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

August 5, 1980

Docket No. 50-344

Ms. Patricia Magoffin  
4764 Latigo Canyon  
Malibu, California 90265

Dear Ms. Magoffin:

This is in response to your telegram of April 4, 1980, to President Carter regarding Mount St. Helens and the Trojan Nuclear Plant.

In response to your concerns, I am enclosing a technical report which discusses in detail the possible impact of volcanic activity at Mount St. Helens on the safety of Trojan. The report is in the form of an affidavit which was filed with the Atomic Safety and Licensing Board in the Trojan spent fuel pool proceeding. Although this report was filed prior to the recent volcanic activity, it is with few exceptions considered an accurate assessment today. Exceptions to the report include (1) the underestimation of the volume of debris associated with a potential mudflow, (2) exclusion of a discussion of volcano-induced earthquakes, and (3) the statement that historic data indicates that the volcano has been substantially more active in the 19th century than the 20th century. Notwithstanding the above exceptions, the report's conclusion that the Trojan site is suitable from a volcanic hazards point of view remains accurate.

The recent massive eruption of May 18, 1980 exceeded that envisioned by the Nuclear Regulatory Commission and by our advisors, the U. S. Geological Survey. Nevertheless, the effects of the recent volcanism (mudflows, earthquakes and ashfall) at the Trojan site have been minimal. Mudflows in the Toutle, Kalama, and Lewis River valleys have not compromised the safety of the Trojan plant. Volcanic-induced earthquakes have been small and have neither been felt nor recorded instrumentally at the site. Ashfall at the Trojan plant resulting from the May 25, 1980 eruption has been slight (not exceeding 1/8 of an inch) and fell at the site in the form of a muddy rain or mist. The only other indication of ash occurred on April 29, 1980 when a thin coating of the ash was noted at the Trojan site.

According to University of Washington seismologists, the volcanic-induced earthquakes mentioned previously have not exceeded Richter Magnitude 5.1 and have been concentrated in an area roughly coincidental with the volcano crater which is 35 miles northeast of the Trojan plant. None of the larger events (Magnitude 5.0 and above) have occurred closer than 35 miles to the plant. For the most part, the volcanic earthquakes have occurred at shallow depths and have consequently been felt only in the immediate vicinity of the seismic event. However, there have been unconfirmed reports of volcanic-related earthquakes (originating at Mount St. Helens) being felt in the Longview-Kelso, Washington area, roughly five miles north of the Trojan plant. Apparently, those feeling the tremors were located in areas where soil overlies bedrock.

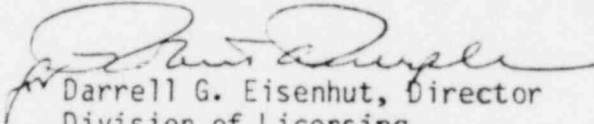
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The plant is designed to safely withstand seismic levels of 0.25g peak ground acceleration. This corresponds to earthquake levels many times greater than those generated by the volcano-induced earthquakes.

The potential impact of volcanic activity on the safety of the Trojan facility was investigated thoroughly by government geologists (Atomic Energy Commission and the U. S. Geological Survey) before the plant was allowed to be constructed where it is. This investigation and reassessment of volcanic-related hazards has continued as attested by the enclosed affidavit. We have been in constant contact with numerous state, governmental agency, and university scientists since initiation of earthquake activity and subsequent volcanic activity in the vicinity of Mount St. Helens on March 20, 1980. This surveillance and accumulation of information will continue as long as the volcano remains active.

Our conclusion, based upon an evaluation of volcanic phenomena prior to construction, coupled with an assessment of the effects of the activity beginning March 20, 1980, is that the Trojan site remains suitable from a volcanic hazards viewpoint. Nevertheless, we will continue to monitor, accumulate, and assess information related to the renewed activity at Mount St. Helens as it might apply to the safety of the Trojan Nuclear Plant.

Sincerely,



Darrell G. Eisenhut, Director  
Division of Licensing  
Office of Nuclear Reactor Regulation

Enclosure:  
Affidavit of R. B. McMullen

cc w/enclosure:  
See next page

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PMS PRESIDENT JIMMY CARTER

WHITE HOUSE DC

HELP STOP SHUTDOWN NUCLEAR PLANT OPERATING 30 MILES FROM WASHINGTON  
VOLCANO NOW.

PATRICIA MAGOFFIN

4764 LAT GO CANYON

MALIBU CA 90265

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

PORTLAND GENERAL ELECTRIC COMPANY,  
ET AL.

(Trojan Nuclear Plant)

Docket No. 50-344  
(Proposed Amendment to Facility  
Operating License NPF-1 to Permit  
Storage Pool Modification)

AFFIDAVIT OF RICHARD B. McMULLEN

STATE OF MARYLAND )  
COUNTY OF MONTGOMERY ) SS

*VOLCANISM*

I, Richard B. McMullen, being duly sworn, depose and state:

1. I am a Geologist in the Geosciences Branch of the Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.
2. I have prepared the statement of Professional Qualifications attached hereto, and, if called upon, would testify as set forth therein.
3. I have prepared the assessments on landslides and volcanism attached hereto in response to the Atomic Safety and Licensing Board's Order of January 9, 1978 and I hereby certify that the statements made herein are true and correct to the best of my knowledge.

Subscribed & sworn to  
before me this 12<sup>th</sup> day  
of April, 1978

*Paul J. Dubois*  
Notary Public

My Commission expires: *July 1, 1979*

DUPLICATE DOCUMENT

Entire document previously  
entered into system under:

ANO 8006030559

No. of pages:

*Dupe 8006030559*

RICHARD B. McMULLEN  
PROFESSIONAL QUALIFICATIONS  
GEOSCIENCES BRANCH  
DIVISION OF SITE SAFETY AND ENVIRONMENTAL ANALYSIS  
NUCLEAR REGULATORY COMMISSION

I am a geologist in the Geosciences Branch, Division of Site Safety and Environmental Analysis, Nuclear Regulatory Commission. My present duties in this position include: (1) the evaluation of the geological aspects of sites for nuclear power generating facilities; (2) analyzing and interpreting the geological data submitted to the NRC in support of applications for construction and operation of nuclear facilities; (3) developing criteria; and acting as consultant to the Regulatory staff on engineering and construction matters. After completion of three years in the Marine Corps I attended the University of Florida and graduated in 1959 with a B.S. degree in Geology. During my professional employment, I completed correspondence courses in soils engineering and quarrying sponsored by the Army Engineer School at Ft. Belvoir, Va., and short courses in the effects of ground motions on structures, and airphoto interpreting. I am a registered Geologist and Engineering Geologist in the State of California.

After graduation I worked as a field geologist with the Corps of Engineers in Florida conducting field geological investigations for flood control structures, levees, canals, military installations, radar sites, and missile launching complexes. I evaluated and wrote reports concerning the stratigraphy, geologic structure, groundwater conditions, and foundation engineering aspects regarding these facilities in Florida, Puerto Rico, Bahama Islands, several of the West Indies Islands, and Panama. In 1963 I was assigned to the Corps of Engineers Canaveral District office at Cape Kennedy, Florida, first as a staff engineering geologist, and later as District Geologist. My duties were to plan, direct and evaluate the results of geological and foundation studies for missile launch pads and associated facilities for the NASA Manned Lunar Landing Program, the Air Force, and the Navy. I acted as consultant to other government agencies and architectural engineers in developing design features of structural foundations, monitored the performance of foundations during and after construction, and recommended and monitored necessary foundation treatment techniques such as vibroflotation, grouting, surcharging, dewatering and compaction. I wrote reports on the investigations, geology, foundation design, and construction regarding these projects.

In 1967 and 1968 I spent 6 months and 1 month respectively participating in the geological investigations for proposed sea level canal routes in Panama. The region investigated consisted of complex structures of volcanics and folded and faulted sedimentary strata. Among the techniques employed in this study were field geologic mapping, geophysical surveying, bore hole photography, and core borings. In 1968, I was