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 Atomic Safety and Licensing Board Panel

SUBJECT: Comments re issue of size of emergency planning zones, per
 ASLB 810508 memorandum & order, Exhibits, portions of
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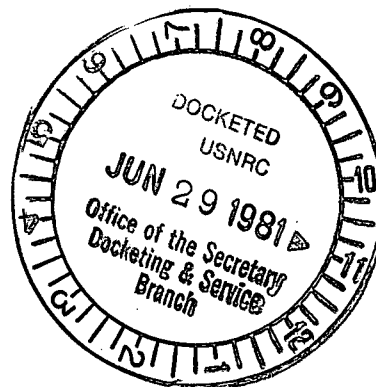
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

INTERVENOR GUARD'S COMMENTS
CONCERNING THE ISSUE OF THE
SIZE OF THE EMERGENCY
PLANNING ZONES

INTRODUCTION

In its Memorandum and Order of May 8, 1981, the Atomic Safety and Licensing Board ("Board") directed the parties to consider and respond to the issue of the size of the Emergency Planning Zones ("EPZ"). Intervenor GUARD hereby submits its comments concerning this issue.

QUESTIONS PRESENTED

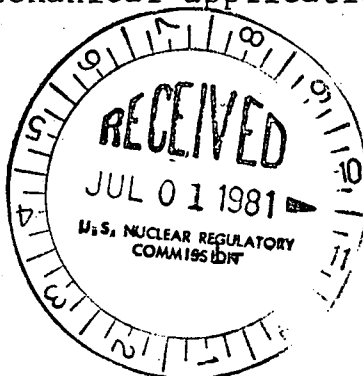
How are the sizes of the plume exposure and ingestion pathway EPZ's to be determined under 10 CFR 50.47(c)(2)?

Are site-specific studies of local demography, topography, and the like required?

If not, exactly how are EPZ sizes to be determined, assuming that a mechanical application of the 50 and 10 figures cannot be made?

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ANALYSIS

The answer to the Board's initial question of how are the sizes of the EPZ's to be determined under 10 CFR 50.47(c)(2) can be found in the regulation itself. Section 50.47(c)(2) defines the size of the plume exposure pathway as "about 10 miles" and the size of the ingestion pathway as "about 50 miles". The regulation sets forth planning standards of ten and fifty miles in determining the size of the EPZ's. The same regulation recognizes that a mechanical application of these standards, i.e., by drawing concentric circles around the plant, is not appropriate because that would ignore the specific needs and conditions of the individual site. That is why the regulation goes on to state:

"[T]he exact size and configuration of the EPZ's surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries..." 10 CFR 50.47(c)(2).

The regulation directs the formulators of emergency plans, namely, state and local response organizations, not to mechanically draw circles, but to study a list of factors:

1. The demographics of the site,
2. The topography of the site,
3. The land characteristics,
4. The access routes, and
5. The jurisdictional boundaries.

1 Thus the answer to the Board's initial question is the local
2 emergency planning officials determine the size and shape of the
3 EPZ's using the 10/50 mile standards and the five site specific
4 factors. In adopting Section 50.47 the NRC stated at 45 FR 55406:

5 "The exact size and shape of each EPZ will
6 be decided by emergency planning officials
7 after they consider the specific conditions
8 at each site."

9
10 The regulation itself also answers the Board's second question,
11 whether site specific studies of local demography, topography and
12 the like are required. The regulation asks the various response
13 organizations to draw the boundaries of the EPZ's. An individual
14 response organization must consider the five factors set forth
15 in Section 50.47 when it determines these boundaries. This is a
16 site specific study! In fact each response organization should
17 set the EPZ boundaries after considering the factors. Therefore,
18 there should be many site specific studies. See NUREG 0654, Table 1,
19 attached hereto as Exhibit "A".

20
21 All the various response organizations should determine the
22 EPZ boundaries and submit their proposals to the State of
23 California, Office of Emergency Services, and to the federal
24 government through the NRC and FEMA. The state and federal govern-
25 ments should then review choices of boundary lines drawn by the
26 local agencies and should standardize the EPZ's based on this input.

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1 This was not entirely what happened in this case. Some local
2 jurisdictions applied the standards mechanically. Due to the
3 limited amount of time, many of the local response organizations
4 were forced to submit evacuation planning documents prepared sub-
5 stantially by the applicants who stuck with the fixed 10/50 mile
6 standards. See e.g., City of San Juan/Capistrano Plan. Many local juris-
7 dictions simply accepted the 10/50 mile standards as given because
8 of confusion over planning responsibilities. Other jurisdictions
9 chose EPZ's based on site-specific data. The State of California,
10 Office of Emergency Services, contracted with Science Applications,
11 Inc. and various subcontractors to investigate the consequences of
12 nuclear power plant accidents. On the basis of that report, the
13 State of California prepared site-specific EPZ's. See Emergency
14 Planning Zones for Serious Nuclear Power Plant Accidents (Novem-
15 ber 1980) excerpt attached as Exhibit "B".

16 FEMA, in its review of emergency preparedness which culmin-
17 ated in the interim findings, did not question the mechanical
18 application of the 10- and 50-mile standards contained in many of
19 the local jurisdiction plans, and FEMA tends to ignore the state's
20 site-specific EPZ's. FEMA has consistently taken the position
21 that it is not the task of FEMA to review the size and shape of
22 the EPZ's and that the EPZ's are determined by the local juris-
23 dictions. This point was made clear at the public meeting before
24 FEMA, May 18, 1981.

25

26 "MR. WHARTON: Can I ask one follow-up on this area,
27 if I might, to clarify FEMA's position?

28 My reading of the applicable NUREG...0654, refers to

1 planning zones based upon the conditions of the
2 area. Now, they suggest ten miles, but all of
3 them appear to be, from the language of--if you
4 have to look at the geographics of the area,
5 topography, weather patterns and the rest of
6 it and look specifically at the area, you are
7 saying now that FEMA is going to go with 10-50
8 and disregard the specifics of the area?

9
10 "MR. SANDWINA: Not at all. Those judgements
11 and determinations are the prerogative of
12 the local jurisdiction.

13
14 "MR. WHARTON: FEMA is not going to establish
15 anything or give any guideline on that?

16
17 "MR. SANDWINA: We have that published in
18 those criteria, the 10- and 50-mile planning
19 zones; but the explicit boundaries for that
20 are the prerogative of the local jurisdiction,
21 and those are based on the factors that he
22 just mentioned . . . " Transcript page 33,
23 attached hereto as Exhibit "C".

24
25 This point was reiterated at the informal discovery session
26 which the parties had with FEMA. FEMA's representative, Mr.
27 Nauman, reiterated that it was the duty of the local response
28 organizations to formulate the size and boundaries of the EPZ's.

1 The Atomic Safety and Licensing Board in In the Matter of
2 Cincinnati Gas and Electric Company et al. (William H. Zimmer
3 Nuclear Station) 12 NRC 67, LBP-80-19 (1980), construed the
4 meaning of the EPZ standards. The Licensing Board order, made
5 before the formal adoption of 10 CFR 50.47, construed the EPZ
6 standards set forth in NUREG 0396 "Planning . . ." (December
7 1978), the proposed NUREG 0654 and the proposed new regulations.
8 NUREG 0396 sets forth the planning guidelines of 10/50 miles
9 for the EPZ's and it served as a background document for
10 NUREG 0654 and the current regulation. Indeed, 10 CFR 50.33 (g)
11 footnote 1 directs the local response organizations to NUREG 0396
12 in determining the boundaries of the EPZ's. In the Cincinnati
13 case, the Licensing Board was faced with a contention of an
14 intervenor which queried whether appropriate protective actions
15 could be taken to protect Brown County, Ohio, which was beyond
16 the 10-mile standard for the plume exposure pathway EPZ. On
17 that basis, the applicants suggested the contention should be
18 deleted. The Licensing Board upheld the contention on the basis
19 that the 10-mile EPZ is merely a prima facie starting point, or
20 a guideline for the appropriate size of the EPZ and that the
21 parties had a right to contend that the public's health and
22 safety required a larger zone.

23
24 "In our view, the applicants have misread the
25 EPZ requirement. As we indicated in LBP-80-14,
26 the 10-mile airborne exposure EPZ is not a
27 zone with boundaries fixed by regulation,
28 but rather, is more of a prima facie

1 starting point for determining what an
2 appropriate zone should be. '[A]n appli-
3 cant [is] free to seek smaller zones, and
4 any party [can] seek to justify larger
5 zones, in appropriate circumstances.'
6 LBP-80-14, 11 NRC at p. 570. See also
7 Houston Lighting and Power Company (South
8 Texas Project, Units 1 and 2), LBP-80-11,
9 11 NRC 477, 483 (March 7, 1980); NUREG 0654,
10 FEMA-REP-1, at p. 14 (Table 1). Because
11 [the intervenor] may be able to demonstrate
12 that the EPZ should extend to all or part
13 of Brown County, we decline to delete the
14 references to Brown County from Contention 1."
15 12 NRC at 73.

16 The rationale of the Cincinnati Gas case applies to the
17 present situation. The regulations under consideration incor-
18 porate the language of NUREG 0654 Table 1 and the language of
19 NUREG 0396 which were construed by the Licensing Board in the
20 Cincinnati Gas case. The five site-specific factors contained
21 in §50.47(c)(2) may justify an EPZ larger than 10 or 50 miles
22 from the plant. The regulation provides for planning flexibility.
23 The 10/50 mile standards are reference points which the local
24 response organizations should consider along with the site-
25 specific factors in formulating the EPZ's.

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TABLE 1

GUIDANCE ON SIZE OF THE EMERGENCY PLANNING ZONE

<u>Accident Phase</u>	<u>Critical Organ and Exposure Pathway</u>	<u>EPZ Radius</u>
Plume Exposure Pathway	Whole Body (external) Thyroid (inhalation) Other organs (inhalation)	about 10 mile radius*
Ingestion Pathway	Thyroid, whole body, bone marrow (ingestion)	about 50 mile radius**

* Judgment should be used in adopting this distance based upon considerations of local conditions such as demography, topography, land characteristics, access routes, and local jurisdictional boundaries.

**Processing plants for milk produced within the EPZ should be included in emergency response plans regardless of their location.

TABLE 2

GUIDANCE ON INITIATION AND DURATION OF RELEASE

Time from the initiating event to start of atmospheric release	0.5 hours to one day
Time period over which radioactive material may be continuously released	0.5 hours to several days
Time at which major portion of release may occur	0.5 hours to 1 day after start of release
Travel time for release to exposure point (time after release)	5 miles -- 0.5 to 2 hours 10 miles - 1 to 4 hours

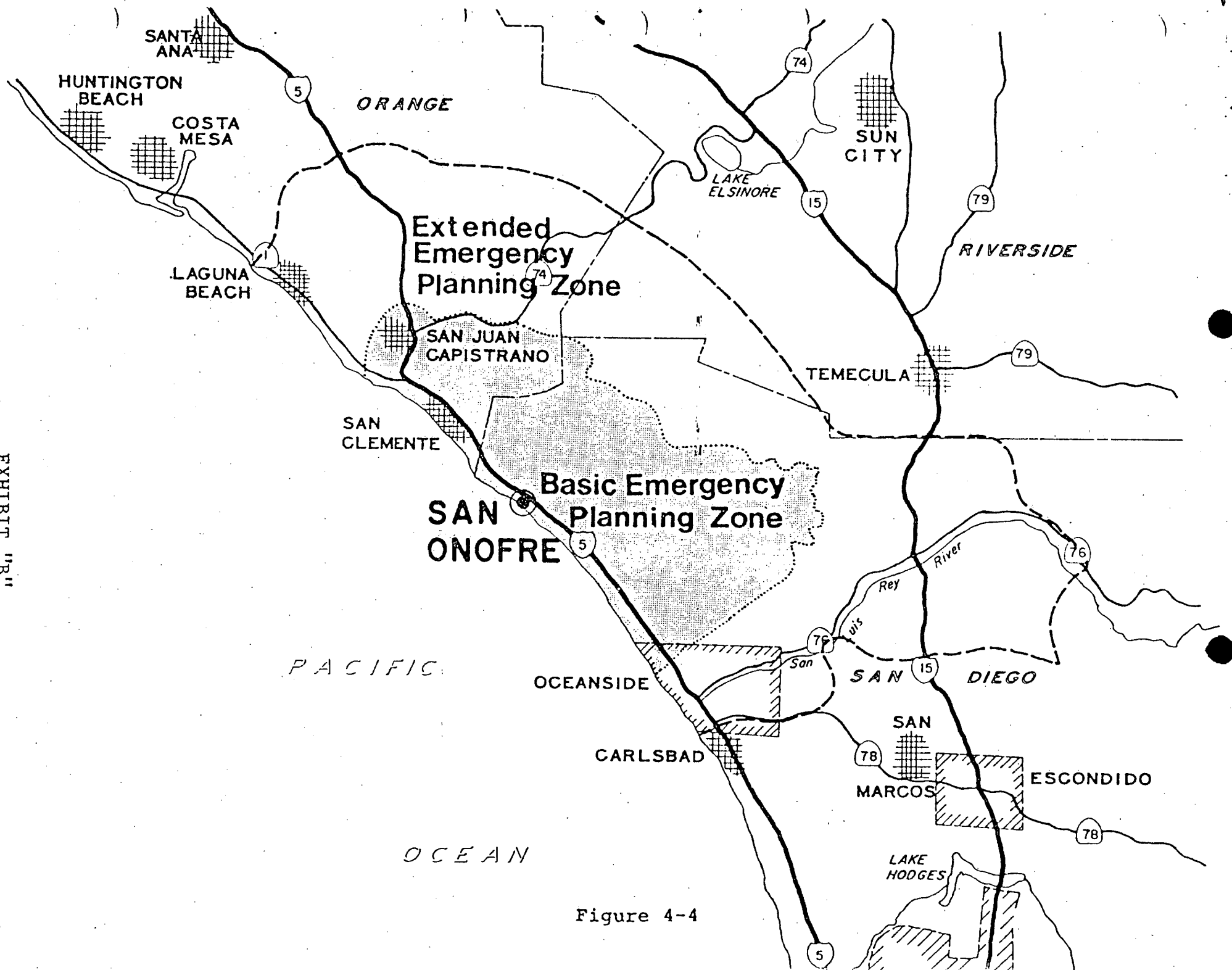


Figure 4-4

The Direct Exposure EPZ's for San Onofre are shown in Figure 4-4. Differences in the dose vs. distance data for the older San Onofre Unit 1 and the newer, as yet unlicensed, Units 2 and 3 are significant (see Table 4.1). For each accident category it was necessary to consider the larger distance associated with given doses for either the older or newer units in determining the zone boundaries. Thus, for the 1% probability of exceeding 0.5 rem for a melt-through accident, the distance is 8.5 miles, for 25 rem for a penetration leakage accident it is 18 miles, and for a major containment failure it is 35 miles.

For this site, the only direction in which the wind blows toward land with a much larger than average probability is toward the east. As was discussed in Sec. 2.2, the probability of stable wind conditions at San Onofre is so low that the frequency of occurrence of worst-case trajectories is very low.

Orange County recommended a 10-mile zone in which evacuation planning would be done and indicated a need for an "Extended Planning Area" in which a sheltering option would be given the most serious consideration. A formal alerting and extended monitoring program would be provided in this extended area. Relocation movement from the first 10-mile area was to be through this intermediate sector to distances of at least 25 miles.

San Diego County's initial recommendation was to abide by the NRC recommended 10-mile planning zone. Further discussions between the county and OES led to general agreement on the final zone boundaries (Figure 4-4).

The San Onofre Basic EPZ follows approximately a 10-mile radius extending from the north coast (as recommended by Orange County) to the east and then is enlarged to follow the Camp Pendleton (U.S. Marine Corps) borders to the south coast. The Extended EPZ follows approximately an 18-mile radius from the north coast toward the east where it is extended to approximately 35 miles in the east sector. From there it follows the main roads to the coast, just north of Carlsbad.

4.2.5

Humboldt Bay

For Humboldt Bay, there is no equivalent to the melt-through or the penetration leakage scenarios; i.e., although the core may eventually melt through the concrete base mat of the containment building, other major containment failure mechanisms would most probably occur first (see Sec. 1.4.2). Therefore, the outer limit of the emergency planning zone was based on the distance at which there is a 0.01 probability of exceeding 200 rem for these accidents. On the EPZ map (Figure 4-5) this distance is 2.5 miles. Because other accident categories are not relevant for this plant, no Extended EPZ's have been required.

Humboldt County recommended a five mile zone which is consistent with current NRC recommendations for a reactor of this size.

1 change or modification.

2 MRS. DAVIS: Thank you. Okay. There are processes
3 to go?

4 MR. SANDWINA: Yes.

5 MR. WHARTON: My name is Richard Wharton. I am
6 the attorney for the intervener, The Friends of the Earth.
7 I had a question of Mr. Hunt.

8 I recently received the new plan from the
9 State of California, and that was pretty specific on the
10 Emergency Planning Zones, Extended Emergency Planning Zones
11 for San Onofre. They don't seem to follow this straight ten-
12 miles thing that's in the regulation that says -- the
13 regulations say it is supposed to be based on site-specific
14 studies.

15 I talked to someone at the County. I can't
16 recall her name right now. She informed me that when the
17 State comes out with their plan showing this Extended
18 Planning Zone, that the County of San Diego would be
19 modifying their plan to conform so that they are all
20 coordinated. My looking at it now, it appears to be that
21 the planning zones for the State Plan includes the City of
22 Oceanside. I don't think that the plans that the County is
23 talking about now include anything as far as emergency
24 planning in Oceanside. So, I would like some clarification
25 of how they are going to coordinate what the State says the
26 planning area should be and what the County has right now.

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EXHIBIT "C"

1 MR. SANDWINA: I will take a very quick stab at
2 that and perhaps ask Mr. Kearns to respond from the State
3 perspective.

4 I believe that where we are today is the
5 development of a set of offsite emergency plans based upon
6 the federally-specified criteria of ten-mile EPZ for the
7 plume pathway and 50-mile EPZ for the inhalation and inges-
8 tion pathway.

9 The State Emergency Planning Zones are
10 different; and the State, I am sure, may want to comment on
11 that. Jack, would you like to offer the State perspective?

12 MR. KEARNS: The City of Oceanside is included in
13 the Extended Planning Zone and not in the primary planning
14 zone where evacuation is the primary countermeasure.

15 We will be working with the local authorities
16 in, as I indicated in my statement, in developing the
17 appropriate countermeasures that would be applied and
18 development of plans accordingly. This may be shelter in
19 lieu of evacuation in the City of Oceanside. This is the
20 area that has to be worked on in conjunction with the local
21 authorities, but at this point in time, Oceanside is not in
22 the ten-mile planning primary zone but in the extended zone.

23 MR. SANDWINA: Thank you, Jack. I believe that
24 in my discussion I had a moment or so ago with Mr. Hunt, he
25 indicated to me that we're basically in the first phase of
26 the development -- or they are in the first phase of the

1 development of what will ultimately be the set of plans that
2 will be used.

3 MR. WHARTON: Can I ask one follow-up on this area,
4 if I might, to clarify FEMA's position?

5 My reading of the applicable NUREG -- and I
6 can't recall the name right now -- 0654, refers to planning
7 zones based upon the conditions of the area. Now, they
8 suggest ten miles, but all of them appear to be, from the
9 language of -- if you have to look at the geographics of the
10 area, topography, weather patterns and the rest of it and
11 look specifically at the area, you are saying now that FEMA
12 is going to go with 10-50 and disregard the specifics of the
13 area?

14 MR. SANDWINA: Not at all. Those judgments and
15 determinations are the prerogative of the local jurisdiction.

16 MR. WHARTON: FEMA is not going to establish any-
17 thing or give any guidelines on that?

18 MR. SANDWINA: We have that published in those
19 criteria, the ten- and 50-mile planning zones; but the
20 explicit boundaries for that are the prerogative of the local
21 jurisdiction, and those are based on the factors that he just
22 mentioned.

23 MR. WHARTON: Are there going to be any site-
24 specific studies required to determine what these are going
25 to be? I am just trying to figure out if there is going to
26 be any studies to determine what they should be, rather than

1 ten and 50.

2 MR. HUNT: There has been a study conducted by a
3 consultant that was hired by the State, SAI Corporation, that
4 dealt specifically with a nuclear plant incident and the
5 planning zones and everything else. So, that's all been
6 accomplished.

7 MR. WHARTON: That's correct, and that particular
8 plan calls for 20 miles EPZ.

9 MR. KEARNS: I can't believe that. No, I beg to
10 differ. The primary plume exposure pathway, as designed by
11 the planning criteria that we developed, did not include the
12 City of Oceanside. The City of Oceanside is in the Extended
13 Planning Zone.

14 MR. WHARTON: I am talking about the SAI report
15 referring to 20 miles.

16 MR. SANDWINA: I am going to cut this off at this
17 time and say that at the public comment portion of the
18 meeting, further questions in that regard, I think, would
19 be appropriate; and you can raise them at that time.

20 I would like to move to the City of San Juan
21 Capistrano and ask Cynthia Ferguson to present that plan.

22 MS. FERGUSON: I am Cynthia Ferguson with the City
23 of San Juan Capistrano.

24 Unlike the other jurisdictions that are
25 responding today, we have a limited capability with regard
26 to the planning in that we contract with the County for our

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 Charles E. McClung Jr., attorney for GUARD, hereby certify that I served the enclosed "INTERVENOR GUARD'S COMMENTS CONCERNING THE ISSUE OF THE SIZE OF THE EMERGENCY PLANNING ZONES" by depositing it in the United States Mail, first class, this 24th day of June, 1981, on the following interested parties:

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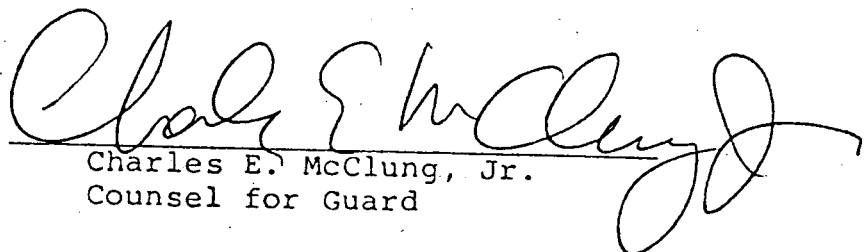
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