resolved and FEMA has requested information from PGE concerning seismic activity around the Trojan site (Attachment 4) and from the State and local officials regarding facilities which may be required in a radiological emergency (Attachment 5).

X005

PGE has, in the meantime, had several discussions with both the NRC Region V office, (Mr. R. H. Engelken and Mr. Robert Faulkenberry) and your Mr. Charles Trammell concerning this problem with FEMA. Both Messrs. Faulkenberry and Trammell have informed PGE that they have

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discussed the issue with B. K. Grimes of the Division of Emergency Preparedness who indicated to them there was no intent to perform any special investigation of the impacts of earthquakes on emergency planning for Trojan.

Discussions with FEMA Region X (Mr. Richard Donovan) indicate that the special seismic study for the area around the Trojan Nuclear Plant is being performed because of instructions from FEMA headquarters office under the auspices of the Earthquake Mitigation Act.

Performance of this study will require the expenditure of effort and funds by PGE and State and local government agencies to provide the information requested by FEMA. Subsequent effort may also be required to resolve the appropriate magnitude of earthquake to assume for emergency planning versus the licensed plant design basis. None of this effort is required by either NRC or FEMA regulations. There are no bases for performing such a study in the Northwest.

In light of this development, PGE requests your assistance to correct FEMA's misinterpretation of the NRC's original request on this issue.

Sincerely,

B. D. Withers

Bart D. Withers
Vice President
Nuclear

Attachments

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

Mr. William Mayer, Director
Federal Emergency
Management Agency
Region X

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Robert A. Clark
July 30, 1982
Attachment 3
Page 1 of 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

Washington D.C. 20472

December 1, 1980

MEMORANDUM FOR: Neale V. Chaney, Director
FEMA Region X

FROM: John W. McConnell
Assistant Associate Director
for Population Preparedness

SUBJECT: Review of the Effects of Earthquakes and Volcanic Eruptions on State and Local Radiological Emergency Preparedness

The Nuclear Regulatory Commission has requested their licensees in the western States to consider the effects of earthquakes and of volcanic eruptions on the communication networks and evacuation plans around licensed facilities and review their emergency plans as appropriate.

In our discussions with Brian K. Grimes, Director of the NRC Emergency Preparedness Program Office, we have agreed that the FEMA Regions in the West (Regions IX and X) should also consider these events in the evaluation of State and local plans. We are interested in a qualitative evaluation of the complicating factors (e.g., disruptions of communications and evacuation routes) which might require special preparedness if such events occur in parallel with a radiological emergency or are involved in their initiation.

I see this as a reasonable part of FEMA's overall responsibility for comprehensive emergency management in an area where FEMA has had considerable near-term experience.

Accordingly, please plan to conduct the analyses of the interactions of severe geophysical events such as volcanic eruptions and earthquakes (giving due consideration to severe ashfall, mudflows, floods, landslides and associate communication and transportation disruptions) with the plans of State and local plans for REP around commercial power plants in your Region. In the near term, I would appreciate an outline of your study approach and a time schedule with milestone dates for completion. At a later date, we will also request consideration of the interactions of such geophysical events on the balance of non-commercial fixed nuclear facilities and with potential radiological accidents.

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Robert A. Clark
July 30, 1982
Attachment 4
Page 1 of 2

Federal Emergency Management Agency

Region X Federal Regional Center Bothell, Washington 98011

JUL 23 1982

RECEIVED
Bart D. Withers
Vice President, Nuclear
JUL 26 1982
Route To:

Bart Withers, Vice President
Nuclear, Portland General Electric
121 S.W. Salmon Street
Portland, Oregon 97204

Dear Mr. Withers:

As you probably know, my National Office has requested us to perform a review of the effects of earthquakes on the capabilities of State and local governments to execute plans for radiological emergency prepardness (REP) around commercial and non-commercial nuclear power plants in our Region.

We requested and received permission to divorce this study from FEMA's REP approval process for offsite emergency response plans and preparedness. One of the reasons for requesting this disassociation was because of the study being performed by Dr. Weaver of the University of Washington. Dr. Weaver's study concerns a specific seismic zone originating near Mt. Hood, Oregon, and running north/northwesterly to near Olympia, Washington. We have awaited completion of this study so that we could review all possible concerns. After receipt of this study, we wrote the States of Oregon and Washington requesting that they identify structures that would be critical to the execution of their offsite preparedness plans.

Mr. Donovan of my staff informed Mr. Walt of PGE of this effort. Based upon that conversation and others, PGE has discussed the matter of our study with NRC Region V and NRC National Offices. NRC and FEMA have also discussed the subject in Washington. As a result of their conversations, we have been advised to continue with the study.

In order to expedite our consultant's efforts and reduce the potential expenditures, Mr. Donovan asked Mr. Walt if PGE could provide us access to the isoseismal maps prepared as part of your Preliminary and Final Safety Analysis Review with NRC. PGE has indicated that it is unwilling to do this. I would like you to review this request and reconsider our request for these maps.

Our review and study is strictly limited to offsite preparedness. It is neither the intention or scope of the study to address seismic issues related to the Trojan Plant. However, in view of the findings of the Weaver study we feel it important that any potential impact on critical offsite facilities be investigated. Having access to existing isoseismal maps will not only result in cost savings to the government but will allow us to complete the study sooner by not having to redo the isoseismal maps.

A single set of maps would give us a common basepoint from which to determine site-specific intensities. This is important as we would have to hire a separate consultant to develop new maps. If these maps are different from those used by PGE, then the issue can be raised as to which maps and seismic intensities are correct.

I would appreciate your reply by August 6, 1982. If you have any questions, please contact me or have your staff contact Mr. Donovan.

Sincerely,

Wm. H. Mayer
Regional Director

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Robert A. Clark
July 30, 1982
Attachment 5
Page 1 of 1

Federal Emergency Management Agency

Region X Federal Regional Center Bothell, Washington 98011

RECEIVED
JUL 1 1982
JUL 6 - 1982
DEPT. OF ENERGY

Lynn Frank, Director
Department of Energy
Labor & Industry Building #111
Salem, Oregon 97310

Dear Mr. Frank:

Last spring and summer we exchanged correspondence on the issue of volcanic and earthquake related contingency planning as it pertains to your State and local plans and procedures for the Trojan Nuclear Power Plant.

You agreed to revise the State and county plans/procedures with respect to volcanic related contingencies. We asked and received approval from our National office to separate our evaluation of the earthquake issue from the volcano issue in the development of our findings for the Trojan Site.

A study recently prepared by Craig S. Weaver of the U.S. Geological Survey depicted a seismic zone originating near Mt. Hood in Oregon and running north/northwesterly to near Olympia, where high magnitude earthquakes at a shallow depth are possible. We have awaited completion of this paper so that we could finish our assessment.

In order for us to complete our vulnerability analysis of offsite structures, we need from you a list of structures that would be critical to the execution of your offsite preparedness plan for the Trojan Site. This list should include your EOC's, other necessary response centers, communication facilities, and any critical elements of the transportation network (e.g., bridges). Please specify the address, and reference the structures on either the 10-mile or 50-mile grid maps for the Trojan site, so that we may proceed. We need this information by August 2, 1982.

If you have any questions, you may contact Mr. Richard Donovan of my staff.

Sincerely,

Wm. H. Mayer
Regional Director

Copy to:
John T. DeFrance, Director
Columbia County Emergency Services

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Robert A. Clark
July 30, 1982
Attachment 1
Page 1 of 1

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

OFFICE OF THE SECRETARY

October 9, 1980

MEMORANDUM FOR: William J. Dircks, Executive Director for Operations

FROM: John C. Hoyle, Acting Secretary

SUBJECT: DD-80-26, TROJAN NUCLEAR PLANT: DENIAL OF 2.206 RELIEF TO TROJAN DECOMMISSIONING ALLIANCE (SECY-A-80-138) (COMMISSIONER ACTION ITEM)

This is to advise you that the Commission has decided not to review the Director's decision denying the Trojan Decommissioning Alliance 2.206 request. However, in view of the strong possibility of continued volcanic activity of Mount St. Helens over the next few years, the Commission believes that further consideration should be given by the Director to the problems of evacuation during or soon after an eruption. Therefore, the Commission directs the staff to more closely examine, in conjunction with the Trojan plant evaluation for compliance with the new emergency planning regulations, 45 Fed. Reg. 55402 (August 19, 1980, effective November 3, 1980), the problems of effective protective measures and evacuation during or soon after an eruption, giving due consideration to the possible effects of severe ashfall, mudflows, floods, and landslides.

cc:
Chairman Ahearne
Commissioner Gilinsky
Commissioner Hendrie
Commissioner Bradford
General Counsel
Director, Policy Evaluation
Director, Nuclear Reactor Regulation
Executive Legal Director
Chief, Docketing & Service Branch, SECY

CONTACT:
E. W. McGregor (SECY)
41410

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OCT 24 1980

Trojan Nuclear Plant
Docket 50-344
License NPF-1

UNITED STATES
UCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

Robert A. Clark
July 30, 1982
Attachment 2
Page 1 of 2

NOVEMBER 7 1980

MEMORANDUM FOR: John McConnell, Assistant Associate Director for Population Preparedness, FEMA

FROM: Brian K. Grimes, Program Director, Emergency Preparedness Program Office, NRR

SUBJECT: REQUEST FOR FEMA ASSISTANCE TO REVIEW EFFECTS OF EARTHQUAKE AND VOLCANIC ERUPTION ON STATE/LOCAL EMERGENCY PLANS

As we have discussed, in the course of our review of licensed utility emergency plans, volcanic eruptions and catastrophic earthquakes have emerged as two issues of high public interest. To insure that these issues are being adequately addressed, we request that FEMA review the State and local planning efforts for the areas around California nuclear power plant sites and the Trojan site with respect to the complications which might arise in the event of extreme natural phenomena and how these can best be addressed in the planning process.

In conjunction with the Trojan plant evaluation for compliance with the new NRC emergency planning regulations, the Commission has directed that the problems of effective protective measures and evacuation during or soon after volcanic eruption (giving due consideration to the possible effects of severe ashfall, mudflows, floods, and landslides) be closely examined. In this regard, we are requesting the licensed utility to revise its emergency plan to explicitly address the possible problems associated with an eruption. This will include considerations of site access during an emergency, assured communications and appropriate revision of the evacuation time estimates used in protective action determinations. The Oregon State Department of Energy, has already addressed the feasibility of implementing effective protective measures during an eruption (enclosure 1).

The earthquake issue has particular relevance to nuclear plants in California (i.e., Diablo Canyon, Humboldt Bay, Rancho Seco and San Onofre). We understand from the FEMA news release of September 29, 1980 that FEMA will lead a team consisting of personnel from Federal, State and local agencies to accelerate efforts towards improving the state of readiness to cope with potential major earthquakes in California. In this regard we request that FEMA include in its evaluation of offsite emergency plans, a qualitative evaluation of complicating factors which might be caused by earthquakes for California nuclear power reactor sites. Specifically,

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such evaluation should include the impacts on State/local emergency plans due to potential disruption of communications networks and evacuation routes. In this regard, we are requesting the affected licensees to revise their emergency plans to explicitly address the possible problems associated with an earthquake to include the type of potential complications discussed above for the Trojan facility.

Thank you for your assistance in these matters.

Brian K. Grimes, Program Director
Emergency Preparedness Program Office
Office of Nuclear Reactor Regulation

Enclosure:
Oregon DOE Study
Report Measures

Portland General Electric Company

July 30, 1982

Trojan Nuclear Plant
Docket 50-344
License NPF-1

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, DC 20555

Dear Mr. Clark:

Radiological Emergency Response Planning

On October 9, 1980, the NRC denied a petition concerning the safety of the Trojan Nuclear Plant following a volcanic eruption of Mount St. Helens. In doing so, the Commission directed the NRC Staff to examine the effects of volcanic eruptions on emergency response planning at the Trojan site (Attachment 1).

In response to this request, the NRC Staff requested the Federal Emergency Management Agency, on November 3, 1980, to examine the effects of volcanic eruptions on State and local emergency planning around the Trojan site (Attachment 2). In the same letter, FEMA was also requested to examine the effects of earthquakes on State and local emergency planning around the nuclear power plant sites in California.

On December 1, 1980, FEMA forwarded the request to FEMA Region X (Attachment 3). However, this letter requested a study of the effects of both volcanic eruptions and earthquakes on State and local emergency planning within the region (ie, around the Trojan Nuclear Plant). This was apparently a misinterpretation of the NRC request. This misinterpretation has not been resolved and FEMA has requested information from PGE concerning seismic activity around the Trojan site (Attachment 4) and from the State and local officials regarding facilities which may be required in a radiological emergency (Attachment 5).

PGE has, in the meantime, had several discussions with both the NRC Region V office, (Mr. R. H. Engelken and Mr. Robert Faulkenberry) and your Mr. Charles Trammell concerning this problem with FEMA. Both Messrs. Faulkenberry and Trammell have informed PGE that they have

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121 S.W. Salmon Street, Portland, Oregon 97204

discussed the issue with B. K. Grimes of the Division of Emergency Preparedness who indicated to them there was no intent to perform any special investigation of the impacts of earthquakes on emergency planning for Trojan.

Discussions with FEMA Region X (Mr. Richard Donovan) indicate that the special seismic study for the area around the Trojan Nuclear Plant is being performed because of instructions from FEMA headquarters office under the auspices of the Earthquake Mitigation Act.

Performance of this study will require the expenditure of effort and funds by PGE and State and local government agencies to provide the information requested by FEMA. Subsequent effort may also be required to resolve the appropriate magnitude of earthquake to assume for emergency planning versus the licensed plant design basis. None of this effort is required by either NRC or FEMA regulations. There are no bases for performing such a study in the Northwest.

In light of this development, PGE requests your assistance to correct FEMA's misinterpretation of the NRC's original request on this issue.

Sincerely,

B. D. Withers

Bart D. Withers
Vice President
Nuclear

Attachments

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

Mr. William Mayer, Director
Federal Emergency
Management Agency
Region X

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Robert A. Clark
July 30, 1982
Attachment 3
Page 1 of 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

Washington D.C. 20472

December 1, 1980

MEMORANDUM FOR: Neale V. Chaney, Director
FEMA Region X

FROM: John W. McConnell
Assistant Associate Director
for Population Preparedness

SUBJECT: Review of the Effects of Earthquakes and Volcanic Eruptions on State and Local Radiological Emergency Preparedness

The Nuclear Regulatory Commission has requested their licensees in the western States to consider the effects of earthquakes and of volcanic eruptions on the communication networks and evacuation plans around licensed facilities and review their emergency plans as appropriate.

In our discussions with Brian K. Grimes, Director of the NRC Emergency Preparedness Program Office, we have agreed that the FEMA Regions in the West (Regions IX and X) should also consider these events in the evaluation of State and local plans. We are interested in a qualitative evaluation of the complicating factors (e.g., disruptions of communications and evacuation routes) which might require special preparedness if such events occur in parallel with a radiological emergency or are involved in their initiation.

I see this as a reasonable part of FEMA's overall responsibility for comprehensive emergency management in an area where FEMA has had considerable near-term experience.

Accordingly, please plan to conduct the analyses of the interactions of severe geophysical events such as volcanic eruptions and earthquakes (giving due consideration to severe ashfall, mudflows, floods, landslides and associate communication and transportation disruptions) with the plans of State and local plans for REP around commercial power plants in your Region. In the near term, I would appreciate an outline of your study approach and a time schedule with milestone dates for completion. At a later date, we will also request consideration of the interactions of such geophysical events on the balance of non-commercial fixed nuclear facilities and with potential radiological accidents.

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Robert A. Clark
July 30, 1982
Attachment 4
Page 1 of 2

Federal Emergency Management Agency

Region X Federal Regional Center Bothell, Washington 98011

JUL 23 1982

RECEIVED
Bart D. Withers
Vice President, Nuclear
JUL 26 1982
Route To:

Bart Withers, Vice President
Nuclear, Portland General Electric
121 S.W. Salmon Street
Portland, Oregon 97204

Dear Mr. Withers:

As you probably know, my National Office has requested us to perform a review of the effects of earthquakes on the capabilities of State and local governments to execute plans for radiological emergency prepardness (REP) around commercial and non-commercial nuclear power plants in our Region.

We requested and received permission to divorce this study from FEMA's REP approval process for offsite emergency response plans and preparedness. One of the reasons for requesting this disassociation was because of the study being performed by Dr. Weaver of the University of Washington. Dr. Weaver's study concerns a specific seismic zone originating near Mt. Hood, Oregon, and running north/northwesterly to near Olympia, Washington. We have awaited completion of this study so that we could review all possible concerns. After receipt of this study, we wrote the States of Oregon and Washington requesting that they identify structures that would be critical to the execution of their offsite preparedness plans.

Mr. Donovan of my staff informed Mr. Walt of PGE of this effort. Based upon that conversation and others, PGE has discussed the matter of our study with NRC Region V and NRC National Offices. NRC and FEMA have also discussed the subject in Washington. As a result of their conversations, we have been advised to continue with the study.

In order to expedite our consultant's efforts and reduce the potential expenditures, Mr. Donovan asked Mr. Walt if PGE could provide us access to the isoseismal maps prepared as part of your Preliminary and Final Safety Analysis Review with NRC. PGE has indicated that it is unwilling to do this. I would like you to review this request and reconsider our request for these maps.

Our review and study is strictly limited to offsite preparedness. It is neither the intention or scope of the study to address seismic issues related to the Trojan Plant. However, in view of the findings of the Weaver study we feel it important that any potential impact on critical offsite facilities be investigated. Having access to existing isoseismal maps will not only result in cost savings to the government but will allow us to complete the study sooner by not having to redo the isoseismal maps.

A single set of maps would give us a common basepoint from which to determine site-specific intensities. This is important as we would have to hire a separate consultant to develop new maps. If these maps are different from those used by PGE, then the issue can be raised as to which maps and seismic intensities are correct.

I would appreciate your reply by August 6, 1982. If you have any questions, please contact me or have your staff contact Mr. Donovan.

Sincerely,

Wm. H. Mayer
Regional Director

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Robert A. Clark
July 30, 1982
Attachment 5
Page 1 of 1

Federal Emergency Management Agency

Region X Federal Regional Center Bothell, Washington 98011

RECEIVED
JUL 1 1982
JUL 6 - 1982
DEPT. OF ENERGY

Lynn Frank, Director
Department of Energy
Labor & Industry Building #111
Salem, Oregon 97310

Dear Mr. Frank:

Last spring and summer we exchanged correspondence on the issue of volcanic and earthquake related contingency planning as it pertains to your State and local plans and procedures for the Trojan Nuclear Power Plant.

You agreed to revise the State and county plans/procedures with respect to volcanic related contingencies. We asked and received approval from our National office to separate our evaluation of the earthquake issue from the volcano issue in the development of our findings for the Trojan Site.

A study recently prepared by Craig S. Weaver of the U.S. Geological Survey depicted a seismic zone originating near Mt. Hood in Oregon and running north/northwesterly to near Olympia, where high magnitude earthquakes at a shallow depth are possible. We have awaited completion of this paper so that we could finish our assessment.

In order for us to complete our vulnerability analysis of offsite structures, we need from you a list of structures that would be critical to the execution of your offsite preparedness plan for the Trojan Site. This list should include your EOC's, other necessary response centers, communication facilities, and any critical elements of the transportation network (e.g., bridges). Please specify the address, and reference the structures on either the 10-mile or 50-mile grid maps for the Trojan site, so that we may proceed. We need this information by August 2, 1982.

If you have any questions, you may contact Mr. Richard Donovan of my staff.

Sincerely,

Wm. H. Mayer
Regional Director

Copy to:
John T. DeFrance, Director
Columbia County Emergency Services

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Robert A. Clark
July 30, 1982
Attachment 1
Page 1 of 1

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

OFFICE OF THE SECRETARY

October 9, 1980

MEMORANDUM FOR: William J. Dircks, Executive Director for Operations

FROM: John C. Hoyle, Acting Secretary

SUBJECT: DD-80-26, TROJAN NUCLEAR PLANT: DENIAL OF 2.206 RELIEF TO TROJAN DECOMMISSIONING ALLIANCE (SECY-A-80-138) (COMMISSIONER ACTION ITEM)

This is to advise you that the Commission has decided not to review the Director's decision denying the Trojan Decommissioning Alliance 2.206 request. However, in view of the strong possibility of continued volcanic activity of Mount St. Helens over the next few years, the Commission believes that further consideration should be given by the Director to the problems of evacuation during or soon after an eruption. Therefore, the Commission directs the staff to more closely examine, in conjunction with the Trojan plant evaluation for compliance with the new emergency planning regulations, 45 Fed. Reg. 55402 (August 19, 1980, effective November 3, 1980), the problems of effective protective measures and evacuation during or soon after an eruption, giving due consideration to the possible effects of severe ashfall, mudflows, floods, and landslides.

cc:
Chairman Ahearne
Commissioner Gilinsky
Commissioner Hendrie
Commissioner Bradford
General Counsel
Director, Policy Evaluation
Director, Nuclear Reactor Regulation
Executive Legal Director
Chief, Docketing & Service Branch, SECY

CONTACT:
E. W. McGregor (SECY)
41410

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OCT 24 1980

Trojan Nuclear Plant
Docket 50-344
License NPF-1

UNITED STATES
UCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

Robert A. Clark
July 30, 1982
Attachment 2
Page 1 of 2

NOVEMBER 7 1980

MEMORANDUM FOR: John McConnell, Assistant Associate Director for Population Preparedness, FEMA

FROM: Brian K. Grimes, Program Director, Emergency Preparedness Program Office, NRR

SUBJECT: REQUEST FOR FEMA ASSISTANCE TO REVIEW EFFECTS OF EARTHQUAKE AND VOLCANIC ERUPTION ON STATE/LOCAL EMERGENCY PLANS

As we have discussed, in the course of our review of licensed utility emergency plans, volcanic eruptions and catastrophic earthquakes have emerged as two issues of high public interest. To insure that these issues are being adequately addressed, we request that FEMA review the State and local planning efforts for the areas around California nuclear power plant sites and the Trojan site with respect to the complications which might arise in the event of extreme natural phenomena and how these can best be addressed in the planning process.

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The earthquake issue has particular relevance to nuclear plants in California (i.e., Diablo Canyon, Humboldt Bay, Rancho Seco and San Onofre). We understand from the FEMA news release of September 29, 1980 that FEMA will lead a team consisting of personnel from Federal, State and local agencies to accelerate efforts towards improving the state of readiness to cope with potential major earthquakes in California. In this regard we request that FEMA include in its evaluation of offsite emergency plans, a qualitative evaluation of complicating factors which might be caused by earthquakes for California nuclear power reactor sites. Specifically,

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such evaluation should include the impacts on State/local emergency plans due to potential disruption of communications networks and evacuation routes. In this regard, we are requesting the affected licensees to revise their emergency plans to explicitly address the possible problems associated with an earthquake to include the type of potential complications discussed above for the Trojan facility.

Thank you for your assistance in these matters.

Brian K. Grimes, Program Director
Emergency Preparedness Program Office
Office of Nuclear Reactor Regulation

Enclosure:
Oregon DOE Study
Report Measures

19 T. McKenna has copies - confirmed 10/20/80. The dates on Trojan except for FEMA eval. of State/local plans. FEMA is being negotiated & look at Wn St. Helens VIS-a VIS - evacuation.

PGE

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 two further revisions to the RERP as follows:

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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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/4c19B8
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:	/80
Delivery:	1 0 - 12/15/80
Installation:	11/ 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 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 poclat 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 conduction 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

	Personnel Assignments					
	Off-Hours Shifts			As Augmented Within 60 Min.		
Function Area	Location	Position Title	Manning[a]	Location	Position Title	Manning[a]
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[b]	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[a]	Location	Position Title	Manning[a]
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)[d]						
A. 1) Measurement of noble gas release rate from dose rate on sample line[e]	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[f]	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[a]	Location	Position Title	Manning[a]
C. Measurement of whole body dose rate at Exclusion Area Boundary[g]	Out of Plant	C&RP Technician	1	Out of Plant	C&RP Technician	2
D. Field Monitoring	-	-	-	Out of Plant	Field Monitoring Team[h]	2
E. Gamma Spectroscopy Analysis of grab samples	-	-	-	In Plant	C&RP Technicians	2
Radiological Monitoring and Decontamination of Onsite Personnel Being Evacuated	In Plant	C&RP Technician[i]	1	In Plant	C&RP Technician	2
	ECC			ECC	C&RP Technician[j]	2
First Aid	In Plant	C&RP Technician[k]	1	In Plant	C&RP Technician	2
Fire Fighting	In Plant	Designated Licensed Operator	1	In Plant	Designated Licensed Operator	1
		Security Personnel	4[l]		Security Personnel	4[l]
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[a]	Location	Position Title	Manning[a]
Technical Support of Plant Operations and Direction of Emergency 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:

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

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

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

where:

E_β = average beta energy, Mev

E_λ = average gamma energy, Mev

Br = breathing rate (m^3/sec)

DCF_T = 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)

$u\chi/Q$ = Atmospheric dispersion factor, ($1/m^2$)

For locations within the exclusion area, a conservative $u\chi/Q$ value of 8.6E-4 $1/m^2$ is assumed - building wake (0.5/2340 m^2). (Ref: FSAR Section 2.3.4.)

SGG/lm/4mg66.52A20