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January 17, 1974

Alan S. Rosenthal, Esq.,
Chairman
Atomic Safety and Licensing
Appeal Board
U.S. Atomic Energy Commission
Washington, D.C. 20545

Dr. John H. Buck
Atomic Safety and Licensing
Appeal Board
U.S. Atomic Energy Commission
Washington, D.C. 20545

Michael C. Farrar, Esq.
Atomic Safety and Licensing
Appeal Board
U.S. Atomic Energy Commission
Washington, D.C. 20545

In the Matter of
Southern California Edison Company
San Diego Gas & Electric Company
(San Onofre Nuclear Generating Station, Units 2 and 3)

Gentlemen:

For the information of the Appeal Board, enclosed is a copy of the minutes of the California Coastal Zone Conservation Committee meeting of December 5, 1973, at which a permit for the captioned facilities was refused.

The AEC regulatory staff has reviewed the minutes and, on this basis, does not believe any supplement to its Memorandum of January 4, 1974, is necessary.

Sincerely,

Lawrence J. Chandler
Counsel for AEC Regulatory Staff

(See page 2
for enclosures)

cc w/enclosures:

Michael L. Glaser
Mr. Lester Kornblith, Jr.
Dr. Franklin C. Daiber
Charles R. Kocher, Esq.
Mr. David Sakai
Frederic P. Sutherland, Esq.
Mr. Kenneth E. Carr
Alan R. Watts, Esq.
Lawrence Q. Garcia, Esq.
Dr. Gerard A. Rohlich
Mr. Larry E. Moss
San Clemente Public Library
Atomic Safety and Licensing
Board Panel
Atomic Safety and Licensing
Appeal Board
Mr. Frank W. Karas
George Spiegel, Esq.
David R. Pigott, Esq.
Elizabeth S. Bowers, Esq.

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CALIFORNIA COASTAL ZONE CONSERVATION COMMISSION

1540 Market Street, San Francisco 94102 — (415) 557-1001

TO: ALL COMMISSIONERS

FROM: JOSEPH E. BODOVITZ, EXECUTIVE DIRECTOR

SUBJECT: MINUTES OF COMMISSION MEETING OF DECEMBER 5, 1973

1. Call to Order. The meeting of the California Coastal Zone Conservation Commission was called to order at 9:35 a.m. on Wednesday, December 5, 1973, in the Empire Room, Newport Inn, 1107 Jamboree Road, Newport Beach, California, by Chairman Melvin B. Lane.

2. Roll Call. Present: Chairman Lane, Vice Chairman Harris, Commissioners Farr, Frautschy, Harry, Hayes, Laufer, Mendelsohn, Osenbaugh, Ridder, and Wilson. Absent: Commissioner May.

3. Executive Director's Report. Mr. Bodovitz said that as part of the Commission's planning for recreation in coastal areas, it would be desirable to plan a system of coastal trails. The Commission does not have money for this, however, but it appears that the State Departments of Parks and Recreation, and Transportation, are also interested in this matter, and that it would be useful for the Commission to express strong interest in having these 2 agencies proceed, to the extent they are able, in planning for coastal trails.

MOTION: Commissioner Farr moved that the Commission do this, and express appreciation for the willingness of the 2 departments to cooperate in this matter; seconded by Commissioner Mendelsohn and unanimously approved.

4. Reports from Commissioners. Commissioner Frautschy called the Commission's attention to the San Diego Regional Commission's guidelines for development of coastal bluffs. He said the guidelines were developed with the joint cooperation of staff, environmentalist groups in the area, and developers, and may have applicability elsewhere.

5. Voting on Appeals from Regional Commission Decisions.

a. Appeal No. 183-73. Appeal of Groups United Against Radiation Dangers (GUARD); Environmental Coalition of Orange County, Friends of the Earth, et al., from decision of San Diego Regional Commission approving permit for San Onofre nuclear generating station Units 2 and 3, Camp Pendleton, San Diego County.

Chairman Lane said that before proceeding he would like to recognize Assemblyman Robert Badham, who wished to welcome the Commission to Newport Beach. Assemblyman Badham said he represents the 71st Assembly District, which incorporates the area in which the meeting is being held. He said he was a former chairman of the Assembly Committee on Public Utilities, and chairman of the Joint Committee on Atomic Development and Space. He said he has spent several years as a body surfer, skin diver, and scuba diver, and as a resident of the coastal permit zone; and he said he has authored much legislation on oil drilling bans and marine life preserves along the coastline of Orange County. He said that as a resident and citizen of this area, as one concerned about the coastline of this area, he had looked at a great deal of fact and information throughout the years, and would sincerely and strongly urge the Commission to accept the recommendation of the San Diego Commission and approve the application for a nuclear power generating capability increase along the coastline.

Chairman Lane said the procedure on this appeal would be to first hear the staff report and recommendation, then hear from the applicant in response to the staff recommendation, and then hear the appellant. He asked the two parties to take at the most

half an hour. He said there would then be a short time for rebuttal and any final comments of the staff, and, following that, there would be an opportunity for Commissioners to ask questions of anyone — staff, applicants or appellants — and then any final comments of Commissioners before voting.

Commissioner Farr then said it might be a good idea, and of benefit to the audience, for Mr. Boronkay to read Section 27402 of the Act and to define the matter of the burden of proof on this issue, and the findings that must be made by the Commission.

Carl Boronkay, Assistant Attorney General, said Section 27402 states, "No permit shall be issued unless the Regional Commission has first found both of the following: (a) that the development will not have any substantial adverse environmental or ecological effect, and (b), that the development is consistent with the findings and declarations set forth in Section 27401 and the objectives set forth in Section 27302. The applicant shall have the burden of proof on all issues." That is, the applicant for a permit must satisfy a majority or, in this case, as the staff recommends, 2/3, of the Commission members that the proposed development will not have a substantial adverse environmental effect and, in addition, that the development will be consistent with the objectives and declarations of the Act. The objectives and declarations generally point out the need and the interest of the public at large for the preservation, protection, and enhancement of coastal resources. He said, accordingly, it is for the Commission to determine whether this burden of proof has been met — whether, on balance, from all the evidence the Commission is able to find that there will not be a substantial adverse effect on the environment and, in addition, that the development will be consistent with the objectives and declarations of the Act.

He said the Commission had set some precedent in its decision on the power plant at Terminal Island in Long Beach, in the sense that the Commission may properly consider the effect on coastal zone resources of the denial of a permit, as well as the granting of a permit. In other words, because it is the legal duty of the Commission essentially to protect the coastal zone during this interim period of planning, the consequences to the coastal zone of denying a permit may properly be considered.

Mr. Bodovitz presented the staff recommendation, a copy of which is attached to the official copy of these minutes on file in the Commission's office. He said the staff recommended denial of the application in the form it has been presented to the Commission, but he said the staff believes there are alternatives that would allow expansion of nuclear power plants at San Onofre while also protecting the coastal bluffs and preventing, or at least minimizing, any potential damage to the marine environment.

He showed slides of the bluffs, canyons, and beach at San Onofre, pointing out that under the application, more than half a mile of these unusual bluffs, 52 acres in all, would be leveled and permanently destroyed. He said the bluffs are an unusual geological formation, and that the combination of bluffs, canyons, and beach make this a valuable site for recreation, and of increasing value if the energy shortage means there will be less long-distance travel, and more use of close-to-home beaches and other recreational sites. Destruction of this large, scenic area would in the staff's view mean substantial environmental damage, and would be inconsistent with the Act's requirements to protect and enhance the coastal zone.

He said that the proposed expansion at San Onofre would require great quantities of ocean water to cool the power-generating equipment. This cooling water would be rich in the tiny plant and animal organisms called plankton that are the basis of the food chain in the waters of the ocean and make possible the highly-productive ocean fishery. Plankton includes the larval forms of many other larger nearshore animals such as clams, mussels, and many fish. It appears likely that at least 70% of the plankton to be piped through San Onofre would be killed; those that survive would be discharged into ocean areas far offshore. Further biological studies are needed, but evidence before the Commission indicates at least a possibility that the proposed San Onofre expansion could cause several square miles of coastal waters to become the equivalent of a marine desert.

He said that at the public hearing, questions of the safety of the nuclear plant had been raised, but the Attorney General's office has advised the Commission that under the U.S. Atomic Energy Act, the Federal government appears to have exclusive authority to regulate and control radiation hazards from nuclear power plants. Accordingly, the Commission may not legally take safety issues into account in deciding this appeal.

But, he said, the nuclear power plant issue is nevertheless of concern to the Commission's coastal zone planning. First, there is the question of whether the planning should try to curtail population growth in the immediate area of the plant, i.e., in the southernmost part of Orange County. But there is also the question of the welfare of the people now living within a few miles of San Onofre. He said the local school district has repeatedly expressed concern about the possible need to evacuate school children in the event of nuclear mishap, but the school trustees say they have never been able to get an honest and clear statement from anyone as to what preparations they should make. Accordingly, the school trustees say they will consider shutting down schools in the area if the application is approved.

He said there is obviously a strong case to be made for nuclear energy: it does not depend on oil for fuel, and thus it avoids the problems of fuel supply and it does not result in air pollution. Both, he said, are of obvious public value. But at the same time, if San Onofre is to be set aside as a coastal area to be devoted to nuclear power generation, then surely the people in the area are entitled, first, to know what risks they are being asked to bear, and second, to have a clear, well-defined plan for emergencies. He said the design and construction of nuclear plants is so thorough that many, perhaps most, of the scientists with expertise in nuclear energy believe the risk of any accident is so small as to be negligible. But other scientists disagree, and for most people, there is a willingness to agree the risk is small, but there is also skepticism that anything is completely foolproof. In a sense, then, a nuclear power plant is like a caged beast; there is general agreement that the cage is well-designed and strong, but the people living near the cage cannot be blamed for being concerned, and they are entitled to a clear emergency plan.

He said the staff believes the best alternative to the present proposal would be placing the new nuclear units east of the Interstate 5 Freeway. Thus, the bluffs, canyons, and beach would be saved. The applicants already have an agreement from the Federal government to use 125 acres east of the freeway as a dumpsite for the excavated bluffs. The applicants reply, however, that any move to the eastern side of the freeway would delay construction of the nuclear units 4 to 6 years, and note that approval of Congress would be required. The staff believes, however, that while approval of the change might in the past have required a long time, this would not be true today, because of the public concern about energy. He noted that, after a long delay, the Alaskan Pipeline received speedy approval by Congress under the pressure of the energy shortage. And he pointed out that the expansion at San Onofre would not solve any immediate energy problems, because under the best of circumstances, the new units would not be in operation until the end of the decade, and more likely well into the 1980's, given the possibility of litigation over the proposed project.

In short, he said, the staff is recommending denial only of the present application, in the strong belief it does not qualify for a permit under the Act. But the staff emphasizes that alternatives exist that would qualify. Thus, the recommendation is not against all power plants along the coast (the Commission has already approved one major coastal power plant, in Long Beach), but only against the proposal in its present form.

He said there has been much public interest and comment on this application, and the thing that concerned him most was the suggestion that, in effect, there should be a double standard for developments: because this application is so important, the Commission should roll over and play dead, leaving the Act unenforced, but when smaller proposals come along, stringent enforcement would be in order. He said the staff believes such a course of

selectively carrying out the Coastal Zone Conservation Act or, indeed, any other law-- would be disastrous. The staff is trying hard to apply the same standards to all applicants, and would not know how to proceed on any other basis.

If the application is denied in its present form, he said there is obviously reason to be concerned that the public will not understand all the reasons, but will see only the headlines, "Application Denied." Still, he said, that is not reason for approval unless approval is consistent with the law. And, he said, through the discussion today, it may be possible to arrive at a solution that will be clear and well understood.

In a sense, he said, the Act itself is on trial: is protecting the coast inconsistent with providing needed energy? In the staff's view, the Act emerges as a sensible law: it clearly allows for the use of the coastal zone to provide for the public needs for economic development and for energy, so long as the need to protect the coast is also recognized. And, as the staff has tried to point out, while the present application does not do this, alternatives exist that do. There is no question, he said, that energy matters are now of growing importance, but it will be sad indeed if American society turns away from the goal of trying to have both energy and environment, and chooses only the former.

Charles Kocher, attorney for Southern California Edison Company and San Diego Gas and Electric Company, the applicants, said he would not address the safety question, agreeing with the recommendation of the Attorney General, but had submitted a lengthy statement on this to Mr. Bodovitz. He said that William Gould, Senior Vice President of Southern California Edison Company, would address the question of alternatives, and the remaining subjects would be addressed by David Fogarty, Vice President of Southern California Edison Company.

Mr. Gould said his responsibilities with the company are for the planning, design, construction, and operation of the company's bulk power supply system. He said because of his familiarity with the history of the San Onofre site and the development of this project in its planning stages, he would address a number of the staff recommendations with respect to this project, particularly as they pertain to the alternatives of siting, reactor-type, heat dissipation systems and, also, the delays associated with such alternatives. He said the staff has suggested that to eliminate excavation of the bluffs, the nuclear plant should be relocated across Interstate Highway 5 or elsewhere on Camp Pendleton. He said the fact is that Congressional action was required to obtain the present site, which the Congress intended to be dedicated to the peaceful development of atomic energy for power production. Further action would be required of the Congress to establish a new nuclear plant site on Camp Pendleton. He said that in his judgment, the acquisition would require at least two years. Assuming the utilities could acquire a new site, it would then be necessary to commence anew all of the site-related environmental and safety investigations, and upon their completion to commence anew the entire regulatory process; he said that no less than 4 years after the Congressional authorization would be required for this process, the Alaska Pipeline notwithstanding. The applicants do not have any potential nuclear site, either on or off Camp Pendleton, on which the proposed San Onofre units could be developed with less than a 4 to 6 year delay.

He said staff had suggested that high temperature gas-cooled reactors could be substituted for the pressurized water reactors planned for San Onofre because of their relatively greater thermal efficiency. But a HTGR (High Temperature Gas-cooled Reactor) of this size, meeting the design criteria of the proposed San Onofre units, has never been licensed or ever been constructed. He said Edison has great interest in the HTGR, as is evidenced by the fact that some time ago it commenced a project to construct 2 smaller, second-generation size, HTGR's on a desert site for operation in approximately 1982 or 1983. The installation of HTGR's at this existing San Onofre site would involve delays of not less than 4 years and would required the company to commence the licensing process at the very beginning.

He said the staff suggested salt water cooling towers or a deep-water intake as a means of reducing the impact upon the marine environment. But the great weight of evidence before the staff would indicate that the adverse environmental effects of the proposed units would be minimal and, as a result, alternatives are not necessary. He said any revisions would require the authorizations from the Atomic Energy Commission, the Environmental Protection Agency, the Army Corps of Engineers, the Coast Guard, the California Public Utilities Commission, the State Water Resources Board, the State Lands Commission, the Regional Water Quality Board, and the San Diego Coast Regional Commission; a minimum of 2 years would be required for those approvals. Moreover, the installation of salt water cooling towers would be an insult to the terrestrial environment, and there is absolutely no substantial, credible evidence that a deep water intake would represent a meaningful environmental improvement. Such alternatives, in terms of time, would cost years, and in terms of dollars, would cost hundreds of millions, and these dollars must be paid by the ultimate consumers of electric power. In terms of fuel, this would cost at least 25 million barrels of oil per year and in terms of environmental degradation, continued fossil-fuel emissions to the San Diego and South Coast air basins, and all to no avail because the adverse environmental effects of this proposed project will be minimal.

He said that in 1963, after a thorough study of alternate sites, both on and off the Marine Corps reservation, the Congress enacted legislation that authorized use of a portion of the Federal enclave at Camp Pendleton for the generation of electricity through the use of nuclear energy. The applicants then acquired the San Onofre site, which remains a part of the Federal enclave and subject to Federal legislative jurisdiction. He said this project was conceived in response to environmental concerns. The decision to locate the proposed new facility at the existing San Onofre site was responsive to the need to minimize the opening of a new coastal generating site or sites. At every step of the development of this project, safety and environmental considerations have been paramount.

He then asked the Commission to show a similar responsiveness to energy needs. He said the problem is not short-term, and the applicants have never alleged that if this project were not built, the lights would go out tomorrow; but a few years ago, the applicants were making the same representations on other projects that were not approved and, indeed, the energy crisis is now here. It is essential that diversification to nuclear and other fuels be accomplished as rapidly as possible.

Mr. Fogarty said the bluffs are characterized in the staff report in a way the applicants believe is not supported by the evidence. He said the applicants had sent to each of the Commissioners photographs of the more than 21 miles of sandstone bluffs from Laguna Beach to Torrey Pines State Park. He said the applicants believe the 3/4 mile in front of the proposed location of units 2 and 3 is not a unique resource.

He said the evidence presented to staff clearly shows that the canyons have developed over a short period of time, less than 4 years; they were developed in response to man's activities in locating drainage ditches under the railroads in the vicinity of the plant and not the result of natural phenomena. To characterize them as similar to Bryce or Grand Canyon National Park bordered on being irresponsible.

As to the coastal waters, he said some of marine biological monitoring in connection with unit 1 has revealed no substantial adverse effect as a result of construction and operation of that unit. He said a new kelp bed has appeared in the vicinity of the plant and Dr. Enright characterizes the plankton in the area as being rather massive. He said this fact has been confirmed by the Regional Water Quality Control Board, and thousands and thousands of pages of monitoring data have demonstrated a healthy environment in the vicinity of the San Onofre project.

He said the staff asserts that the impact of the project on plankton has been little studied. He said that Dr. Enright presented no analysis or evidence, but merely gave his comments on a monitoring program the applicants had undertaken. He said the information supplied to the staff by the 2 companies showed that the applicants commenced plankton

research programs as early as 1964 at San Onofre and have other plankton research programs in progress; these programs have been approved by the Regional Water Quality Control Board and are the most extensive of any such programs along the California coast. The results of these programs have shown no significant adverse impacts on the plankton populations. If additional data on plankton is required, it is reasonable to expand the monitoring program. He said that independent reviews by numerous State and Federal regulatory agencies of the same data in connection with their respective approvals showed no problems, nor did the AEC's Environmental Impact Report; over 160 documents on plankton were utilized in that review.

He said the staff states that the project could not qualify under any standard that expresses concern for both environmental and energy needs. Regulatory permits and authorizations have been issued for this project by the Atomic Energy Commission, the Environmental Protection Agency, the Corps of Engineers, the California Public Utilities Commission, the State Water Resources Control Board, the State Lands Commission and the Regional Water Quality Control Board, as well as the San Diego Regional Commission.

He said the staff omitted the consequences of the adverse effect of denial of this project in the coastal zone. If the San Onofre plant is not built, it is going to require the applicants to do several things. First, they will have to operate their existing plants in the coastal zone at much higher loads and for longer periods of time than they would otherwise operate. That would mean more circulating water brought into these units and whatever kill there is of plankton in going through a power plant, it will be the same at one plant as another. There is also a requirement of bringing in 25 million barrels of oil per year which, based on 70,000 barrels per tanker, will require 360 tanker loads of oil per year coming into the Southern California area that otherwise would not be coming in. The plankton kills in the inner tidal zone and in the harbors caused by the propellers of these ships must be added to the plankton mortality count in the power plant. There is also the possibility of oil spills in handling large numbers of oil deliveries which would have a further adverse effect on plankton mortality.

Chairman Lane asked if the appellant would like to speak to the staff report.

Frederick Sutherland, attorney for the appellants, said they support the staff recommendation. He said the development is demonstrably not consistent with the findings, declarations, and objectives of the Coastal Zone Conservation Act. The issue at San Onofre is not all power plants, but only the proposed expansion of this power plant in this form at this site. He said the slides illustrate the natural beauty of the bluffs and canyons or barrancas that would be destroyed by the proposed development. The applicants have asserted, however, that these bluffs and barrancas are not significant coastal resources and are not entitled to the protection of the Act because they are not unique. They are in an undeveloped area, readily accessible to the public and situated between two portions of San Onofre Bluffs State Park. They are uniquely beautiful because of the "marbling effect" caused by the washing down of the chocolate-colored silt over the golden sandstone, and by the intricate design on the cliff faces that have resulted from natural wind and water sculpturing. Second, the Coastal Act states the permanent protection of the remaining natural and scenic resources of the coastal zone is of paramount concern. Under the applicants' rationale, it would apparently be permissible to develop practically the entire coastline, so long as one example of each significant coastal resource remained. This is obviously not the purpose of the Coastal Act.

In addition to the bluffs, there would be the closure of approximately 1,000 feet of beach for six years during construction, and the dredging of approximately 85 acres of sub-tidal shelf to accommodate the massive intake and discharge conduits. The beach at San Onofre beneath the mean high tide line is held in public trust for the people of California. Exclusion of the public from this beach and its appropriation by private companies are prohibited by the California Constitution, and would constitute a substantial adverse environmental impact inconsistent with the objectives of the Coastal Act.

The beach is now heavily used for recreation and it also provides lateral access between the 2 portions of the State Park that adjoin the applicants' property. The state Department of Parks and Recreation has police power authority over this beach and park rangers make regular patrols across it.

He said that in connection with the problems presented by the impact of the proposed development on the marine resources, he would like to commend staff on a particularly fine job. He said the staff considered testimony presented by Dr. Enright, Dr. Vallee, Dr. Varlotti, Dr. MacGowan, and Dr. Barnett. They all presented evidence that the construction and operation of the intake and discharge conduits could have serious adverse effects on various types of marine organisms. In addition to this, the staff recommendation has considered numerous documents, studies, and information provided by applicants and independently gained by the staff, and has found the evidence overwhelmingly supports the position that there could be a substantial adverse environmental effect. The applicants have not sustained their burden of proof.

As to the question of whether non-environmental factors may be considered, he said it is the appellants' fundamental premise that the California Coastal Zone Conservation Act does not authorize or permit the Commission to balance questionable projections of the need for electricity against the demonstrable substantial environmental effects of nuclear power plants sited on the coast of San Onofre, nor to preempt the Commission's planning function by approving the construction of such a development.

He said that as he understood Mr. Boronkay's position, only environmental considerations of an approval or denial may be considered and then, only as such environmental conditions affect the coastal zone. He said the appellants submit that the data submitted by applicants in this case is insufficient. Proposition 20 is a strong, straightforward mandate to the Commission to prepare a plan to protect and enhance the coastal environment. The Coastal Act does not place a moratorium on power plant development. But only the environmental consideration of an approval or a denial can be considered.

But even if the environment and energy are considered by the Commission, he said the permit must be denied. He said there are substantial questions concerning applicants' assertions that there is a need for this plant at this site at this time. Even if units 2 and 3 are constructed and operated in time, they will not contribute to a solution of either the present or near-term needs for electrical energy, because they are not scheduled to go into operation until 1979 or 1980. Moreover, the need in 1979 and 1980 for electrical energy from San Onofre units 2 and 3 is predicated upon several questionable assumptions. These assumptions are that no alternative sites or no alternative sources can be developed within 7 years, that the applicants' projection of demand for 1979 and 1980 are correct, and that no conservation measures will be instituted in the next 7 years. He said the appellants believe these assumptions are incorrect. The projections are based on peak demands in 1980 doubling the demand in 1971. If any conservation measures at all are undertaken, that will not result.

He said there are numerous inland alternative sites that are better suited for power plant development than the coastal zone at San Onofre. President Nixon has directed the AEC to make a real effort to reduce the lead time on nuclear plants from the present 10 years to 6 years, and has also embarked seriously on a course of energy conservation. This will greatly lessen the demand for the future for electricity, and renders invalid the demand projections that were prepared previously by Southern California Edison Company and San Diego Gas & Electric Company to justify the need for San Onofre units 2 and 3.

He said the staff recommendation has indicated that even if the permits were approved, there is a likelihood that the completion of San Onofre units 2 and 3 would be delayed because of litigation. He said there was still an administrative appeal pending before the Atomic Safety and Licensing Appeal Board, and it is unclear when that appeal will be decided. He said the State Lands Commission has not yet granted its approval of the

project, and he understood that the State Department of Parks and Recreation has not yet agreed to allow the applicants to lease 23 acres adjacent to the property. The point is that if there is delay, units 2 and 3 would not go into service in 1979 and 1980, as planned. If this proves to be the case, the applicants still have sufficient time to develop alternative sites and sources less harmful to the environment.

He said the staff recommendation states that the Attorney General's office has advised that the Federal Government, pursuant to the U.S. Atomic Energy Act, appears to have exclusive authority to regulate and control radiation hazards from nuclear power plants. He said the appellants believe that incorrectly states the law because it is overly broad. The law of Federal preemption as applied to State regulatory activities is not whether State and Federal laws have differing objectives, but whether those laws necessarily and irreconcilably conflict. As applied to this situation, the appellants believe that although the objectives of the Atomic Energy Act and Coastal Conservation Act are clearly different, the consideration of nuclear safety by the Commission with respect to the siting issue, i.e. shall the plants be sited on the coast, within the permit area over which the Commission has a duty to prepare a plan, does not irreconcilably conflict with the function of the Atomic Energy Commission in applying technical safety standards in connection with the licensing of construction and operation of nuclear plants. He said the Coastal Act has requirements that the Commission take into account health and safety considerations in performing its duty. On the other hand, the Atomic Energy Act does not specifically prohibit the regulatory agencies from considering health and safety aspects of nuclear power plants in determining where they should be sited. If there is any Federal preemption, it is by implication only, and, therefore, a question for the Courts. The appellants believe it would be extremely unfortunate if the Commission did not aggressively assert its jurisdiction and utilize its expertise in matters of such great importance to the coastal zone and, indeed, to life itself. If the Commission chooses to completely abdicate jurisdiction over matters of nuclear safety, the Commission will relinquish control over such matters to the AEC, an agency that has absolutely no expertise with respect to land use planning and that has been characterized historically by secrecy, dedication to the promotion and proliferation of nuclear power plants, and has demonstrated problems with regulation of safety.

He said that recently an earthquake fault was discovered only 2 miles offshore from Diablo Canyon, where there is a PG & E nuclear plant. He said the fault was discovered only through the efforts of an independent agency operating outside the AEC's licensing procedures. He said that on October 21, 1973, there was a serious accident at San Onofre unit 1, and it was not until one month later that this accident came to the attention of the general public and then only through the efforts of the press. He said that pursuant to law, the AEC was required to prepare a report on this accident and file a copy of it in the San Clemente Library. He said no such report was filed as of November 20; this accident points out the inadequacy of safety regulations of the AEC. Another anomaly in the AEC's regulatory procedures is the fact that the AEC requires that units 2 and 3 at San Onofre be constructed to withstand an earthquake acceleration of .67g while, at the same time, it allows the continued operation of San Onofre unit no. 1, which is stressed to withstand an earthquake acceleration of only .5g. The site is 5 miles from the active Santa Monica Baja fault offshore and sits almost directly on top of the inactive Christiantitos fault line. A recent study by the U.S. Geological Survey, the agency upon which the AEC depends for its seismic data, concluded that an earthquake of 6.5 magnitude on the Richter scale can produce a .9g acceleration in the near fault area. He said the appellants believe that the Coastal Zone Conservation Act requires the Commission to consider issues of nuclear safety and seismology in connection with this decision. Both the State Department of Water Resources and the Environmental Quality Laboratory at Cal Tech have indicated that there are numerous locations in California inland that are more seismically stable than the coastal area. In fact, Southern California Edison has recently announced that it is planning to construct 2 nuclear generating plants in the Mojave Desert, south of Needles. In light of these more favorable locations, it is appropriate to ask why the applicants seek to press upon the Commission a false sense of urgency with respect to the approval

of this plant at this site this time. He said applicants seek to burden the public with the consequences of their failure to undertake proper planning which could have avoided delay and minimized environmental danger and damage.

Chairman Lane asked Mr. Fogarty if he would like to say anything in rebuttal. Mr. Fogarty said that he would not respond to the items of nuclear safety, but would like to comment on the sites that Mr. Sutherland seems to feel are available elsewhere in California. He said Southern California Edison does have a site south of Needles, but this is a site that has taken over 2 years to get to the point where the company is preparing the papers necessary for application to the AEC. He said Cal Tech and the State Resources Agency did indicate that the San Onofre site was one of two coastal areas that were adequate for nuclear power plants.

Mr. Sutherland said he had nothing more to add to his previous statement.

Chairman Lane asked Mr. Bodovitz if he would like to add anything and Mr. Bodovitz said no.

Chairman Lane then said that questions from the Commissioners were then in order.

Commissioner Farr said he understood the applicants have 125 acres east of Interstate 5 and Mr. Fogarty said yes, they have permission from the Marine Corps to dispose of some of the material from the excavation of the bluffs at that location, which is called Japanese Mesa. He said the applicants don't own that area or have any long-term rights to it, but they do plan to use it as a spoils area. He said the sandstone material excavated will be put on the beach to replenish the downcoast beaches.

Commissioner Farr asked if the applicants have considered that in the event this application were not approved, they might develop units 2 and 3 on that site. Mr. Fogarty said they had looked at it, but they don't believe they could do that in less than 4 to 6 years, because they would have to go back to Congress and then through the rather tortuous course of all the regulatory approvals.

Commissioner Farr asked if in the midst of the energy crisis, they would have difficulty in getting approval from Congress. Mr. Fogarty said they think it would take 1 to 2 years to get that approval.

Commissioner Osenbaugh said that the Attorney General stated that safety was not an issue properly before the Commission, and probably matters of national economy would fit in that category also, but, as citizens, the economic questions have to weigh on the Commission members. He asked if the project were turned down and there were the predicted time delay, what impact would there be on their economy? Would there be brown-outs and fuel shortages? The Commission has heard that 25 to 30 million barrels of oil per year would be saved by units 2 and 3; are there analogies that could make these figures more meaningful to the Commission? Mr. Fogarty said that next year the applicants forecast the need for 62 million barrels of oil in the Southern California Edison Company system, so the 25 million barrels of oil savings would be about a third of what the company hopes to be in a position to burn next year. To carry this forward to 1980, Southern California Edison would be burning at that time, without San Onofre 2 and 3, about 108 million barrels of oil, so it would be 25% of the 1980 burn rate and about 33% for next year. He said he believes this year and next year, the projections indicate that Southern California Edison Company will be one of the largest, if not the largest, utility in the United States burning oil. Part of the problem is to get away from this dependency on oil.

As to the impact on the economy, he said the project would have a construction payroll of about \$300 million and that would be quite an impact. Also, there could be some effects on ability to supply customers.

Vice Chairman Harris asked Mr. Fogarty how the applicants would handle unplanned radioactive emissions. Mr. Fogarty said you have to hypothecate a whole series of conditions happening before there would be a radioactive release. From unit no. 1 there are liquid releases, gaseous releases and, also, the solid material that is transported off site by truck. Vice Chairman Harris asked about unplanned emissions. Mr. Fogarty said he had no knowledge of such events.

Vice Chairman Harris said she understood that about a year ago, the Edison people became concerned with the evacuation requirements, particularly because the State Beach had been developed, and commissioned a study by Nuclear Utility Services (NUS) to analyze the magnitude of the problem and recommend design changes in the reactor containment. She said another question was how to hold down the external release of radiation long enough to evacuate at a time when the State Beach might be highly populated. She said she understood that NUS came back with Report No. 1000, a private report to Edison that has not been made available to the public, and NUS found there is a substantial problem and that Edison should invest millions of dollars in additional containment. If this is only for unit no. 1, is not the problem far greater when units 2 and 3 are added?

Mr. Gould said that when a construction permit is granted for a nuclear station, it is necessary to eventually obtain an operating license, which has been done for San Onofre, and then a permanent operating license. Incident to obtaining the permanent operating license, all changes and regulations made by the AEC since the issuing of the construction permit have to be addressed by the applicant. There were some changes in the AEC regulation concerning direct radiation. He said the company addressed this by starting a series of studies. The NUS report was only one component of the 4 components of that study. He said he believed that was component 2, and that components 3 and 4 are still going forward. He said the NUS study postulated some very, very extreme conditions and then asked the question, is this something that requires further study? He said the thrust of the NUS report was yes. He said the applicants are making those studies and will, at the time those studies are complete, make a full and complete disclosure of what they contained and what the applicants' reaction to them is.

Vice Chairman Harris said the problem is that the vote on the expansion is today. She said she had asked previously for anything she could have on evacuation and containment, and nothing was forthcoming even to indicate that NUS had, in fact, made this study.

Commissioner Ridder said in the staff summary on page 5 there is a statement that radioactive wastes in small quantities will be periodically discharged to the ocean. He asked what is meant by "small quantities"? Mr. Fogarty said that in the primary system of the nuclear reactor, there is liquid water, and over a period of time it is gradually blown down to maintain purity levels; also, there are sampling connections from the system which tends to accumulate the water in the primary loop. He said these liquid releases from the primary system are put into holdup tanks where they are maintained while the radiation level decays and then put through filtering systems to remove some particulates and some of the radioactive isotopes. He said the liquid, after it is held up and decontaminated in the plant but still has some activity in it, is released to the circulating water system with a dilution rate of at least 5,000 to 1. He said this is done periodically and about 6 to 8 weeks would be a normal frequency; it would be a matter of a few thousand gallons discharge. Commissioner Ridder asked if a diver in the water at the discharge point could stay there indefinitely without harm and Mr. Fogarty said yes; he added that at this level of activity, were it to occur in drinking water the drinking water would be perfectly safe.

Commissioner Ridder said a letter sent to the Commission by Lloyd von Hayden makes the point that it takes as much power to make the uranium enrichment as the plants produce. He said he has listed 15 or 20 power plants with about the same amount of power as the AEC's 3 enrichment plants. Mr. Fogarty said this must be talking about the connected capacity of the enrichment plants. He said the enrichment plants cannot be compared with the units that are presently operating. The enrichment plants are primarily making fuel for the new units and the lead time for the orders on nuclear fuel are, in some cases, 5 to 10 years.

long. He said this is the advance time needed to order uranium to be fabricated, so one cannot compare the capacity of the energy requirement at the enrichment plants with the capacity of the generation in service today. He said a better comparison made usually in the technical press is that for every megawatt hour of capacity used at the enrichment plant, there are 30 megawatt hours of electrical production in the generating station.

Commissioner Ridder then asked if there were a possibility that if the San Onofre plant were to proceed, there would be in the 1980's a trade-off with the Huntington Beach plant; could that be phased out by the introduction of this plant? Mr. Fogarty said the Huntington Beach plant and all the other facilities would be operated less of the time if San Onofre were built, and that was one of the big benefits that the South Coast Air Basin would receive from the standpoint of air emissions. The effect of having San Onofre go into operation would be to reduce the operation of all the other units. Likewise, if the opposite occurs, if San Onofre is not built, the units in the South Coast Air Basin would have to operate substantially at higher loads.

Commissioner Ridder asked if the applicants go ahead with this plant, would they go ahead with the application to enlarge the Huntington Beach plant. Mr. Fogarty said Southern California Edison had made application to the Regional Commission for the expansion there, and, based on the load forecast at the present time, Southern California Edison would still need the Huntington Beach facility. However, Southern California Edison now believes there will be less growth by 1980 than originally forecast when meeting with the Commission on October 18. He said the PUC has requested Southern California Edison to report on the effects of voluntary curtailment programs to reduce the energy used by its customers by about 10%. If the load growth is not up to what was projected, then Southern California Edison would not build the Huntington Beach plant, but based on where things stand today, and considering some of these curtailment plans, Southern California Edison still thinks the Huntington Beach plant would be required. Commissioner Ridder asked if it would operate in the 1980's and Mr. Fogarty said yes, especially the expanded portion because it is a lower emitter than the existing portion.

Commissioner Ridder said it seemed to him that the San Onofre project would be more viable if the intake and outflow could be located at a depth where there would not be a problem with the plankton and the fish. He said there seems to be no substantial argument either way to prove that plankton will or will not be destroyed in the area. He said there was a statement made that a deep-water intake would require all new approvals, and he thought that meant a couple of years to get those approvals. Mr. Fogarty said that was probably correct. He said there is another factor: the staff suggested going into 40 meters depth, and that would clearly require going back to all the regulatory approvals on the circulating water systems; this would add 2 years to the construction schedule. If the suggestion were not to go to 40 meters of water, but to just deeper water, the approach used would be an expanded marine biological monitoring program to determine if going into deeper water did produce any benefits, and to find out what depths of water it might take to produce this benefit.

Commissioner Ridder asked him if he would be opposed to this as a condition — that prior to construction there be a study carried out to determine if the location should be in deeper water. Mr. Fogarty said the applicants would not be opposed to that as a condition.

Mr. Gould said the applicants have reflected on this quite a bit and they would not be opposed to a condition that they make a study. He said they would be opposed to a condition that would preclude construction prior to that study. He said they would make the study and would implement any improvements that were obvious and he said he thought this was the realistic way to approach the problem.

Commissioner Laufer said it has been stated that if the applicants receive approval today, there would still be considerable delay due to legal action and asked if that were a valid statement. Mr. Kocher said that it is speculative; he did not really know whether

litigation would ensue or not. There is no assurance that litigation would not occur at any time. Commissioner Laufer said that from the type of opposition they have experienced today, it appears there would still be some further litigation. Mr. Kocher said it was a possibility, but a speculation.

Commissioner Wilson said that San Onofre 2 and 3 are not going to solve the energy matter tomorrow, but said he would like to make known his views on energy demands and growth in the Southern California basin. He said the compound growth rate from 1973 to 1983 is down from 6.2% to 4.5, and that the San Diego Gas & Electric, according to the AEC, does not need the capacity that would be generated by its 20% participation in this plant. At the same time, a national energy policy is emerging, and nobody really knows quite what the impact is going to be, but the conflicts are considerable. For instance, a need is not shown for San Diego Gas & Electric, and statements from William Simon of the new Federal Energy Agency are that commercial and industrial energy use has got to be reduced. How much of this kind of thinking has yet been injected into the needs and costs and the planning of San Onofre 2 and 3?

Mr. Fogarty said the reduction in demand for electrical energy has been a factor in the San Onofre 2 and 3 from the first. He said that since 1969 the companies have been constantly reducing their forecast of future demand for electrical energy brought about by primarily two factors initially. One was the higher cost of the product, the fact that the cost of electricity was going up; and second, they could see problems with fuel oil, not so much from the standpoint of its not being available but from its being more expensive. He said those things have been factored in and the demand has been reduced. More recently, with the curtailment situation being faced next year and the order from the PUC, the companies have further reduced these forecasts down to 4 $\frac{1}{2}$ % compounded growth rate over the next 10-year period. In spite of these things, he said, as indicated on October 18, the position is still the same as far as San Onofre is concerned. One additional factor that pertains now is that San Onofre is becoming more important to ratepayers in southern California and the nation as well, because it would enable them to get loose of their dependence on foreign oil.

Commissioner Wilson asked if demand and need are going to be based on the existing rate structure or have the companies anticipated some changes in the rate structures that could have a negative effect on demand. Mr. Fogarty said they have, until the last 6 or 8 months, included in the forecast the effect of higher cost for their product. He said the price of electricity has increased in the last 3 or 4 years by about 35% and it is going to further increase. He said they had not, until 6 or 8 months ago, considered any alteration of the rate structuring within the present situations set by the PUC, which has the obligation in California to set rates that are fair, just, and reasonable. He said they have recently developed some data from their own system, making some sensitivity analysis to price changes and, also, they have begun to look at the possibilities of altering the rate blocks within the structure they presently have, and they are in the process of factoring those in now. Commissioner Wilson said he thought the changes were coming so fast and furious that it is very hard to factor them in. The problems of today are reactions to problems that were not thought about in the past; had more been done, there might not be the jam today over energy.

Gregory Nesbitt, Manager of Resource Planning for the San Diego Gas & Electric Company, said that testimony submitted at the hearings before the Atomic Energy Commission, the San Diego Coastal Commission, and the State Commission substantiated that San Diego Gas & Electric Company does, in fact, need all the capacity from San Onofre units 2 & 3. He said one point that San Onofre units 2 and 3 were scheduled for initial operation in 1976 and 1977, but due to a whole history of events, those initial operating dates have had to be rescheduled. As a result, San Diego Gas & Electric has had to include in its plans new fossil-fuel generating capacity for this period 1975 to 1979. The company is not going to stop building houses in its service territories, and is not going to stop providing new jobs for people in the service territories; the use of energy in 1979 and 1980 is not

going to be less than it is now. He said it might be less than the company once expected it to be, but it is still going to be greater than the requirement for 1973 and 1974. In view of this projected reduction in the rate of growth and energy consumption, the company has found it prudent to remove a 75-megawatt gas turbine from its planning, in anticipation of a lower growth rate. Should future information indicate that the loads will be much less than now projected, the alternatives would be to remove from the plants further increments of fossil fuel generation that are now included for initial operation in the period 1975 through 1979. He said it is vitally important that San Onofre units 2 and 3 stay in the plans for the primary reason that these 2 units do not require oil.

Commissioner Wilson said he understood the fission reactor, the type of installation at San Onofre, is in about around 74 plants in the U.S. and asked if this was correct. Mr. Fogarty said he did not believe there were that many in operation. Mr. Gould said as of June, there were 34 in operation, 57 being built, and 81 in planning.

Commissioner Wilson said his understanding is that, overall, these plants have about a 66% efficiency factor; about a third of these plants are shut down at any given time. Mr. Fogarty said the availability of nuclear plants runs something on the order of 60% to 65% availability, nation-wide, so at any one time a third of them would be down.

Commissioner Wilson said the reason he raised this point is that when nuclear power is discussed, it disturbs him that people seem to think if nuclear plants are put in, there is no worry any more about energy; that is not at all the case. It is all too easy to get locked into things, and then it is hard to stop and re-evaluate what is being done. He said the technology being talked about today is not the ultimate technology for energy. Mr. Fogarty said he did not want to cut off any options and said he would agree with that 100%. The type of reactors presently under construction are not ultimate. Certainly the breeder reactor, which is proposed now, is one with a great deal of benefit and hope for the future and, beyond that, there is the fusion reactors, which should also be developed as expeditiously as possible. As time goes on, later on in the decade of the '80's, there will be some more geothermal options and by the year 1990 some solar energy options, as well as fusion options. But at any given time, they have to make a judgment based on the options they have at that time.

Commissioner Mendelsohn said that on October 21, an accident occurred that resulted in shutdown of unit no. 1 and he said as he understood it would be shut down until January. He said that what disturbed him most about the accident, particularly since he had the opportunity to go through what precisely happened, is the fact that it was never reported publicly, either by the utility companies or the AEC. He said that if the public is to be comfortable with the AEC as the sole watchdog on safety, then the public must be comfortable with the way in which the AEC informs it of what is, in fact, happening. He said it was his understanding that SCG & E did, in fact, immediately inform the the AEC, and it would appear that the AEC did not follow the law in terms of doing the very, very minimal thing that the law apparently requires, that is, having on file in the local public library within a particular time a report on what happened. In view of what has transpired since that accident and the public concern about it, is there any better way in which the utility companies and the AEC could relate to the public these accidents as they occur, serious or not serious, resulting in shutdown or not resulting in shutdown? If San Onofre 2 and 3 were to go ahead, either on this site or a few hundred yards to the east, and a shutdown of this magnitude were to occur, what would the public explanation be at that time, both by the utility companies and the AEC?

Mr. Gould said this incident at San Onofre has been characterized as a major accident by some and by the owners of the plant a minor incident. He said they do not think it is all that important, but, nevertheless, in the minds of the public it was. He said it was a turbine blade failure, and the cooling system worked completely as designed. He said there has been a change in the companies' attitude in reporting these incidents. He said over the 25 years he has been operating the physical systems of the Edison Company, the company felt those items were not newsworthy. But everyone can rest assured that

everything will be reported from now on. He said he had discussed this with the AEC and together they are convinced they will report these. Commissioner Mendelsohn asked what he meant by "report." Mr. Gould said the companies would make this information available through the press, and he said the AEC concurred.

Commissioner Mendelsohn asked for the response of the company to the request of the Capistrano Unified School District which indicates that it has requested an evacuation plan from the company several times since September, 1971, and has not yet received a satisfactory answer. He said the school trustees voted unanimously last month that "if satisfactory answers are not provided regarding evacuation planning and the overall safety of school children, the School District will have to consider the possibility of abandoning at least one or more of the schools."

Mr. Gould said he was not aware that the company had not responded to any requests the school district had made. He said he understood that those requests were not made to the company, but to the AEC, and said he would use every effort to either get the AEC to respond or the company will respond.

Commissioner Mendelsohn said that the applicants have been granted by the Congress the use of 60 of the 90 acres to construct units 2 and 3. Had they gone before the Congress at that same time for a different 60 acres, and had those acres been a few hundred yards to the east, therefore not necessitating the destruction of the bluffs, would the response from Congress have been any different? Mr. Gould said he thought it would have been. He said he participated in that work and sought a number of sites that had preference over the one occupied. Most of them were to the south, right on the coast. He said the Marine Corps indicated that this San Onofre site was the place they wanted them to be, and even though it was not a preferred site to the companies, this was all they could get at that time. Commissioner Mendelsohn asked him if they had explored anything east. Mr. Gould said they did not request lands east because the price to the ratepayer is tremendous. To tunnel back would be a major problem with a whole new set of environmental impacts.

Commissioner Frautschy asked, in terms of \$12-a-barrel for oil, what is the additional cost to the consumer of a 5-year delay? Mr. Fogarty said the \$12-a-barrel compares to today's \$2-a-barrel, and it would be \$250 million a year, and for 5 years it would be \$1,250,000,000 additional cost to their ratepayers. He said that was slightly higher than the capital cost of the project. Commissioner Frautschy then asked what would be the fresh-water consumption of a plant this size, should the companies go to cooling towers. Mr. Fogarty said fresh-water requirements would be about 20 acre feet per megawatt and that would be about 50,000 acre feet of water, but that much fresh water is not presently available. The Metropolitan Water District is the only organization with water of that quantity and it passed a resolution earlier this year limiting the amount of fresh water available for power production purposes from the Colorado River to 100,000 acre feet. Of that 100,000, 50,000 is all that would be available to Southern California Edison Company and SCE would use about 35,000 to 40,000 acre feet of that in the desert plant using the HTGR.

Commissioner Frautschy said that staff suggested that dry cooling towers are an alternative and asked what the largest dry cooling tower is that is in operation in this country. Mr. Fogarty said the largest one in operation in the U.S. is 15 to 20 megawatts in North Dakota. He said there is one of 150 megawatts in operation overseas. Commissioner Frautschy asked the same question about salt water cooling towers. Mr. Fogarty said there are 2 salt water towers, both used at the Bayway Refinery of Standard Oil Company in New Jersey, and these are equivalent to 20 megawatts of electrical capacity. Commissioner Frautschy asked if the site east of Interstate 5 could reasonably be graded down to a level of the site west of Interstate 5. Mr. Fogarty said it would require a larger area because of the slope stability problem. Mr. Fogarty said it was 90 to 100 feet above sea level, and would require a substantial excavation to get the plant down to +14 feet so that the circulating water system would be roughly level with the present plant site, and this would be very expensive.

Commissioner Frautschy said there was an implication in the staff report that marine studies have been inadequate and asked if he knew of any power plant discharge anywhere that has been studied as extensively as San Onofre. Mr. Fogarty said that he did not, and said he thought San Onofre no. 1 has more data collected than any other power plant in the U.S. and probably the world.

Chairman Lane explained that there were ways suggested by the staff that the project could be modified to make it acceptable, in the staff's opinion, and one of the things is expanding the marine environmental monitoring program to evaluate adequately the impact of the project on marine life. Mr. Fogarty said the applicants would accept that condition. Chairman Lane asked, if that monitoring indicated a need for some additional steps or change of design, the way the water was taken out or put into the ocean, would the applicants be willing to try to modify the plant. Mr. Fogarty said yes, within the regulatory constraints. He said the one thing staff did not mention is that the circulating water system at San Onofre 2 and 3 is a class 2 structure as defined by the AEC, and that means it is part of the nuclear plant and performs a function under some circumstances. He said the applicants can modify that structure within limits, but whatever modifications are made have to be consistent with the safety review by the AEC.

Commissioner Harry asked, when the blade came off the turbine, how much increase in oil was needed to make up for that lack of production. Mr. Fogarty said the shutdown of San Onofre no. 1 is going to cost slightly in excess of a million barrels of oil to produce the energy that would otherwise have been produced at San Onofre during the shutdown. He said they are borrowing from next year's fuel oil allocation to make up for this.

Commissioner Harry said he had asked for some information on the possible undergrounding of the plant, and the testimony before the AEC was that this would be impractical, mainly due to the cost and delay in finding a suitable site. He said it is possible for the AEC to conduct tests out in the desert, undergrounding for nuclear weapons, so why can't the plant be put underground in the vicinity across from the present location? Mr. Fogarty said the integrity of the material there is not good enough to support an underground plant. He said underground plants have generally been considered to be in rock, and rock of that particular character does not exist in Southern California.

Commissioner Harry asked, if the plant is built in its presently proposed location, would some increase in protection from radiation for the area and the people in San Clemente, who are most directly affected, be obtained by covering the entire plant with dirt and rock. Mr. Fogarty said there probably could be a calculated difference, because there would be some radiation shielding in effect by the addition of dirt. He said, however, that the calculations made by AEC and the applicants indicate that the radiation from the San Onofre plant in the worst case would contribute on the order of a per cent increase in radiation in San Clemente over the background radiation in that area. Theoretically there would be a benefit by having some material between the plant and the population center. He said unit 1 is located at elevation 14 with 90-foot bluffs around it, which gives the same protection on the west side of the highway as would be given by putting the plant on the east side and putting some additional dirt on it.

Mr. Bodovitz said some figures were given by Mr. Fogarty in response to a question as to what the cost to the rate payers would be if oil had to be burned over a 5-year period, on the assumption that a 5-year delay might take place. He said that figure should not stand alone. One reason tearing down the bluffs as proposed in this application may seem cheap is that the public is asked to bear the whole cost of destruction of a prime recreational site; if the cost of destruction of a park site is taken into account, those figures may not look so horrendous.

Chairman Lane then asked the Commissioners for any final statements before the vote.

Commissioner Hayes said he could understand why not only the homeowners in the area, but everybody who has become involved with this issue, is concerned about safety, because everything about nuclear fission is uncertain. He said he also appreciates that the

Commission is required to protect, preserve, and enhance the coastline, and that means protecting it against any substantial adverse effect on the environment. Energy creation and energy use are very real aspects of the environment and must be considered by the Commission. To deny the application today might be construed as being an adverse effect upon the environment. The plant is there and has been for several years. He said he had checked with those much more expert in the field than he is concerning the sandstone cliffs, and whether there would be a substantial adverse effect in having them removed. He said these people said the sandstone cliffs are not unique, and they indicate that loss of this portion of approximately 7/10 of a mile would not interfere with the use of the balance of that area of the coastline, which could still be used by the general public. He said his conclusion, after weighing and balancing all those things, is that because there is a problem of developing sufficient energy sources for the future, there would be no better place for this than San Onofre, where there already is an existing facility.

Mr. Boronkay said he wanted to clarify the advice he had given on radiation hazards. He said this has been the subject of a number of questions involving siting, earthquakes, recording of radiation leaks, evacuation problems, and the possibility of a rock shield. This indicates that the Commission is very interested in this matter and, of course, so is the public. He said, nevertheless, his legal opinion is that the Commission should not consider radiation hazards in its determination of the application today, and the reason is that there is judicial precedent to that effect. Minnesota, through an agency concerned with environmental pollution, attempted to impose more stringent requirements than the AEC concerning radiation hazards; the Court ruled that improper, and the ruling was ultimately sustained by the U.S. Supreme Court. He said it was essential that the matter of radiation hazard not be a factor in the decision today.

Commissioner Harry asked whether, even though the radiation may have an environmental impact, the Commission is not to consider it because Proposition 20, even though enacted by the people, is insufficient to override the Federal interest in the matter of atomic energy. Mr. Boronkay said the Commission is not precluded from the field of safety, except for radiation hazard. He said the Federal government has a program to promote the creation of nuclear energy, and it necessarily has adopted safety standards with respect to radiation hazards. He said if the application were rejected on that ground, the effect would be more strict standard than the Federal government has. Commissioner Harry asked, if he were to make a motion to approve the permit application with a condition that it be undergrounded or covered over with rock for an improved safety factor, whether that would be considered out of order. Mr. Boronkay said he thought that would be out of order.

Commissioner Frautschy said he asked a question earlier with regard to whether or not a site east of Interstate 5 could be graded down to approximately sea level. He said at that time he was thinking of the survival of organisms entrained in the cooling water. He said he has had responsibility for moving sea water in which organisms must live for 20 years and, because of what is involved, the site east of Interstate 5 could be considered only if it could be reasonably lowered to approximately sea level. This would also result in additional exposure of the organisms to the heated effluent water, thus increasing the mortality. He said the matter of plankton mortality is difficult to deal with. He said information on this was received from Dr. Enright at the Scripps Institution, and he said he shares an office next to Dr. Enright. He said Dr. Enright is a very competent plankton man. He said the question of whether or not there is an adverse effect is whether or not, after the plant goes into operation, there are enough plankton to do the job. He said he feels about plankton like he does body bacteria — just so long as there is enough to do the job. He said the indication on the basis of operation of unit 1 is that there are. He said he tried to get to the right people in EPA in regard to several of the issues before the Commission. He said he raised the question of plankton studies with the San Francisco EPA office and the answer was that EPA did not consider this a program of high priority. He said the Commission is faced with an extremely complex problem of balancing environmental values, recognizing that not all can be saved. Almost every human action has an adverse effect. "Let us consider man

and the efforts to support part of the environmental action," he said. He said, clearly, economics and the public attitude are involved. He said although the Commission must avoid safety issues he said he felt this was the issue in the public mind with regard to the Commission's actions today. Using the criteria of the Act without extension, it is clear that no applicant can establish the absence of adverse environmental effects or even substantial adverse environmental effects in a major coastal power plant. But all the required information does not exist and cannot exist during the life of the Commission, and he said he was saying that as someone who has been involved in marine science for 31 years. As to the future, the utilities should be replacing fossil-fuel with nuclear plants as rapidly as possible. He said there is use for fossil fuels in transportation, manufacturing, and other needs, and those resources should be conserved for those purposes.

Commissioner Laufer said that one major point has been overlooked by a great deal of the commentary in the past several days, and that is that staff has really said this plant can be built in this area. He said he felt staff has presented options that would meet power needs, environmental needs, and economic and job needs in northern San Diego and southern Orange Counties. He said the applicants have not shown the slightest indication to work at these options. He said the "win-all" philosophy of the applicants is the surest path to legal, political, and economic stagnation. The people of the State have placed a burden on the applicants, and they have not approached it in positive terms.

Vice Chairman Harris said her major concern is the responsibility the Act places upon the Commission and that has to do strictly with environmental questions. She said there is also the question of seismic activities. She said she also wanted to declare that she is a share-holder in Edison, owning 10 shares. Mr. Boronkay said that there must be a vote as to whether her interest is substantial, under the provisions of the Act.

Commissioner Ridder said that the Edison Company is a tenant of his.

Commissioner Frautschy said the University of California does contract work for AEC. He said he does not regard AEC as a party to this action at all, and believes there is no conflict in that respect. He said he had received various statements from business offices at the University of California indicating that the San Diego campus has had no financial relationship with either of the applicants in this case, other than buying utility services and providing easements.

Mr. Boronkay said this would not indicate any conflict.

Mr. Laufer said he is a station manager and one of the major shareholders of a radio station, and the Edison Company has been an advertiser, but he would not consider the company to be a major advertiser.

Chairman Lane said a division of his company solicits advertising from the Edison Company, but he did not know if it had sold any this year because he is in the book publishing side of the business and not involved in sales or advertising.

MOTION: Commissioner Hayes moved and Commissioner Harry seconded that the Commission find there is not a substantial conflict in each instance. The hand vote in each case was as follows: Commissioner Laufer -- no conflict, by a vote of 10-0; Vice Chairman Harris -- no conflict by a vote of 10-0; Chairman Lane -- no conflict by a vote of 10-0; and Commissioner Ridder -- no conflict, by a vote of 10-0.

Mr. Boronkay said in answer to Vice Chairman Harris' comments, earthquake dangers themselves may be considered, but not with regard to radiation hazards.

Chairman Lane said the Attorney General had very forcefully advised the Commission that matters of nuclear safety could not legally be a factor in the Commission's decision. He said, on the broad question of policy, that he questioned whether a single Federal agency should be responsible for both the promotion and safety of this type of power generation and, frankly, he was very alarmed that the same agency has both responsibilities. He said Congress ought to change that structure so that there are different bodies. He said he had talked for an hour with the chairman of the AEC, Dixy Lee Ray, who was very cordial, cooperative, and answered all the questions as well as she could. But he said he sensed she felt the AEC knew how to make nuclear plants safe and everyone should trust the AEC. He said he would like to see someone sitting in a different chair ask all the hard questions about safety. He said the Commission, along with other agencies, will have to decide what type of urbanization there should be in the vicinity of this plant, if it is to be built. He said the AEC ought to be doing that. It has made statements that nuclear power plants should be kept away from population centers and yet the AEC seems to say, "This one is all right, and it's someone else's problem to decide what is going to happen around it." Chairman Lane said he thought the AEC had a responsibility here.

He said the fact that the report on the unit 1 accident was not filed at the local library and that no evacuation plan has been prepared illustrates the problem. People look to the AEC to see that these things are done, but they haven't been. A change is needed in the law; people shouldn't have to look to the agency that is promoting nuclear power plants to regulate their safety.

Chairman Lane said he thought the staff was right in recommending denial and in having the courage to take this position. He said as the law is read at face value, there would be environmental damage to the coast, to the bluffs. He said if this application were for condominiums to destroy the bluff, it wouldn't take five minutes to decide. The law envisioned that the Commission have the power and responsibility of perhaps holding up condominiums, to use that example, to finish planning and decide if that site were a good place for them or not. The public at large was being protected, in essence the public was the winner, and the developer must wait. But there is a different problem in this application, to some degree and the Commission has to assess that degree. Instead of protecting the public's right, perhaps the Commission might be hurting it. The staff has taken a consistent view in its recommendation; anything different would have been inconsistent from the staff's point of view. But the Commission has to decide if this is different, and wants to differ, at least as to the question of substantial environmental damage.

He said his concern as Chairman is with where the Commission will be in 2 or 3 years. He said it had made decisions that were difficult in times past, and came out as a better, stronger Commission. In the past, the Commission has appeared to gain by doing what it thought was right in the face of opposition. But there will be a lot of whipping boys in this energy problem. Everyone will be looking for someone to blame. He said he was very fearful that when the Commission goes to Sacramento in a couple of years to present its plan, there may be some opposition so great that those who worked for Proposition 20 might wish that a different decision had been made today. He said there is a great opportunity for the Commission's land use planning on the coast, and he wondered whether this project, which was started before the Commission came into being, is worth what it might cost the Commission to deny it.

Commissioner Mendelsohn said he thought Commissioner Laufer's approach is the best one. He said the applicants believe they cannot accept the redesigned project because of time and cost consideration, and that would seem to be the applicants' prerogative but that need not be binding on the Commission. He said he thought the expansion should go ahead if 2 factors are present: one is that the bluffs are not destroyed, and the other is that there is an improvement in the way in which the water cooling system and the marine environmental monitoring goes ahead. He said he believed that the latter can be worked out; the former ought to be able to be worked out; it might take some additional time, but, in his opinion, it is worth that time.

Commissioner Osenbaugh said, in view of the Attorney General's recommendation regarding radiation hazards, there are only two key issues, the bluffs and the effects on marine life. He said, having toured the facility the day before and having seen it hundreds of time from the foot of the bluffs, but never from the top, there were no bluffs in this form in 1932; the canyons are man-made, and beautiful but also dangerous. He said he felt you could alter the barrancas with a garden hose; the bluffs are unstable and are going to change. He said nothing is going to be accomplished unless the public accepts the Commission. There was decision for Proposition 20 (55% to 45%) but it would have been 90% for and 10% against were it not for the people who were afraid that possibly the Commissions would be composed of people wanting to improve the environment so much they would want to paint flowers on tree trunks; the Commission's actions should be very seriously considered as to ultimate public acceptance or the Commission won't accomplish anything.

Commissioner Ridder said that in light of the concern that he and others have mentioned about the marine ecology, as well as page 16 of the staff recommendation, a recommendation to place the cooling system conduit through the southern portion of unit 1, he would offer language in this vein — that in the light of both unknown and contradictory data on marine ecology and the probability of new and enlightening data, final approval of the location and design of the cooling system, including the intake and outfall, should be subject to further evaluation by the Department of Fish and Game and the Coastal Commission. He said that he did not agree that the units should be placed east of the freeway.

Commissioner Wilson said he thought Proposition 20 can work in concert with what is being proposed here, but he said he thought it necessary to take a long view. The Commission should make sure it is going to cover all the considerations that affect the coastal environment. There have been efforts in the Legislature for many years to get to the bottom of this question of rates, utilities, and the decision-making process. But this whole matter of the rate structure, the decision-making process, and how sitings are determined means the net result so far is frustration. The Coastal Commission has become the last stop. He said the present rate structure determines the demand and locks everyone into present technology. "We should be looking down the road toward breeder reactors and nuclear fusion, not just reacting to present demand. That type of thinking is what got us into this crisis."

Commissioner Farr said he felt the applicants have not carried their burden of proof on all issues. As to the destruction of the bluffs, he said he had had an opportunity to fly in a small plane along the coast from San Diego to Newport Beach, and said he felt these bluffs were unique indeed. People who have travelled all over the world would agree with this. As to what will happen to marine organisms, there is a dispute between the scientists on this matter and to approve this application before knowing what is going to happen to the marine organisms would be a great mistake. He said he was not satisfied that the applicants have given sufficient thought to moving this project across the freeway. He said he was called the other day by a representative of one of the two utility companies, and he asked why the companies didn't move the plant across the highway and the answer was "I don't know." The applicants have said they would have to go back to Congress, but he said he was sure with the number of telegrams received from members of Congress that getting approval for the eastern side of the freeway would be a relatively easy matter, and, also, he thought getting the approvals of the other agencies would be easy. He said he would join in Commissioner Laufer's recommendation, that the application be approved subject to moving the units across the highway.

Vice Chairman Harris said the Commission should not be worrying about how Sacramento is going to feel about the Commission. She said Sacramento never loved the coastline, and with all the campaign contributions and lobbying, the coastline bills were defeated year after year. She said the courage of convictions is very much the issue — the integrity of the Commission and its moral obligation. Perpetuating the Commission's existence is not the issue, but carrying out the legal and moral obligation under the Coastal Act is. That is the obligation to all the people of the State for this generation and for all those to come. She called for a vote.

Chairman Lane suggested there be a motion to vote on the application, and then one at a time the proposed conditions could be voted on individually, to see what amendments are agreed to by the majority.

MOTION: Vice Chairman Harris moved the Commission vote on the application, seconded by Commissioner Hayes.

Chairman Lane then said amendments would be in order.

MOTION: Commissioner Laufer moved for approval with the condition that the nuclear power plant site be east of the freeway, to preserve the coastal bluffs, seconded by Commissioner Mendelsohn.

Commissioner Frautschy said a further condition should be added by providing for an automatic review of the viability of that site after a period of 90 days. There may be other reasons that would eliminate this possibility.

Chairman Lane called for a hand vote on the amendment and it failed by a vote of 4 in favor, 6 opposed.

MOTION: Commissioner Laufer moved approval with a second condition that would be adoption of the staff recommendation for protection of the marine food chain, seconded by Commissioner Mendelsohn. Mr. Bodovitz said the language in the staff proposal is really a series of alternative methods of proceeding; on the basis of the discussion thus far, several of the Commissioners seem to be saying that this condition would be essentially two-fold, first, that there be further, independent studies of the effects on the marine environment of this proposal and, as in the case of the Long Beach plant, this would involve numerous agencies and individuals, an independent broad-based study. The second part is that if the study shows corrective steps are needed, whether that be cooling towers, intakes at deeper depths, or other steps, those actions would be taken by the applicants.

Vice Chairman Harris asked who would be the enforcing agency at the point that these findings are made, because the Coastal Commission could be out of business by the time they are arrived at. Mr. Bodovitz said that when conditions of this sort have been used in previous applications, the wording has been "this Commission or its successor, and if there is no successor, the State or Regional Water Quality Boards, or whatever agencies then have State authority in this field."

Mr. Gould said both his remarks and Mr. Fogarty's were to the effect that the applicants would probably agree to a condition, providing it did not cause everything to come to a halt. He said without question they would agree to the study, and would agree to implement anything that was clearly shown as something that should be done.

Commissioner Laufer said his motion was as suggested by Mr. Bodovitz.

Mr. Sutherland raised a point of order: he said he didn't understand the motion — what would be the binding effect of this study? Would the applicants be permitted to go ahead and build their plant and then make the study? He said he thought that would be fundamentally illegal under the Coastal Act.

Chairman Lane asked Commissioner Laufer if his proposed amendment was as broad as getting into cooling towers and that type of thing and Commissioner Laufer said that was part of the recommendation regarding the marine environment and he could not see how any part of it could be separated.

Commissioner Frautschy suggested the California Academy of Sciences be used to coordinate all agency efforts.

Chairman Lane said the amending motion would be for a study of the effect of the nuclear plant expansion on the marine environment, and no construction of the cooling system could be begun pending at least initial reports from the study; any steps that the study shows to be needed to minimize any adverse effect on the marine environment would have to be undertaken by the applicants.

Commissioner Frautschy said no responsible scientist would accept a study of this sort with less than a 18-month study period. The hand vote on the motion was 7 in favor, 3 against, and Commissioner Osenbaugh abstained.

Commissioner Wilson said he hoped the whole matter of rate structure and demand for energy could be straightened out, but he didn't think it possible to draft an amendment for this today.

Chairman Lane said the main motion to vote on the application was before the Commission, with the condition previously adopted.

Mr. Bodovitz said the 2/3 vote question was still before the Commission. Commissioner Osenbaugh said one of the staff's reasons for a 2/3 vote requirement is that the project would require the 3-month closure of 1,800 feet of beach and, also, the 6-year closure of 1,000 feet of beach. Since those are temporary, is this a valid reason for the Commission to have a 2/3 vote? Mr. Boronkay said that with respect to Sec. 27401 of the Act, there is no time limit; he said he felt 6 years was substantial and the staff recommendation is correct.

Commissioner Osenbaugh moved that a 2/3 vote not be required. The motion failed for lack of a second.

The roll call vote on the application was as follows: Yes: Commissioners Frautschy, Harry, Hayes, Osenbaugh, Ridder and Chairman Lane. No: Commissioners Farr, Harris, Laufer, Mendelsohn, and Wilson. The application was thus denied by a vote of 6 in favor, 5 against, with 8 votes required for approval.

The Commission recessed for lunch at 1:30 and reconvened at 2:35 p.m.

6. Continued Voting on Appeals from Regional Commission Decisions

a. Appeal No. 215-73. Appeal of San Diego Coastwatch from decision of San Diego Regional Commission granting permit to Rancho La Costa to construct underground trunk sewer line and pump station to provide sewer facilities for future development. Sewer treatment is to be at existing Encina plant in Carlsbad. Proposed development runs from El Camino Real west along side of Batiquitos Lagoon, northwest to Encina treatment plant in Carlsbad, San Diego County.

b. Appeal No. 214-73. Appeal of San Diego Coastwatch from decision of San Diego Regional Commission granting permit to Newport Shores Builders to construct a planned residential development including 278 single-family lots and residences, 200 duplexes, 3 condominiums, and 3 commercial lots and buildings on approximately 121 acres west of El Camino Real, northwest of extension of Areal Rd., and southwest to Alga Rd., City of Carlsbad, San Diego County.

Mr. Bodovitz presented the staff recommendations, copies of which are attached to the official copy of these minutes on file in the Commission's office. He said the staff recommendation, as at the last meeting, was for denial on grounds of inconsistency with the objectives of the Act. The proposal in No. 215 would open an area to development before the planning and controls are adequate; this would make possible urbanization of an agricultural area, and there is concern about the effects of this kind of development on the area near the lagoon and on the lagoon itself. Although the proposal is only for the sewer line and not the development itself, it is staff's belief it would be inconsistent with the Act to allow the sewer line until it had first been established which parts of the area should be developed. He said the applicant suggested there were certain documents that had not been taken into account in preparing the recommendation. He said the fact is that the staff requested all the documents that were

pertinent, the ones the applicant was concerned about were not submitted. But the staff has now reviewed all the material submitted by the applicant and it does not change the recommendation, which is still for denial.

Donald Drew, representing the applicant, said the 2/3 vote recommended by the staff was incorrect as a matter of law. He said the development referred to in Sec. 27401 is the development in the permit area; this area is from 1 to 2½ miles from the ocean. He said that of the 1,100 acres, there are about 10 acres within the permit area. He said the proposed sewer line is to go through what is designated as Batiquitos Lagoon Regional Park and this was cleared with the County of San Diego Park Department and, indeed, is necessary to service the park. He said the Regional Park is not assured and may not be developed by the County. He said there is no zoning and the Board of Supervisors' resolution says there will be no new zoning; it is agricultural now, pending the development of this regional park. Also very important, the park is within the permit area. Another issue is that this is a great agricultural area being converted to urban use. He said that of the 1,100 acres that were annexed to the City of Carlsbad and that could conceivably be developed in the future, 63 to 85 of those acres, depending on the year, have been used for agriculture. He said the owners have tried to maximize the agricultural use on the 2,000 acres they own (the 1,100 that were annexed, the 650 in the regional park, and an additional 250 to the south of the lagoon). He said that in so doing, they have managed to receive \$26,000 in rent and their taxes are almost \$200,000 a year. He said another so-called issue is the growth-inducing effect of the sewer line. He said sewer lines are not growth-inducing; people are growth-inducing and industries are growth-inducing, and, in that regard, just to the north of this property there are 300 acres that are being developed for industrial use. He said another so-called issue is that the great bulk of the property, the middle of it, is zoned PC, and that is not very definite. He submitted that PC zoning is extremely restrictive. He said the City of Carlsbad has great control, both as to time and development. There has to be a master plan and then a precise plan. In that regard, the City of Carlsbad requires that 66-2/3% be devoted to open space and recreational use. He said he thought that was a significant planning device and a control that does not exist in very many areas.

He said that in the next appeal there is specific zoning, for example R-17500, and the staff again recommends denial, so it really is not an issue whether there is precise zoning or the very restrictive type of zoning with great controls. He said the real issue is that the staff wants this permit denied as a means to prevent this property owner from any development of his 1,100 acres of land annexed to the City of Carlsbad. He said the owner has already been stopped by the County of San Diego on 650 acres in the park, and a good deal is in the lagoon and also on the north shore.

He said Batiquitos Lagoon has been determined to be a body of water although it is dry a major part of the year, until it is filled by storm runoffs from a watershed area. He said the permit area, of course, is the entire lagoon at its maximum, plus 1,000 feet in addition to that. He said this sewer line, which is a backbone sewer line for the area, would promote a balanced and orderly development in conjunction with the requirements of the City of Carlsbad.

He said the effect of the staff recommendation is either to force development on other properties to the south, east, and north, which are areas of good farmland as opposed to this, which is poor soil and steep topography to a great extent, or else to take the sewer out of the permit area, pump it up to the north into another line in Carlsbad, which he submitted is far more costly and less desirable from an environmental standpoint and not good planning.

Mr. Bodovitz said there was one change that should have been mentioned at the beginning and that was that the staff now agrees the 2/3 vote is not required and withdraws that recommendation.

Joseph Edmiston, representing the appellant, San Diego Coastwatch, said there are 2 families living on this property today, but if the project is approved, the end result could be 12,000 people. That indicates that comprehensive planning under the framework of the Coastal Act ought to be done, and clearly, until this is done, this permit ought to be denied.

He said planning is the major issue presented by both these applications. Rancho La Costa sewage line would induce the growth in the north San Diego County area by an undetermined amount. The regional implications of this growth have yet to be assessed. Carlsbad population increases will account for 1/3 of the North San Diego County projected population growth in the next 20 years (San Diego Comprehensive Planning Organization, Nov. 19, 1973). Public facilities need to be coordinated on a regional basis according to the CPO's Executive Director. The developer's assurances that the City of Carlsbad will do adequate city planning is no substitute for the necessary regional, comprehensive planning that the Coastal Commission was designed to do in this area.

Commissioner Osenbaugh said if the Commission approved a sewer line, that does not mean it will approve something within that area. If the applicants want to put in a sewer line, that is at their own risk, and he hoped the Commission would never get in a position to have to accept a bad project because of the sewer line. If all the Commission is doing is forcing the applicants to put in the sewer line in a less advantageous position, the Commission is not accomplishing anything.

MOTION: Commissioner Ridder moved the Commission vote on Application No. 215-73, seconded by Commissioner Farr, with a yes vote being for approval and a no vote for denial, for the reasons as stated in the staff recommendation. The roll call vote on the application was as follows: Yes: Commissioners Frautschy and Osenbaugh; No: Commissioners Farr, Harris, Harry, Laufer, Mendelsohn, Ridder, Wilson, and Lane. The application was thus denied by a vote of 2 in favor, 8 against.

Mr. Bodovitz said there were some differences on Appeal No. 214-73. This is the first development to be served by the sewer line.

John Mamaux, representing Newport Shores, said the applicants have only 8 acres within the permit zone and pointed out on a map the sewer line currently running to the ocean, which has the capacity to handle 16 million gallons of effluent a day. He said it was not a good practice to pump uphill to the sewer line but since the sewer line has been denied in that location, it appears to be what the applicants will have to do. He said the staff worries about dirt moving but La Costa Land Company east of El Camino Real has moved a million to a million and a half yards of dirt per year for the last 5 years, and this has not resulted in any siltation or damage to the lagoon. He said the upper end of the lagoon is dead and there has never been any farming there.

Joseph Edmiston, representing San Diego Coastwatch, said here again the issue is comprehensive planning. He said he would like to emphasize that Batiquitas Lagoon was indicated by the San Diego CPO study as being of regional significance, so this is not merely dealing with a particular planned development that Carlsbad ought to have control over, but something of regional significance; the options ought to be preserved for that area by the Commission.

Commissioner Ridder asked Commissioner Frautschy if the upper end of the lagoon were dead. Commissioner Frautschy said it was not a viable year-round body of water and not a natural condition. It is filled with water only seasonally, perhaps less than 8 months of the year.

Commissioner Wilson asked Mr. Edmiston whether he meant by comprehensive planning something that is being done now or something long term. Mr. Edmiston said not necessarily long term; he said the CPO now has an initial coastline study and plan and on November 19 of this year it adopted the initial guidelines. The plan indicates fully 1/3 of the total population growth in North San Diego County will be in Carlsbad. If left to their own devices, good as their desires for Carlsbad may be, the area will still be heavily developed.

Commissioner Frautschy asked if a slightly redesigned project is viable if it does not encroach into the permit area. Mr. Mamaux said his original application did not encroach into the permit area; this was the City's requirement because it felt the road alignment would be better to serve the total area on a regional basis. He said the subdivision could be redesigned out of the permit area, but he prefers not to do it because that was what the City wanted the applicants to do.

Mr. Bodovitz said that what Mr. Mamaux says is correct; there is a large project across the road and outside the permit jurisdiction; if that were before the Commission, the staff would express the same concerns about that. But as long as something is within the permit zone, the staff believes the standard should be uniform, that is, requiring the kind of comprehensive planning that has been discussed before the development takes place. He said there are a lot of different parcels in an urbanizing area in the City of Carlsbad, and a number of questions have been raised as to whether this area is one where agricultural land should be converted to urban uses, whether this is a place for housing development, at a distance from population centers. A piecemeal, parcel-by-parcel development may make it impossible to know what areas are going to be left open and what steps are going to be taken with regard to the lagoon. One of the objectives of the Act is enhancing and restoring areas where possible; perhaps this lagoon should not be considered for any enhancing or restoring, but these are the kinds of questions the staff believes should be addressed before piecemeal development makes these options impossible.

Mr. Mamaux said the applicants have done everything possible to meet local, regional, and statewide requirements. He said on this parcel only 6% is farmed, but to see good farm land around this cut up and urbanized, which will be the result of this is denied, is criminal. The pressures will now be on that beautiful farm land, because that sewer line was not appealed.

MOTION: Commissioner Harry moved the Commission vote on the application, seconded by Vice Chairman Harris, with a yes vote being for approval and a no vote for denial, for the reasons as stated in the staff recommendation. The roll call vote was as follows: Yes: none; No: Commissioners Farr, Frautschy, Harris, Harry, Laufer, Mendelsohn, Osenbaugh, Ridder, Wilson, and Chairman Lane. The application was thus denied by a vote of none in favor, 10 against.

Mr. Bodovitz said that Messrs. Petrillo and Boyd of the staff have a number of meetings in the San Diego County area the next day; they are both here and mindful of this situation. He said the staff thinks Mr. Mamaux is caught in the middle, and will try to find a way out for him.

7. Hearing and Possible Voting on Appeals from Regional Commission Decisions

a. Appeal No. 223-73 (Claim of Exemption). Appeal of City of Monterey from decision of Central Coast Regional Commission denying exemption for installation of 4 traffic signals, upgrading of a 5th traffic signal, and related controllers and underground interconnection, at 5 intersections in northern part of downtown Monterey.

Mr. Bodovitz said that this is very likely the least significant matter that has come before the Commission in the last 9 months. He said the Attorney General has advised that there may be a substantial issue, so the staff recommendation is that the matter be heard briefly today and then referred to the Attorney General for further study, with no vote today.

William Marsh, City Attorney for Monterey, said he wanted to ask for a further continuance of this matter, as the City may be able to get together with the Attorney General on the details in the meantime. He said the City has a permit application for the same project pending before the Regional Commission which will be heard on December 17 and may render the whole issue moot. He said the controversy in this is the hardware for two intersections near historical buildings and the City has voluntarily deleted those from the project.

Tom Hudson said he owns a piece of property in Monterey, and said he was opposing the position of the City. He said the reason the City of Monterey wants it put over is that the City has been working feverishly to complete the project since it was denied the exemption by the Regional Commission. This is the most outrageous contempt of this Act that has ever been perpetrated, he said.

Chairman Lane said the Commission would have to decide whether to put the matter over or to hear it now. Commissioner Farr said he thought that Mr. Hudson's point is that the work is likely to be finished before the vote. Mr. Bodovitz said that until the Attorney General's office has had a chance to review this, the Commission cannot act intelligently on it, and suggested

the Commission continue the matter, but direct the Attorney General, that if in his review between now and the next meeting, he finds that there has been a violation of the law, he seek an injunction immediately. MOTION: Commissioner Ridder moved to put this over and direct the Attorney General's office to investigate and, if appropriate, to bring legal action, seconded by Commissioner Wilson.

Commissioner Farr asked why it was necessary the applicant continue with the work. Mr. Marsh said part of the problem is that somebody in the Federal Government made an error or this project would have been finished in December, 1972. The motion was unanimously approved.

8. Public Hearing and Possible Commission Action on Proposed Regulations

Mr. Bodovitz said that staff proposal is that no vote be taken today and that any additional comments be submitted to the staff; the staff will then prepare a final revised draft. He urged that all further comments be submitted in writing as quickly as possible, within a week, if possible.

Joseph Edmiston, representing the Sierra Club, distributed a written statement and said the club's concerns are as follows:

"On the whole the proposed regulations meet with our approval, although the time factor for review has not allowed for in-depth reflection. Where we do have objections they are based on making the Act a better tool for the individual citizen to influence coastal zone management decisions. Specific areas of concern are as follows: (1) Fairer procedures at the regional commission level, including guidelines for field trips, extraordinary meetings, etc. (2) Specific determinations which should be required of the Commission when it finds no substantial issue in an appeal, as well as a delineation of what Commission policy will be on questions of substantial issue. (3) Specific findings when granting or denying permit applications. (4) Increased fees when the size of the project warrants large allocations of staff time. (5) Better procedures to deal with violations of the Act, and (6) liberalizing the rules on who will be considered an 'aggrieved party'."

Vice Chairman Harris said she would be very much interested in the Sierra Club's assistance in arriving at an equitable definition of "no substantial issue." Mr. Edmiston said he would try to help.

Joseph Reeves, speaking for the Southern California Edison Company, said he wished to speak to Sec. 13210 of the proposed regulations. He said that although SCE had submitted formal comments by letter on a number of the proposed changes, the company felt so strongly about this section that he wished to amplify on those comments. He said Sec. 13210 as proposed would, in effect, require an applicant to have obtained all other regulatory approvals from State agencies as well as local governmental agencies before the regulatory process could commence with the Regional and State Coastal Commissions. He said such a requirement would have the effect of extending even further an already lengthy and burdensome licensing process for essential major projects. In the face of the impending electrical energy shortages and the need to expedite the construction of major electrical facilities, this proposed change would only cause more delays. He said the major decisions to be made by the Coastal Commissions are those of ultimate land use, and these should be made early, not last, in the regulatory process. Furthermore, under the State guidelines implementing the California Environmental Quality Act, the lead agency, whoever that might be, is required to have input from all cognizant regulatory bodies, including the Coastal Zone Conservation Commissions, in the preparation of its final EIR. He said the most efficient process for such a review by the Coastal Commission is the process of considering an application. It may be reasonable for the Coastal Commission to not take final action on an application until after the lead agency has completed its final EIR, but there should be nothing to preclude the Coastal Commissions from accepting, considering, and even holding a public hearing on an application early in the regulatory process for these relatively few but important projects that require authorizations from other State agencies. He said the Coastal Commissions could even issue a conditional development permit subject to later review of the lead agency's final EIR. In this manner the regulatory process could still proceed along parallel paths effecting considerable time savings in the overall regulatory schedule. If the Coastal Commissions do provide responsible input to the lead agency's final EIR

the Commissions then should be allowed to use that final EIR as the environmental record for the project and thereby not have to relitigate each and every environmental issue in their own proceedings. All cognizant regulatory bodies, as well as the general public, will have full opportunity to participate in the development of the lead agency's final EIR and need not have to duplicate these efforts before the Coastal Commissions. He urged the Commission not to adopt the proposed wording in Sec. 13210, or, as an alternative, revise Sec. 13210 to at least permit the Executive Directors to waive the requirement for prior approval by State and local agencies where good cause exists.

Mr. Bodovitz said the staff agrees that Mr. Reeves has made a good point and is exploring alternatives to what is in the draft now. Vice Chairman Harris asked why the staff thought it a good point. Mr. Bodovitz said the point is that applicants should not have to go over 19 hurdles and then find out there is a problem at the 20th; the goal is to let applicants know what the problems are going to be as early as possible. Vice Chairman Harris said she thought the State Commission had the comprehensive responsibility, and she thought it appropriate for the State Commission to be last.

Kenneth Williams, Deputy City Attorney of Long Beach, said that in the past he had been loaned by the City of Long Beach to work as a legal draftsman and resource man with members of the South Coast Regional Commission in reviewing regulations proposed by the State Commission. He said in the past this has produced several detailed reviews that have been submitted to the Commission. He said he was speaking at this meeting merely as a private citizen on the basis of his own personal observations. He said the last boiled-down list of commentary submitted by the South Coast Regional Commission contained approximately 35 suggestions for change. He said his summary indicates that 5 have been accepted and 2 or 3 partially accepted, leaving approximately 28 in the classification of being totally rejected. He said in regard to Mrs. Harris' commentary on "substantial issue," he had in the past submitted to the Commission a revision of those sections and the approach taken was that whether a substantial issue was presented in an appeal should be determined by whether or not the application on appeal contained any statement of substantial evidence that would indicate that the decision below, whichever way it was, was incorrect, and if not, it contains no substantial evidence for appeal. He said he thought the present draft does it a better way and eliminates all efforts to define what is and what is not a substantial issue on appeal and leaves it to the judgment of the Commission.

He said one of the matters recommended by the South Coast Regional Commission was that revocation as a mode of enforcement not be adopted by the Commission. He said the basis for that was that once a permit is issued, the permit should be enforced according to its terms, and enforcement procedures are available against the applicant; if he violates the terms of the permit, the applicant should be the one who is taken to task or taken to Court. Once a permit is issued, however, a great number of third parties, lenders, tradesmen, and other third parties, then move in reliance on the issuance of that permit, and the interest of innocent third parties should not be subjected to great harm by revocation proceedings, particularly when the Act itself does not mandate and arguably does not even allow revocation proceedings as one of the specified modes of enforcement.

He said in regard to Secs. 13210 through 13212 which, as originally suggested, were put forward as allowing local government an opportunity to review and approve in concept matters before they are presented to the Regional Commission, this is probably, as is currently written, and as proposed for revision, one of the most difficult trouble points that can be found. He said what is presented now is virtually a Catch-22. It presents a maze of round-robin approvals before other approvals can be given. He said he wished the Commission would make a substantive decision on what the purpose of these sections really is, and if it is to provide local government with an opportunity to review conceptually and state their conceptual approval or disapproval of a proposed development prior to that matter being placed on application before the Regional Commission, then he would very much like to work with Commission staff to try to revise the regulations so that they mean something.

In regard to Secs. 13222 and 13223, regarding the form of local government notice to be given under Public Resources Code Sec. 27421, the regulation as proposed purports to require something new and totally different, in addition to what the Act requires under Sec. 27421. He

said it is beyond the competence of the State Commission to enact regulations of this nature without a corollary appropriation by the State Legislature to cover the additional administrative cost of hiring new staff to prepare new reports to the State Commission. He said this is an administrative regulation that would require local government actions that go beyond what Proposition 20 required and does not interface properly with Sec. 27421. He said he would be available to discuss this in greater detail.

He said he urges the Commission to give more serious consideration to hearing procedures that are more in accord with what administrative bodies usually follow in areas of this sort, namely, that staff investigation be made and completed prior to hearing, that staff recommendation be presented at the hearing so that time may be saved by the remarks of people on both sides of the hearing issue focusing themselves to the points raised by staff, rather than having to shoot in the dark not knowing what staff recommendation is going to be, and that a vote be held at the conclusion of the hearing in the normal course. He said it is totally within the competence of any administrative body to provide for continuances, where necessary, but this should be the normal course of hearing. He said it is, in fact, the course followed a great deal of time by the South Coast Regional Commission, but it should be made official and made appropriate to all Regional Commissions.

He said the provisions formerly Secs. 13452 and 13454, those requiring an applicant to sign and return a receipt of acknowledgment before a permit is effective, is a totally useless procedure. He said it is not needed for any legal reason and all it does is provide useless delay and administrative handling.

He said some of the suggestions are in regard to the administration of Executive Directors' permits, namely, the point that these refer not only to repairs and improvements, but to other developments not in excess of \$10,000, and that language has been added in some areas and it has not been added to others. The language of the regulations should be made consistent so that they refer in the permit area to other developments not in excess of \$10,000 as required by the Act.

He said that Sec. 13610, which requires hearings on amendments to permits, certainly not be retained in its present form to require full-scale hearings on minor or insubstantial amendments to permits, but that an Executive Director be allowed to act on insubstantial amendments to permits without requiring a new filing fee or new hearing procedure. He said reports can be made on such amendments in the same manner that the Executive Director makes reports on administrative permits.

He said one of the additional unnecessary burdens typical of what might be classified as a somewhat Dickensian administrative approach that seems to be expressed in the regulations is the requirement that has been interpreted in the application form as a requirement of proof of title in an application and permit. He said this requires paperwork on subject matters that the Commission does not get into and is an extra burden to have to scout up an old title report or old deeds which most applicants seem to have to do to comply with this. He said a mere statement of the quality of title that the applicant expects to utilize, if the permit is approved and the application goes forward, whether he is going to do this under a lease or as owner, should be sufficient for all application purposes.

Robert Salter, attorney for Southern California Gas Company, said there is a potentially serious problem in the application of Secs. 13210 and 13211. As the regulations now stand, a permit application for a development may not be filed with a Regional Commission until all cities, counties, state or other local governmental agencies have granted "at a minimum their approval in concept," and until "discretionary approvals have become final and the development is no longer subject to rejection in principal." For most developments that come before Regional Commissions this restriction might be entirely appropriate. But he said there may be a problem in bringing natural gas into southern California. The company has entered into a contract with Pertamina to bring a large quantity of liquefied natural gas (LNG) into southern California from the Republic of Indonesia. This will be the first non-Arab natural gas brought into the United States. However, the contract contains a condition precedent: On or before September 6,

1975, the company must have the required authorizations permitting the import and sale of LNG by all appropriate U.S. authorities. There are a great many applications that need to be filed, including those with local governmental authorities, the California Public Utilities Commission, and the Regional Water Quality Control Board. Environmental Impact Reports will be required under the California Environmental Quality Act. All of these matters will take a great deal of time, and in this context, the date of September 6, 1975, is very close at hand. If the company is prevented from filing with the Regional Commission until all of the approvals have become final, the consequences could be failure to meet the contractual deadline. If that were to happen, the plan to bring gas from Indonesia could collapse, or the failure to get all necessary approvals could lead to higher gas costs to the detriment of customers.

He said he was not challenging the right of the Regional Commission to limit filings until normal developments become assured of proceeding, but the regulations should clearly preserve the right of the Regional Commissions to allow concurrent filings under appropriate circumstances. For example, an exception could be made in the regulations for major projects relating to the energy problem. To do otherwise might tie the hands of the Commission with a delay without purpose which would ultimately result in the failure of a development directed toward solving California's energy needs.

Edward J. McGanney, of the Pacific Gas and Electric Company, said his company has basically the same problem with Secs. 13210 and 13211 as Southern California Edison and San Diego Gas and Electric Company.

Ruth Galanter, speaking as an individual, said she thought it important to recognize that the success of Proposition 20 and the success of the State and Regional Commissions really hinges a great deal on the participation of ordinary citizens who happen to take an interest. With all due respect to staff, there is a limit to what they can do, and it is an urgent need of all the Commissions that the public be able to bring information that staff may not otherwise be able to get. In that context, it is important that all of the regulations at both State and Regional levels facilitate to the maximum extent possible the ability of an ordinary citizen to participate in this process, and she called the Commission's attention to two things, both of which she said she had discussed with the Regional Commission at various times and some in writing to the Commissioners and staff.

She said the first is Sec. 13250, which is the required material for an application for a permit at the Regional level. She said there is no provision for general public notice, so that the recreational user of an area, for example, might know that something is proposed for a particular piece of property. She suggested the Commission consider a regulation that would require a notice on the property that a permit is sought, what it is for, and how to get in touch with the relevant Regional Commission to find out more information and, also, a notice that the public may appear at the hearing.

She said the other item is the question of fees for appeals. She said that if the Commission is going to value the participation of ordinary people who may not have a financial interest in a project and do not have something to write off the cost of an appeal against, if they win, there should not be appeal fees unless there has proven to be a serious problem with frivolous appeals.

She said on the question of an "aggrieved party," she had written some months ago to staff and, again, the relevant point is that to the best of her knowledge there has been no frivolous abuse of this.

David Shulman, speaking as an individual, said that Sec. 13211 has to do with condominiums and apartments, and how they are screened by the Regional Commission. He said that in the South Coast Region, there are many projects designed to be condominiums that come before the

Regional Commission as apartments; they get approval as apartments and that Regional Commission approval is then used to bootstrap a condominium tract map from the local issuing authority. There should be a regulation stating that if someone receives approval for an apartment, the development has to stay as in apartment use for, say, two years.

MOTION: There being no further speakers, Commissioner Mendelsohn moved to close the hearing, seconded by Commissioner Fratuschy, and unanimously approved.

Chairman Lane said that additional proposals in writing are in order within the next week.

9. Adjournment. There being no old or new business, the meeting adjourned at 4:10 p.m.

Respectfully submitted,

JOSEPH E. BODOVITZ
Executive Director

1-15-74

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of)	DOCKET NOS. 50-361 ✓
)	AND 50-362
SOUTHERN CALIFORNIA EDISON COMPANY)	
SAN DIEGO GAS & ELECTRIC COMPANY)	
)	
(San Onofre Nuclear Generating)	
Station, Units 2 and 3))	
)	

MEMORANDUM OF CONSOLIDATED INTERVENORS
CONCERNING THE MATTERS REQUESTED IN THE
ORDER OF THE ATOMIC SAFETY AND LICENSING
APPEAL BOARD DOCKETED DECEMBER 12, 1973

In the Order docketed December 12, 1973, the
Atomic Safety and Licensing Appeal Board requested every
party to the pending review proceeding to file a memorandum
addressed to the following questions:

1. The legal effect of the Coastline Commission's
determination.
2. The course which this Board should now follow
with respect to the consideration and disposi-
tion of the exceptions which have been filed
from the initial decision of the Licensing
Board. In this connection, we are particularly
interested in the views of the respective
parties regarding whether we should proceed

at this juncture to determine the issues presented by the exceptions; hold the exceptions in abeyance pending further developments; or pursue some other course.

This memorandum is Consolidated Intervenor's response to the above-stated questions.

1. Legal Effect of the California Coastal Zone Conservation Commission's Determination

On December 5, 1973, the California Coastal Zone Conservation Commission denied the application of Southern California Edison Co. and San Diego Gas and Electric Co. for a permit to construct units 2 and 3 of the San Onofre nuclear generating station. This decision was in accordance with the provisions of the California Coastal Zone Conservation Act, and was a final, binding administrative determination. Subsequently, the applicants, Southern California Edison Co. and San Diego Gas and Electric Co., commenced judicial proceedings challenging the validity of the Coastal Commission's denial of their application for a construction permit.

On January 9, 1974, the Coastal Commission authorized its legal counsel to enter into a stipulation with the applicants in the pending lawsuit which, when ordered by the court, would result in an interlocutory judgment ordering the Commission to vacate its action of December 5, 1973, and directing the Commission to re-determine the matter. It is our understanding that the Coastal Commission will re-consider the matter at its meeting scheduled for February 20, 1974.

Until that time, it is impossible to know what the staff will recommend and what the Commission will do. There are three possible alternatives: (1) the Commission could again deny the applicants a permit; (2) the Commission could grant the permit as requested by the applicants; or (3) the Commission could grant a permit to the applicants with any number of conditions attached. Of course, whatever the Commission does on February 20, 1974 will be subject to judicial challenge. The applicants have already indicated their willingness to take legal action, and it is only reasonable to assume that their opposition will be willing to do the same if the Commission acts adversely to their position.

2. Suggested Action of the Atomic Safety
and Licensing Appeal Board with Respect
to Exceptions which have been Filed
from the Initial Decision

Consolidated Intervenors believe that it would be advisable for the Atomic Safety and Licensing Appeal Board to wait at least until the Coastal Commission acts on February 20, 1974. If the Commission again denies a permit to the applicants, a decision by the Appeal Board probably would be unnecessary. On the other hand, if the Commission approves a permit with conditions which would substantially change the proposed project, it will probably be necessary to re-open hearings before the Atomic Safety

and Licensing Appeal Board, and a ruling on the exceptions which have been filed from the initial decision of that Board would be unnecessary.

DATED: January 15, 1974

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Fredric P. Sutherland", written over a horizontal line.

FREDRIC P. SUTHERLAND

Attorney for Consolidated
Intervenors

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

In the Matter of)

SOUTHERN CALIFORNIA EDISON COMPANY)
SAN DIEGO GAS & ELECTRIC COMPANY)

(San Onofre Nuclear Generating)
Station, Units 2 and 3))
)

) Docket Nos. 50-361
) 50-362
)
)
)

CERTIFICATE OF SERVICE

I hereby certify that copies of "Memorandum of Consolidated Intervenor Concerning the Matters Requested in the Order of the Atomic Safety and Licensing Appeal Board Docketed December 12, 1973", dated January 15, 1974, in the captioned matter have been served on the following by deposit in the United States mail, first class or air mail, this 15th day of January, 1974:

Alan S. Rosenthal, Esq., Chairman
Atomic Safety and Licensing
Appeal Board
U.S. Atomic Energy Commission
Washington, D. C. 20545

Michael C. Farrar, Esq.
Atomic Safety and Licensing
Appeal Board
U.S. Atomic Energy Commission
Washington, D. C. 20545

Dr. John H. Buck
Atomic Safety and Licensing
Appeal Board
U.S. Atomic Energy Commission
Washington, D. C. 20545

Mr. Kenneth E. Carr
City Manager
City of San Clemente
100 Avenida Presidio
San Clemente, CA 92672

Michael L. Glaser, Esq.
1150 17th Street, N.W.
Washington, D. C. 20036

Mr. Lester Kornblith, Jr.
Atomic Safety and Licensing Board
U.S. Atomic Energy Commission
Washington, D. C. 20545

Dr. Franklin C. Daiber
Department of Biological Sciences
University of Delaware
Newmark, Del.

Charles R. Kocher, Esq.
Southern Cal. Edison Company
2244 Walnut Grove Avenue
Rosemead, CA 91770

Alan R. Watts, Esq.
Assistant City Attorney
City Hall
Anaheim, CA 92805

Lawrence Q. Garcia, Esq.
California Public Utilities
Commission
5066 State Building
San Francisco, CA 20036

Atomic Safety and Licensing
Board Panel
U.S. Atomic Energy Commission
Washington, D. C. 20545

Mr. Frank W. Karas
Chief, Public Proceedings
Staff
Office of the Secretary of
the Commission
U.S. Atomic Energy Commission
Washington, D. C. 20545

San Clemente Public Library
233 Granada Street
San Clemente, CA 92672

Atomic Safety and Licensing
Appeal Board
U.S. Atomic Energy Commission
Washington, D. C. 20545

David R. Pigott, Esq.
Chickering & Gregory
111 Sutter Street
San Francisco, CA 94104

Lawrence J. Chandler
Counsel for AEC Regulatory Staff
Office of the General Counsel
U.S. Atomic Energy Commission
Washington, D. C. 20545



FREDRIC P. SUTHERLAND

Attorney for Consolidated
Intervenors

Yellow

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

01/04/74

Before the Atomic Safety and Licensing Appeal Board

In the Matter of)

SOUTHERN CALIFORNIA EDISON COMPANY)
SAN DIEGO GAS AND ELECTRIC COMPANY)

Docket Nos. 50-361
50-362

(San Onofre Nuclear Generating Station,)
Units 2 and 3))

MEMORANDUM OF AEC REGULATORY STAFF
REGARDING ACTION OF CALIFORNIA
COASTAL ZONE CONSERVATION COMMISSION

By order served December 12, 1973, the Atomic Safety and Licensing Appeal Board (Appeal Board) required all parties to submit a memorandum considering (1) the legal effect of the disapproval, by the California Coastal Zone Conservation Commission, of a permit authorizing construction of the San Onofre Units Nos. 2 and 3; and (2) their views regarding consideration of the exceptions taken in this proceeding, by the Appeal Board.

I

The California Coastal Zone Conservation Act (Section 27000 et seq. of the California Public Resources Code, copy attached as Appendix A), requires that a comprehensive coastal zone plan be prepared and submitted to the California legislature by December 1, 1975. This plan is to be prepared

hearing

by the California Coastal Zone Conservation Commission (hereinafter "California Coastal Zone Commission"), established by the act, with its membership to be derived from regional commissions, also established by the act, and representatives of the public who are not members of the regional commissions. The entire act is terminated, by its own terms, 91 days after final adjournment of the 1976 California legislature. In the interim, "On or after February 1, 1973, any person wishing to perform any development within the permit area shall obtain a permit authorizing such development from the regional or local agency" (Section 27400). Certain undertakings are exempted (Section 27405) and others are excepted by having prior, vested rights (Section 27404). The instant facilities are not in either category.

The regional commissions are required to make findings that any development for which a permit is to issue will not have any substantial adverse environmental or ecological effect, and that the development is consistent with the objectives of the act and the policies set forth therein (Section 27402).

Further, the act provides that the applicant or any person aggrieved by an approval of a permit by a regional commission may appeal to the California Coastal Zone Commission which has the authority to affirm, reverse or modify the decision of a regional commission (Section 27423). Additionally, the act provides that a person aggrieved by the action of the California Coastal Zone

Commission has the right of judicial review in the state courts by filing a petition for writ of mandate, pursuant to Section 1084 of the California Code of Civil Procedure (Section 27424).

In the instant matter, the San Diego regional commission authorized the issuance of a permit to the applicants on September 7, 1973, pursuant to an application filed by applicants. An appeal from the regional commission decision was taken by Groups United Against Radiation Dangers (GUARD) and Scenic Shoreline Preservation Conference, Inc., as well as other groups and a public hearing was held by the California Coastal Zone Commission, on October 18, 1973. On December 5, 1973, the California Coastal Zone Commission reversed the decision of the regional commission (Applicants' letter to Mr. Rosenthal, dated December 18, 1973). Although we have not yet received official minutes of the action of the Commission, we have received a copy of California Coastal Zone Conservation Commission "Staff Recommendation" (copy attached), submitted to the Commission and which urged denial of the permits. 1/

In essence, the California Coastal Zone Commission staff position was that

1/ The staff may request leave to supplement this memorandum if appropriate, upon receipt and review of such minutes. Upon receipt and review of such minutes of the California Coastal Zone Commission (which, based upon our latest information, should be available to us by January 18, 1974), it may be necessary for the staff to request leave to supplement or modify this memorandum.

operation of the proposed facilities would have a significant detrimental effect on the bluffs of which the site is largely composed and on marine biota through entrainment thereof, specifically with respect to plankton and fish.

The legal effect of the action of the California Coastal Zone Commission is to halt the construction of the proposed facilities pending such action as the applicant may pursue to seek appropriate administrative or judicial relief. It is the staff's understanding that the applicants have, in fact, filed for relief in the Superior Court of the State of California for the County of San Diego on December 12, 1973 (See Applicants' Memorandum App. A).

II

The construction and operation of a large power plant, whether nuclear fueled or fossil fueled, typically requires many governmental permits and approvals at local, state and federal levels. These include zoning approvals, building occupancy permits, approval of sanitary facilities, approval of fire safety conditions, permits to construct discharge structures into navigable waters, permits to make discharges, and others. When such a power plant is nuclear fueled, a construction permit and operating license from the Atomic Energy Commission is also required pursuant to the provisions of the Atomic Energy Act of 1954, as amended (Act). Such considerations do not require that AEC licensing action await the outcome of other governmental actions.

It is the obligation of applicants to construct and/or operate a facility to

assure that it complies with all legal requirements for permits and approvals properly applicable to the proposed plant and unless it complies, it may be legally restrained by state, local or federal law from constructing or operating the plant. A person is legally proscribed by the Act from constructing or operating a nuclear plant without the authorization of the AEC, even though it may have all other necessary permits by all other federal, state or local agencies concerned.

In the case of San Onofre Units 2 and 3, the FES (App. 1.1) lists some eight state agencies whose approval is required for some aspect of the facility, along with the AEC, the U.S. Army Corps of Engineers and the U.S. Marine Corps (the property owners). The California Coastal Zone Conservation Commission is not listed since it was not in existence at the time the information was compiled. But as indicated above, the approval of this Commission is also required by California law.

The fact that the California Coastal Zone Conservation Commission has disapproved the project, the staff believes, should not deter the Appeal Board from expeditiously completing actions on the exceptions filed in the AEC licensing proceeding presently before the Appeal Board. These exceptions relate to basic questions about whether the San Onofre facilities may be licensed in accordance with the Act and the Commission's implementing regulations. We see no basic legal connection between the action of the California

Coastal Commission and the disposition of the matter presently pending before the Appeal Board in connection with the captioned proceeding.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Lawrence J. Chandler".

Lawrence J. Chandler
Counsel for AEC Regulatory Staff

Dated at Bethesda, Maryland,
this 4th day of January, 1974.

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

In the Matter of)
)
SOUTHERN CALIFORNIA EDISON COMPANY) Docket Nos. 50-361
SAN DIEGO GAS & ELECTRIC COMPANY) 50-362
)
(San Onofre Nuclear Generating Station,)
Units 2 and 3))

CERTIFICATE OF SERVICE

I hereby certify that copies of "Memorandum of AEC Regulatory Staff Regarding Action of California Coastal Zone Conservation Commission," dated January 4, 1974, in the captioned matter, have been served on the following by deposit in the United States mail, first class or air mail, this 4th day of January, 1974:

Alan S. Rosenthal, Esq., Chairman
Atomic Safety and Licensing
Appeal Board
U.S. Atomic Energy Commission
Washington, D.C. 20545

Michael C. Farrar, Esq.
Atomic Safety and Licensing
Appeal Board
U.S. Atomic Energy Commission
Washington, D.C. 20545

Dr. John H. Buck
Atomic Safety and Licensing
Appeal Board
U.S. Atomic Energy Commission
Washington, D.C. 20545

Michael L. Glaser, Esq.
1150 17th Street, N.W.
Washington, D.C. 20036

Mr. Lester Kornblith, Jr.
Atomic Safety and Licensing Board
U.S. Atomic Energy Commission
Washington, D.C. 20545

Dr. Franklin C. Daiber
Department of Biological Sciences
University of Delaware
Newark, Delaware 19711

Charles R. Kocher, Esq.
Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, California 91770

Mr. David Sakai
845 North Perry Avenue
Montebello, California 90640

Fredric P. Sutherland, Esq.
Brent N. Rushforth, Esq.
Center for Law in the
Public Interest
10203 Santa Monica Boulevard
Los Angeles, California 90067

Mr. Kenneth E. Carr
City Manager
City of San Clemente
100 Avenida Presidio
San Clemente, California 92672

Alan R. Watts, Esq.
Assistant City Attorney
City Hall
Anaheim, California 92805

Lawrence Q. Garcia, Esq.
California Public Utilities
Commission
5066 State Building
San Francisco, California 20036

Dr. Gerard A. Rohlich
Department of Civil Engineering
University of Texas
Austin, Texas 78712

Mr. Larry E. Moss
15201 DePauw
Pacific Palisades, California 90272

San Clemente Public Library
233 Granada Street
San Clemente, California 92672

Atomic Safety and Licensing
Board Panel
U.S. Atomic Energy Commission
Washington, D.C. 20545

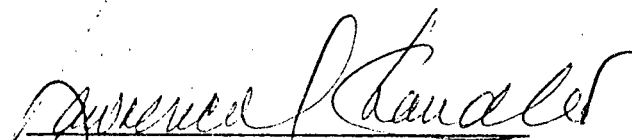
Atomic Safety and Licensing
Appeal Board
U.S. Atomic Energy Commission
Washington, D.C. 20545

Mr. Frank W. Karas
Chief, Public Proceedings Staff
Office of the Secretary of the
Commission
U.S. Atomic Energy Commission
Washington, D.C. 20545

George Spiegel, Esq.
2600 Virginia Avenue, N.W.
Washington, D.C. 20036

David R. Pigott, Esq.
Chickering & Gregory
111 Sutter Street
San Francisco, California 94104

Elizabeth S. Bowers, Esq.
Atomic Safety and Licensing Board
U.S. Atomic Energy Commission
Washington, D.C. 20545


Lawrence J. Chandler
Counsel for AEC Regulatory Staff

Division 18

CALIFORNIA COASTAL ZONE CONSERVATION
COMMISSION [NEW]

Chapter	Section
1. General Provisions And Findings And Declarations Of Policy	27000
2. Definitions	27100
3. Creation, Membership, And Powers Of Commission And Regional Com- missions	27201
4. California Coastal Zone Conservation Plan	27300
5. Interim Permit Control	27400
6. Penalties	27500
7. Reports	27600
8. Termination	27650

Division 18, addition proposed by Initiative Measure (1972), was approved by the voters at the general election held Nov. 7, 1972.

Repeal

Division 18 is repealed under the terms of section 27650 on the 91st day after the final adjournment of the 1976 Regular Session.

CHAPTER 1. GENERAL PROVISIONS AND FINDINGS AND
DECLARATIONS OF POLICY

Sec.

27000. Short title.

27001. Policy.

Chapter 1, addition proposed by Initiative Petition (1972), was approved by the voters at the general election held Nov. 7, 1972.

Repeal

Chapter 1 is repealed under the terms of section 27650 on the 91st day after the final adjournment of the 1976 Regular Session.

§ 27000. Short title

This division may be cited as the California Coastal Zone Conservation Act of 1972.

(Added by Initiative Measure approved by the electors November 7, 1972.)

Sections 3 & 5 of Initiative Measure (1972) relating to coastal zone conservation, provided:

"Sec. 3. If any provision of this act or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications of the act which can be given effect

without the invalid provision or application, and to this end the provisions of this act are severable."

"Sec. 5. The Legislature may, by two-thirds of the membership concurring, amend this act in order to better achieve the objectives set forth in Sections 27001 and 27302 of the Public Resources Code.

§ 27001. Policy

The people of the State of California hereby find and declare that the California coastal zone is a distinct and valuable natural resource belonging to all the people and existing as a delicately balanced ecosystem; that the permanent protection of the remaining natural and scenic resources of the coastal zone is a paramount concern to present and future residents of the state and nation; that in order to promote the public safety, health, and welfare, and to protect public and private property, wildlife, marine fisheries, and other ocean resources, and the natural

§ 27001

PUBLIC RESOURCES CODE

environment, it is necessary to preserve the ecological balance of the coastal zone and prevent its further deterioration and destruction; that it is the policy of the state to preserve, protect, and, where possible, to restore the resources of the coastal zone for the enjoyment of the current and succeeding generations; and that to protect the coastal zone it is necessary:

(a) To study the coastal zone to determine the ecological planning principles and assumptions needed to ensure conservation of coastal zone resources.

(b) To prepare, based upon such study and in full consultation with all affected governmental agencies, private interests, and the general public, a comprehensive, coordinated, enforceable plan for the orderly, long-range conservation and management of the natural resources of the coastal zone, to be known as the California Coastal Zone Conservation Plan.

(c) To ensure that any development which occurs in the permit area during the study and planning period will be consistent with the objectives of this division.

(d) To create the California Coastal Zone Conservation Commission, and six regional coastal zone conservation commissions, to implement the provisions of this division.

(Added by Initiative Measure approved by the electors November 7, 1972.)

CHAPTER 2. DEFINITIONS

Sec.

- 27100. Coastal zone.
- 27101. Coastal zone plan.
- 27102. Commission.
- 27103. Development.
- 27104. Permit area.
- 27105. Person.
- 27106. Sea.

Chapter 2, addition proposed by Initiative Measure (1972), was approved by the voters at the general election held Nov. 7, 1972.

Repeal

Chapter 2 is repealed under the terms of section 27650 on the 31st day after the final adjournment of the 1976 Regular Session.

§ 27100. Coastal zone

"Coastal zone" means that land and water area of the State of California from the border of the State of Oregon to the border of the Republic of Mexico, extending seaward to the outer limit of the state jurisdiction, including all islands within the jurisdiction of the state, and extending inland to the highest elevation of the nearest coastal mountain range, except that in Los Angeles, Orange, and San Diego Counties, the inland boundary of the coastal zone shall be the highest elevation of the nearest coastal mountain range or five miles from the mean high tide line, whichever is the shorter distance.

(Added by Initiative Measure approved by the electors November 7, 1972.)

§ 27101. Coastal zone plan

"Coastal zone plan" means the California Coastal Zone Conservation Plan.

(Added by Initiative Measure approved by the electors November 7, 1972.)

§ 27102. Commission

(a) "Commission" means the California coastal zone conservation commission.

(b) "Regional commission" means any regional coastal zone conservation commission.

(Added by Initiative Measure approved by the electors November 7, 1972.)

§ 27103. Development

"Development" means, on land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision of land pursuant to the Subdivision Map Act and any other division of land, including lot splits; change in the intensity of use of water, ecology related thereto, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility, and the removal or logging of major vegetation. As used in this section, "structure" includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line.

(Added by Initiative Measure approved by the electors November 7, 1972.)

§ 27104. Permit area

"Permit area" means that portion of the coastal zone lying between the seaward limit of the jurisdiction of the state and 1,000 yards landward from the mean high tide line of the sea subject to the following provisions:

(a) The area of jurisdiction of the San Francisco Bay Conservation and Development Commission is excluded.

(b) If any portion of any body of water which is not subject to tidal action lies within the permit area, the body of water together with a strip of land 1,000-feet wide surrounding it shall be included.

(c) Any urban land area which is (1) a residential area zoned, stabilized and developed to a density of four or more dwelling units per acre on or before January 1, 1972; or (2) a commercial or industrial area zoned, developed, and stabilized for such use on or before January 1, 1972, may, after public hearing, be excluded by the regional commission at the request of a city or county within which such area is located. An urban land area is "stabilized" if 80 percent of the lots are built up on to the maximum density or intensity of use permitted by the applicable zoning regulations existing on January 1, 1972.

Tidal and submerged lands, beaches, and lots immediately adjacent to the inland extent of any beach or of the mean high tide line where there is no beach shall not be excluded.

Orders granting such exclusion shall be subject to conditions which shall assure that no significant change in density, height, or nature of uses occurs.

An order granting exclusion may be revoked at any time by the regional commission, after public hearing.

(d) Each regional commission shall adopt a map delineating the precise boundaries of the permit area within 60 days after its first meeting and file a copy of such map in the office of the county clerk of each county within its region.

(Added by Initiative Measure approved by the electors November 7, 1972.)

§ 27105. Person

"Person" includes any individual, organization, partnership, and corporation, including any utility and any agency of federal, state, and local government.

(Added by Initiative Measure approved by the electors November 7, 1972.)

§ 27106. Sea

"Sea" means the Pacific Ocean and all the harbors, bays, channels, estuaries, salt marshes, sloughs, and other areas subject to tidal action through a connection with the Pacific Ocean, excluding nonestuarine rivers and creeks.

(Added by Initiative Measure approved by the electors November 7, 1972.)

CHAPTER 3. CREATION, MEMBERSHIP, AND POWERS OF COMMISSION
AND REGIONAL COMMISSIONS

Article	Section
1. Creation and Membership of Commissions and Regional Commissions	27200
2. Organization	27220
2.5 Conflicts of Interest	27230
3. Powers And Duties	27240

Chapter 3, addition proposed by Initiative Measure (1972), was approved by the voters at the general election held Nov. 7, 1972.

Repeal

Chapter 3 is repealed under the terms of section 27650 on the 91st day after the final adjournment of the 1976 Regular Session.

ARTICLE 1. CREATION AND MEMBERSHIP OF COMMISSIONS
AND REGIONAL COMMISSIONS

Sec.

- 27200. Commission; creation; membership.
- 27201. Regional commissions; creation; membership.
- 27202. Members; selection or appointment.

Article 1, addition proposed by Initiative Measure (1972), was approved by the voters at the general election Nov. 7, 1972.

§ 27200. Commission; creation; membership

The California Coastal Zone Conservation Commission is hereby created and shall consist of the following members:

- (a) Six representatives from the regional commissions, selected by each regional commission from among its members.
- (b) Six representatives of the public who shall not be members of a regional commission.

(Added by Initiative Measure approved by the electors November 7, 1972.)

§ 27201. Regional commissions; creation; membership

The following six regional commissions are hereby created:

- (a) The North Coast Regional Commission for Del Norte, Humboldt, and Mendocino Counties shall consist of the following members:

- (1) One supervisor and one city councilman from each county.
- (2) Six representatives of the public.

- (b) The North Central Coast Regional Commission for Sonoma, Marin, and San Francisco Counties shall consist of the following members:

- (1) One supervisor and one city councilman from Sonoma County and Marin County.

- (2) Two supervisors of the City and County of San Francisco.

- (3) One delegate to the Association of Bay Area Governments.

- (4) Seven representatives of the public.

- (c) The Central Coast Regional Commission for San Mateo, Santa Cruz, and Monterey Counties shall consist of the following members:

- (1) One supervisor and one city councilman from each county.

- (2) One delegate to the Association of Bay Area Governments.

- (3) One delegate to the Association of Monterey Bay Area Governments.

- (4) Eight representatives of the public.

(d) The South Central Coast Regional Commission for San Luis Obispo, Santa Barbara, and Ventura Counties shall consist of the following members:

- (1) One supervisor and one city councilman from each county.
- (2) Six representatives of the public.

(e) The South Coast Regional Commission for Los Angeles and Orange Counties shall consist of the following members:

- (1) One supervisor from each county.
- (2) One city councilman from the City of Los Angeles selected by the president of such city council.
- (3) One city councilman from Los Angeles County from a city other than Los Angeles.

- (4) One city councilman from Orange County.
- (5) One delegate to the Southern California Association of Governments.
- (6) Six representatives of the public.

(f) The San Diego Coast Regional Commission for San Diego County, shall consist of the following members:

- (1) Two supervisors from San Diego County and two city councilmen from San Diego County, at least one of whom shall be from a city which lies within the permit area.

- (2) One city councilman from the City of San Diego, selected by the city council of such city.

- (3) One member of the San Diego Comprehensive Planning Organization.

- (4) Six representatives of the public.

(Added by Initiative Measure approved by the electors November 7, 1972.)

§ 27202. Members; selection or appointment

All members of the regional commissions and public members of the commission shall be selected or appointed as follows:

- (a) All supervisors, by the board of supervisors on which they sit;
- (b) All city councilmen except under subsections (e) (2) and (f) (2), by the city selection committee of their respective counties;
- (c) All delegates of regional agencies, by their respective agency;

- (d) All public representatives, equally by the Governor, the Senate Rules Committee and the Speaker of the Assembly, provided that the extra member under

- (b) (4) and the extra members under (c) (4) shall be appointed by the Governor, the Senate Rules Committee and the Speaker of the Assembly respectively.

(Added by Initiative Measure approved by the electors November 7, 1972.)

ARTICLE 2. ORGANIZATION

Sec.

27220. Public members; qualifications.
27221. Members, appointment or selection; time.
27222. Cessation of membership; vacancies.
27223. Compensation; expenses.
27224. Meetings; open to public; majority vote.
27225. First meeting.
27226. Headquarters; location.

Article 2, addition proposed by Initiative Measure (1972), was approved by the voters at the general election held Nov. 7, 1972.

§ 27220. Public members; qualifications

Each public member of the commission or of a regional commission shall be a person who, as a result of his training, experience, and attainments, is exceptionally well qualified to analyze and interpret environmental trends and information, to appraise resource uses in light of the policies set forth in this division, to be responsive to the scientific, social, esthetic, recreational, and cultural needs of the

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- (1) One supervisor from each county.
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27224. Meetings; open to public; majority vote.

27225. First meeting.

27226. Headquarters; location.

Article 2, addition proposed by Initiative Measure (1972), was approved by the voters at the general election held Nov. 7, 1972.

§ 27220. Public members; qualifications

Each public member of the commission or of a regional commission shall be a person who, as a result of his training, experience, and attainments, is exceptionally well qualified to analyze and interpret environmental trends and information, to appraise resource uses in light of the policies set forth in this division, to be responsive to the scientific, social, esthetic, recreational, and cultural needs of the

STAFF RECOMMENDATION

Appeal No. 193-73
(San Onofre)
60th Day: 11/17/73
(Extended through
12/5/73)

DECISION OF
REGIONAL COMMISSION:

Permit granted with conditions by the San Diego Regional
Commission by a vote of 9 in favor, 1 opposed

PERMIT
APPLICANT:

Southern California Edison Co. and San Diego Gas and
Electric Co.

DEVELOPMENT
LOCATION:

Within the boundaries of the U.S. Marine Corps Base,
Camp Pendleton, San Diego County, near the northwest end
of its 18-mile shoreline. Proposed Units 2 and 3 would
be adjacent to and immediately south of existing
Unit 1, approximately 2.5 miles south of the City of San
Clemente, Orange County

DEVELOPMENT
DESCRIPTION:

To construct, operate, and maintain 2 additional nuclear
steam supply systems (NSSS) consisting of a reactor, a
reactor coolant system, reactor auxiliary systems, and
nuclear instrumentation, designed to produce steam to
drive 2 proposed 1,000-RPM water-cooled turbine generators.
Net electric power generated by each unit will be 1,140
megawatts.

Included in the proposal are construction of underwater
conduits and structures associated with the seawater cooling
system for each unit; construction and/or relocation of a
Visitors Information Center; improvement of a dirt haul road;
installation of a temporary bridge over the Atchison, Topeka
and Santa Fe Railroad; use of land area for storage, handling
and processing of materials and components; installation
of a temporary spur track to storage area; use of land for
disposal and excavation of spoil material; installation of
additional transmission facilities; relocation of switching
facilities; and partial relocation of former U.S. Highway 101

APPELLANTS:

Groups United Against Radiation Dangers (GUARD); Environmental
Coalition of Orange County; Friends of the Earth, Scenic
Shoreline Preservation Conference, Inc.; Lloyd von Haden;
Ruth Peyton

PUBLIC
HEARINGS:

Held on October 18, 1973, in San Diego

STAFF SUMMARY AND ANALYSIS

At the public hearing on this appeal and in the rebuttal correspondence after the hearing, two general issues were raised: (a) the environmental impact of the proposed expansion at San Onofre and (b) the safety of the proposed expansion, particularly in light of the proximity of the nuclear site to rapidly-urbanizing areas in southern Orange and northern San Diego Counties.

The staff's analysis of these issues, and recommendation with regard to San Onofre, are as follows:

A. Environmental Impact

1. Coastal Bluffs. The proposed expansion of the San Onofre nuclear power plant would destroy more than half a mile of coastal bluffs and canyons that, although little known to the public, have a beauty and grandeur deserving of protection.

The motorist speeding by San Onofre on Interstate 5 may not know the bluffs even exist, or that the San Onofre expansion would level them (52 acres of bluffs would be taken; about 2.5 million cubic yards of material would be trucked to a 125-acre dumpsite east of the freeway).

From the beach below, however, there are the towering bluffs, carved and patterned by wind and water; the sound of the surf; and the silent, twisting canyons. This combination provides an experience virtually unique along the southern California coast. And, just as nobody would propose to carve a power plant into Yosemite's Half Dome, the staff does not believe that anyone should destroy the bluffs and canyons at San Onofre. Our society is not yet so poor that we must chop down our cathedrals for firewood.

Moreover, at a time when a shortage of gasoline may limit long-distance vacation travel, the bluffs and canyons of San Onofre, so near so many people in Orange and San Diego Counties, can provide important close-to-home recreation and inspiration.

2. Protection of the Marine Environment. The proposed expansion at San Onofre would require great quantities of ocean water to cool the power-generating equipment. This cooling water would be rich in the tiny plant and animal organisms called plankton that are the basis of the food chain in the waters of the ocean and make possible the highly-productive ocean fishery. Plankton includes the larval forms of many other larger nearshore animals such as clams, mussels, and many fish. It appears likely that at least 70% of the plankton to be piped through San Onofre would be killed; those that survive would be discharged into ocean areas far offshore. Further biological studies are needed, but evidence before the Commission indicates at least a possibility that the proposed San Onofre expansion could cause several square miles of coastal waters to become the equivalent of a marine desert.

B. Nuclear Safety

1. Radioactive Materials. Proponents of nuclear power plants contend that the plants are designed and built with elaborate precautions to prevent the escape of radioactive materials. The proponents contend that there have been no major accidents involving the escape of these materials from any of the nuclear plants in the nation. Opponents contend, however, that the real question is whether the emergency safeguards would work properly during unexpected stresses, such as might occur in an accident or earthquake. They point out that the planned emergency measures have never been tested in a major accident or earthquake, and that the escape of radioactive materials at San Onofre could, under the worst of circumstances, endanger not only nearby beach users but, depending on wind conditions, the urban development, the open land, and the water of a large coastal area.

Many, perhaps most, of the scientists with expertise in nuclear energy contend that the risk of any such accident is so small as to be negligible. They point out that we already live in a risk-filled world, a world that contains nuclear weapons as well as nuclear power plants. Other scientists note, however, that the Atomic Energy Commission recently advised against building a nuclear power plant 11 miles from Philadelphia, suggesting instead a more distant site, and they question the wisdom of a large nuclear power plant so close to the growing population of southern Orange and northern San Diego Counties.

2. Earthquake Questions. Proponents of the San Onofre expansion contend that elaborate safety measures are engineered into the design of the plant to take earthquake factors into account. Opponents contend that man's present knowledge of earthquake faults and their behavior is far from complete; that, for example, evidence of an earthquake fault was reported only last week two miles from the Diablo Canyon nuclear plant in San Luis Obispo County, when the nearest fault had previously been thought to be 20 miles away; and that the AEC, in approving the expansion at San Onofre, required more stringent anti-earthquake engineering provisions than were required for construction in the 1960's of San Onofre Unit 2.

3. Nuclear Wastes. There is no agreement at present as to what should be done with nuclear wastes, the highly-toxic residues of generating nuclear energy. Some of these wastes are the most carcinogenic materials known to man. The wastes will remain deadly, essentially forever—for thousands of years.

At present, wastes from the nation's nuclear plants are sealed in steel or cement and held in temporary storage by the AEC. A collection of the wastes from all these plants would not require much space. But critics of nuclear expansion ask what sort of building, what hole in what ground, is the appropriate place for them? Nuclear wastes raise questions most of us would rather not think about: do we have the right to bequeath to our children, and to all future generations, a small but growing waste pile so deadly it will require eternal care?

4. Legal Responsibility for Safety. Whatever importance these questions of nuclear safety may have, the Attorney General's office has advised that, under the U. S. Atomic Energy Act, the Federal government appears to have exclusive authority to regulate and control radiation hazards from nuclear power plants. Accordingly, it appears that the State (and thus the State Coastal Commission) has no authority to regulate or control nuclear hazards. And, because the AEC has certified the San Onofre site as acceptably safe, it appears that the Coastal Commission may not take safety issues into account in deciding whether or not to issue a permit for the expansion at San Onofre.

5. Planning Issues. But there remain questions of coastal zone planning. What evacuation and emergency plans does the AEC have? How should these be integrated into coastal zone planning? For example, should unusually wide roadways be planned leading away from beach areas and urban areas near the nuclear plant, on the assumption that, however unlikely, the time might come when rapid evacuation of beaches and nearby communities might be needed? And should high-density residential development be encouraged in areas relatively close to San Onofre?

C. Alternatives

1. Energy AND Environment. Planning for the coastal zone in a time of energy scarcity may be different from planning in a time of abundance, but at any time the goal should be both enough energy and a healthy environment. By this standard, which the staff believes to be the standard of the Coastal Zone Conservation Act of 1972, the staff believes that the plan in its present form does not qualify for a permit, and, accordingly, the staff recommends denial. But the staff also believes there are obvious alternatives for further consideration (on the assumption that only the AEC appears to have authority in the field of nuclear safety):

could be built east of the Interstate 5 Freeway, or indeed elsewhere on Long Beach.

b. Marine Environment. The impact of the marine environment could be lessened by:

(1) Using more efficient power-generating equipment, which would require less cooling water. (Southern California Edison Co. has already planned this for one of the proposed desert nuclear plants; there, a relatively-more-efficient high temperature gas reactor has been ordered. But for San Onofre, plans are to use relatively-less-efficient pressurized-water reactors.)

(2) Changing the design of the cooling system, after further study, either to use cooling towers (a method that would minimize the use of sea water and therefore the effect on plankton and fish), or to take in sea water at greater depths, where the water is colder and the damage to plankton would be less.

(3) Not excavating the bluffs for the new cooling system pipes, but using instead the area already excavated for the existing power plant at San Onofre.

D. Timing

Would these alternatives take time? Possibly. But under the best of circumstances, the expansion at San Onofre would not solve any of the immediate energy needs of southern California. At best, the new units would not be in operation until the end of the decade, and more likely well into the 1980's, given the possibility of litigation over this proposed project.

The applicants contend that any delays would cause fossil-fuel power plants to be built in the interim, a matter of great concern in view of the air pollution this could entail, and also in view of the present uncertainties as to oil supplies. But a short delay—and the alternatives available need not result in anything more than a short delay—must be weighed against the permanent destruction of irreplaceable coastal bluffs and canyons, and against long-term damage to the marine environment. Furthermore, if there are any adverse effects from any delays, should they be charged to those who wish to see the bluffs and ocean waters protected, or to those who propose to damage them? With sound planning that takes environmental factors into account from the beginning, there need not be delays.

E. Conclusion: Energy AND Environment

Under the Coastal Zone Conservation Act of 1972 (Proposition 20), permits may not be granted by the Commission for projects that would cause any substantial environmental damage; that would fail to provide for orderly, balanced development; and that would fail to protect the unique coastal environment. Are these standards unduly severe? The staff believes not. Moreover, the staff believes that the San Onofre application in its present form would not qualify under any standards that express concern both for environmental and energy needs. For example, the Comprehensive Ocean Area Plan prepared by the Department of Navigation and Development in the State Resources Agency recommends that:

"Nuclear power plants and desalting facilities along the coast should be designed and located in such a way as to minimize any adverse impact upon the environment of the coastal management zone."

In short, the staff recommendation is not for a "no growth" economy. The recommendation is not to ignore the energy needs of California. The recommendation is not against power plants along the coast (the Commission has already approved one major expansion of a power zone power plant, on Terminal Island in Long Beach).

The issue at San Onofre, however, is not all power plants but only the proposed expansion of this power plant, in this form, at this site, and the staff does not believe it is right for a permit under the Act, or indeed under any standards requiring attention both to energy needs and to environmental protection. Accordingly, the staff recommends denial.

TWO-THIRDS VOTE REQUIREMENT

The staff recommends that the Commission adopt a 2/3 vote requirement under the following sections of the California Coastal Zone Conservation Act:

1. Section 27401(b). The project would require the 3-month closure of 1,800 feet of public beach and the 6-year closure of 1,000 feet of beach during construction. Erosion of the bluffs will reduce, by 52 acres, the size of an area that is, in part, presently used for recreation (the canyons) and is certainly usable for recreation by virtue of its proximity to the ocean and adjacent state beach parks and its flat topography which permits a variety of recreational uses. About 4.3 acres of the coastal strand will also be permanently lost (Exhibit 1).
2. Section 27401(c). The project will require the 3-month closure of 1,800 feet of public beach and the 6-year closure of 1,000 feet of public beach. This will reduce lateral public access along the beach as well as restrict public access to the area that is closed off.
3. Section 27401(d). The development will substantially interfere with the line of sight to the ocean from the nearest state highway because of the construction of a berm designed to screen portions of the development and the major structures involved (Exhibit 2).
4. Section 27401(e). The development would adversely affect water quality and existing, or potential, commercial and sport fisheries. During the first year of plant operation, approximately 70 lbs. of copper per day will be discharged into the ocean. Copper can be toxic to certain species of plankton. Chlorine was planned to be discharged into the cooling system about 6 times per day for 15 minute intervals. The applicant have now promised to reduce the amount by 75 per cent. As it is used as a biocide, however, the chlorine will certainly have an adverse impact on marine organisms trapped in the cooling system, although it may not be significant in the concentrations expected after dilution in the ocean.

Radioactive wastes in small quantities will be periodically discharged into the ocean. Thermal discharges will occur from both the continuous operation of the plant and from heat treatment of the inlet and outlet structures every 5 or 6 weeks. Continuous operation will result in the heating of about 1.6 million gallons of water per minute 20 degrees F. Heat treatment will result in heating the water in the system to 125 degrees F. A significant quantity of the marine organisms entrained in the cooling system will die from exposure to the 20 degree temperature rise for 16 minutes and by mechanical mutilation. Between 28,000 and 142,000 lbs. of fish may be killed per year from normal operation of the plant. Between 11,000 and 28,000 lbs. of fish may be killed by the heat treatment. Between the quantity of fish that will be killed and the plankton which will be killed, the plant will have an adverse effect on commercial and sport fisheries.

The project would also adversely affect an existing area of open water free of visible structures during the construction operation when a pier will be extended into the ocean to lay the intake and outlet conduits.

Turbidity caused by the construction operation (laying of intake and outlet conduits, disruption of 85 acres of ocean bottom, deposition 670,000 cubic yards of sand on beach area), can be expected to have at least a temporary adverse affect on benthic organisms and decrease light intensity and thereby photosynthesis.

The staff recommends that the Commission adopt the following resolution:

I. Denial

The California Coastal Zone Conservation Commission hereby denies the permit for the proposed development on the grounds that:

a. It would have a substantial adverse environmental effect; and could have a substantial adverse ecological effect;

b. It would not be consistent with the findings, declarations, and objectives of the California Coastal Zone Conservation Act of 1972.

II. Findings and Declarations

A. Land Environment.

1. Bluffs and Canyons. Although the motoring public cannot see them from Interstate 5, the bluffs and intricate canyons at the site are unique in their beauty. These magnificent bluffs and canyons would be obliterated and replaced by the nuclear reactor project proposed. The canyons, caused by erosion, form a complex labyrinth of spectacular proportions and beauty, consisting of deep, narrow, twisting canyons, pinnacles, and natural bridges. The sculpting of the sandstone bluffs and canyon walls by the action of wind and water coupled with the "chocolate marbling" effect from erosion of the overlying terrace deposits are only comparable to areas that have been permanently preserved for future generations in the State Park system, and more spectacular than some of those sites. The canyons at the San Simeon State Beach, south of the proposed expansion site, are not of comparable quality. From photographs supplied by the applicants, it appears that similar canyons did exist to the north of the site but they were destroyed during the construction of San Onofre Unit 1. The overwhelming beauty of the remaining bluffs and their destruction would be a substantial adverse environmental effect, inconsistent with Public Resources Code, Sections 27001, 27302(a), 27302(c), 27302(d), 27402(a), and 27403(d).

The applicants' statement that the canyons are dangerous and that society would be better served by filling them is completely without merit. Such a position is similar to asserting that the Grand Canyon should be filled because someone could fall into it.

2. Land Habitats. Although the site is not one of the major coastal wildlife habitats, the site does harbor numerous small animals such as squirrels and rabbits and a den of kit fox. A brief on-site staff inspection encountered numerous ravens and an owl within the canyons.

According to the AEC EIS, the construction of the project will result in changes in the habitats on the site as follows:

	Acres		
	Before	After	Change
Coastal strand	7.3	3.0	-4.3
Bluffs and ravines	5.5	0	-5.5
Coastal sage	9.5	0	-9.5
Grasslands	4.0	0	-4.0
Disturbed areas	10.2	0	-10.2
Unit 1	28.6	28.6	0

"On the 83.6-acre site Unit 1, associated buildings, switchyards, parking, and visitor areas presently occupy about 28.6 acres. On completion of Units 2 and 3 with their switchyards, associated buildings, etc., another 52 acres will be removed. Of this 52 acres, switchyards presently occupy 13.5 acres; the remaining 33.5 acres is wildlife habitat and will be lost as this area is excavated." (AEC EIS p. 4-3)

The areas listed are defined by the AEC in Exhibit 1. Although the site may not be a vital wildlife habitat, necessary for the continuation of a species, such remaining natural coastal habitats are limited. If alternative sites exist away from the immediate coast, any destruction on the scale proposed would be inconsistent with Public Resources Code, Sections 27001, 27302(a), 27302(b), 27302(d), and 27402(a). Because other more suitable areas have been identified in the power plant siting study conducted by the State Resources Agency (See Exhibit 3), it is clear that there are alternative sites available.

B. Marine Environment.

1. Introduction. Although most public attention has focused on thermal pollution from power plants, it appears likely that the most significant adverse impacts on the marine environment at San Onofre would occur through entrainment of marine organisms in the plant's cooling system. Water would be drawn through Units 2 and 3 at a rate of 1.6 million gallons per minute, equivalent to a body of water about 1 mile square and 11 feet deep every day. When Unit 1 is operating together with Units 2 and 3, the amount of water directly entrained will amount to 1.95 million gallons per minutes or about a square mile 14 feet deep every day. The total amount of water influenced will undoubtedly be much greater because 2/3 of the heat generated by the reactors is dissipated in the ocean (1.5×10^{10} BTU per hour from Units 2 and 3 alone) and currents are induced in the area from the vast quantities of water forced through the system.

2. Plankton Entrainment. It is unfortunate that the potentially most significant environmental effect of the proposed project, destruction of the nearshore plankton population, has been the least studied. Plankton represent the main source of food for most organisms in the nearshore environment and include the immature stages of most nearshore marine animals such as clams and mussels and many fish. The quality of the plankton sampling studies conducted for the applicants from 1965 to 1971 have been reviewed by highly-qualified, independent marine biologists from the Scripps Institution of Oceanography and found superficial at best. Dr. John McEwan has stated: "To expect that objective and accurate predictions be made on the basis of such a paltry effort is unreasonable . . . The cumulative result of all these deficiencies is that it is virtually certain that the zooplankton

and phytoplankton data is highly inaccurate with respect to estimates of absolute abundance; however, they appear to be of some use in detecting large magnitude temporal changes in relative abundance." Dr. James Enright testified at the AEC hearings on Units 2 and 3 that: "...if this kind of research project...had been submitted to me by a graduate student, I would have given him a failing grade on it. It is poorly planned and badly executed research. The data show nothing convincingly. And yet some of these data suggest, in spite of their poor quality, that the mortality of the larger organisms and the zooplankton, copepods and mysids, which represent a major fraction of the biomass, that these organisms may suffer mortalities in the range from 80 to 100 per cent." The information submitted by the applicants does not justify the applicants' contention that there would be no significant adverse effects to the marine environment.

The only conclusion that can be drawn from the 1965-1971 plankton sampling data with any justification is that there has been an increase in the zooplankton population in the vicinity of San Onofre that can only be considered massive. The applicants characterize the data in the following way: "...the increase at the most distant station averaged 6.4...At the other two stations, the averages were 21.7 and 35.6. The median value for all of the data indicates an increase of ten times, which is within natural plankton variability." It would seem clear that by any reasonable measure, a median increase of 10 times natural abundances would have to be characterized as massive. A more descriptive characterization of the data would show that at the two stations nearest the discharge, the overall average abundance increased by a factor of 10 in 13 cases out of 20; by a factor of more than 10 in 5 cases out of 20. For winter data only, the increase was by more than a factor of 10 in 15 cases out of 20; by more than a factor of 50 in 11 cases out of 20; by more than a factor of 100 in 9 cases out of 20. The applicants' explanation for this increase, that it is within the "natural variability" of plankton populations, is discounted by Dr. Enright as: "A statement of this sort indicates a fundamental misunderstanding of the basic scientific concept of 'control' data...the appropriate comparison i.e. with control data, shows that plankton changes are real and are large. It is furthermore worth noting 1) that abundance increased greatly during operation, decreased to control levels when the plant shut down for 3 months and then increased again, to remain high, when the plant returned to operation after August 1968. 2) the increases in abundance were most striking at the two stations nearest the inflow and outflow, less so--(but nonetheless clearly significant) at greater distance from the cooling system pipes."

The applicants' alternative explanation is that the increase in plankton abundance can be attributed to increased growth in the thermal plume from Unit 1. This explanation has not been justified by any supporting studies and appears to conflict directly with the applicants' contention that the extent of the thermal plume is so small that it has no significant effect. In the absence of any satisfactory explanation, the interpretation that Dr. Enright advances--that the increase may be due to transportation from offshore to near-shore by the cooling system--must be taken as reasonable. If such concentration is likely from this source, then the expected effect of the much larger Units 2 and 3 would be an even more massive transport but, from nearshore waters to far offshore. This could lead to an impoverishment of the immediate nearshore waters--the most productive--possibly

along the coast. The applicants' contention that the region and the local Generating Stations are comparable and have no significant, adverse impact be more credible if they substantiating studies, reviewed by independent experts, were submitted, but in the absence of such studies, the contention remains open to doubt.

A destructive effect that is potentially as serious and which is based on better data is the killing of vast quantities of plankton that are drawn into the entrails of the plant. On the basis of the plankton studies discussed above, which could only underestimate adverse impacts, the AEC determined that mortality rates would average 30% of all plankton entrained and would be as high as 100% for some species. The applicants claim that on the basis of new studies performed during 1972 and 1973 mortality rates would range from 9-23% and from 23-30% for the dominant species of zooplankton. These new studies must first be evaluated by independent experts.

The major failing of these studies is their failure to analyze delayed mortality. Although the description of the methodology is sparse, it appears that mortality rates are determined only 1 1/2 hours after passage through the condensers of Unit 1. However, according to what appears to be the most complete study (the Carpenter-Peck-Anderson study of an Eastern plant) done on power plant plankton entrainment, it is necessary to study the organisms for at least 5 days before the most significant mortality rates appear. In this study, 10% of the copepods were dead upon going through the plant, 50% died within 3.5 days, and 70% within 5 days. As the applicants have shown that immediate mortality at Unit 1 is higher than for the study referred to (from 23-30% for the dominant species versus 10%) and exposure time to high temperatures is an average of twice as long for Units 2 and 3 as for Unit 1, it is reasonable to assume that delayed mortality rates from Units 2 and 3 would be significantly higher than 70%. Even the Carpenter-Peck-Anderson study has significant faults in that it does not study larval forms and it therefore may underestimate the adverse impact on the marine environment.

Even if a conservative estimate of 70% mortality is assumed, this would be a substantial adverse effect on the marine environment. Every day, 70% of the zooplankton within a volume of water a mile square and 14 feet deep could be killed by the operation of Units 1, 2, and 3. As all of the units draw water from relatively nearshore, the most productive area, the effect will be substantial, adverse, and inconsistent with Public Resources Code, Sections 27001, 27302(a), 27302(b), 27302(c), 27402(a) and 27402(b).

But even if the impact were not so substantial, the cooling system has not been designed with any significant effort made to minimize its impact on plankton entrainment. Exhibit A shows that zooplankton and phytoplankton entrainment would likely be reduced substantially by locating the intake ports at a depth of 40 meters or more rather than the 6 meters proposed. Although this would result in more of the ocean bottom being disrupted by the laying of the conduits, the applicants have asserted that the impact to benthic organisms would be temporary and the organisms would rapidly reestablish themselves.

The applicant's analysis of salt water cooling towers, which (as an alternative to single-pass cooling) would have much less impact on the

on the marine environment, is also inadequate. The substantial differences in the information submitted to the AEC and to the Commission concerning the amount and deposition patterns of salt drift from the towers is difficult to reconcile. The applicants told the AEC that a drift rate of .001% could be expected and deposition rates would vary between .05 to .3 pounds of salt/ft²/yr. within 3 miles of the site. The applicants have submitted to the Commission estimates of drift rates of about .001% and deposition rates of between 2.65 to 52.76 grams of salt/m²/month which convert to .006 to .13 lbs/ft²/yr. The changes in deposition rates do not appear to correspond to the reduction in drift rate and the Commission has received no information reconciling the difference. At no time have the applicants made any studies to determine the natural salt deposition rate from the ocean, so the significance of the drift rate could be evaluated. Based on discussions with personnel from a Florida utility, the applicants have said that the two are of the "same order of magnitude." Staff discussion with Bureau of Sport Fisheries and Wildlife personnel who have considered the Florida situation show an estimate of drift that is at most a few per cent of natural deposition rates. The Commission's staff has also been informed by one manufacturer of cooling towers that the manufacturer would guarantee a drift rate of only .001%, lower than the applicants' estimate by a factor of 4. However, until a reasonable estimate of the natural salt deposition rate is determined, there is no way to determine the impact of salt drift and therefore no way to evaluate whether cooling towers are the best alternative to minimize the impact to the marine environment of power plant cooling systems.

To approve the proposed project when there are known ways to minimize the impact of the project (such as locating the intake ports at greater depth) and when not even minimal effort has gone into analyzing other alternatives such as cooling towers, would be inconsistent with Public Resources Code, Sections 27001, 27302(a), 27302(b), 27302(c), 27402(b), and 27402(c).

3. Entrapment and Mortality of Fish During Normal Plant Operation. Fish as well as plankton will be entrained in the cooling system. If not removed and returned to the ocean in a healthy condition, they too will be killed. The AEC estimated that between 28,000 and 142,000 lbs. of fish would be killed per year from normal operations depending upon the effectiveness of the fish return system. No fish return system is operating or planned for Unit 1 and the AEC estimated that 30,000 lbs. of fish per year are already being killed by that unit. The applicants claim, on the basis of small-scale experiments conducted at another generating station, that the effectiveness of the fish return system can be estimated at 70-80%. The information submitted to the Commission on these tests indicate that the results are promising (3 of the species tested showed a return rate of 95-99%, 100%, and 100% respectively), but no information was submitted to the size of fish tested or the results of the tests on the other two species tested. On the basis of this sketchy information it would appear that the impact on fish would not be substantial if Unit 1 were also fitted with a fish return system and the intake ports were increased in size to reduce the velocity of water entering the cooling system to make sure the juvenile fishes could escape the current created. Given the applicants' inadequate study of cooling towers, which would minimize the impact on fishes, not to minimize the impact in such a manner would be inconsistent with Public Resources Code, Sections 27001, 27302(a), 27302(b), 27302(c), and 27402(b).

4. Elimination of Mortality of Fish During Heat Treatment. If, for 6 weeks, the water in the cooling system will be heated to 125 degrees F. to remove marine organisms growing within the system. These elevated temperatures will kill virtually everything unincubated within the system. It is expected that between 11,000 and 20,000 lbs. of fish may be killed per year in this manner. The procedure does not comply with the standards established by the State's Thermal Plan and a variance from these standards was requested by the applicants. A variance was granted, but will not become effective until studies are conducted over the next 3 years to determine if it is the least environmentally destructive method of controlling marine growths within the cooling system. Until these studies are completed, no finding can be made that it is the least destructive method.

5. Thermal Discharges. Although there has been considerable speculation recently about the significance of thermal pollution from individual plants, until the scientific issues are definitively resolved every attempt should be made to minimize such discharges because of the potential cumulative impacts involved. The magnitude of the cumulative impact of power plants alone along the California coast in 1980 has been estimated by Dr. Douglas Inman of Scripps in a recent article:

"...coolant will be used at the rate of 1.2×10^{10} calories per second, and this is equivalent to the heating of a flow of about 15,000 m^3 of seawater per second by $1^\circ C$. This flow is equivalent to one-half of the estimated average flow over the California shelf, and is 10^{-3} of the total flow of the California current, which is one of the ocean's permanent current systems." (Inman and Brush, "The Coastal Challenge," *Science*, July 6, 1979, Vol. 101, p. 20, 20).

A. State Thermal Standards. Until an analysis is done that can show that such large-scale impacts will not be adverse, then every effort should be made to minimize thermal discharges. The state Thermal Plan adopted by the State Water Resources Control Board and accepted by EPA establishes minimum thermal discharge standards that must be met by the project. Among the standards imposed is a requirement that the temperature of the discharge water not exceed the temperature of the "receiving" waters by more than 20 degrees F. However, due to the fact that the intake point for the cooling system is located offshore at a depth of 20 feet and the diffuser ports are at depths of 20 to 40 feet, there may be a difference in temperature of about 6 degrees F between the ocean water at the intake and portions of the diffuser (Exhibits 5, 6). Because the applicants plan to operate the plant with a 20 degree F increase in temperature across the condensers, the temperature of the discharge waters may therefore be 26 degrees F higher than the receiving waters—clearly violating the Thermal Plan standards (Exhibit 7). To meet these standards will require either reducing the power of the reactors or redesigning the cooling system. Reducing the power of the plant reduces the only justification for the project, and it would be clearly a violation of the Coastal Zone Conservation Act to approve the project until at least the minimum water quality standards of the Thermal Plan are met.

B. Federal Thermal Discharge Act (PL 92-110) require effluent limitations which shall require the application of the best practicable control technology currently available" to minimize thermal discharges. It would appear that this may require the use of closed-cycle cooling towers, since they are presently in use, they minimize thermal discharge, and a consultant to EPA has recommended this solution (See Exhibit 3). The proposed project does not utilize this cooling system but instead uses single pass cooling which does not minimize thermal discharges. The Federal Water Pollution Control Act does contain an exception procedure if the discharger can show that the proposed non-complying discharge will "assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on that body of water" into which the thermal discharge will occur. Although EPA has not yet issued its regulations interpreting the provisions, the AEC concluded that "the heated water will result in changes in the species composition in the vicinity of the outfall; but no general ecological changes are expected" (AEC EIS p.i.). Regardless of the fact that "no general ecological changes are expected" according to the AEC, the language of the statute would appear to preclude any changes in the characteristics of the existing indigenous species. If such an interpretation is adopted by EPA, it would mean that the proposed cooling system would not comply with federal water quality standards.

The same Act also requires that "the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." Although EPA has not yet issued regulations interpreting this section, it would appear that the proposed cooling system would not meet this standard. The intake structures were primarily designed to meet only the State's Thermal Plan, with additional attention being paid to reducing the amount of fish killed. If the intake structures were extended far offshore, it would be possible to minimize the impact of plankton entrainment as well as the thermal impact. The applicants have contended that this would require much more extensive dredging for the conduits and therefore have more of an adverse impact. However, this contention is hard to reconcile with another contention of the applicants that the proposed disruption of 32 acres of the ocean bottom will only have a temporary and insignificant impact because the benthic organisms will rapidly re-establish themselves. The applicants' inadequate analysis of cooling towers, which would further minimize thermal discharges, has already been discussed.

Although conformity with the provisions of the Federal Water Pollution Control Act will not be definitively resolved until EPA issues its regulations, an issue is clearly raised that has not been adequately answered, since the applicants have not designed the project with the objective of minimizing thermal discharges.

6. Impact on Kelp Beds. The growth of this bed is of particular scientific value; beds have deteriorated. It is also a marine resource that is commercially harvestable and which provides a habitat for various fish and other marine organisms. Any substantial harm to the kelp bed would constitute a substantial adverse impact inconsistent with the Act. Such an impact could occur through excessive heat or turbidity.

An issue has arisen, however, as to the location and potential growth of the kelp bed. The applicants contend that it is 2,000 feet away from the nearest diffuser, that turbidity from construction of the diffuser would not have any significant effect on the bed, that heat from the diffusers would only have an insignificant effect on it, and that the ocean bottom between the bed and the nearest diffuser is not suitable for kelp, so the bed should not be expected to expand in the direction of the diffuser.

But a marine botanist at San Diego State University, D. Craig Barilotti has also surveyed the kelp bed, and he found it to be within 600-700 feet of the nearest diffuser. The instruments used by the applicants to locate the bed are much more accurate than the survey method used by Mr. Barilotti, but this cannot account for the substantial differences in location. The only plausible explanations for these differences are: (1) the map supplied to Mr. Barilotti by the applicants is in error, or (2) Mr. Barilotti and the applicants used different definitions of what to measure as the boundary of the kelp bed. Based on staff communication with Mr. Barilotti, (Exhibit 9) it appears that the latter explanation is quite probable—that the applicants measured the edge of the densest portion of the bed while Mr. Barilotti measured scattered plants on the assumption that with a growing bed, its extent should be measured by its extremities. Until this matter is resolved by mapping by an independent, qualified source, such as the State Department of Fish and Game or the Bureau of Sport Fisheries and Wildlife, no finding can be made as to whether there would be a substantial impact on the kelp bed. The diffusers could be located in a way as to minimize their effect if such a mapping were done using the extent of ocean bottom that is suitable for kelp as a definition for the potential boundary of the growing bed.

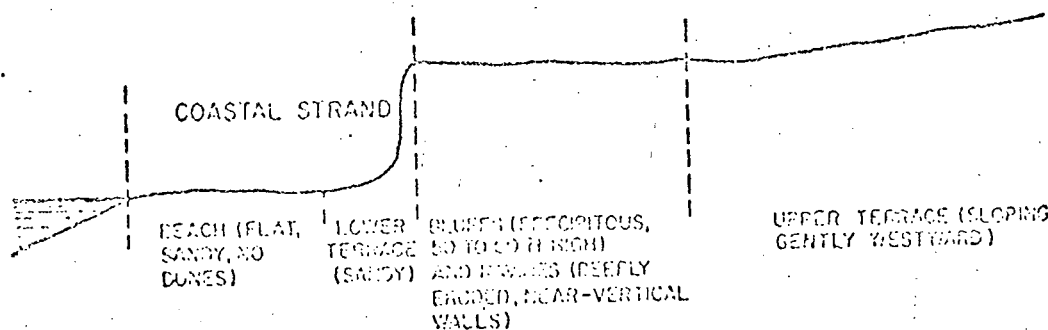
7. Alternative Nuclear Technology. The proposed plant would utilize a type of light water reactor (LWR) called a pressurized water reactor (PWR) which is only about 33% efficient. That is, only 33% of the energy generated is converted into electricity and the rest must be discharged to the environment in the form of heat. This necessitates large cooling systems that have substantial effects on the environment. A high temperature gas reactor, however, is about 39% efficient. This means that much less heat is discharged to the environment, and the associated impacts, such as entrainment of marine organisms or salt drift, depending upon the type of cooling system, are reduced because less water is required (See Exhibit 10). The applicants claim that a change to HTRs would result in a cost of \$60 million in contractual claims on the equipment that has already been ordered. Even if it is assumed that such claims are substantiated, this would only amount to about 4.3% of the cost of the project. Moreover, any such liabilities were incurred before a license was obtained from the AEC indicating that the applicants were simply willing to take a large risk. The applicants claim that such a change-over would also necessitate a four-year delay in the project. This appears to be an unduly pessimistic estimate as SCE plans to have an HTR installed in a desert site by 1982. Because the site at San Onofre has already been approved by the AEC, extensive regulatory delays should not be expected. And it appears likely that litigation over this project under both federal

and state legislation could delay this project into the 1980s in any event, so a realistic estimate of delay time between use of an HTR and the proposed FWR would not be substantial. The applicants also claim that while the HTR is much better for inland sites because of the 30% savings in water use, the improvement is not significant when single pass cooling is used (See Exhibit 11). However, if the savings in cooling water required is essentially the same for single pass cooling, then in terms of plankton entrainment and mortality and thermal pollution, the improvement would be substantial. Because cooling towers may be required under the Federal Water Pollution Control Act, such a change would also substantially reduce salt drift.

Approval of the proposed project without utilizing available technology that would significantly minimize the environmental impact of the project would be inconsistent with Public Resources Code, Section 27001, 27302(a), 27302(b), 27302(c), 27402(b), and 27403(c).

C. Recreational Impacts. Construction of the project would require a 3-month closure of 1,800 feet of public beach and a 6-year closure of 1,000 feet of public beach. It would result in permanently converting 52 acres of bluff and canyon area into an industrial site. The AEC notes that 4.3 acres of "coastal strand" would be permanently lost. The AEC makes a distinction between "ravines" and the "coastal strand", as shown in the following table and diagram, and therefore it must be assumed that a portion of the 4.3 acres of coastal strand to be destroyed is beach area.

	<u>Acres</u>		
	<u>Before</u>	<u>After</u>	<u>Change</u>
Coastal strand	7.3	3.0	-4.3
Bluffs and ravines	5.5	0	-5.5
Coastal sage	9.5	0	-9.5
Grasslands	4.0	0	-4.0
Disturbed areas	10.2	0	-10.2
Unit 1	28.6	28.6	0



With the tremendous rate of population increase in the southern portion of Orange County and northern San Diego County, and the shortage of land available for recreation, destruction of ocean front land usable for recreation would be inconsistent with the Act if any other alternatives exist. The site is eminently suited for recreation by virtue of its scenic beauty, and its proximity to the ocean and adjacent state beach parks. That other alternatives are available is evident from the discussion below.

D. Alternatives to the Project. There are many alternative nuclear power plant sites in California; some are in the coastal zone and some at inland locations. The two independent statewide studies that have been completed on nuclear power plant siting in California (See California Resources Agency, Energy Dilemma, and Goldsmith, Siting Nuclear Power Plant in California--See Exhibits 3 and 12 for excerpts), show not only many alternative sites, but many sites that are preferable to San Onofre in terms of general environmental and safety considerations. Even at San Onofre, it is obvious that a preferable location for the project would be east of the freeway, so that the bluffs and canyons would not have to be destroyed.

The applicants agree that other sites are available, but contend that another plant could not be put into operation by the time San Onofre Units 2 and 3 are scheduled to produce electricity. The applicants assert that Unit 2 is now scheduled to begin generation in 1979 and Unit 3 in 1980, and that if any delay is encountered, the capacity will have to be made up by air-polluting fossil fuel plants (Exhibit 13).

Either way, however--that is, with San Onofre Units 2 and 3 or without them--electricity will have to be generated by fossil fuels for several more years, until the end of the decade at least. So construction at San Onofre would not, under the best of circumstances, solve immediate energy problems.

Moreover, there is strong reason to doubt that the plants could be in operation as early as 1979 or 1980. Litigation growing not only out of opposition to San Onofre Units 2 and 3 (which has been expressed before this Commission and before the AEC), but also out of general legal questions as to the AEC's safety regulations governing nuclear power plants, and national environmental legislation applicable to power plants could well delay operation of the plant. While nobody can predict the length of time such litigation might require, certainly it is possible that operation of Units 2 and 3 could be delayed until well into the 1980's. It thus appears that there is time to consider reasonable alternatives.

One reason it takes time to gain approval of nuclear power plants is that the approval of many governmental agencies is needed. Clearly, when power plants are designed to eliminate (or at least minimize) questions of safety or damage to the environment, the time to gain approval will be shortened. Conversely, when a power plant is proposed for a site such as San Onofre--with destruction of coastal bluffs and canyons, with unresolved questions of effect on the marine environment, and with location of a major nuclear plant close to a rapidly-urbanizing area and a fault--it can come as no surprise that delays are encountered in gaining governmental approvals. It seems utterly clear from Exhibits 3 and 12 that plants can be located in areas that avoid most of these problems and thereby avoid regulatory delays. During the past two years, the research and development budget for Southern California Edison Co. shows only \$361,000 for an item "siting new facilities"--that is only 1% of the total research and development budget and only .026% of the cost of this project. If more attention was initially spent in developing sites without environmental problems, the regulatory delays they claim to experience would be minimized.

Even if the applicants' contentions as to the effects of delay are assumed to be correct, the Commission could, under the law, consider them only if it found that the known environmental effects on the coastal zone of denial would

be so substantial and adverse as to outweigh the permanent destruction of the bluffs and canyons at the site and the likelihood of substantial adverse effects to the marine environment over the 30-year life of the project. Because it is clear that there are sites available for alternative nuclear power plants, any impact on air quality would be of short duration. Whether there would be any impact and the extent of that impact is also largely within the control of the applicants, depending as it does on the care that they exercise in picking sites that minimize environmental and safety issues, their air pollution control expenditures, their pursuit of alternative clean forms of energy and their energy conservation programs. Under these circumstances, it is not possible to find that such considerations outweigh the immediate and long range adverse effects of the project.

It can be argued that San Onofre is a desirable site because it is less expensive than some of the alternatives. But one reason San Onofre is expensive is that the public—not the applicants—is asked to accept the loss of irreplaceable scenic bluffs and canyons, and to accept needless damage to the marine environment.

President Nixon has recently encouraged development of nuclear facilities and has directed the AEC to try to reduce the lead time on such plants from the present 10 to 6 years. It appears reasonable, therefore, to assume that other projects could be developed within a reasonable period. Even assuming that the President's directive is unduly optimistic and that a more realistic estimate may be about 7-7.5 years, this is not an unreasonable time compared to the schedule for the proposed project.

This is particularly true for a redesigned project east of the freeway at San Onofre. The land is owned by the Federal Government, which has already granted the applicants the use of a site at the ocean's edge, and the use of 125 acres east of the freeway for a fill disposal site. In addition, the AEC has already considered the general area. Under these circumstances, and particularly after the President's statement, it is hard to believe that a site across the freeway would not be made readily available.

From an environmental standpoint, and assuming that radiation safety issues are preempted by the Federal Government, it would appear that a redesigned project at San Onofre that contained the following major elements would meet the requirements of the Coastal Zone Conservation Act:

a. Reduce the impact on the bluffs and canyons by:

- (1) Placing the reactor units east of the freeway.
- (2) Placing the cooling system conduits through the southern portion of the Unit 1 site that has already been excavated and is now used for storage and transportation facilities.

b. Reduce the adverse impact to the marine environment by:

- (1) Utilizing high temperature gas reactors which are more efficient and require less cooling water, thereby reducing the significance of plankton entrainment and thermal discharges.
- (2) Redesigning the cooling system to either place the intake ports at a depth greater than 40 meters or use of closed-cycle cooling towers, after

study to determine the relative merits of each, to reduce the effects of plume entrainment and thermal discharges.

(3) Placing the intake and diffuser conduits to the cooling system in a manner that clearly avoids substrate suitable for kelp.

(4) Incorporating Unit 1 into the planned fish-return system to reduce the amount of fish needlessly destroyed in the area.

(5) Expanding the marine environmental monitoring program to evaluate adequately the impact of the project on marine biota, including continuous input into the program design, data collection, and data evaluation phases by state and federal agencies and other independent sources with expertise in marine biology with a view toward eliminating the flaws in the previous studies and minimizing any remaining impacts.

E. Nuclear Safety. Many complex questions of nuclear safety have been raised before the Commission, and experts disagree over their significance. Among the issues raised are:

1. The ability of the AEC to contain nuclear wastes and prevent their contaminating the environment for thousands of years.

2. The adequacy of the emergency core cooling systems, which have yet to be tested under accident conditions and which will not be so tested until the loss of coolant test (LOFT) are completed within the next few years.

3. The adequacy of AEC siting criteria that allow projects to be built near densely populated areas and earthquake faults when alternative sites exist.

4. The adequacy of AEC regulations that appear to make no provisions for increases in population near a plant after it has been licensed.

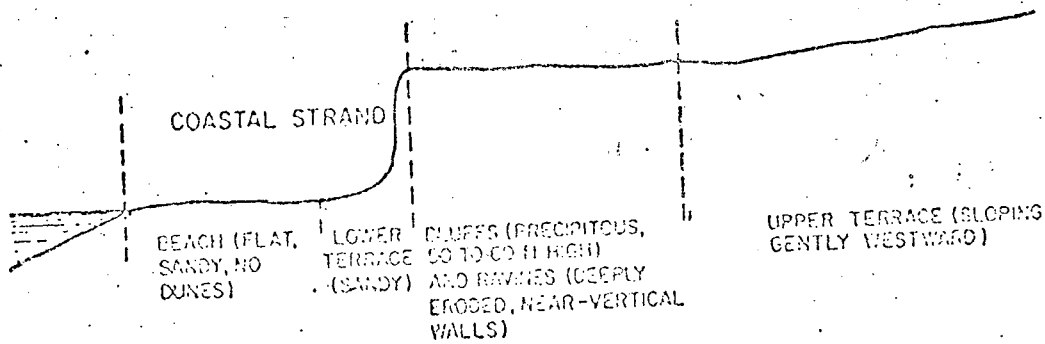
5. The ability of nuclear plants to withstand major earthquakes when earthquakes are not yet sufficiently understood.

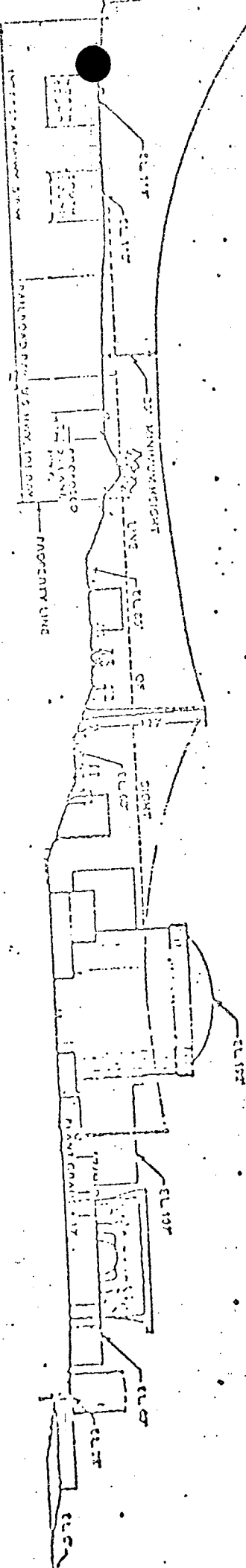
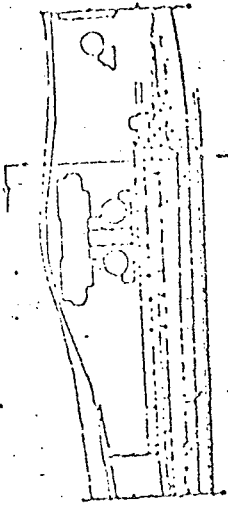
6. The desirability of locating Units 2 and 3 next to another older unit that was not built to earthquake standards as stringent as those imposed upon Units 2 and 3.

7. The adequacy of nuclear insurance.

The considerations described above relate primarily only to potential radiation hazards of the proposed plant. The Commission has been advised by the Attorney General's Office that Congress, in enacting the Atomic Energy Act, appears to have vested the Federal Government with exclusive authority for the regulations and control of radiation hazards from nuclear power plants and hence the State of California would be preempted from regulating and controlling such hazards. Therefore, the Commission will not consider such hazards in determining whether to issue a permit for San Onofre Units 2 and 3 and makes no findings with respect to any of these issues.

PA
Comment





SAN ONOFE
NUCLEAR GENERATING STATION
UNIT 2 EXTERIOR AND
SURROUNDING AREA
INTERIOR VIEW
Figure 3-1-1

State of California

The Resources Agency

ENERGY DILEMMA

CALIFORNIA'S 20-YEAR POWER PLANT SITING PLAN

June 1973

Prepared and coordinated for the Resources Agency
by the Department of Water Resources
William R. Gianelli
Director

Norman B. Livermore, Jr.
Secretary for Resources

Ronald Reagan
Governor of California

Note: This map is a summary of available information of optimum and other regions. The word "optimum" is used in the context of the map and is not intended to imply that the optimum region is the only region in which a seismic hazard may be expected. The probability of seismicity and its magnitude is shown in the more favorable areas.

NOTICE

Maps utilized in this compilation involved considerable subjective interpretation in their preparation. The designation of optimum areas in no way reduces the need for detailed site investigation.

- POSSIBLE**
- Seismic Zone II
Maximum probable bedrock acceleration more than 0.3 g but no more than 0.5 g
- SPECIAL CONSIDERATION**
- Seismic Zone III
Maximum probable bedrock acceleration exceeds 0.5 g OR near faults currently classified as "active" or "possibly active". This area includes many geologically suitable sites which are too small to indicate on a map of this scale.

- MOST FAVORABLE**
- Seismic Zone I
Maximum probable bedrock acceleration 0.1 g or less
- FAVORABLE**
- Seismic Zone II
Maximum probable bedrock acceleration more than 0.1 g but no more than 0.3 g

- FAULTS WITH RECORDED SURFACE RUPTURE DURING HISTORIC TIMES, SINCE 1700.
- FAULTS WHICH APPEAR TO DISPLACE QUATERNARY ROCKS OR DEPOSITS.
- OTHER FAULTS, SOME OF WHICH MAY BE ACTIVE, DASHED WHERE APPROXIMATELY LOCATED, DOTTED WHERE CONCEALED.

Areas Restricted Due To Population

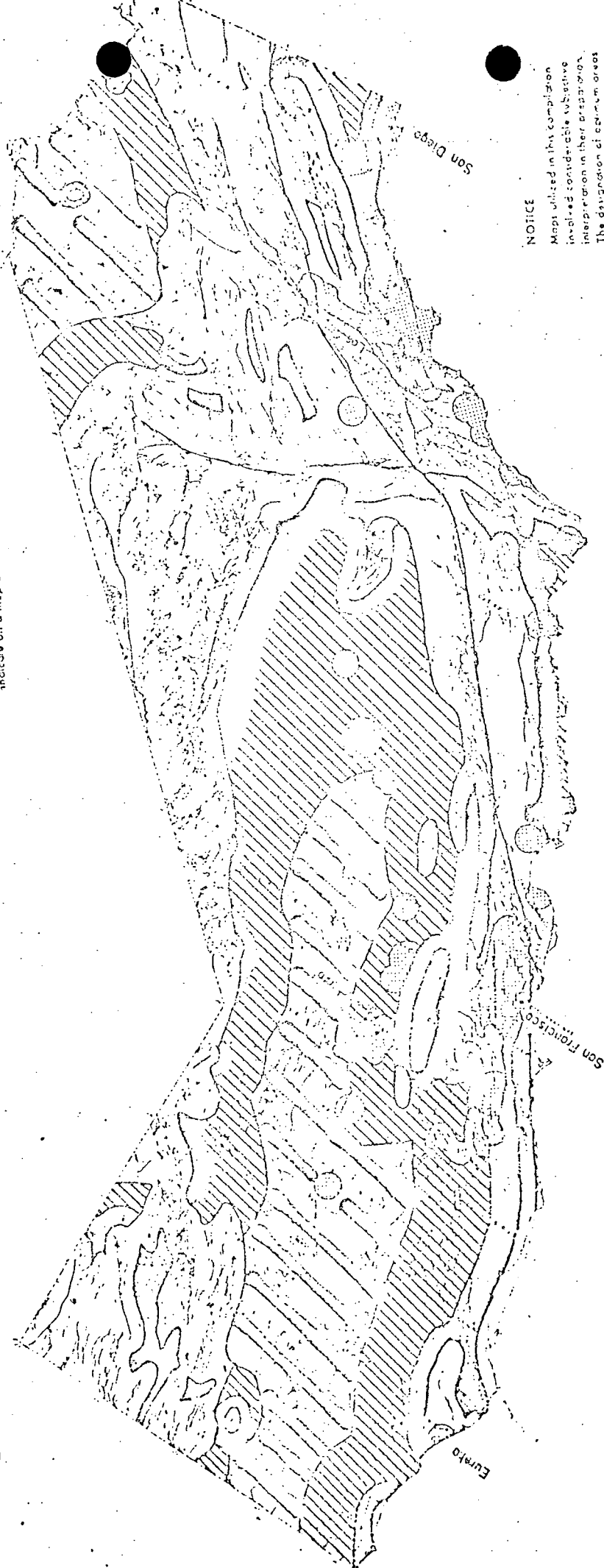


FIGURE 4. OPTIMUM AREAS FOR LICENSABILITY
(based on seismicity and population)

Map prepared by the California Department of Water Resources using the following sources: California Division of Mines and Geology, "Seismicity of California, 1977-1978," "Seismicity of California, 1979-1980," "Seismicity of California, 1981-1982," and "Seismicity of California, 1983-1984." (Copyright 1984 by the California Department of Water Resources)

INSTITUTE OF MARINE RESOURCES

POST OFFICE BOX 109
LA JOLLA, CALIFORNIA 92037

November 19, 1973

Mr. Frank Broadhead
California Coastal Zone
Conservation Commission
1540 Market Street
San Francisco, California 94102

RECEIVED

CALIFORNIA COASTAL
CONSERVATION COMMISSION

Dear Mr. Broadhead,

RE: Questions on the best position
to locate cooling water intakes
at San Onofre in order to mini-
mize zooplankton entrainment

The present San Onofre intake appears to be situated in the middle of a zone from 16 to 30 feet (5 to 10 meters) in depth, inhabited by mysids and other forms of zooplankton associated with, but above the bottom (hereafter called "hypoplankton"). The precise onshore-offshore limits of this zone off San Onofre have not been established because hypoplankton in this area were never measured. Extrapolating from the distributions determined by Clutter (1963) from the ocean between La Jolla and Del Mar, California, this zone might be from 1500-5000 feet (500-1500 meters offshore). The water above this zone also contains some of the highest abundances of other types of zooplankton found in the area (types not associated with the bottom).

The best possible solution to the zooplankton entrainment problem is to situate the intake coffers farther offshore and deeper. My most complete information of the vertical distribution of zooplankton and phytoplankton to date are from a station in 50 meters of water located two miles off Del Mar. The samples were taken during the days and nights of 24-25 July 1971. The data indicate that most phytoplankton and zooplankton are found at depths between 15 and 90 feet of water (5-30 meters). The plankton are about 5 to 10 times more abundant above 90 feet (30 meters) than below it. Other samples are available which show the same general distribution applies off Ocean-side, California, in the spring and summer where the lower abundances of zooplankton and phytoplankton were slightly deeper at 120 feet (40 meters). Thus, zooplankton (and phytoplankton) entrainment would be reduced very significantly by locating the intakes at a depth at least below 120 feet. The deeper water zooplankton which may be entrained and re-introduced to the environments nearer to shore would

Mr. Frank Broadhead
November 19, 1973

Page -2-

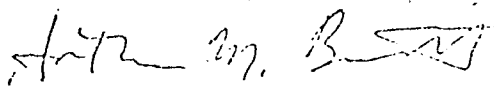
not present a problem because these organisms are sometimes advected into the nearshore areas by natural upwelling processes and appear to cause no detrimental ecological effects (at least in the area off Scripps Institution of Oceanography, La Jolla, California). Waters containing higher concentrations of nutrients may also be introduced to the shallower areas as a result of entrainment, but this might prove beneficial toward increasing the productivity in the area.

The continental shelf is wider at San Onofre than at most other locations between Los Angeles and San Diego. However, depths over 100 feet (33 meters) are found about 2.5 miles from shore while depths over 150 feet (50 meters) are found about 3 miles from shore. There are no submarine canyons within the areas 5 miles to the northwest or southeast of San Onofre. (This information was obtained from U.S. Coast and Geodetic Survey Chart 5101.)

Since other factors such as installation, maintenance, etc., must be considered, compromises as to the installation of the intake may have to be made. So I will offer my recommendations regarding the desirability and mandatory monitoring of various alternatives in the enclosed table.

Also enclosed is a copy of the cover letter sent to Marine Biological Consultants, Inc., with my report on the zooplankton off San Onofre entitled "Zooplankton - Existing Conditions and Predicted Thermal Effect". This letter also may help to answer your question.

Sincerely yours,


Arthur M. Barnett

AMB:jw

Table of the alternatives in the location of intake ports at SONGS.

Location of Intake Ports	Desirability from the standpoint of zooplankton	Relative Consequences	Necessary Monitoring
Same distance offshore as present intake.	Least	High mortality of hypoplankton* High mortality of zooplankton**	Distribution, abundance, and mortality of hypoplankton. Abundance and mortality of zooplankton
Intake ports offshore of major hypoplankton zone, but shallower than 120 feet (40 meters)	Compromise	Low mortality of hypoplankton High mortality of zooplankton	Distribution and abundance of hypoplankton (through times to be sure intake ports are out of the zone) Abundance and mortality of zooplankton
Intake ports below 120 feet (40 meters)	Most	Low mortality of hypoplankton Low mortality of zooplankton Some introduction of deeper living zooplankton inshore Introduction of nutrients inshore	Abundance and mortality of zooplankton

*mysids, amphipods, harpacticoid copepods, etc.

**copepods, cladocerans, larvae of benthos, etc.

Arthur Barnett
Dept. 100
Univ. California,
San Diego
La Jolla, Calif. 92037

19 March 1973

Mr. Charles T. Mitchell
Marine Biological Consultants, Inc.
967 Rees Hall St.
Costa Mesa, California 92627

Dear Mr. Mitchell,

The objective prediction of the effects of the addition of proposed SONGS Units 2 and 3 on the zooplankton is completed and hereby presented. Much of the predicted SONGS mortality could be alleviated by moving the intake screens farther offshore so that they draw water in from depths below 30 m where the zooplankton and the mysids in particular, are in lower abundance. Most of the zooplankton inhabiting these depths below 30 m are those belonging to the coastal and neritic macroplankton group (e.g. *Calanus helgolandicus*) which have made widespread migrations to draw upon to counter any additional SONGS mortalities.

A second way of reducing zooplankton mortality would be by having fewer and larger diffusion ports to reduce the entrained water and placing their openings near the surface (above 5 m), so that entrainment mortalities might be kept to a minimum. However, it is realized that since a main objective is to keep the plume temperature low, the diffuser ports may be deeper.

Sincerely yours,

Arthur Barnett

AB:jw

*entrained in this letter refers to the ambient water dragged toward and mixed with the hot water leaving the diffuser ports. 10

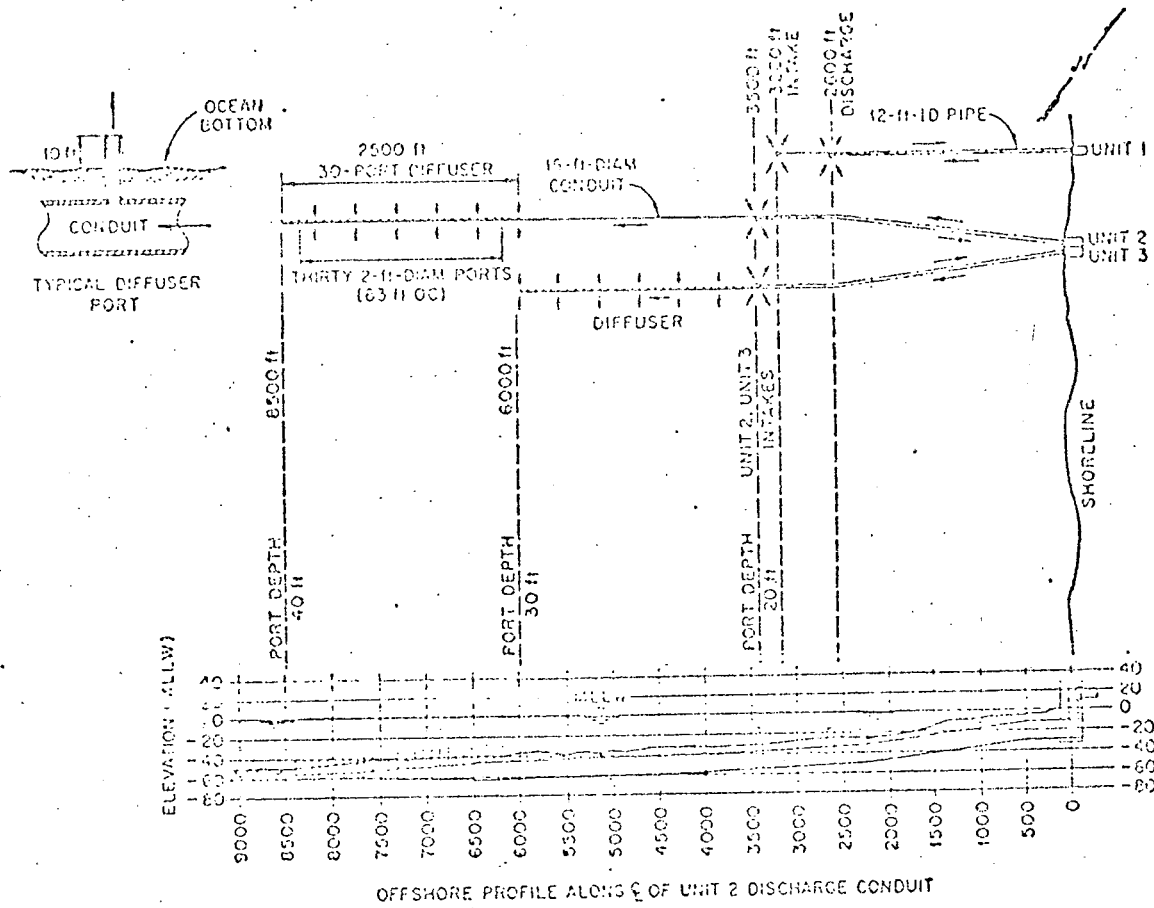
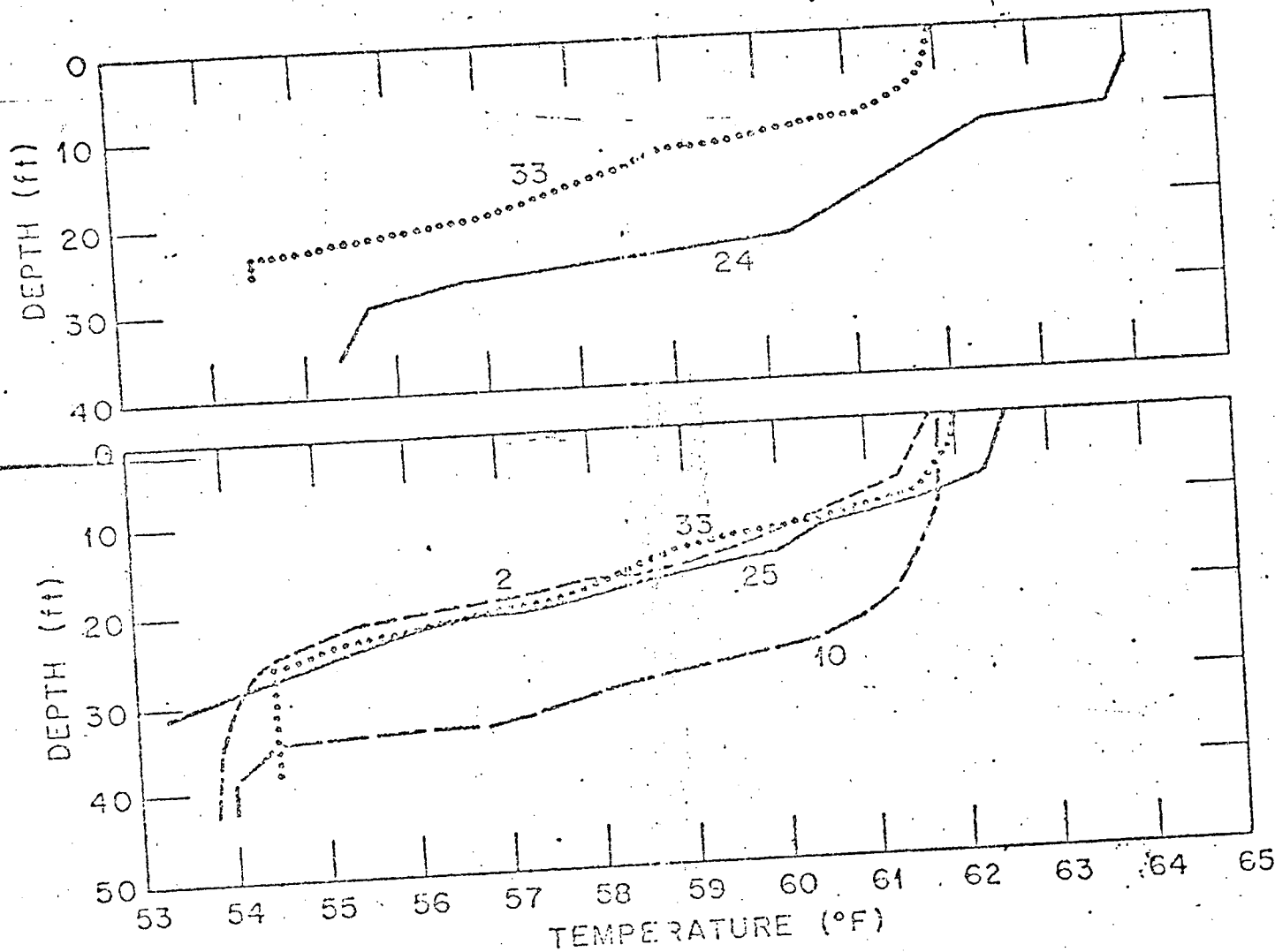


Fig. 3.12 Undersea conduits and diffusers. (From ref. 6).



3-25

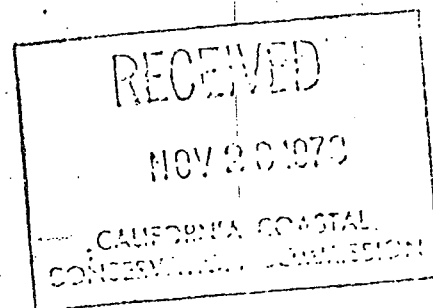
Fig. 3.19. Summertime vertical temperature distribution in the Pacific Ocean near San Onofre determined by mechanical bathythermograph during Unit 1 operation. (See Fig. 3.18. for chart of location). (From ref. 8).

Memorandum

Mr. Joe Bodovitz, Executive Director
California Coastal Zone Conservation Commission
1540 Market Street
San Francisco, CA 94102

Date

NOV 27 1973



From : STATE WATER RESOURCES CONTROL BOARD

Subject: "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" adopted by the State Water Resources Control Board on May 18, 1972.

Your staff in connection with review of the San Onofre appeal has requested an interpretation of the subject Plan as it relates to measurement of allowable temperature increase from thermal discharges. The precise language of the portion of the Plan in question provides: 3. B. (3) "The maximum temperature of thermal waste discharges shall not exceed the natural temperature of receiving waters by more than 20° F." This portion of the Plan clearly requires that the maximum temperature of the waste discharge shall not exceed the natural temperature of the receiving water by more than 20° F. Compliance must be measured by the difference between the temperature of the waste discharge and the temperature of the receiving water.

R. Walsh
Raymond Walsh
Special Assistant to
the Executive Officer

DRAFT

DEVELOPMENT DOCUMENT FOR
EFFLUENT LIMITATION GUIDELINES
AND STANDARDS OF PERFORMANCE

STEAM ELECTRIC POWERPLANTS

Prepared by:



Burns & Roe, Inc.
Paramus, N. J.

For:



Effluent Guidelines Division
Office of Air & Water Programs
U. S. Environmental Protection Agency
Washington, D. C.

Arnold B. Vernick, PE
Project Manager

Dr. Charles R. Nichols, PE
Project Officer

John L. Rose, PE, Chief
Environmental Engineer

Allen Cywin, PE
Director

Henry Gitterman, PE
Director, Environmental
Engineering

June, 1973

CONCLUSIONS

For the purpose of establishing effluent limitation guidelines and standards of performance for the steam electric powerplant industry, it has been found that separate consideration must be given to chemical-type wastes and to thermal discharges originating from such plants, and these are therefore discussed in separate parts of this report.

Categories for establishing guidelines for chemical-type wastes have been based on the types of waste streams generated in each plant, which in turn are dependent on fuels used, processes employed, plant site characteristics and waste control technologies. Categories for chemical-type wastes include wastes from the water treatment system, power cycle system, ash handling system, air pollution control system, coal pile, yard and floor drainage, condenser cooling system and miscellaneous wastes.

Categories for guidelines for thermal discharges include a basic division of the industry into units using closed condenser cooling systems and those using open, once-through cooling. For the latter, the industry is further sub-categorized by fuel into nuclear and fossil-fired units, and the fossil-fired units by operating mode into base load, cycling and peaking units. An additional sub-categorization for fossil-fired units was based on age of facilities. Separate consideration has been given to the study of minimizing adverse impact of cooling water intake structures as mandated by the legislation governing the establishment of effluent limitation guidelines. The results of this study are set forth in Part C of this report.

A survey of current industry practices has indicated that many plants provide only minimal treatment of chemical-type wastes at the present time, although some of the more recently constructed plants employ elaborate reuse and recycle systems as a means of water resources management. Current industry practice as far as thermal discharges are concerned is that they have been successfully controlled where required by water quality standards, or at sites where the lack of sufficient natural streamflow made once-through cooling systems impractical.

Current treatment and control technology in the general field of waste treatment includes many processes which could be applied by powerplants to reduce the discharge of chemical pollutants. It is therefore concluded that best practicable

NOTICE: THESE ARE TENTATIVE RECOMMENDATIONS BASED UPON INFORMATION IN THIS REPORT AND ARE SUBJECT TO CHANGE BASED UPON COMMENTS RECEIVED AND FURTHER INTERNAL REVIEW BY EPA.

control technology currently available consists of the treatment of chemical-type wastes to achieve significant reductions in the level of pollutants discharged from existing sources. It is also concluded that best available technology economically achievable for chemical-type wastes consists of no discharge of pollutants, resulting from an integrated system of water resource management which provides for the multiple reuse of water in uses having descendingly stringent water quality requirements. Standards of performance for new sources will provide for no discharge of chemical-type pollutants.

For thermal effluents, it is concluded that technology is currently available and is utilized in the industry to achieve any desired or necessary degree of reduction of the thermal component of powerplant discharges, including the complete elimination of thermal discharges. Best practicable control technology currently available consists of evaporative cooling devices such as mechanical draft cooling towers. However, the application of this technology to existing sources may involve both economic and technical problems. The economic problems relate to the fact that costs for applying this technology may vary widely with geographic location, land value, meteorological site characteristics, plant layout and process design factors. Technical problems relate primarily to the effects of evaporative cooling devices on atmospheric conditions, and the increased consumptive use of water at a particular site.

It has been concluded that subject to an evaluation of individual economical and technical factors, application of the best practicable control technology could be achieved by all nuclear units and by fossil-fired units operated in a base load mode which were either constructed after July 1, 1965, or which, as of July 1, 1977, have a scheduled remaining service life as base load units of not less than six years.

Best available technology economically achievable is also considered to consist of evaporative cooling devices. The elimination of thermal discharges could be applied to cycling units which, as of July 1, 1983, have a scheduled remaining service life in that mode of not less than six years. As part of the best available technology for chemical wastes, no discharge of pollutants from evaporative systems has been found to be feasible, thereby eliminating any thermal discharge from these systems.

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The cost of implementing the best practicable control technology currently available for chemical type wastes are estimated to vary from 0.04 mills per KWH for large size base load plants to 0.32 mills per KWH for medium size plants operating at capacity factors of about 0.35. Corresponding costs for best available technology economically achievable for the same plants are estimated to be 0.10 mills per KWH and 0.90 mills per KWH respectively. Base costs for implementing the best practicable control technology currently available for thermal discharges are estimated to be approximately 0.6 mills per KWH for plants under reasonably adverse meteorological conditions having a minimal remaining service life of six years as base load units. Base costs for plants under more favorable conditions and having longer remaining service life are proportionately less. Base costs do not include unusual site preparation conditions such as excessive rock excavation, dewatering or excessive real estate values.

Corresponding base costs for best available technology economically achievable for thermal discharges from cycling units under similar conditions are estimated to be approximately 1.0 mills per KWH. Costs for new source performance standards for both chemical wastes and thermal discharges are estimated to be somewhat less than corresponding costs for best available technology economically achievable as applied to existing point sources.

Specific guidelines have been developed relating to the location, design, construction, capacity and operation and maintenance of cooling water intake structures to reflect the best technology available. These guidelines will minimize the adverse environmental impact of cooling water intake structures. Estimates for implementation of cooling water intake structure guidelines on new intakes range from \$2 to \$4 per kilowatt of installed capacity above current costs. Costs for modification of existing intakes will be considerably higher, and consequently require wise administration and enforcement on an individual basis.

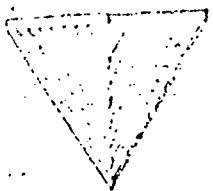
Plants subject to effluent limitation guidelines for thermal discharge will not be affected by guidelines for cooling water intake structures. Consequently, associated costs will not be additive. Plants experiencing the higher costs for chemical waste treatment will generally not be subject

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to the thermal effluent limitation guidelines, as the higher chemical waste treatment costs are experienced by the smaller plants with low utilization factors.

Consequently, it is concluded that the average national cost of producing electric energy will be increased by approximately 10 percent under present conditions to compensate for the requirements resulting from the adoption of the effluent limitation guidelines and standards of performance set forth herein.

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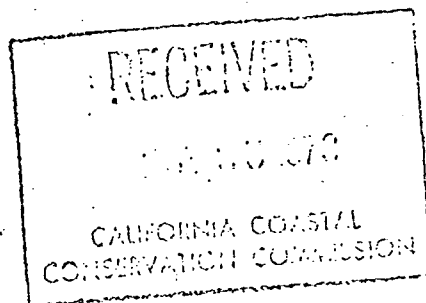
California State University, San Diego

5402 COLLEGE AVENUE / SAN DIEGO, CALIFORNIA 92115

DEPARTMENT OF BOTANY

November 21, 1973

Mr. Frank Brodhead
California Coastal Zone Conservation Commission
1540 Market Street
San Francisco, California 94102



Dear Mr. Brodhead:

Since my letter of October 15 several events have occurred that require me to modify my statements. In particular, I have determined the position of the kelp bed in front of the proposed units 2 and 3 at San Onofre, and I have had several conversations by phone with Mr. Ron Strachan of Southern California Edison. He has been most helpful.

On November 4 I determined the perimeter of the kelp bed of San Onofre by ground independent methods. My determination and map supplied by Edison are included for your information. My measurements were made with a sextant and hand held compass from a boat, and compass bearings from the land. On this map the diffuser system would be within 600-700 feet of the kelp bed. This proximity to the diffusers would put some of the plants in the bed within the 1000 foot limit allowed by law to be warmed 4°F above ambient. A result of being within the 4°F isotherm is that they would be killed directly by the cooling water during the warm summer months.

I was informed by Mr. Strachan by phone on November 14 that the map provided to me by Edison (map enclosed) was in error and that the kelp bed was closer to the diffusers than originally noted. Mr. Strachan also informed me that Edison had redetermined the position of the kelp bed on November 11, and that the bed was at the closest 1900 feet from the proposed diffuser system for units 2 and 3. Edison's measurements were made with a cubic auto-tape which can be very accurate (± 50 cm). Also, I have been led to believe that measurements were made under the supervision of a licensed civil engineer who signed a statement as to their validity.

The apparent discrepancy between my measurements and those of Edison may be due to several factors. If the map provided to me by Edison was off by about 2000 feet with regards to the location of the kelp bed, it may also be inaccurate with regards to both the location of structures presently on shore, and the location of the proposed diffusers for the hot water. Another source of error could be my measuring and plotting techniques. I don't see how my measurements and plotting, especially those made with the sextant, could be more than 500 feet in error. In measuring the bed I included within the perimeter of the kelp bed all kelp of the genus Macrocystis. My rationale for this is that the scattered plants not obviously part of the major bed may represent colonizing plants for new portions of the bed. From my conversation with Mr. Strachan it seemed that they may not have included all of the scattered plants. They did this because they felt the plants weren't part of the bed, and that the substrate they were on wasn't conducive for the long term growth of Macrocystis. I don't know of a way to resolve our discrepancies in the determination of the kelp bed other than for all parties to go out together and map the bed. I do not have time for this project at the present time.

If we accept Edison's date as valid, then it does not appear that the kelp bed in question will be within the area of the 4°F isotherm as allowed by law. Based on the latest thermal models of the plumes for units 2 and 3, and the position of the present kelp bed, Mr. Strachan estimates that the kelp bed will be between the 1 and 0.5°F isotherms. Based on the state of our present knowledge, it is not possible to predict with any certainty the magnitude of the effects of this water temperature change. We do know that in 1957-58 the average water temperature due to natural causes was raised 2°F on the average along the coast. Correlated with this rise in temperature was a massive die-off in kelp (Macrocystis) along the California and Mexico coasts.

After discussions with Mr. Strachan concerning the methods planned for installing the cooling water conduits, I am less concerned about the resulting turbidity due to these operations than I was before. Of new concern to me is the plan to dispose of the material excavated for the proposed Units 2 and 3 on the beach in front of the plant. Formerly I had thought that this material would be hauled from the site and used elsewhere. This material contains fine grain particles that could greatly affect the natural turbidity in the area based on similar projects I have witnessed in the Malibu area. Unfortunately we do not know what the natural turbidity is for the San Onofre area, since all Secchi and hydrophotometer readings have been made since the start of construction of Unit 1. I would strongly recommend that the material removed from the barrancos at San Onofre be disposed of someplace other than in the ocean.

Based on my reviews of EIR's for the San Onofre project I would like to make the following comments. They are for the most part needlessly voluminous, often hastily put together, and usually suffer from lack of competent review. A large part of this could be eliminated if the EIR was reviewed by competent, independent, authorities before your staff or the

Southern California Edison Company

P. O. BOX 800

2244 WALNUT GROVE AVENUE

ROSEMEAD, CALIFORNIA 91770

LAW DEPARTMENT

(213) 572-1931

October 31, 1973

Our File No.
2.-6168-15

NORMAN L. COPELAND
H. CURTIS HARRIS
H. FORREST LARSEN
JOHN F. GRIFFIN
JOHN A. FLOOD
L. CHRISTIAN HALL
CHARLES R. HAY
H. D. EDWARDS
MAURICE HOGAN
DORRIS G. MATT
THOMAS E. TAYLOR
JAMES A. TROTT
HARRY W. YOUNG
KINGLIEY HOGAN
D. LAURENCE HARRIS
PHILIP WALSH
RICHARD K. DUFFIN
JOHN W. EVANS
ASSISTANT COUNSEL

Fredric P. Sutherland, Esq.
10203 Santa Monica Boulevard
Los Angeles, California 90067

Re: San Onofre Nuclear Generating
Station, Units Nos. 2 and 3:
CCZCC Appeal No. 183-73

Dear Mr. Sutherland:

A photocopy of a map depicting the alignment
of the discharge structures of San Onofre Units 2 and 3
in relation to nearby kelp is enclosed. It was requested
by your Mr. Volker.

Very truly yours,

Charles R. Kocher

Charles R. Kocher
Assistant Counsel

Attachment

San Onofre Nuclear Generating Station
(Existing Unit 1)

Proposed
Units 2 and 3

BRIDGE OF ELLIOTT'S
THRU 100' HOLE 5

BEARING #2
BEARING #3
BEARING #4 & 5

BEARING #6

BEARING #6

SCALE 1:24000

+

CONFIDENTIAL (NO FROTH)

Mr. Frank Brodhead
Page three
November 21, 1973

Commission had to make any decisions regarding the project. The simplest way to do this would be to have the EIR made available to competent independent authorities before they are submitted. The reviews should be sent to your Commission with the same deadline as the EIR. Your office I am sure has lists of qualified persons to review various sections of EIR's. If you need further lists of qualified persons, I would suggest that you contact the relevant professional societies. The Ecological Society of America has lists of qualified persons for a variety of ecologically related subject areas.

In summary, while the kelp bed adjacent to San Onofre is probably not faced with certain destruction, its proximity to the outfall makes it possibly vulnerable. If you have any questions, please feel free to contact me.

Sincerely,

D. Craig Barilotti

D. Craig Barilotti
Department of Botany

DCB:jm

cc: Mr. Ron Strachan
Southern California Edison

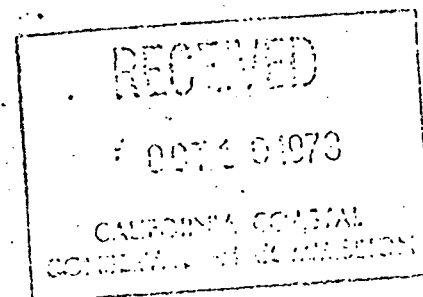
Mr. Frederic Sutherland
Southern California Edison

John W. Landes
President

October 15, 1973

P.O. Box 811
San Diego, California 92111
Tel: (714) 433-1100

Dr. Frank Broadhead
California Coastal Zone Conservation
Commission
1540 Market Street
San Francisco, California 94102



Dear Dr. Broadhead:

In our telephone conversations last week you asked for a short dissertation on the safety and heat-discharge characteristics of the HTGR vis-a-vis the LWR. The attached has been prepared in response to your request. If it does not fully satisfy your requirements, please do not hesitate to call me again.

Sincerely,

Enclosure

cc: Dr. W. Nierenberg

HIGH TEMPERATURE GAS-COOLED REACTOR

1. Inherent Safety Aspects.

The inherent safety aspects of the high temperature gas-cooled reactor result from the use of gas, inert helium, as the coolant and the use of ceramic materials, graphite and uranium/thorium carbides, throughout the entire core structure. These basic design features mean that, unlike liquid cooled reactor systems, the high temperature gas-cooled reactor cannot suffer the following accident conditions:

- a. Total loss of coolant.
- b. Core meltdown to an uncoolable geometry.

These two accident conditions have caused the present controversy in emergency core cooling system (ECCS) designs for light water reactors, and it is these accident conditions which have led to slower introduction of light water reactors in Europe, where gas cooled reactors have been more common.

The loss of coolant accident is critical in light water reactors because if a steam or water line should fail it is essential that ECCS replace the water coolant which is lost through the failure in a very short time, within 60 to 120 seconds. If the water is not replaced the shutdown decay heat in the core can cause a meltdown of the core materials so that an uncoolable geometry could be formed and complete uncontrolled core meltdown could result.

A complete loss of coolant accident is not possible in a high temperature gas-cooled reactor because it is gas cooled. The nearest equivalent

accident is a primary coolant system depressurization accident.

This will only occur if a failure is postulated in the primary coolant (helium) pressure boundary which, for the high temperature gas-cooled reactor, means a failure in the prestressed concrete reactor vessel. Total loss of coolant does not occur; the primary coolant helium simply depressurizes into the containment vessel and the shutdown core is cooled by the depressurized air/helium mixture. Both the main steam generating system and the core auxiliary cooling system are capable of cooling the core to a safe shutdown condition following this hypothetical accident.

Moreover, even if due to some postulated event core cooling of the high temperature gas-cooled reactor fails, it is impossible for the ceramic core and core structure to meltdown to an uncoolable geometry. Thus the requirement for a rapid action emergency core cooling system does not exist. The core auxiliary cooling system is expected to be operated within five minutes of loss of main loop cooling, and under the severest of design conditions a delay of twenty minutes is allowed before core auxiliary cooling is started.

2. Transient Capabilities

a. Normal Startup and Shutdown

The normal reactor startup from a cold depressurized or pressurized condition is manually controlled from decay heat level up to the minimum load level of 25%. The increase from 25% to 100% load is at 3% (5% maximum) per minute and is automatic. The standard high temperature gas-cooled reactor plant is provided with automatic shim rod control to allow fully

-3-

automatic load following which allows fully automatic load increase to 100% from 25% load during startup.

The shutdown procedure is the reverse of startup and the reactor is manually shutdown once power has been reduced to 25%.

b. Load Following Capabilities

The load following capabilities of the high temperature gas-cooled reactor are limited only by the regulating rod reactivity control over xenon transients and total core reactivity, (both of these are dependent upon time in life of the core) and region gas outlet temperatures.

All sizes of high temperature gas-cooled reactor cores are able to fully automatically follow load over 25% to 100% load range. This capability is valid for 80% of the refueling cycle.

c. Loop Trip Transients

The high temperature gas-cooled reactor is designed to sustain a loop trip on automatic control with an accompanying automatic main turbine runback to the reduced load level. The automatic load reduction is 25% for the 2000 Mw(t), 17% for the 3000 Mw(t), and 13% for the 4000 Mw(t). The only plant design restriction is the minimum load level of 25% which means that a minimum of one loop operation is required for the 2000 Mw(t) and two loops for the 3000 and 4000 Mw(t) plants.

d. Reactor Trip Transient

The overall plant control system will always cool the core to a safe shutdown condition fully automatically following a reactor

trip whenever main loop cooling is available. The trip signal reduces the core power to nominal decay heat levels and the main steam system is reduced to 25% feedwater flow for all sizes of plant.

e. Turbine Trip and Load Rejections

On a turbine trip condition the reactor is rapidly reduced in power, $1/2\%$ per second, to the minimum load 25% hot standby condition. During the load reduction part of the steam flow is exhausted to the atmosphere until the feedwater flow rate is reduced to 50% and the total steam flow can then be fully bypassed to the condenser through the hot reheat bypass system. The reactor remains in a hot standby condition until either the turbine can be restarted or the plant is shutdown.

f. Sudden Reduction of Feedwater Flow

This transient can occur when one feedpump fails or trips, and the feedwater flow is rapidly reduced to about 60% of nominal full flow. The reactor power is rapidly reduced at $1/2\%$ per second to 60% using the same selected control rod pairs as in the turbine trip transient. The reactor power levels out at 60% and the plant output can continue at this level until more feedwater flow is available.

g. Accident Transients

All accident conditions of any significance result in a reactor trip and fully automatic plant shutdown on the main loops. If the accident itself affects the main loop cooling capability, one of two conditions can occur; either immediate loss of all main loop cooling or subsequent loss of main loop cooling when the deaerator

water storage is depleted. Only a single passive failure or safe shutdown earthquake condition will result in immediate loss of all main loop cooling. Following such an event the reactor is tripped and the core is cooled to a safe shutdown condition by the core auxiliary cooling system (CACS). There are 2 x 100% capacity loops on the 2000 Mw(t) and 3 x 50% capacity loops on the 3000 and 4000 Mw(t) plants.

3. Efficiency and Heat Discharge

For a 3000 Mw(t), nominal 1160 Mw(e) high temperature gas-cooled reactor power plant, the efficiency is approximately 39% and the amount of heat discharged is a maximum of 6300 million Btu/hr. Typically, light water reactor power plants have an efficiency of about 33% and, for an equivalent electrical output, would discharge about 30% more heat or approximately 8200 million Btu/hr.

In terms of water usage to remove the discharged heat, for cooling tower sites the high temperature gas-cooled reactor power plant would use approximately 16,000 gallons per minute, light water reactor power plant would use approximately 21,000 gallons per minute.

Question 2:

Provide a more in-depth discussion on the merits of the HTGR than given to the Regional Commission. Provide background on the greater "safety" of HTGR as compared to the PWR.

Response:

The "merits" of the HTGR can be broadly characterized as (1) those which are radiological safety-related and (2) those which are other than radiological safety-related. In the first category, the discussion given to the Regional Commission in response to their Question 3 is a good starting point and will not be repeated here. At this time we have reached no conclusions, even on a preliminary basis, concerning any safety advantage of a large HTGR as compared to a PWR.

Promotional statements by reactor vendors concerning safety merits of their designs cannot be credited beyond their intended use. The AEC review of the safety aspects of the HTGR design has just begun with their acceptance of a construction permit application by the Delmarva Company of Wilmington, Delaware. The results of the AEC review of the design of Public Service of Colorado's Fort St. Vrain

facility are not directly applicable to the design of the large HTGR which is comparable in electrical output to San Onofre Units 2 and 3.

SCE is heavily involved now in performing its own safety review of the HTGR in preparation for AEC licensing proceedings in the future. However, we are unprepared to provide a more in-depth discussion of prospective merits related to radiological safety.

In the second category, the discussion given to the Regional Commission in response to their Question 4 provides general information concerning the reduced rejection of waste heat to the environment. The cycle efficiencies for a PWR and HTGR, and the difference in rejected waste heat for a facility of about 1100 MWe per unit, are as follows:

	<u>PWR</u>	<u>HTGR</u>
Cycle efficiency = $\frac{\text{electrical output}}{\text{reactor output}}$	32%	38%
Rejected waste heat	2337.5 MW	1793 MW

At an inland site where cooling towers are used, this results in a 33% savings in water use for the HTGR. However, in a coastal plant where evaporative cooling is not used, the difference in effect of the PWR and HTGR is not significant.

EXHIBIT 12

California Institute of Technology

ENVIRONMENTAL QUALITY LABORATORY

SITING NUCLEAR POWER PLANTS IN CALIFORNIA:

THE NEAR-TERM ALTERNATIVES

by

MARTIN GOLDSMITH

July 1973

Supported in part by the National Science Foundation Research Applied to National Needs (RANN),
under Grant No. G1-29726.

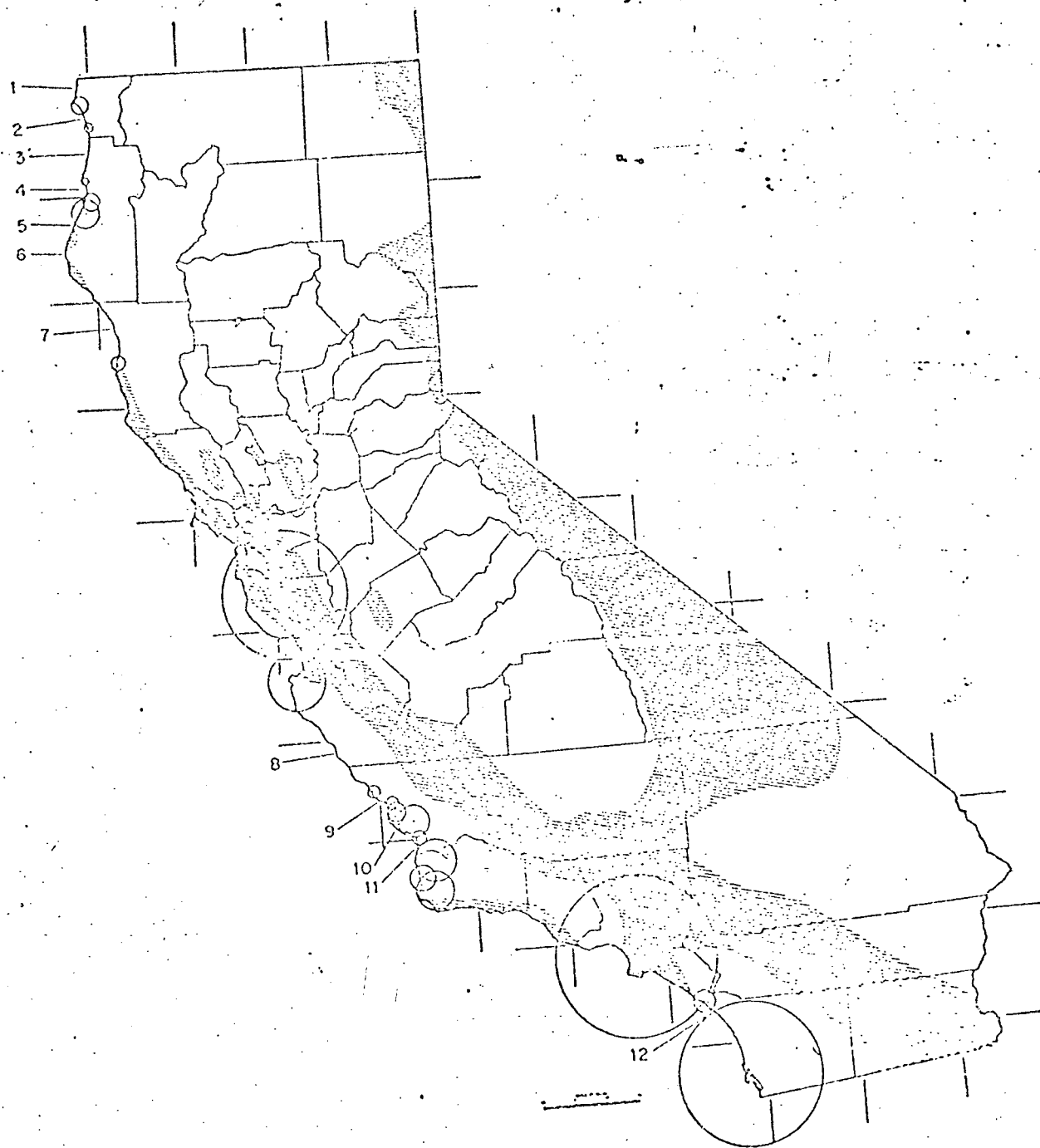


Figure III-6 Coastal Siting Areas (Shaded area - seismic exclusion; circles - population exclusion; numbered stretches are for further consideration)

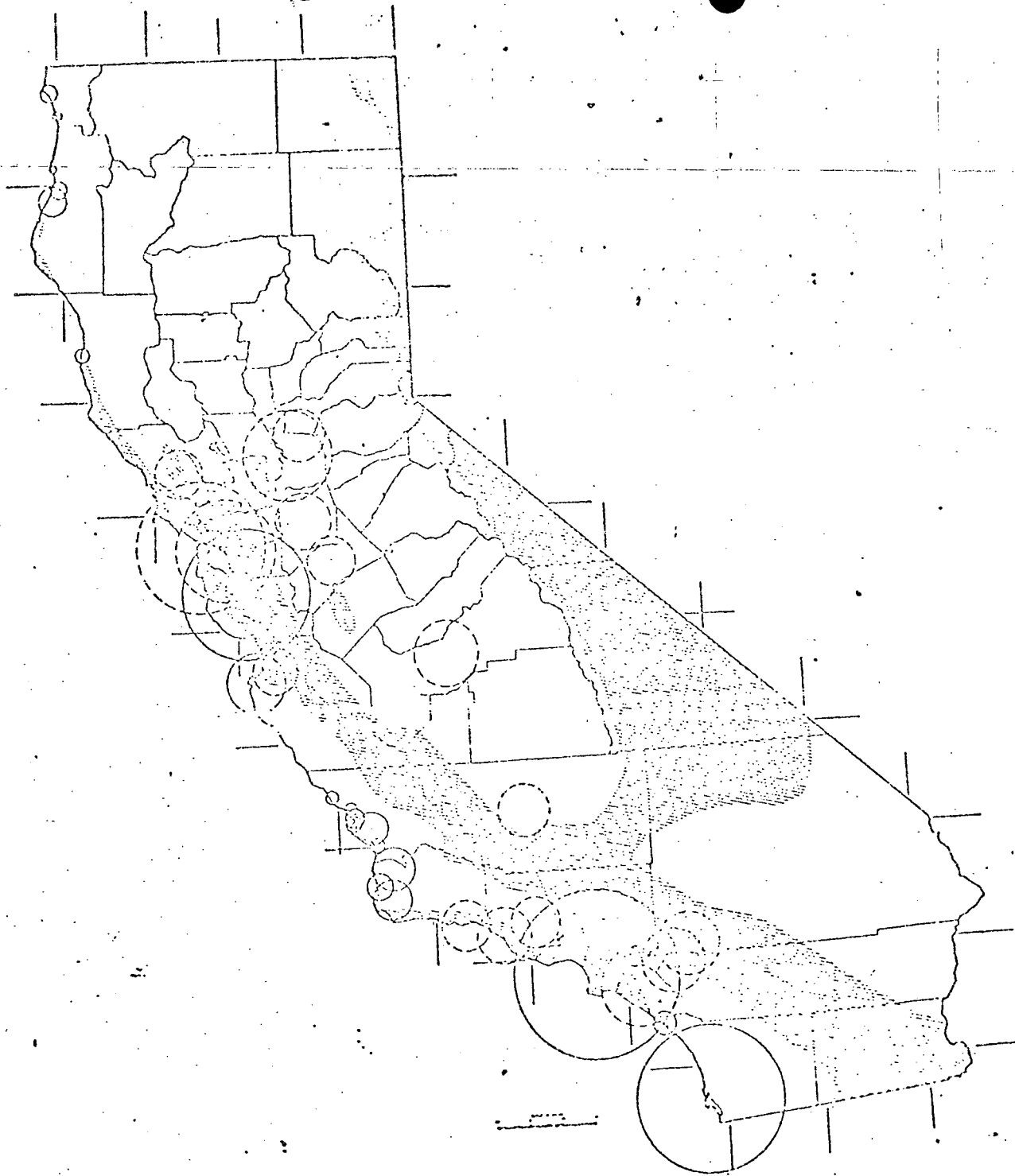


Figure V-1 Siting Area Exclusions [Shaded areas - seismic exclusion; circles - population exclusion (only towns over 50,000 shown in inland areas)]

Item 34:

Discuss the Impact of a Three Year Project Delay Relative to Increased Air Emissions, Fuel Oil use and Reduction in System Reliability.

Response:

If the present construction and operation schedule for San Onofre Units 2 & 3 is delayed three years, the following effects can be expected:

1. The ability to reliably serve forecast loads will be severely reduced, thus increasing the likelihood of load curtailment.
2. Atmospheric emissions into the South Coast Air Basin will increase substantially when compared to installing the San Onofre Project as currently planned.
3. Fuel oil consumption and system operating costs will increase.

System Reliability: In the years 1979-1983, adequate reliability depends upon timely implementation of all planned generating resources. To illustrate this point, Edison's Future Generation

Resource Schedule 1973-1983 dated June 5, 1973 is used for the purpose of analysis.

For each of the years of the resource plan, a proposed combination of resources must meet a reliability criterion based on probability calculations and an installed capacity margin criterion. The installed capacity margin of not less than 15% of peak demand is a commonly used industry minimum. Capacity margins reflect the system capacity available to provide for scheduled maintenance, system operating requirements, and unforeseen loads. Both a reliability index of .95, which implies a 5% chance of not meeting the load, and a capacity margin of 15% are considered by Edison to be the minimum acceptable values to insure adequate system reliability. If the San Onofre 2 & 3 Project is delayed three years, and assuming all other Edison planned generating resources are installed on schedule through 1983, the minimum system reliability design criteria cannot be maintained throughout the 1979-1983 period as shown in Table 1. Should Edison continue to encounter delays in constructing other planned capacity in

the years 1979-1983, a further reduction in system reliability would result.

South Coast Air Basin Emissions:

If the San Onofre 2 & 3 Project is delayed three years, the annual average total of Edison produced NO_x , SO_2 and particulate emissions into the South Coast Air Basin would be approximately 433 tons per day in the 1979-1984 period compared to an annual average total of approximately 380 tons per day if the project was installed on schedule. As shown in Table 2, this represents an annual average increase of approximately 53 tons per day (14%) in the 1979-1984 period. Because the present scheduling plan for San Onofre Units 2 & 3 calls for capacity additions over a three year period, a three year project delay results in increased atmospheric emissions during the six year interval from 1979 through 1984. The increase in Basin atmospheric emissions occurs because the energy which would have been supplied by the San Onofre units would have to be supplied by increased operation of in-Basin oil and gas fired generating units.

- 4 -

Fuel Consumption and Operating Costs:

If the San Onofre Project is delayed three years, Edison's and San Diego Gas and Electric Company's combined total of fuel oil consumption and operating costs would substantially increase due to increased operation of oil and gas units. A tabulation of estimated increases in annual fuel consumption and associated costs are presented in Table 3. As shown in the table, annual fuel oil consumption and operating costs increase by an average of 13 million barrels and \$138 million respectively in the period 1979-1984, compared with the project being installed on schedule. Therefore, it would be necessary for the participants to attempt to obtain an additional 77 million barrels of fuel

oil in the 1979 through 1984 period.

This additional oil requirement is greater than the total oil consumption by both Edison and San Diego Gas and Electric in 1973. Because of the present and potentially continuing oil shortage, there is no assurance that the participants will be able to obtain these increased quantities of fuel oil. If this additional oil cannot be obtained, it will be necessary to curtail electric energy consumption in the Edison and San Diego service territories.

To reduce the participating utilities' dependence on diminishing oil supplies, minimize atmospheric emissions into the South Coast Air Basin, and provide reliable, and economical electric service, it is considered essential to construct San Onofre Units 2 & 3 as soon as possible.

TABLE 1
EFFECTS ON SCE SYSTEM RELIABILITY IF
SAN ONOFRE 2 & 3 ARE DELAYED THREE YEARS

<u>Year</u>	<u>System Reliability Index</u>	<u>Installed Percent Reserve Margin</u>
		15.3
1979	.994	14.2
1980	.989	11.2
1981	.943	10.7
1982	.790	10.7
1983	.713	

Note: Both an index of .95 and a margin of 15% are considered the minimum acceptable values to insure adequate system reliability."

TABLE 2

ESTIMATED INCREASE IN SOUTH COAST AIR BASIN ATMOSPHERIC
EMISSIONS IF SAN ONOFRE 2 & 3 ARE DELAYED THREE YEARS

Year	NO _x (Tons/Day)	SO ₂ (Tons/Day)	Particulates (Tons/Day)	Total (Tons/Day)	Percent Total Increase
1979	1.4	3.9	0.4	5.7	1.5
1980	8.3	18.0	2.2	28.5	6.9
1981	21.6	43.1	6.1	70.8	17.7
1982	30.5	60.1	7.2	97.8	28.5
1983	26.1	47.8	5.7	79.6	22.1
1984	<u>10.1</u>	<u>21.7</u>	<u>2.5</u>	<u>34.3</u>	<u>10.1</u>
1979-1984 Average	16.3	32.4	4.0	52.7	14.4

TABLE E
ESTIMATED INCREASE IN FUEL CONSUMPTION
AND OPERATING COSTS IF SAN ONOFRE 2 & 3
ARE DELAYED THREE YEARS

Year	Fuel Oil Consumption (Millions of Barrels)	Operating Costs (Millions of Dollars)
		9.9
1979	1.0	55.8
1980	6.6	167.9
1981	16.3	263.4
1982	24.6	211.8
1983	19.0	<u>107.6</u>
1984	<u>9.4</u>	137.7
1979-1984 Average	12.8	

Combined total increase in SCE and SDG&E
fuel oil consumption and operating costs.