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July 28, 1980

TO: Ivan W. Smith, Esq., Chairman
Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

FROM: Richard J. Wharton
Attorney for Joint Intervenors
F.O.E., et al

SUBJECT: Memorandum regarding Timetable for Discovery

This memorandum is being submitted pursuant to agreement at the pre-hearing conference held on July 17, 1980 that Intervenors F.O.E., et al, submit, by July 28, 1980, written arguments regarding the timetable for future discovery. Applicants and staff are to have until August 11, 1980 to file a memorandum in support of their proposal for the timetable for future discovery. Applicants are proposing that discovery be closed on September 30, 1980, except as to matters identified by the S.E.R. or the final Environmental Impact Statement which were previously unknown to the parties or could not reasonably have been the subject of prior discovery efforts.

Staff's position, as Intervenors understood it, is that discovery should close 30 days after publication of the S.E.R.

Intervenors position on the close of discovery is that discovery as to seismic/geologic issues should not be closed until 30 days after the A.C.R.S. has accepted and approved the Final Staff supplement to the Staff S.E.R.

Our position regarding the close of discovery as to emergency planning is that discovery should not be closed until 30 days after the applicant and the state and applicable local jurisdiction submit their emergency plans which meet the requirements of NUREG0654 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness In Support of Nuclear Power Plants; NUREG-0585 TMI Lessons Learned Task Force Final Report P. A-9 ¶4; NUREG-0694 TMI Related Requirements for New Operating Licenses, P. 20 Sec. III A.1.2, P. 25 sec III A.1.1. (which requires performing an emergency response exercise before issuance of a full-power license) and 10 CFR Part 50 as finally adopted.

Further Discovery re: Emergency Planning

As a result of TMI-2, the N.R.C. has imposed new requirements for emergency planning. NUREG-0654 expands the planning zones and requires Contiguous-Jurisdiction Governmental Emergency Planning. It requires that Emergency Planning Zones be established

and that the size of the E.P.Z. represent a judgment on the extent of detailed planning which must be performed to assure an adequate response base. (see NUREG 0694, P. 9 sec. I D.) It also states that "local government plans and response mechanisms are particularly important for the 10 mile E.P.Z. and that local government plans should be made a part of the State emergency plan. 10 C.F.R. Part 50 proposed rulemaking also requires that prior to operating license issuance the N.R.C. must approve appropriate State and Local government emergency response plans. Also as a result of T.M.I., the Congress has passed the 1980 Amendments to the Atomic Energy Act which advise the N.R.C. to not approve operating licenses until Emergency Evacuation Plans are proven adequate on a site specifics basis.

Also, as a result of T.M.I.. the California State Legislature passed a law in 1979 which requires a detailed site-specific class 9 or Meltdown Accident report to be contracted for by the State OES. (Office of Emergency Services) The OES contracted out for this Meltdown Report to S.A.I., (Science Applications Incorporated) of La Jolla, California. S.A.I. is a national consulting firm that consults with the N.R.C., the nuclear industry, and the utilities who operate nuclear reactors (including S.D.G.&E. at Diablo Canyon) and the nuclear military.

S.A.I. relied primarily on the N.R.C.'s Rasmussen Report (WASH-1400) for its data, methodology and assumptions. Thus, the San Onofre site-specific meltdown study should meet or concur with N.R.C. criteria, data, methodology and assumptions.

This meltdown study of the San Onofre site states that emergency plans should be made to evacuate and relocate all people within twenty miles of the San Onofre site and that people as far as thirty-five miles may have to be evacuated or relocated.

The S.A.I. report states that the worst-case meltdown accident at San Onofre 2 & 3 could have the following maximum worst-case consequences based on 1975 population: Eight million Southern Californians may have to be relocated for up to ten years with 4,800,000 of them relocated for more than 10 years. (see enclosed xeroxes of Tables - 11-24 A&B or Reference to Tables - 11-25 A&B.)

The land interdiction consequences would affect a maximum of 15,000 square miles for up to 10 years and 1,100 square miles for more than 10 years. The mean case would have consequences requiring land interdiction of 6,900 square miles. The S.A.I. report states that the economic cost consequences for a category 1/2/3 release at San Onofre could range up to a cost of $150 billion dollars if decontamination proved unfeasable. These enormous consequences for a single accident at San Onofre dictate caution about rushing into the end of discovery, this report also provides the best site specific data for determining what the size the E.P.Z. at San Onofre should be.

Most importantly, it is premature to set any firm deadline on discovery concerning emergency planning until the applicant, the state, and the local governments have prepared their emergency plans for review as to adequacy under the new regulation and criteria. Only then can meaningful discovery take place regarding Intervenors contention that "the applicants have not complied with 10 CFR Part 50 Appendix E regarding emergency plans since because of the jurisdiction diversity of the several state and local agencies involved and their inadequate funding and staffing, appropriate and coordinated emergency plans cannot be developed. An operating license should not be granted for SONGS 2 and 3 because the various emergency response plans are so complex overlapping and difficult to implement that in the event of a nuclear accident the safety of the persons in the surrounding areas will be emperiled."

NUREG 0654, 0694 and S.A.I. meltdown study make the contention more compelling, and it is impossible to have discovery as to the adequacy, the feasibility of implementation, and appropriateness of the emergency plans until they have been published. Intervenors therefor request that discovery regarding emergency planning be allowed until 30 days after all required emergency plans are published.

Discovery Timetable re: Seismology/Geology

In determining what the timetable should be for ending discovery on the seismic/geologic contention, intervenors request that the board take notice of the fact that the San Onofre site is unlike any other with the exception of Diablo Canyon. In terms of proximity to active faults and close proximity to faults whose activity or inactivity is still in question the site can only be compared to Diablo Canyon.

As the board is aware, San Onofre is located in the midst of an extremely active earthquake region (a seismically active tectonic province). The board should take note that the science of studying earthquakes with instruments did not begin until the 1930's and that the concept of plate tectonics was not fully accepted until 1969. The state of the art is such that each major earthquake in recent years has changed the seismologists and earthquake engineers understanding of how ground motions from earthquakes effect structures such as the nuclear reactors at San Onofre. The sciences of seismology and earthquake engineering are still in their infancy and are rapidly evolving disciplines. The geosciences branch of the Nuclear Regulatory Commission's Staff readily admits to the fact that they are still learning about earthquakes and that each new event brings new information which in many cases changes their previous assumptions.

The N.R.C. Staff recognizes the need to learn more about the actual ground motions during real earthquakes as compared to the computer-generated synthetic speculative earthquakes created by the applicant's consultants for analyzing the seismic design bases for Units 2 & 3. As a result of this need for more knowledge, the N.R.C. Staff sent an Earthquake Reconnaissance Team to Southern California soon after the October 15, 1979 Imperial Valley Earthquake to investigate the effects of the seismic activity. In a report by that team, Leon Reiter, Staff Seismologist, recommended that the N.R.C. Administration and Budget encourage future Earthquake Reconnaissance teams to visit the sites of major earthquakes including ones in other countries, to study the effects of ground motions during earthquakes. Reiter added that such site visits would give N.R.C personnel a perspective that they would not find in reports, documents, meetings and hearings. Reiter suggested that these teams should include N.R.C. staff scientists in the fields of geology, seismology, Geotechnical Engineering, and mechanical and structural engineering.

Reiter also noted that the 1.74 g vertical ground acceleration recorded during the Imperial Valley quake was the highest g valye ever recorded anywhere in the world. The fact that the Imperial Valley g value was for a vertical ground motion rather than a horizontal one, has created some discovery timetable delay problems for the N.R.C. Staff and the Applicants. This was admitted by both during the July 24, 1980 meeting in Los Angeles.

In the past, the N.R.C. Staff has assumed for the purpose of seismic criteria that vertical ground accelerations would always be less than 2/3 of the horizontal ground accelerations. Under the current N.R.C. licensing criteria for the seismic design basis for SONGS 2 & 3, the reactors are designed for horizontal values of .67 g and vertical values of .44 g. But this data from the Imperial Valley earthquake has cast doubt on the validity of that .44 g value. In fact, several licensing assumptions on seismic criteria, now seem to be invalid.

During the July 24th meeting of the N.R.C. Staff and the San Onofre applicants, the Applicants admitted that they are troubled by the N.R.C. Staff's recent indecision on approving the SONGS 2 & 3 seismic design response spectrum and Design Basis Earthquake. The Applicants noted that they are waiting for this approval.

This apprehension on the part of the applicant reflects the debates and disagreements between the applicants and the staff or between the consultants to these two parties during and following meetings held in Menlo Park, California on September 13, 1979, (before the Imperial Valley Earthquake) and on March 4th, 1980, in Los Angeles regarding the seismic reports by Applicants consultants. Many

N.R.C. Staff questions resulted from those meetings and reports. Many of the staff's questions have been inadequately responded to by the applicants, thus requiring more meetings. One of those meetings was held on May 21, 1980.

On July 24, 1980, the staff received a preliminary presentation by consultants of the Applicant, and the Staff requested that the presentation be formalized in another report on the relevance of the Imperial Valley Earthquakes to SONGS 1, 2 and 3 to be submitted by the Applicants to the Staff in mid-August.

The Applicants expressed their concern that this would delay the issuance of the Staff S.E.R., past October 1, 1980. The Staff admitted that that was possible since the S.E.R. final draft input date was actually September 1, 1980 to allow time for typing changes. The N.R.C. Staff acknowledged that there are still some outstanding unresolved questions and problem areas regarding Geology and that they cannot issue a seismic S.E.R. if there are unanswered geology problems regarding the relationship of the Cristianitos Fault to the OZD offshore fault which was the subject of the May 21, 1980 meeting. At that meeting, there was much disagreement between the N.R.C. Staff and its consultants and the Applicant's consultants about interpretations of offshore seismic reflection and refraction profiles.

Following the May 21st meeting the Applicants contracted with boats and scientists to conduct more geology research in the offshore area to try to discover whether or not the Cristianitos Fault connects with the offshore fault zone and whether there has been recent seismic movement near the junction of the two fault zones.

A preliminary report on that research was due during mid-July. If the two faults are connected and there has been recent movement, then the S.E.R. and operating license hearings would need to be delayed for years because all previous geology & seismology reports by the Applicants would be invalidated and would have to be redone using new data and new assumptions regarding fault geometry.

At the July 24th meeting between the Staff and the Applicants, the Staff noted: 1) that the S.E.R. had already been delayed to await the meeting of July 24th and,2) that the report by the Applicants consultant due in August would have to be reviewed and commented on by at least 3 N.R.C. consultants. The Staff said that they would try to rush their consultants with a fast turn around schedule to try to adhere to the October 1 S.E.R. date. But, the Staff noted, sticking to that date could mean that an incomplete S.E.R. would be submitted to the A.C.R.S. and that a Staff Supplement to the S.E.R. would be submitted to the A.C.R.S. after the A.C.R.S. meeting on the S.E.R. That Staff Supplemental would deal with the issues of the Imperial Valley Earthquake data and the geologic relationship between the Cristianitos Fault and the offshore fault zones.

The Staff also noted that they anticipate that the A.C.R.S. review of the S.E.R. will require the Staff to prepare a supplement on the seismic issues, and that the staff might just wait and include these latest reports and discussions in that supplement.

The Intervenors would like to note to the board that the applicants and the Staff seem to be trying to prematurely accelerate the schedules on these proceedings, by rushing their consultants to quickly write reports on serious issues that take these scientists and their computers months to analyze.

The Geologic & Seismic Issues are serious and the events of the past year have made that even more evident. Hasty conclusions of analysis should not be allowed.

Several seismic issues are unresolved and will be the subject of numerous interrogatories from Intervenors to Staff and Applicant regarding the Cristianitos Offshore Research, the focussing effects of earthquakes, the high vertical accelerations in the Imperial Valley earthquake, and the response spectra for SONGS for nearby earthquakes of magnitudes 7, 7.5, and 8.0.

It should also be noted that several significant earthquakes have occurred since the Imperial Valley earthquake that have generated new and relevant data that need to be discussed in the discovery process between the staff, the applicants, and the Intervenors and the various consultants for these participants. The largest earthquake during the past year shook Southern California in June, 1980, and it was larger than the maximum earthquake for which San Onofre reactors are being designed. The information we have indicates that it was an earthquake centered somewhere near Mexicali with a magnitude of 6.8 on the Ricter scale.

It should also be pointed out that during the past 12 months California has been shaken by a sudden increase in the number and magnitude of earthquakes which several prominent seismologists say indicates there is now a much higher probability that we will experience a severe earthquake within the next few years and certainly during the operating lifetime of the San Onofre reactors.

The Intervenors are suggesting to the board that rather than rushing into a cut-off date on discovery, that we wait and carefully examine the new and relevant data from these recent earthquakes and discover how this new data will effect these proceedings.

Since being allowed intervention status, intervenors have sent three sets of interrogatories to the applicants regarding seismology/geology. Each set of answers to interrogatories raises more questions which we must pursue. Also, as mentioned above, there is a constant flow of new information which must be analyzed both by

the applicant and the staff and to which we are entitled to discovery. For example, Southern California Edison has recently done an off-shore study to determine whether the Cristianitos Fault has a connection to the Offshore Zone of Deformation. Applicants have not yet supplied the results of that study and when Intervenors finally do receive the results of that study we need the opportunity to review it and to ask follow-up questions.

Intervenors have not submitted further interrogatories to N.R.C. Staff because of their informal request to us to hold off further interrogatories until the safety evaluation report is completed. We would like to point out that N.R.C. Staff has supplied whatever information we requested on an informal basis and has been most cooperative. At the time we acquiesced to their request we had no notion that the applicant would be pushing for a quick close off of discovery.

As the board is surely aware, there is a large amount of technological data regarding seismology/geology which must be reviewed by competent experts for intervenors before the most crucial discovery may be had. Due to funding limitations, intervenors have held off retaining paid consultants to review the multitude of data until the S.E.R. was prepared believing that we would have ample time after the S.E.R. to submit further discovery. Intervenors have retained Dr. Chris Buckley of the Earth Sciences Department of Cal-State, Fullerton, to review the data and to prepare further discovery and to prepare a safety evaluation report for the intervenors. Since Dr. Buckley will be new to this project he will need an appropriate amount of time to review the data before he can submit his further request for discovery. Dr. Buckley has a PHD in geology and seismology and is a computer expert. His input to these proceedings will be highly beneficial to the board and will help the board in reaching proper final decision on this matter. It would appear that it would be best for all parties in these proceedings and in furtherance of protecting the public's health and safety if the seismics/geologic issues are fully explored and discussed before the hearings on the operating license begins.

In its analysis of determining what is the best timetable for discovery, this board should look to the record of the only proceeding in N.R.C. history comparable to San Onofre. In the A.S.L.B. proceeding for the operating license for Diablo Canyon 2 and 3 the Staff S.E.R. was first published in 1974, the A.C.R.S. review did not end until the summer of 1978, and discovery continued until sometime after that. At Diablo Canyon the A.S.L.B. hearing on the earthquake hazards and the seismic design basis lasted three months from December 1978 until February 1979. Even after those hearings were completed, new seismic and geologic reports were submitted for consideration by the A.S.L.B. The final letter from the A.C.R.S. was sent to the A.S.L.B. in the autum of 1979. The partial initial decision of the A.S.L.B. was issued late 1979. The intervenors appealed

the PID to the appeals board and the board has recently decided to reopen the hearings on the seismic issues and to reopen discovery. This was a full 6 years after the Staff S.E.R. was first published.

Intervenors submit that these problems could be avoided if Intervenors are permitted to submit interrogatories to the N.R.C. Staff and to the Applicants based on the A.C.R.S. review of the S.E.R. and on the A.C.R.S. review of all staff supplements to the S.E.R. Therefore, we propose discovery should not end until thirty days after the A.C.R.S. has accepted and approved the final staff supplement to the Staff S.E.R. contained in the final A.C.R.S. letter to the A.S.L.B. and the N.R.C.

Respectfully submitted,

Richard J. Wharton

RICHARD J. WHARTON
Attorney for Intervenors, F.O.E., et al

RJW:kb

Table 11-24A. Economic Cost Consequence Annual Means and Maximums for a Category 1/2/3 Release at San Onofre Reactor 2 or 3, 2000 Population, 5 Rem Interdiction, No Evacuation ($ x 10^6)

	Mean (All Cases)	Mean (No Zero Value Cases)	Maximum Case
Disposal of Milk and Crops	$ 11.	$ 26.	$ 140.
Decontamination	400.	630.	17,000.
Land Interdiction/Decontamination	1,800.	2,500.	49,000.
Relocation/Decontamination	480.	700.	15,000.
Land Interdiction/No Decontamination	6,400.	8,700.	155,000.
Relocation/No Decontamination	1,100.	1,500.	30,000.
Total/Decontamination	$2,700.	$ 3,700.	$ 63,000.
Total/No Decontamination	$7,500.	$100,000.	$ 180,000.

Table II-23B. Interdiction Consequence Annual Means and Maximums for a Category 1/2/3 Release at San Onofre Reactor 2 or 3, 1975 Population, 5 Rem Interdiction, No Evacuation

	Mean (All Cases)	Mean (No Zero Value Cases)	Maximum Case
Population Affected	280,000	380,000	8,100,000
Population Relocated <10 Years	160,000	270,000	8,100,000
Population Relocated >10 Years	120,000	170,000	4,100,000
Land Interdiction <10 Years (m^2)	1.5×10^{10}	1.5×10^{10}	4.1×10^{10}
(mi^2)	5,800	5,800	16,000
Land Interdiction >10 Years (m^2)	7.6×10^{8}	7.7×10^{8}	3.3×10^{9}
(mi^2)	290	300	1,300

Table 11-25A. Economic Cost Consequence Means and Maximums for a Category 1/2/3 Release at San Onofre Reactor 2 or 3 during the Spring Season, 1975 Population, 5 Rem Interdiction, No Evacuation ($ x 10^6)

	Mean (All Cases)	Mean (No Zero Value Cases)	Maximum Case
Disposal of Milk and Crops	$ 12.	$ 25.	$ 130.
Decontamination	340.	640.	14,000.
Land Interdiction/Decontamination	1,000.	2,000.	36,000.
Relocation/Decontamination	340.	630.	14,000.
Land Interdiction/No Decontamination	5,000.	8,400.	130.000.
Relocation/No Decontamination	870.	1,400.	23,000.
Total/Decontamination	$1,800.	$3,000.	$ 44,000.
Total/No Decontamination	$5,900.	$9,800.	$150,000.

Table 11-24B. Interdiction Consequence Annual Means and Maximums for a Category 1/2/3 Release at San Onofre Reactor 2 or 3, 2000 Population, 5 Rem Interdiction, No Evacuation

	Mean (All Cases)	Mean (No Zero Value Cases)	Maximum Case
Population Affected	380,000	520,000	10,000,000
Population Relocated <10 Years	210,000	360,000	10,000,000
Population Relocated >10 Years	160,000	240,000	5,100,000
Land Interdiction <10 Years (m^2)	1.5×10^{10}	1.5×10^{10}	4.1×10^{10}
(mi^2)	5,800	5,800	16,000
Land Interdiction >10 Years (m^2)	7.6×10^{8}	7.6×10^{8}	3.3×10^{9}
(mi^2)	290	300	1,300

Table 11-26A. Economic Cost Consequence Means and Maximums for a Category 1/2/3 Release at San Onofre Reactor 2 or 3 during the Summer Season, 1975 Population, 5 Rem Interdiction, No Evacuation ($\$ \times 10^6$)

	Mean (All Cases)	Mean (No Zero Value Cases)	Maximum Case
Disposal of Milk and Crops	$ 18.	$ 26.	$ 110.
Decontamination	280.	410.	13,000.
Land Interdiction/Decontamination	1,400.	1,900.	34,000.
Relocation/Decontamination	440.	620.	14,000.
Land Interdiction/No Decontamination	4,900.	6,500.	130,000.
Relocation/No Decontamination	840.	1,100.	23,000.
Total/Decontamination	$2,100.	$2,800.	$ 45,000.
Total/No Decontamination	$5,800.	$7,700.	$150,000.

Table 11-25B. Interdiction Consequence Means and Maximums for a Category 1/2/3 Release at San Onofre Reactor 2 or 3 during the Spring Season, 1975 Population, 5 Rem Interdiction, No Evacuation

	Mean (All Cases)	Mean (No Zero Value Cases)	Maximum Case
Population Affected	300,000	500,000	8,100,000
Population Relocated <10 Years	180,000	350,000	8,100,000
Population Relocated >10 Years	120,000	220,000	4,800,000
Land Interdiction <10 Years (m^2)	1.8×10^{10}	1.8×10^{10}	3.8×10^{10}
(mi^2)	6,900	6,900	15,000
Land Interdiction >10 Years (m^2)	8.2×10^{8}	8.3×10^{8}	2.8×10^{9}
(mi^2)	320	320	1,100

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL	)	Docket Nos. 50-361 OL
	)	50-362 OL
(San Onofre Nuclear Generating Station, Units 2 and 3)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "MEMORANDUM REGARDING TIME-TABLE FOR DISCOVERY" have been served on the following by deposit in the United States mail, first class, this 28th day of July, 1980:

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