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PACIFIC GAS AND ELECTRIC COMPANY

PG&E + 77 BEALE STREET, 31ST FLOOR • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211

MALCOLM H. FURBUSH
VICE PRESIDENT AND GENERAL COUNSEL

ROBERT OHLBACH
ASSOCIATE GENERAL COUNSEL

CHARLES T. VAN DEUSEN
PHILIP A. CRANE, JR.
HENRY J. LAPLANTE
JOHN B. GIBSON
ARTHUR L. HILLMAN, JR.
CHARLES W. THISSELL
DANIEL E. GIBSON
ASSISTANT GENERAL COUNSEL

May 19, 1980

GILBERT L. HARRICK
GLENN WEST, JR.
JOSEPH I. KELLY
HOWARD V. GOLUB
JAMES C. LORRISON
ROBERT L. BORDON
PETER W. HANSEN
THEODORE L. LINDBERG, JR.
DOUGLAS A. OLSBY

EDWARD J. MCSHANEY
DAN GRAYSON LUBBERG
JACK F. FALLIN, JR.
EDWARD J. DELLABANTA
JOSHUA BARLEY
JOSEPH S. ENGLERT, JR.
ROBERT L. HARRIS
RICHARD F. LOCKE
DAVID L. LUDVIGSON
SENIOR COUNSEL

J. PETER BAUMBARTNER
STEVEN P. BURKE
PAMELA CHAPPELLE
AUDREY DAINES
MICHAEL G. DEMARAS
GARY P. ENCINAS
JOHN N. FRYE
PATRICK G. GOLDEN
KERNIT R. KUBITS
MEREK E. LIPSON
JOHN S. LOW
RICHARD L. MEISS
ROGER J. PETERS
ROBERT R. RICHETT
SHIRLEY A. SANDERSON
JO ANN SHAFER
LOUIS E. WINDENT
SHIRLEY A. WOOD
KENNETH YANE

DJANA BERGHAUSEN
LEIGH E. CARRIDY
HEATHER S. CIBENA
BRIAN S. DENTON
WILLIAM H. EDWARDS
DONALD D. ERICKSON
DAVID C. GILBERT
JUAN W. JAYO
F. RONALD LAUFHEIMER
HARRY W. LONG, JR.
ROBERT S. MCELCHMAN
RICHARD N. MOSS
J. MICHAEL REIDENBACH
FOR E. SANDON
SUCANN LEVIN SCHIFF
JACK W. SHUER
DAVID J. WILLIAMSON
BRUCE R. WORTHINGTON
ATTORNEYS

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 March and April 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

RFL:sls
cc: T. Ippolito
Bruce Norton, Esq.
Enclosure . 8005300302 G

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ADD.
R JACKSON

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:

Linda J. Brown, Esq.
100 Van Ness Avenue, 19th Floor
San Francisco, CA 94102

*Steve Goldberg, Esq.
Office of Executive Legal
Director
BETH 042
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

*Secretary
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555
Attn: Docketing and Service
Section

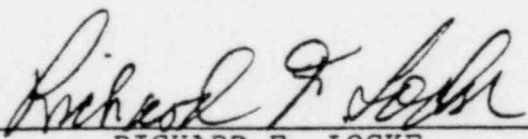
*Robert M. Lazo, Esq., Chairman
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Gustave A. Linenberger, Member
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. David R. Schink
Department of Oceanography
Texas A & M University
College Station, TX 77840

Michael R. Sherwood, Esq.
Sierra Club Legal Defense Fund, Inc.
311 California Street, Suite 311
San Francisco, CA 94104

Dated: May 19, 1980



RICHARD F. LOCKE
Attorney
Pacific Gas and Electric Company

*Express Mail

Three Embarcadero Center, Suite 700
San Francisco, California 94111
415-956-7070

Woodward-Clyde Consultants

May 14, 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 March and April, 1980 -
Geologic and Seismologic Studies, Humboldt Bay Review

This report summarizes the geologic and seismologic investigations for the Humboldt Bay Power Plant during March and April, 1980. During the period, regional mapping and age dating, late Quaternary studies, deep borings at the site, geophysical data analysis, acquisition and analysis of strong motion data, seismologic data analysis, and earthquake ground motion studies continued. A program of seismic wave velocity measurements and standard penetration tests was begun at a location near the containment structure. 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, trace element analysis, and the preparation of interim summaries of existing data. Field mapping south of the Eel River and drilling for paleomag sampling at Thompkins Hill was begun. A review of the literature concerning the origin of offshore structures identified in seismic data was completed.



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Paleomagnetic age dating samples were obtained at about 10 feet intervals in Boring WCC-26, drilled to 300 feet near the Naval Oceanography Station at Centerville Beach, west of Ferndale.

Late Quaternary Geologic Studies and Fault Capability Evaluation

During this reporting period, data from the McKinleyville and College of Redwoods exploration localities were synthesized. Laboratory analyses (percent clay content in samples collected from test pits and trenches) were run to assess the relative degree of pedogenic soil formation on the McKinleyville terrace.

Twenty-two shallow borings were drilled across the Goose Lake fault near Hydesville to assess the amount of deformation in the late Pleistocene and Holocene sediments at this locality. Two shallow borings were drilled adjacent to the McKinleyville fault (Mad River fault zone) to assess the cumulative displacement in the Cranell deposits (Pleistocene).

Approximately 160 meters of trench were excavated at the Brazil Property exploration locality 3 km south of the plant site. These trenches are located on a terrace surface on the southwest side of Humboldt Hill. Two trenches were excavated partway across the northeast-tending lineaments on Table Bluff and a trench extending from the plant to the tip of Buhne Point was started during the period.

Identification of Faults in the Site Locality

Drilling operations continued in the site vicinity during the reporting period. Boring WCC-6 (previously designated Boring 14 in the Scope of Work) was drilled to its revised target depth of 1068 feet at its revised location about 800 feet northeast of Boring B-26. Boring WCC-5 (previously designated Boring 10) was drilled to its revised target depth of 3013 feet. Boring WCC-10 (not previously designated in the Scope of Work) was drilled to its target depth of 2612 feet immediately south of the southwest corner of the plant boundary. Boring WCC-25 (not previously designated), used as a calibration boring to evaluate the usefulness of a borehole seisviewer (sonic camera), was drilled to its target depth of 120 feet in the Fields Landing sand quarry.

Suites of geophysical logs have been obtained in the borings: spontaneous potential, resistivity, and gamma ray logs have been obtained in all borings, and sonic, neutron, formation density, and high resolution dipmeter logs have also been obtained in Borings WCC-5 and WCC-10. Additionally, a spectralog survey was conducted in Boring WCC-10, and seisviewer surveys were performed in Borings WCC-10 and WCC-25. In addition, Pitcher and core barrel samples for paleomagnetic age dating were obtained at 20

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to 30 feet intervals from about 900 to 1550 feet depths in Boring WCC-10.

Seismic Wave Velocity and Standard Penetration Tests

A five-boring test array was being installed about 150 to 200 feet northeast of the center of the reactor. Three of the borings have been drilled to 250 feet depth, geophysically logged, cased, and grouted. Inclinator surveys have been performed to assess the degree of verticality and straightness of these borings. Drilling of the fourth boring has begun; standard penetration test (SPT) drive samples were obtained at 5 feet vertical intervals. Compressional and shear-wave velocities were measured, using the cross-hole technique.

Formation and Propagation of Faults

A review was begun of the nature, amount and range of displacements on different types of faults for selected historical earthquakes. A compilation of data on the amount, recency and frequency of displacements from Quaternary geologic studies in the site region was started.

Geophysical Data Analysis

In March and April the geophysical studies continued toward completion of data reduction and analysis. The offshore Western data have been summarized and the seismic line near the plant was interpreted.

Seismic Data Analysis

Development of a seismological crustal structure and tectonic model for the plant site region has continued. A refined analysis of refraction data has revealed further lateral variations in crustal structure. These variations are being incorporated with previous results to refine the crustal structure model. Focal mechanism solutions, hypocenter cross-sections, and recurrence rates are being used to evaluate faulting along structures significant to a tectonic model interpretation.

Site Specific Earthquake Characteristics

Results of corrected digital records for selected earthquakes which occurred prior to October 1979 are continuing to be reviewed in light of recently obtained calibration data from the instrument supplier. These calibration data are being used in re-evaluating results of preliminary analyses of more recent data, for the time period from October 1979 through January 1980.

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Earthquake Ground Motion

Ground motion data recorded during the October 1979 Imperial Valley earthquake was obtained. Processing and analyses of these data have commenced with emphasis on recorded peak accelerations and computed spectral ordinates. These data and other data will be used in the assessment of design ground motions for the plant.

Work in the assessment of soil-structure interaction has started. Ground motion data potentially recorded by the free-field accelerometers and by instruments at the foundation of the plant will be used in assessing the soil-structure interaction effect under earthquake loading.

Schedule

Age dating of the Hookton formation is scheduled to begin during the next reporting period. Identification of faults south of Fields Landing by deep drilling will commence in the next period.

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

With regards,

Jefferson M. Billiard
for Ashok S. Patwardhan

ASP:dm