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September 20, 1967

U. S. ATOMIC ENERGY COMMISSION  
DIVISION OF REACTOR LICENSING  
REPORT TO THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
IN THE MATTER OF  
PACIFIC GAS AND ELECTRIC COMPANY  
DIABLO CANYON NUCLEAR PLANT  
REPORT NO. 1

Note by the Director, Division of Reactor Licensing

The attached report has been prepared by the Division of Reactor Licensing for use by the Advisory Committee on Reactor Safeguards at its October 1967 meeting.

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particles and smoke will also be performed. We feel that the proposed meteorological program is quite adequate to provide a firm basis for the development of a gaseous radioactive release limit and to confirm the conservatism of diffusion parameters used for the evaluation of the consequences of accidents.

### 2.3 Hydrology

The hydrology of the site does not appear to present any potential problems for this site as there is little or no probability of contamination of domestic water supplies (the nearest open reservoir is thirteen miles northeast of the site and surface drainage is expected to be toward the ocean) and the Diablo Canyon Creek with a drainage basin of four square miles is incapable of a flood that could endanger the site.

### 2.4 Geology

The site has been extensively trenched to a depth of from 10 to 40 feet by the applicant to identify the geologic characteristics of the site (see Figure II-A-1 in Supplement 3). All of the Class I structures will be founded upon bedrock, which is made up of marine shales, sandstones, and fine grained tuffaceous sediments. We have been told informally by the U.S.G.S. that the bedrock is quite adequate to be used for the foundation of the facility. The formal report of our consultants from the U.S.G.S. will be forwarded to the ACRS as soon as it is available.

Minor inactive faults have been traced through the site, including a fault or slip zone which runs under the proposed location of the reactor containment. The strata covering this fault is undisturbed, indicating that the last movement of this fault occurred at least more than 100,000 years ago, and probably

more than a million years ago. The applicant's consultants feel that there is little or no likelihood of movement along this fault. Our geologic consultants have informally told us that they agree with this conclusion.

We feel that the geology of the site should present no unusual engineering problems for the construction of this nuclear facility.

## 2.5 Oceanography

Condenser cooling water will be provided by the Pacific Ocean. PG&E reports that the liquid radioactive wastes will be discharged with the condenser cooling water at or below the 10 CFR 20 limits. The effects of reconcentration in aquatic biota will be considered by PG&E in its monitoring program. Details of the monitoring of the aquatic environs proposed by the applicant are discussed in a later section of this report.

The applicant has analyzed the potential for flooding of the site by tsunamis. It should be noted that all of the Class I structures and equipment are located 80 or more feet above MSL (Mean Sea Level) except the intake structure. The top of this structure will be 20 feet above MLLW (Mean Low Low Water). The peak tsunami wave height, which includes peak storm and high tide and run-up is approximately 18 feet above MLLW providing a minimum freeboard for any Class I structure of 2 feet. The maximum draw-down due to tsunami and low tide is 9 feet below MLLW. We have been told informally by our consultants in the USC&GS that they feel that in order to provide adequate tsunami protection, the minimum protection level should be approximately 30 feet above MLLW. The applicant has been informed of this and has orally indicated that they will comply with our consultant's recommendations.

2.6 Seismology

The applicant has studied the seismic history of the Diablo Canyon area and has determined the maximum earthquakes relative to the faults in the general area. On the basis of this investigation, the applicant concludes that there are four possible types of earthquakes that would result in maximum accelerations at the site. These will establish the design basis for the Diablo Canyon plant. The maximum ground accelerations considered by the applicant were:

Earthquake A: A magnitude 8-1/2 along the San Andreas Fault 48 miles from the site resulting in a ground acceleration of 0.10g at the site.

Earthquake B: A magnitude 7-1/4 along the Nacimiento Fault 20 miles from the site resulting in a ground acceleration of 0.12g at the site.

Earthquake C: A magnitude 7-1/2 along the off-shore extension of the Santa Ynez Fault 50 miles from the site resulting in a ground acceleration of 0.05g at the site.

Earthquake D: After-shock with a magnitude 6-3/4 at the site associated with earthquake A, above, which results in a ground acceleration of 0.20g at the site.

We have been informed by our seismic consultants of the USC&GS that they feel that a design earthquake with a horizontal ground acceleration of 0.20g and that a maximum credible earthquake, or safe shut down condition, with a horizontal ground acceleration of 0.40g should be used for this site. The applicant reports that a strong-motion seismograph would be installed in the