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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	Docket Nos. 50-361 OL
	50-362 OL
SOUTHERN CALIFORNIA EDISON COMPANY, et al. (San Onofre Nuclear Generating Station, Units 2 and 3).	RESPONSE AND OBJECTIONS OF SOUTHERN CALIFORNIA EDISON COMPANY TO INTERVENOR FOE, ET AL.'S FOURTH SET OF INTERROGATORIES

TO INTERVENORS FRIENDS OF THE EARTH, MR. AND MRS. AUGUST CARSTENS, MR. AND MRS. LLOYD VON HADEN, MRS. DONIS DAVEY AND THEIR ATTORNEY OF RECORD:

Pursuant to 10 C.F.R. § 2.740b, Applicant Southern California Edison Company hereby responds to "INTERVENOR, FOE ET AL. INTERROGATORIES TO SOUTHERN CALIFORNIA EDISON" which were served by mail on Applicants on August 11, 1980.

INTERROGATORY NO. 1:

Please identify the person or persons answering these interrogatories by stating name, date of birth, occupation,

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residence address, business address, and under what authority you are answering these interrogatories.

ANSWER TO INTERROGATORY NO. 1:

(a) H. G. Hawkins

(b) September 23, 1940

(c) Geologist

(d) Not Applicable.

(e) 2244 Walnut Grove Avenue, Rosemead, California.

(f) Scope of employment with SCE.

INTERROGATORY NO. 2:

Please state the office you hold with the applicant, Southern California Edison, et al.

ANSWER TO INTERROGATORY NO. 2:

Geotechnical Group Leader, San Onofre.

INTERROGATORY NO. 3:

For each of the documents named in the attached list, please provide the answers to the following questions listed a,b,c, and d.

a. Has any number of your staff analyzed this document in the context of this proceeding prior to receipt of these interrogatories? If so, provide the name and a copy of the report or memo.

b. Has any of your consultants analyzed this document on your behalf or in the context of this proceeding prior to the receipt of these interrogatories? If so, provide the name of the consultant and a copy of the analysis or memos.

c. If the answer to (a) is No, do you plan to have members of your staff analyze this document in the context of the

SONGS 2 and 3 Operating License Proceedings?

d. If the answer to (b) is No, do you plan to have any of your consultants analyze this document in the context of the SONGS 2 and 3 Operating License Proceedings?

Definition of Term "analyze"--When the Intervenors ask "Has said person analyzed this document" it is meant has said person read or reported on in a written memo or report to any other member of the staff or group of consultants.

The Intervenors hereby note to the Applicants and the ASLB that the first 110 documents listed in this set of Interrogatories are actually taken from a list in NRC Dockets Numbers 50-275 and 50-323, submitted by Intervenors for Diablo Canyon, on November 15, 1978, as part of "Testimony of Dr. James N. Brune on Behalf of Intervenors, Regarding Contention #3, Ground Motion, in the matter of the Diablo Canyon Nuclear Power Plant, Units 1 and 2."

ANSWER TO INTERROGATORY NO. 3:

(a) & (b) Applicants object to those portions of Interrogatory 3(a) and (b) requesting production of documents. Said request is not authorized by the Rule of Practice. Such request must be pursuant to and conform with 10 C.F.R. § 2.741(a)(1).

(c) & (d) Applicants have no present intent to further analyze in the context of this docket any of the documents listed herein as 1-242 as a result of Intervenors' Interrogatories.

NOTE: Many, if not most of Documents 1-242 have been read by various employees and consultants, answers herein reflect the "analysis" of such documents in the context of San Onofre 2 &

3, specifically.

1. (With J. Oliver) The Seismic Noise of the Earth's Surface, Bull. Seism. Soc. Amer., 49: 4, 349-353 (1959).

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3. (With J. E. Nafe) Observations of Phase Velocity for Rayleigh Waves in the Period Range 100 to 400 Seconds, Bull. Seism. Soc. Amer., 50: 3, 427-439 (1960).

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4. Radiation Pattern of Rayleigh Waves from the Southeast Alaska Earthquake of 10 Jul 1958, Domin. Observ., 24, 10, A Symposium on Earthquake Mechanism, 1-11 (1961).

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5. (With M. Ewing and J. Kuo) Group and Phase Velocities for Rayleigh Waves of Period Greater than 330 Seconds, Science, 133: 757 (1961).

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6. (With J. E. Nafe and L. E. Alsop) The Polar Phase Shift of Surface Waves on a Sphere, Bull. Seism. Soc. Amer., 51: 247-257 (1961).

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7. (With H. Benioff and M. Ewing) Long-period Surface Waves from the Chilean Earthquake of May 22, 1960, Recorded on Linear Strain Seismographs, Jour. Geophys. Res., 66: 9, 2895-2910 (1961).

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8. Attenuation of Dispersed Wave Trains, Bull. Seism. Soc. Amer., 52:1, 109-112 (1962).

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9. (With J. T. Kuo and M. Major) Rayleigh Wave Dispersion in the Pacific Ocean for the Period Range 20 to 140 Seconds, Bull. Seism. Soc. Amer., 52: 2, 333-357 (1962).

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10. Correction of Initial Phase Measurements for the Southeast Alaska Earthquake of July 10, 1958, and for Certain Nuclear Explosions, Jour. Geophys. Res., 67: 9, 3643-3644 (1962).

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11. (With M. Ewing and J. Kuo) Surface Wave Studies of the Pacific Crust and Mantle, Geog. Monograph, 6, Crust of the Pacific Basin, (1962).

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12. (With J. Dorman) Seismic Waves and Earth Structure in the Canadian Shield, Bull. Seism. Soc. Amer., 53: 1, 167-209 (1963).

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13. (With A. Espinosa and J. Oliver) Relative Excitation of Surface Waves by Earthquakes and Underground Explosions in the California-Nevada Region, Jour. Geophys. Res., 68: 11, 3501-3513 (1963).

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(b) Dr. Stewart Smith.

14. Use of Surface Wave Rejection Filters to Record Mantle Waves of Low Order, Earthquake Notes, 34: 73 (September - December 1963). (Abstract)

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15. (With P. W. Pomeroy) Surface Wave Radiation

Patterns for Underground Nuclear Explosions and Small Magnitude Earthquakes, Jour. Geophys. Res., 68: 17, 5005-5028 (1963).

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16. Travel Times, Body Waves, and Normal Modes of the Earth, Bull. Seism. Soc. Amer., 54: 6, 2099-2128 (1964).

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17. (With R. Chander) Radiation Pattern of Mantle Rayleigh Waves and the Source Mechanism of the Hindu Kush Earthquake of July 6, 1962, Bull. Seism. Soc. Amer., 55: 5, 805-819 (1965).

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21. (With J. Oliver, A. Ryall and D. Slemmons) Micro-earthquake Activity Recorded by Portable Seismographs of High Sensitivity, Bull. Geol. Soc. of Amer., 56: 4, 899-924 (1966).

(a) No.
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22. (With R. C. Liebermann, C. Y. King and P. W. Pomeroy) Excitation of Surface Waves by the Underground Nuclear Explosion Long Shot, Jour. Geophys. Res., 71: 18, 4333-4339

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23. (With C. R. Allen) A Micro-earthquake Survey of the San Andreas Fault System in Southern California, Bull. Seism. Soc. Amer., 57: 2, 277-296 (1967).

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(a) No.
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26. (With C. Y. King) Excitation of Mantle Rayleigh Waves of Period 100 Seconds as a Function of Magnitude, Bull. Seism. Soc. Amer., 57: 6, 1355-1365 (1967).

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26a. The Fault Slips, Engineering and Science Magazine, California Institute of Technology, 31: 2, 36-38 (1967).

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27. Seismic Moment, Seismicity, and Rate of Slip along Major Fault Zones, Jour. Geophys. Res., 73: 2, 777-784 (1968).

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29. (With C. R. Allen, A. Grantz, M. M. Clark, R. V. Sharp, T. G. Theodore, E. W. Wolf and M. Wyss), The Borrego Mountain, California, Earthquake of April 9, 1968: A Preliminary Report, Bull. Seism. Soc. Amer., 58: 3, 1183-1186 (1968).

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38. (With W. Arbasz and G. Engen), Locations of Small Earthquakes Near the Trifurcation of the San Jacinto Fault Southeast of Anza, California, Bull. Seism. Soc. Amer., 60: 2, 617-627 (1970).

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39. Tectonic Stress and the Spectra of Seismic Shear Waves from Earthquakes, Jour. Geophys. Res., 75: 26, 4997-5009 (1970).

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40. Seismic Sources, Fault Plane Studies and Tectonics, EOS, 52: 5, 178-187, May 1971. (IUGG Quadrennial Report on Seismology for U.S.)

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41. (With Wayne Thatcher) "Seismic Study of an Oceanic Ridge Earthquake Swarm in the Gulf of California" Geophys. J. R. Astr. Soc., 22: 473-489 (July, 1971).

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42. (With Cinna Lomnitz, F. Mooser, C. R. Allen, and W. Thatcher) "Seismicity and tectonics of the Northern Gulf of California Region, Mexico. Preliminary Results." Geofisica Internacional, 10: 37-48, Mexico, 1970.

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43. "Seismic Methods for Monitoring Underground Nuclear Explosions, an Assessment of the Status and Outlook", (Book Review) International Institute for Peace and Conflict Research (SIPRI) Stockholm, Sweden, Bull. Seism. Soc. Amer.

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44. (With W. Prothero, J. Dratler, B. Block) "Surface Wave Detection with a Broad-Band Accelerometer", Nature, 231: 21, 80-81 (May, 1971).

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45. (With J. Davies) "Regional and Global Fault Slip Rates from Seismicity", Nature, 229, 101-107 (January, 1971).

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46. "Seismic Discrimination Between Earthquakes and Underground Explosions", statement and testimony at Hearings before Subcommittee on Arms Control, International Law and Organization, Ninety-second Congress of the U.S., First Session on Comprehensive Nuclear Test Ban Treaty, 139-149 (July 22-23, 1971).

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47. (With Max Wyss) "Regional Variations of Source Properties in Southern California Estimated from the Ratio of Short-to Long-Period Amplitudes", Bull. Seism. Soc. Amer., 61, 1153-1167 (October, 1971).

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48. "A Deployment Program for Seismic Monitoring of a Comprehensive Test Ban Treaty", statement and testimony at Hearings before Subcommittee on Research, Development, and Radiation of the Joint Committee on Atomic Energy Congress of the U.S., Ninety-second Congress, First Session on Extent of Present Capabilities for Detecting and Determining Nature of Underground Events, 133-142 (October 27-28, 1971).

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49. (With W. Prothero) "A Suitcase Seismic Recording System", Bull. Seism. Soc. Amer., 61, 6, 1849-1852 (December, 1971).

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50. (With E. McKenzie) "Melting on Fault Planes During Large Earthquakes", Geophys. J. R. Astr. Soc., 29: 1 (1972).

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52. C. R. Allen, M. Wyss, J. N. Brune, A. Grantz and R. E. Wallace. "Displacements on the Imperial, Superstition Hills, and San Andreas Faults Triggered by the Borrego Mountain Earthquake". In U.S.G.S., Prof. Paper #787, pp. 87-104 (1972).

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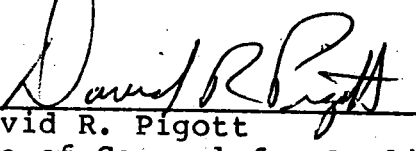
By 
David R. Pigott
One of Counsel for Applicants

VERIFICATION

DAVID R. PIGOTT, affirms that:

1. That he is a member of the law firm of Chickering & Gregory, San Francisco, California.

2. That he is Counsel for Applicants Southern California Edison Company and San Diego Gas & Electric Company (hereafter "Applicants") in this proceeding.

3. That he is authorized by Applicants to execute and verify the foregoing "RESPONSE AND OBJECTIONS OF SOUTHERN CALIFORNIA EDISON COMPANY TO INTERVENOR FOE, ET AL.'S FOURTH SET OF INTERROGATORIES".

4. That he is informed and believes and upon such information and belief affirms that the foregoing "RESPONSE AND OBJECTIONS OF SOUTHERN CALIFORNIA EDISON COMPANY TO INTERVENOR FOE, ET AL.'S FOURTH SET OF INTERROGATORIES" is true and correct.

DATED: Sept 15, 1980

David R. Pigott

David R. Pigott

PROOF OF SERVICE BY MAIL

I declare that:

I am employed in the City and County of San Francisco, California.

I am over the age of eighteen years and not a party to the within entitled action; my business address is Three Embarcadero Center, Suite 2300, San Francisco, California 94111.

On September 15, 1980, I served the attached "Response and Objections of Southern California Edison Company To Intervenor FOE, et al.'s Fourth Set of Interrogatories" on the following in said cause, by placing a true copy thereof enclosed in sealed envelopes with postage thereon fully prepaid, in the United States mail at San Francisco addressed as follows:

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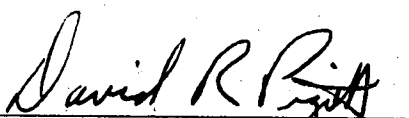

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