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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF SECRETARY

In the Matter of )  
 )  
SOUTHERN CALIFORNIA EDISON )  
COMPANY, et al. )  
 )  
(San Onofre Nuclear Generating )  
Station, Units 2 and 3) )  
 )

DOCKET NOS. 50-361 OL  
50-362 OL

APPLICANTS' BRIEF RE CERTIFIED QUESTIONS  
ON DEFINITION AND IMPLEMENTATION OF  
10 CFR 50.47(b)(12), MEDICAL SERVICES

DAVID R. PIGOTT  
EDWARD B. ROGIN  
SAMUEL B. CASEY  
Of ORRICK, HERRINGTON & SUTCLIFFE  
A Professional Corporation  
600 Montgomery Street  
San Francisco, California 94111  
Telephone: (415) 392-1122

CHARLES R. KOCHER  
JAMES A. BEOLETTO  
SOUTHERN CALIFORNIA EDISON COMPANY  
P.O. Box 800  
2244 Walnut Grove Avenue  
Rosemead, California 91770  
Telephone: (213) 572-1900

Attorneys for Applicants,  
Southern California Edison Company,  
San Diego Gas & Electric Company,  
City of Anaheim, California and  
City of Riverside, California

Dated: October 13, 1982.

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I

INTRODUCTION

On September 24, 1982, the Nuclear Regulatory Commission ("Commission") issued "Order (CLI-82-27)" ("Order") in the above-captioned docket. Said Order indicated that the Commission had decided not to review Decision, ALAB-680, issued by the Atomic Safety and Licensing Appeal Board ("Appeal Board") in this proceeding. As a part of that same Order, the Commission took note of the differing interpretations of 10 CFR 50.47(b)(12) that exist between the Appeal Board and the Atomic Safety and Licensing Board ("Licensing Board"). The Commission determined that this difference of interpretation involved significant policy issues and directed the Appeal Board to certify to the Commission the following issues:

(1) Does the phrase "contaminated injured individuals" as used in 10 CFR 50.47(b)(12) require applicants for nuclear power plants to provide arrangements for medical services only for members of the public who have suffered traumatic injury and are also contaminated with radiation?

(2) If the answer to question (1) is no, to what extent does 10 CFR 50.47(b)(12) require advance, specific arrangements and commitments for medical services for the general public as opposed to the general knowledge that facilities and resources exist and could be used on an ad hoc basis?

The Commission further ordered that any party desiring to participate in resolution of the certified issue must have its brief on the issue in the Commission's hands no later than 20 days from the date of the Order, October 14, 1982.

Pursuant to said Order of September 24, 1982, Southern California Edison Company, San Diego Gas & Electric Company, City of Anaheim, California, and City of Riverside, California ("Applicants") hereby submit their position with respect to the certified issues.

## II

### APPLICANTS' POSITION

Applicants interpret 10 CFR 50.47(b)(12) as applying to individuals who are contaminated and traumatically injured. Applicants' answer to certified question (1) is "yes." Applicants further consider that said regulation applies only to emergency medical services for such contaminated and injured individuals. Applicants have determined that the class of persons who may be included within this definition is relatively limited at San Onofre

Units 2 & 3 and could be handled through the facilities and arrangements made available as a result of Applicants' arrangements to care for contaminated injured individuals who receive their contamination and injury either as a result of onsite activities or offsite activities in support of emergency services.

Any further medical planning or arrangements should be limited to such as may be necessary to implement ad hoc services in the event of a low probability but very severe accident.

### III

APPLICANTS ARE REQUIRED UNDER 10 CFR PART 50,  
APPENDIX E, TO PROVIDE MEDICAL SERVICES  
FOR CONTAMINATED INJURED ONSITE WORKERS  
AND OFFSITE EMERGENCY SERVICES WORKERS

The requirements for onsite and offsite plans are described in 10 CFR 50.47 and 10 CFR Part 50, Appendix E. Specific guidance for compliance with 10 CFR 50.47 are set forth in "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG- 0654 FEMA-REP-1 Rev. 1. ("NUREG-0654")

In preparation of onsite emergency plans Applicants conformed to 10 CFR Part 50, Appendix E. In planning emergency medical facilities, Applicants were specifically guided by 10 CFR Part 50, Appendix E, Section IV, E, Emergency Facilities and Equipment. That regulation states:

Adequate provisions shall be made and described for emergency facilities and equipment, including:

\* \* \* \*

3. Facilities and supplies at the site for decontamination of onsite individuals;
4. Facilities and medical supplies at the site for appropriate emergency first aid treatment;
5. Arrangements for the services of physicians and other medical personnel qualified to handle radiation emergencies on-site;
6. Arrangements for transportation of contaminated injured individuals from the site to specifically identified treatment facilities outside the site boundary;
7. Arrangements for treatment of individuals injured in support of licensed activities on the site at treatment facilities outside the site boundary; .... (Emphasis added)

In satisfying Appendix E, Applicants have considered "contaminated injured individuals" to mean something different than merely "contaminated" since decontamination facilities are already required onsite for those individuals. Additionally, Applicants must provide for medical personnel competent to handle onsite radiation emergencies. In completing the preparations cycle, Applicants must be able to transport "contaminated injured individuals" from the site to identified treatment facilities outside the site and have ready appropriate offsite medical treatment facilities.

Applicants conclude from the medical arrangements required by Appendix E that, at least for onsite personnel,

"contaminated injured individuals" are those who are more than simply contaminated or require first-aid: they are persons who have been contaminated and who have also sustained a traumatic injury such that special transportation equipment and medical facilities are required for their treatment. Applicants have construed this requirement in the onsite context to include onsite workers and emergency workers offsite who may receive both traumatic injuries and contamination in support of emergency activities.

Applicants interpret the phrase "contaminated injured individuals" as used in 10 CFR 50.47(b)(12) in the same manner as for 10 CFR Part 50, Appendix E, Section IV, paragraph 6. Applicants consider the interpretation of this section to apply to persons who are traumatically injured and contaminated such that special medical facilities are necessary. Applicants have determined that the number of persons requiring immediate medical treatment would be small, limited to persons who may become involved in an accident requiring emergency treatment. Such individuals must also have been exposed to radiation contemporaneously with the traumatic injury. Examples of this class of individuals would be those involved in an automobile accident during evacuation and who have been exposed to radiation.

Applicants considered the class to be sufficiently small that at least for San Onofre Units 2 & 3, the arrangements provided for onsite and emergency support

workers are adequate to care for the offsite population that may be both injured and contaminated.

IV

APPLICANTS' INTERPRETATION OF 10 CFR  
50.47(b)(12) IS IN ACCORD WITH THE  
CRITERIA OF NUREG-0396 AND NUREG-0654

Applicants review of the studies leading to adoption of 10 CFR 50.47(b)(12) and NUREG-0654 supports the interpretation of "injured contaminated individuals" as meaning traumatically injured and contaminated individuals.

In December, 1978 there was issued "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plans," NUREG-0396, EPA 520/1-78-016 ("NUREG-0396"). The document was the product of a Task Force of Nuclear Regulatory Commission and Environmental Protection Agency personnel. NUREG-0396 is significant in that it states the technical basis for subsequent emergency planning requirements and establishes a concept of emergency planning that considers a broad spectrum of accidents ranging from design basis accidents to "Class 9 Accidents," those exceeding design basis.

NUREG-0396 also set forth its recommended planning basis which included the following:

"The EPZ guidance does not change the requirements for emergency planning, it only sets bounds on the planning problem. The Task Force does not recommend that massive emergency preparedness programs be established around all nuclear power:

stations. The following examples are given to further clarify the Task Force guidance on EPZs:

No special local decontamination provisions for the general public (e.g., blankets, changes of clothing, food, special showers)

No stockpiles of anti-contamination equipment for the general public

No construction of specially equipped fallout shelters

No special radiological medical provisions for the general public

No new construction of special facilities for emergency use

No special stockpiles of emergency animal feed

No special decontamination equipment for property and equipment

No participation by the general public in test exercises of emergency plans.

Some capabilities in these areas, of course, already exist under the general emergency plans of Federal and State agencies." (NUREG-0396, pp. 14-15.)

By Nuclear Regulatory Commission Policy Statement dated October 18, 1979, "Planning Basis for Emergency Response to Nuclear Power Reactor Accident," 44 Fed. Reg. 61123, (October 23, 1979) the Commission concurred in and endorsed the guidance set forth in NUREG-0396. The Commission specifically endorsed the concept of considering a spectrum of design basis and core-melt accidents in developing emergency planning guidance and directed the NRC Staff to incorporate the planning basis of NUREG-0396 into

the NRC's subsequent regulations and guidance on emergency planning. (44 Fed. Reg. 61123, (Oct 23, 1979).)

Pursuant to the Commission's direction, reliance on the planning basis of NUREG-0396 is specifically acknowledged in NUREG-0654 in the discussion of "Planning Basis as follows:

"NUREG-0396 . . . provides a planning basis for offsite emergency preparedness efforts considered necessary and prudent for large power reactor facilities. The NRC's policy statement of October 23, 1979 (44 FR 61123), directs the NRC staff to incorporate the guidance in the report and emergency preparedness documents. Additionally, the guidance in [NUREG-0396] is now reflected in the NRC Final Rule on Emergency Planning. FEMA has also concluded that the guidance in NUREG-0396 should be used as the planning basis for emergency preparedness around nuclear power facilities". (NUREG-0654, pp. 5-7, emphasis added.)

Given the discussion of NUREG-0396 in NUREG-0654 it is apparent that the Commission intended the parameters of emergency preparedness, including offsite medical arrangements, to be determined in conformity with NUREG-0396. This intention is confirmed by the Commission's reference to NUREG-0654 in its emergency planning regulations as providing the criteria for determining compliance with the standards set forth in its emergency planning regulations, including the provision on medical services arrangements. (10 CFR 50.47(b)(12) and 50.47(b) footnote 1).

THE NEED FOR EMERGENCY MEDICAL SERVICES  
DOES NOT EXTEND TO INDIVIDUALS OTHER  
THAN THOSE WITH TRAUMATIC INJURIES

Applicants are unaware of any medical requirement that persons experiencing doses of radiation or contamination (such as might be received from a nuclear power plant accident) are in need of immediate emergency medical attention. This is perhaps best reflected in the Licensing Board's Initial Decision of May 14, 1982 and the Appeal Board's Decision (ALAB-680) of July 16, 1982.

The Licensing Board specifically found:

"4. Time is not of the essence in decontamination or treatment of excessive radiation. Treatment of a traumatic injury always takes precedence. Persons can be decontaminated at home or at any facilities where showers are available. (Linnemann, Tr. 7084, 7087, Hauck, Tr. 7121-22, 7798)

5. In excessive exposure cases, there is an uninterrupted clinical course which evolves over days and weeks. The gradual evolution of the injury allows for time in which to bring the results of tests and expertise to bear. (Linnemann, Tr. 7102-03, 10,843-44)" (Initial Decision, p.132.)

The Appeal Board agreed with the Licensing Board's assessment of the time requirements for emergency medical treatment and concluded:

"People who suffer radiation injury, on the other hand, are unlikely to need emergency treatment." (ALAB-680, p. 18.)

Applicants are unaware of any basis for emergency medical facilities for radiation treatment.

There are medical reasons for special emergency facilities for traumatically injured and contaminated individuals. The reasons are well capsulated in ALAB-680:

"Contaminated injured is a distinct category encompassing potential patients whose traumatic (i.e., physical) injuries are complicated by radioactive contamination. As Dr. Roger E. Linnemann explained:

A patient who has been exposed to radiation does not, in turn, give off radiation any more than a burn[ed] patient gives off heat. There has been damage and . . . the clinical course unfolds over a period of time.

This means that we do have time to react and time to plan.

\* \* \*

[T]he problem arises if the person is injured and contaminated. This requires special facilities at a hospital. It requires special facilities because we would rather not admit those persons to our normal emergency room because contamination is loose. It can fall on the floor . . . in the emergency rooms, where people move in and out quite quickly, and the first thing you know you could cause contamination in the hallways of the hospital. . . . [T]herefore we have designed facilities where a patient can be treated for his traumatic injury while you control the contamination.

Tr. 7719-21. See also Tr. 7082-84, 7727-29, 7745-48. Dr. Linnemann further explained that because the clinical course of radiation injury unfolds over time and 'is seldom, if ever, life threatening[,] . . . in all cases [treatment of] the traumatic injury takes precedence.' Tr. 7721." (ALAB-680, p. 17.)

Clearly, the phrase "contaminated injured" has very real medical significance. That significance does not attach to

individuals who are merely contaminated. Such significance does not even attach to persons with severe radiation. Although severely exposed persons may require medical treatment including hospitalization, such treatment is not an immediate emergency requirement and thus is not within the scope of 10 CFR 50.47(b)(12)

## VI

### MEDICAL SERVICES ARRANGEMENTS ARE NOT NECESSARY FOR INDIVIDUALS WHO MAY BE CONTAMINATED AS A RESULT OF AN ACCIDENT

It was the uncontroverted testimony of Applicants' witness Dr. Linnemann that contamination does not require clinical medical treatment. If decontamination is required, it need not be done at a hospital. Decontamination does not require hospitalization unless accompanied by traumatic injury. Persons may be decontaminated at home or at any facility where showers are available. (Dr. Hauck, Tr. 7121- 7122; Dr. Linnemann, Tr. 7085-7087, 10822; Dr. Ehling, Tr. 9982.)

Applicants submit there is no reason for requiring clinical medical arrangements on an emergency basis for persons who may be contaminated but have no traumatic injury.

VII

MEDICAL FACILITIES FOR THE GENERAL  
PUBLIC ARE NECESSARY FOR INDIVIDUALS  
WHO HAVE SUSTAINED TRAUMATIC INJURY  
AND ARE ALSO CONTAMINATED WITH RADIATION

Applicants have interpreted "contaminated injured individuals" to mean persons suffering traumatic injury and contamination. In response to certified question No. 2, such interpretation does not mean that medical arrangements are unnecessary for the general public. There must be arrangements to transport injured and contaminated individuals to specific medical facilities capable of rendering appropriate treatment. Arrangements should parallel those for onsite and emergency workers. (10 CFR Part 50, Appendix E, IV.)

Although the number of individuals needing medical treatment will be relatively small, that number must be considered and the capacity for transportation and medical facilities must be sufficient to handle that number of persons. The Appeal Board determined that the record in this docket would support a finding that adequate facilities are available.

"The record is clear that relatively few people are expected to be both contaminated and traumatically injured in a nuclear accident. The estimate was from one to perhaps 25 or so. Tr. 11,060-61. See also Tr. 7747. These people would be principally workers onsite who become contaminated and injured during the course of the accident. The contaminated injured could also include members of the general public, such as emergency workers, who might be involved in

monitoring a contaminated area onsite and are then injured (for example) in a traffic accident. Tr. 11,059-61. See also Tr. 7746-48. The applicants' present emergency plan is fully adequate to cope with these eventualities." (Decision, ALAB-680, p. 18.)

In the present case, it was determined that the relatively few persons who would be in this category could be treated adequately at the three hospitals with which Applicants have specific arrangements. Additionally, the County of Orange's emergency response plan identifies 13 hospitals that have the ability to treat contaminated individuals. (cf. ALAB-680, p. 18.) The Licensing Board found that Applicants' medical arrangements could handle "upwards of 25 accident victims" and ". . . although somewhat speculative, that such accommodations could be stretched to accommodate as many as 100 victims." (Initial Decision, p. 134.)

Applicants submit that for emergency purposes, the foregoing medical arrangements at San Onofre Units 2 & 3 are sufficient to meet the requirements of 10 CFR 50.47(b)(12).

#### VIII

##### TREATMENT OF SERIOUS RADIATION VICTIMS CAN BE ON AN AD HOC BASIS

The number of persons receiving radiation doses from a low-probability accident and requiring hospitalization would be relatively small. The Licensing Board appears to be of the opinion that in the event of such a low-probability accident at San Onofre, there may be 1000 persons who would

receive doses requiring hospitalization. (Initial Decision, pp. 42-43, 46, 135.) Assuming but not accepting such numbers, there is uncontraverted evidence that 1000 persons could be accomodated by existing medical facilities. Although not cited by the Licensing Board, Dr. Ehling, Health Officer for the County of Orange, testified that hospital facilities exist within and beyond the plume EM to handle as many as 2000 persons if necessary and as many as 31,000 persons could be treated on an area-wide, southern California basis. (Tr. 9917, 9991-9993.)

In addition to capabilities generally available in the geographic area, Applicants have contracted with Radiation Management Corporation ("RMC") to obtain its Emergency Medical Assistance Program ("EMAP"). This program is designed to develop and maintain necessary medical services for injured and contaminated persons. (Applicants' Ex. No. 100; Dr. Hauck, Tr. 7122, 7123; Dr. Linnemann, Tr. 7102, 7104.)

Through EMAP, Applicants have available the services of Dr. R. E. Linnemann and other experts employed by RMC on a 24-hour basis to provide consultation for the treatment of injuries complicated by contamination or for patients who have received excessive radiation exposure as a consequence of activities at SONGS. Such assistance may often be achieved by telephone and, if required, RMC may dispatch a Radiation Emergency Medical ("REM") Team,

consisting as a minimum of a radiation medicine physician, a certified health physicist and technicians with portable instrumentation. (Dr. Linnemann, Tr.7104.)

Although the REM Team might not arrive for some hours following an injury or overexposure to radiation, such delay would not be detrimental. Upon arrival the REM Team would assist the hospital in cleanup of contaminated areas and assist over the next days in the evaluation of the patients exposure, dispatching bioassay samples to RMC's Chicago or Philadelphia laboratories if necessary. These laboratories, which are part of RMC's backup support, are periodically reviewed for their capability to perform all types of necessary analyses. Other RMC back-up support includes consultants in radiation medicine, radiochemistry and health physics, including expertise in dosimetry. (Dr. Linnemann, Tr. 7104-7105.)

If it is determined that a patient requires long term definitive care, the patient can be transferred to a medical center in California equipped to do the clinical treatment of radiation injuries or to one of RMC's definitive care centers, Northwestern Memorial Hospital in Chicago or the Hospital of the University of Pennsylvania in Philadelphia. If a center in California is chosen, it will have available RMC's radiation medicine expertise, exposure evaluation expertise, and bioassay laboratory capability. (Dr. Linnemann, Tr. 7106.)

Applicants submit that for a very severe, low-probability accident, the foregoing knowledge of medical capability in the geographic area coupled with the reserve expertise available through Applicants' consultants, the general public is assured of adequate medical care, even in the most severe circumstances.

## IX

### CONCLUSION

Applicants submit:

(1) That the phrase "contaminated injured individuals" as used in 10 CFR 50.47(b)(12) requires applicants for nuclear power plants to provide arrangements for medical services only for individuals who have suffered traumatic injury and are also contaminated with radiation. This is so because other radioactive and contaminated injuries either do not need clinical medical treatment or such treatment need not commence during the "emergency" stage of a radiation accident.

(2) Advance, specific arrangements and commitments for medical services are required to assure appropriate transportation and medical services for persons traumatically injured and contaminated with radiation. Medical services for persons contaminated or suffering serious radiation exposure can be treated either outside a hospital setting or

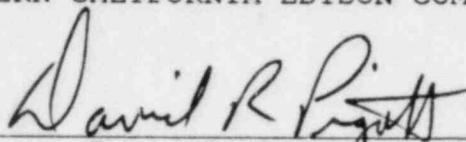
subsequent to the emergency period of an accident on an ad hoc basis.

Respectfully submitted,

DAVID R. PIGOTT  
EDWARD B. ROGIN  
SAMUEL B. CASEY  
Of ORRICK, HERRINGTON & SUTCLIFFE  
A Professional Corporation

CHARLES R. KOCHER  
JAMES A. BEOLETTO  
SOUTHERN CALIFORNIA EDISON COMPANY

By



David R. Pigott  
Counsel for Applicants

DECLARATION OF SERVICE BY MAIL

I am over the age of eighteen years and not a party to the above-entitled cause. My business address is 600 Montgomery Street, 12th Floor, San Francisco, California 94111.

I served the foregoing APPLICANTS' BRIEF RE CERTIFIED QUESTIONS ON DEFINITION AND IMPLEMENTATION OF 10 CFR 50.47(b)(12), MEDICAL SERVICES dated October 13, 1982, by depositing a true copy thereof enclosed in the United States mail, first class (or by Express Mail, where asterisked) at San Francisco, California, on October 13, 1982, enclosed in a sealed envelope with postage thereon fully prepaid, addressed as follows:

Stephen F. Eilperin, Esq.  
Chairman, Atomic Safety and  
Licensing Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dr. Reginald L. Gotchy  
Atomic Safety and Licensing  
Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dr. W. Reed Johnson  
Atomic Safety and Licensing  
Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

James L. Kelley, Chairman  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Lawrence J. Chandler, Esq.  
Donald F. Hassell, Esq.  
Nuclear Regulatory Commission  
Office of the Executive Legal Director  
Washington, D.C. 20555

Dr. Cadet H. Hand, Jr.  
Administrative Judge  
c/o Bodega Marine Laboratory  
University of California  
P.O. Box 247  
Bodega Bay, CA 94923

Mrs. Elizabeth B. Johnson  
Administrative Judge  
Oak Ridge National Laboratory  
Oak Ridge, TN 37830

Robert Dietch, Vice President  
Southern California Edison Co.  
2244 Walnut Grove Avenue  
P.O. Box 800  
Rosemead, CA 91770

Charles R. Kocher, Esq.  
James A. Beoletto, Esq.  
Southern California Edison Co.  
2244 Walnut Grove Avenue  
P.O. Box 800  
Rosemead, CA 91770

Mrs. Lyn Harris Hicks  
G U A R D  
3908 Calle Ariana  
San Clemente, CA 92801

Richard J. Wharton, Esq.  
University of San Diego  
School of Law  
Alcala Park  
San Diego, CA 92110

Janice E. Kerr, Esq.  
J. Calvin Simpson, Esq.  
Lawrence Q. Garcia, Esq.  
California Public Utilities  
Commission  
5066 State Building  
San Francisco, CA 94102

Charles E. McClung, Jr., Esq.  
24012 Calle de la Plata  
Suite 330  
Laguna Hills, CA 92653

Alan R. Watts, Esq.  
Rourke & Woodruff  
California First Bank Building  
10555 North Main Street  
Santa Ana, CA 92701

Gary D. Cotton  
Louis Bernath  
San Diego Gas & Electric Co.  
101 Ash Street  
P.O. Box 1831  
San Diego, CA 92112

Mr. Lloyd von Haden  
2089 Foothill Drive  
Vista, CA 92083

James F. Davis  
State Geologist  
Division of Mines and Geology  
1416 Ninth Street, Room 1341  
Sacramento, CA 95814

Phyllis M. Gallagher, Esq.  
1695 W. Crescent Avenue  
Suite 222  
Anaheim, CA 92801

Atomic Safety and Licensing  
Appeal Board  
U.S. Nuclear Regulatory  
Commission  
Washington, D.C. 20555

Atomic Safety and Licensing  
Board  
U.S. Nuclear Regulatory  
Commission  
Washington, D.C. 20555

\*\* Samuel J. Chilk  
Secretary of the Commission  
U.S. Nuclear Regulatory  
Commission  
Washington, D.C. 20555

Executed on October 13, 1982, in the City and  
County of San Francisco, State of California.

I declare under penalty of perjury that the  
foregoing is true and correct.

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KAREN ANDRESEN