PACIFIC GAS AND ELECTRIC COMPANY

PG&E

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July 15, 1980

Robert M. Lazo, Esq., Chairman
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: In the Matter of Pacific Gas and Electric Company (Humboldt Bay Power Plant, Unit No. 3) Docket No. 50-133, License No. DPR-7

Dear Mr. Lazo:

In accordance with the Board's Order of June 19, 1979, Pacific Gas and Electric Company ("PGandE") hereby submits a Report by its consultants, Woodward-Clyde Consultants, outlining the status of the geologic and seismic investigations involving the Humboldt Bay Power Plant, Unit No. 3 together with an outline of the work accomplished during May and June, 1980.

The tasks identified in this Report are more fully described in a document entitled Scope of Work for Geological and Seismological Studies in the Humboldt Bay Region, dated September 1, 1979, which was attached to PGandE's pending Motion to Hold in Abeyance filed on September 26, 1979.

Very truly yours,

MALCOLM H. FURBUSH
PHILIP A. CRANE
RICHARD F. LOCKE

By Richard F. Locke
RICHARD F. LOCKE

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cc: T. Ippolito
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Enclosure

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July 1, 1980

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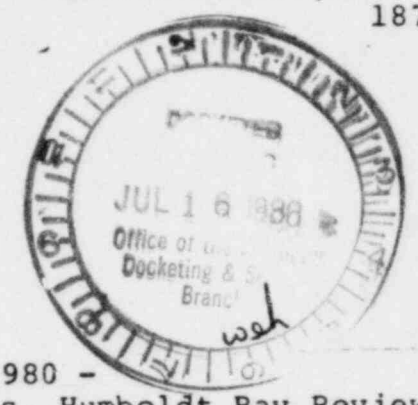

Mr. Frank Brady
Pacific Gas and Electric Company
77 Beale Street, Room 2611
San Francisco, CA 94106

Dear Frank:

Subject: Progress During May and June, 1980 - Geologic and Seismologic Studies, Humboldt Bay Review

This report summarizes the geologic and seismologic investigations for the Humboldt Bay Power Plant during May and June, 1980. During the period, regional age dating, late Quaternary studies, deep borings at the site, geophysical data analysis, analysis of strong motion data, seismologic data anlysis, and earthquake ground motion studies continued. The current phase of regional mapping and acquisition of strong motion data was completed. A program of seismic wave velocity measurements and standard penetration tests at a location near the containment structure was completed. The purpose of the studies was to obtain additional information on the geologic structure at the site and its relationship to regional tectonics. Specific tasks included the following:

1) Regional Geologic Mapping and Age Dating
2) Late Quaternary Geologic Studies and Fault Capability Evaluation
3) Identification of Faults in the Site Locality
4) Seismic Wave Velocity and Standard Penetration Tests
5) Geophysical Data Analysis
6) Seismologic Data Analysis
7) Site Specific Earthquake Characteristics
8) Earthquake Ground Motion

These tasks are described in the Scope of Work for Geological and Seismological Studies in the Humboldt Bay Region, dated September 1, 1979. The progress made during the period on each of these tasks is summarized below.

Regional Geologic Mapping and Age Dating

Work continued on radiometric dating and trace element analysis. Phase I field mapping in the Lower Wildcat Group south of the Eel River was completed, and additional paleomagnetic samples were obtained from surface exposures in this area. Three 700 feet deep holes were drilled at Thompkins Hill in the vicinity of the Little Salmon Fault. Electric logs and paleomag

samples were obtained from these holes. The logs are presently being analyzed.

Late Quaternary Geologic Studies and Fault Capability Evaluation

Three trenches having a total length of approximately 270 meters were excavated west of the plant at Buhne Point. C14 and microfossil analyses of samples collected from the trenches were run to assess age of sediments directly underlying the plant. Two trenches on the northwestern and southeastern sides of Buhne Point were excavated to help assess the near surface stratigraphy at the site. Two shallow borings (70 and 77 feet deep) were drilled at the base of the southeastern trench to evaluate the stratigraphic section between the materials exposed in the trenches and the unit F clay.

Five deep borings (400 to 725.5 feet deep) were drilled across the McKinleyville Fault zone to assess cumulative displacement in the channel deposits (Pleistocene). Geophysical logs were made of these holes and samples of an ash and a shell layer were collected.

In addition to the trenching at the site and the continued studies at the McKinleyville exploration locality, the following studies were done as part of this task during this reporting period. Shallow borings at Goose Lake were continuously sampled for pollen. Laboratory analysis of soil samples collected from test pits on Buhne Point, Humboldt Hill, and Table Bluff were run to assess relative degree of pedogenic soil formation. Numerous attitudes were taken of fractures and faults at Field's Landing Ravine to determine their orientation and to assess their origin. Ongoing aerial photo analysis of lineaments continued throughout this reporting period.

Identification of Faults in the Site Locality

Drilling operations continued in the site vicinity during the reporting period. Boring WCC-4 (previously designated Boring WCC-12) was drilled 300 feet NW of designated location to a depth of 3547 feet. Boring WCC-7 (not previously designated) was drilled to a depth of 1834 feet. This boring was located approximately 550 feet north and 850 feet east of the containment structure. Boring WCC-8 (not previously designated) was drilled to its target depth of 1746 feet. This boring was located approximately 400 feet north and 200 feet east of the containment structure.

The following suites of geophysical logs were obtained from all the borings: spontaneous potential, resistivity, gamma ray, neutron density, sonic, and dipmeter logs. Additionally, Pitcher barrel samples were collected from borings WCC-7 and WCC-8 for paleomagnetic analysis. Samples of cuttings and core from

previous WCC-series borings were submitted to a consulting paleontologist for determination of microfossil content.

Seismic Wave Velocity and Standard Penetration Tests

A five-boring test array was installed about 150 to 200 feet northeast of the center of the reactor. The borings have been geophysically logged, cased, and grouted. Inclinometer surveys have been performed to assess the degree of verticallity and straightness of these borings. Standard penetration test (SPT) drive samples were obtained at 5 feet vertical intervals in the fourth and fifth borings. Compressional and shear-wave velocities were measured, using the cross-hole technique.

Formation and Propagation of Faults

Data on amount, frequency and type of displacement on faults in the site region were reviewed to evaluate parameters and conditions applicable to the studies that will be conducted for faults in the site locality. Data from historical earthquakes on faults of various types were reviewed to estimate the realtionship between fault parameters such as displacement and magnitude.

Geophysical Data Analysis

The analysis of geophysical data was essentially completed during the period.

Seismic Data Analysis

Data analysis of the crustal structure from the explosion data, focal mechanisms for specific areas and structures, and swarms and aftershock sequences was completed during the period. Focal mechanism solutions, hypocenter cross-sections, and recurrence rates were used in the continuing evaluation of faulting along structures significant to a tectonic model interpretation.

Site Specific Earthquake Characteristics

Data acquisition for the current phase was completed during the period and the recording equipment was withdrawn. The development of the Green's function programs and analysis of the source mechanisms of selected earthquakes continued. A study of the local attenuation of seismic waves was undertaken during the period.

Earthquake Ground Motion

The additional soil exploration and seismic cross-hole survey programs at the plant site have been completed. Processing and interpretation of information resulting from these programs are

under way. This effort includes conducting and interpreting a laboratory testing program on samples obtained from the field exploration program.

The implication of these newly available data on ground motion and liquefaction potential assessments is being evaluated.

If you have any questions or require further information, please do not hesitate to call me.

With regards,

Ashok S. Patwardhan

ASP:dm

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
PACIFIC GAS AND ELECTRIC COMPANY	)	Docket No. 50-133
	)	License No. DPR-7
(Humboldt Bay Power Plant, Unit No. 3)	)	
	)	

CERTIFICATE OF SERVICE

The foregoing document of Pacific Gas and Electric Company has been served today on the following by deposit in the United States mail, properly stamped and addressed:

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Dated: July 15, 1980

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