

UNITED STATES OF AMERICA  
 NUCLEAR REGULATORY COMMISSION  
 OFFICE OF NUCLEAR REACTOR REGULATION  
 HAROLD R. DENTON, DIRECTOR

In the Matter of

ARIZONA PUBLIC SERVICE COMPANY  
 (Palo Verde Nuclear Generating  
 Station, Units 1-3)

Docket Nos. 50-528  
 50-529  
 50-530

PACIFIC GAS & ELECTRIC COMPANY  
 (Diablo Canyon Nuclear Power  
 Plant, Units 1&2)

Docket Nos. 50-275  
 50-323

SACRAMENTO MUNICIPAL UTILITY  
 DISTRICT  
 (Rancho Seco Nuclear Generating  
 Station, Unit 1)

Docket No. 50-312  
 (10 CFR 2.206)

DIRECTOR'S DECISION UNDER 10 CFR 2.206

By petition dated October 24, 1979, W. Andrew Baldwin on behalf of the Friends of the Earth (FOE), San Francisco, California, requested that the Director of Nuclear Reactor Regulation take action pursuant to 10 CFR 2.206 to require preparation of supplemental environmental impact statements on Class 9 accidents at the Diablo Canyon, Palo Verde, and Rancho Seco nuclear plants. Notice of receipt of the FOE's petition was published in the Federal Register, 44 Fed. Reg. 70241 (December 6, 1979). Counsel for the Sacramento Municipal Utility District (SMUD), the licensee of the Rancho Seco Nuclear Generating Station, submitted on December 21, 1979, a response opposing the FOE's petition. Arizona Public Service Company responded to the petition on February 27, 1980.

The petition requests relief with respect to power reactors under various stages of construction or operation licensed to three primary licensees at three different sites. The Arizona Public Service Company holds construction permits

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authorizing construction of the Palo Verde Nuclear Generating Station, Units 1, 2, and 3, located at the Winterburg site in Arizona. The Pacific Gas and Electric Company is constructing the Diablo Canyon Nuclear Power Plant, Units 1 and 2, at its site in California, and has applied for operating licenses for those two units. The Sacramento Municipal Utility District is authorized by the Commission to operate the Rancho Seco Nuclear Generating Station, Unit 1, also located in California.

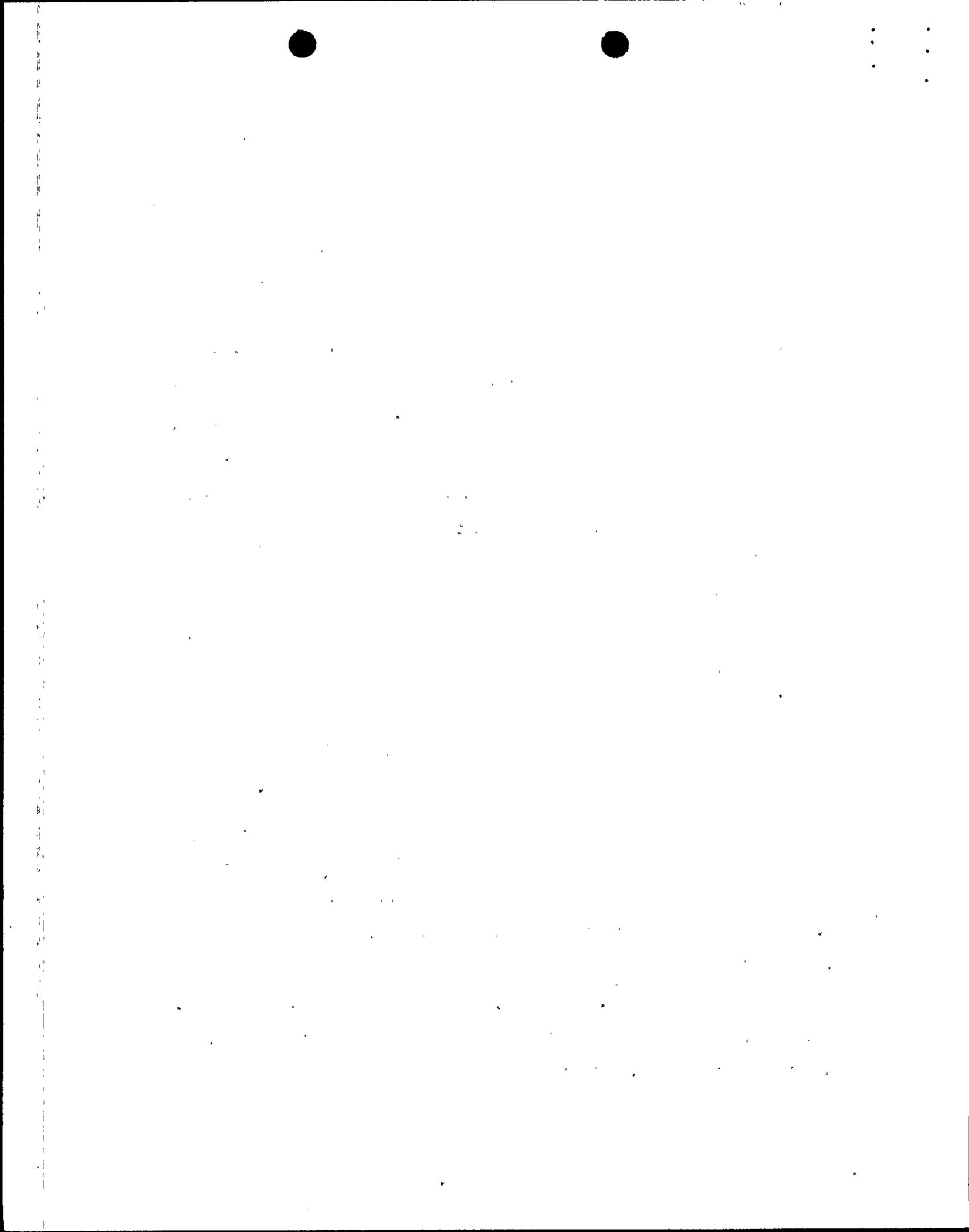
The FOE asks that the Commission prepare supplemental environmental impact statements on each of these facilities for the following reasons:

1. The environmental impact statements summarily discuss consideration of Class 9 accidents, based on early estimates of reactor accident probabilities and on the Reactor Safety Study, WASH-1400, which has since been repudiated by the Commission; and
2. The accident at Three Mile Island, which the NRC concedes constituted a Class 9 accident, emphasized the need to evaluate the possible impact of a serious (Class 9) accident and to prepare to meet the possible consequences.

For the reasons stated in this decision, the FOE's petition is denied.

#### I. COMMISSION POLICY ON ACCIDENT CONSIDERATIONS

The term "Class 9 accident" was employed in a Commission rulemaking which had been proposed in December 1971: "Consideration of Accidents in Implementation of the National Environmental Policy Act of 1969", 36 Fed. Reg. 22851 (1971). The proposed rulemaking would have added an Annex to Appendix D of 10 CFR Part 50 to set forth the manner in which various categories of accidents should be taken into account in the environmental review for a nuclear power plant. Since the FOE's petition was filed, the Commission has withdrawn the proposed Annex and has provided in its place new interim guidance for the treatment of accident risk considerations in NEPA reviews. See "Nuclear Power Plant Accident Considerations under the National Environmental



Policy Act of 1969", 45 Fed. Reg. 40101 (June 13, 1980). This decision has been made in light of the Commission's new interim policy. It is useful, however, to briefly review the now withdrawn Annex and other events leading to the Commission's new interim policy.

In the proposed Annex, the Commission divided a theoretical spectrum of accidents into classes ranging in severity from "trivial" (Class 1) to "very serious" (Class 9). Each class of accidents, except Classes 1 and 9, was required to be analyzed in environmental reports and statements. According to the Annex, Class 1 accidents need not be considered because of their trivial consequences. Accidents within Classes 2 through 8 which were "found to have significant adverse environmental effects shall be evaluated as to probability, or frequency of occurrence, to permit estimates to be made of environmental risk or cost arising from accidents of the given class". 36 Fed. Reg. 22852 (1971). With regard to "Class 9" accidents, the proposed Annex stated:

"The occurrences in Class 9 involve sequences of postulated successive failure more severe than those postulated for the design basis for protective systems and engineered safety features. Their consequences could be severe. However, the probability of their occurrence is so small that their environmental risk is extremely low. Defense in depth (multiple physical barriers), quality assurance for design, manufacture, and operation, continued surveillance and testing, and conservative design are all applied to provide and maintain the required high degree of assurance that potential accidents in this class are, and will remain, sufficiently remote in probability that the environmental risk is extremely low." 36 Fed. Reg. 22862 (1971).

Accordingly, the Annex did not require discussion of Class 9 accidents in environmental reports and statements.

Although the Annex was never formally adopted by the Commission, the Commission noted upon publication that the Annex would be useful as "interim guidance" until the Commission took further action on the Annex. 36 Fed. Reg. 22851 (1971). Upon



promulgation of 10 CFR Part 51 in 1974, the Commission stated that the adoption of Part 51 did not affect the proposed Annex, which was "still under consideration by the Commission". 39 Fed. Reg. 26279 (1974). The staff consistently applied the proposed Annex from 1971 to 1979 as not requiring the consideration of Class 9 accidents in its environmental statements. Reliance on the Annex has been upheld by decisions of the Commission's adjudicatory panels and by federal courts. <sup>1/</sup>

In September 1979, the Commission announced in Offshore Power Systems (Floating Nuclear Power Plants), CLI-79-9, 10 NRC 257 (1979), that it intended to complete the rulemaking begun by the Annex and to re-examine the Commission's policy regarding accident considerations. <sup>2/</sup> The Commission requested additionally that the staff:

"1. Provide us with its recommendations on how the interim guidance of the Annex might be modified, on an interim basis and until the rule making on this subject is completed, to reflect development since 1971 and to accord more fully with current staff policy in this area; and

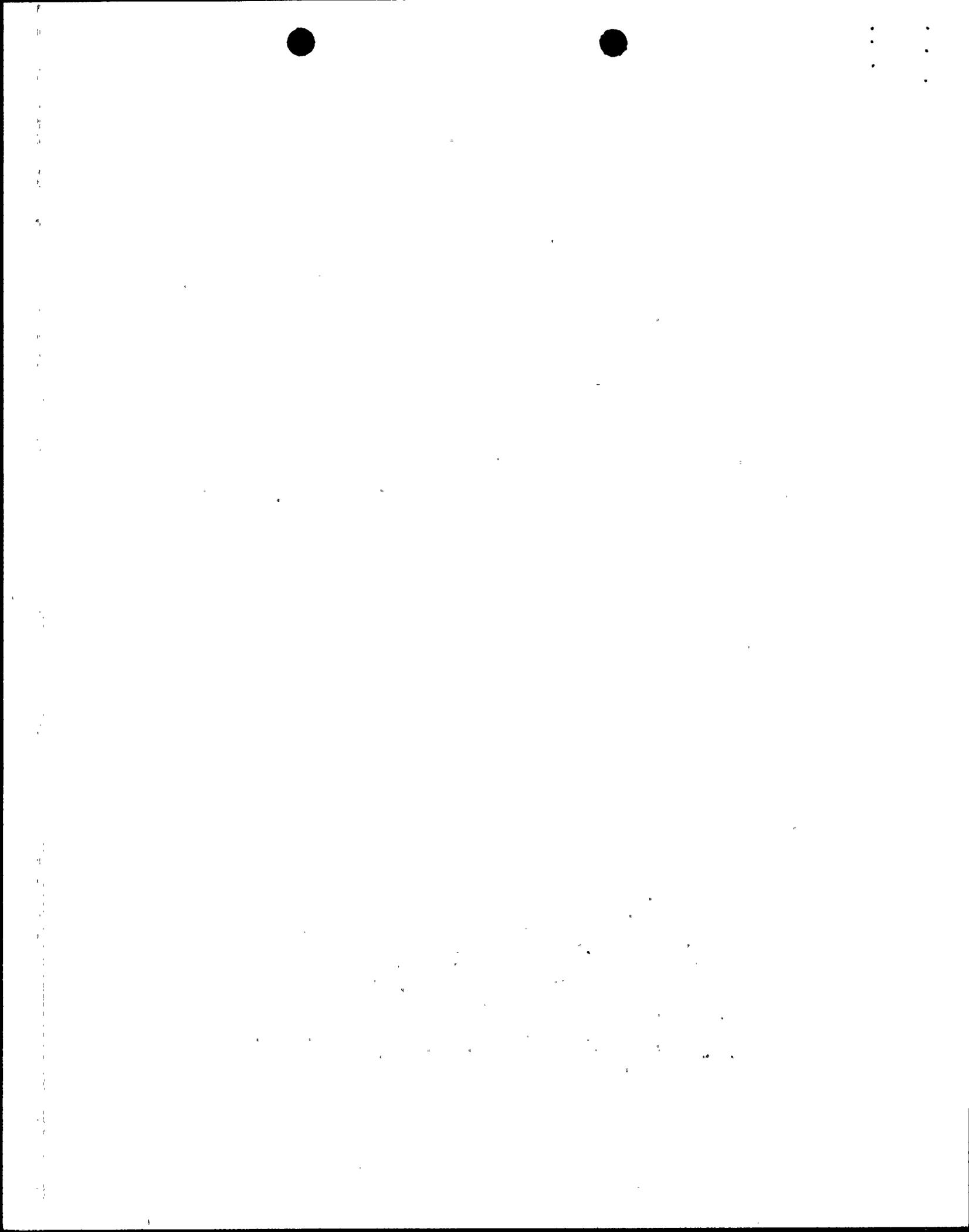
2. In the interim, pending completion of the rule making on this subject, bring to our attention, any individual cases in which it believes the environmental consequences of Class 9 accidents should be considered." 10 NRC 262-63. See also Public Service Company of Oklahoma, supra note 2, at 3-4.

In response to the Commission's first request, the staff sent to the Commission recommendations on accident considerations under NEPA in SECY-80-131, dated

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<sup>1/</sup> See cases cited in Offshore Power Systems (Floating Nuclear Power Plants), CLI-79-9, 10 NRC 257, 259 nn. 5 & 6 (1979) and ALAB-489, 8 NRC 194, 210 n. 52 (1978).

<sup>2/</sup> In Offshore Power Systems, the Commission determined that consideration of a Class 9 accident in the environmental review for floating nuclear power plants was appropriate. 10 NRC at 260-61. The Commission did not use the proceeding to resolve the generic issue of consideration of Class 9 accidents at land-based reactors, but noted that "[s]uch a generic action is more properly and effectively done through rulemaking proceedings in which all interested persons may participate." Id. at 262. See also Public Service Co. of Okla. (Black Fox Station, Units 1&2), CLI-80-8, Docket Nos. 50-556 & 50-557, Slip Op. at 3-4 (March 21, 1980).



March 11, 1980. On May 16, 1980, the Commission issued a statement of interim policy in which it withdrew the proposed Annex and suspended the rulemaking that began in 1971 with the publication of the proposed Annex. "Nuclear Power Plant Accident Considerations under the National Environmental Policy Act of 1969," 45 Fed. Reg. 40101 (June 13, 1980). The Commission also provided guidance on accident considerations in on-going NEPA reviews in licensing proceedings where a Final Environmental Statement has not yet been issued. Under the Commission's new guidance, environmental impact statements for on-going and future NEPA reviews will give consideration to a broader spectrum of accidents, including severe accidents that may have been designated "Class 9" under the Annex. For the consideration of environmental risks, or impacts, attributable to accidents at a facility, the Commission gave the following guidance:

"In the analysis and discussion of such risks, approximately equal attention shall be given to the probability of occurrence of releases and to the probability of occurrence of the environmental consequences of those releases....

"Events or accident sequences that lead to releases shall include but not be limited to those that can reasonably be expected to occur. In-plant accident sequences that can lead to a spectrum of releases shall be discussed and shall include sequences that can result in inadequate cooling of reactor fuel and to melting of the reactor core." 45 Fed Reg. at 40103.

With respect to plants for which Final Environmental Statements have been issued, the Commission stated in its new interim policy that:

"It is expected that these revised treatments will lead to conclusions regarding the environmental risks of accidents similar to those that would be reached by a continuation of current practices, particularly for cases involving special circumstances where Class 9 risks have been considered by the staff.... Thus, this change in policy is not to be construed as any lack of confidence in conclusions regarding the environmental risks of accidents expressed in any previously issued Statements, nor, absent a showing of similar special circumstances, as a basis for opening, reopening or expanding any previous or on-going proceeding. 5/



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"However, it is also the intent of the Commission that the staff take steps to identify additional cases that might warrant early consideration of either additional features or other actions to prevent or to mitigate the consequences of serious accidents. Cases for such consideration are those for which a Final Environmental Statement has already been issued at the Construction Permit stage but for which the Operating License review stage has not yet been reached. In carrying out this directive, the staff should consider relevant site features, including population density, associated with accident risk in comparison to such features at presently operating plants. Staff should also consider the likelihood that substantive changes in plant design features which may compensate further for adverse site features may be more easily incorporated in plants when construction has not yet progressed very far.

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"5/ Commissioners Gilinsky and Bradford disagree with the inclusion of the preceding two sentences. They feel that they are absolutely inconsistent with an even-handed reappraisal of the former, erroneous position on Class 9 accidents." 45 Fed. Reg. at 40103.

The staff has reviewed information concerning the Diablo Canyon, Palo Verde and Rancho Seco plants to determine whether "special circumstances" exist which would warrant "opening, reopening, or expanding any previous or on-going proceeding" concerning these facilities.

## II. STAFF'S REVIEW FOR SPECIAL CIRCUMSTANCES

As the Commission noted in its new statement of interim policy, the staff has identified in the past special circumstances which would warrant more extensive consideration of Class 9 accidents. The special circumstances fell within three categories: (1) high population density around the proposed site, i.e., above the trip points in the Standard Review Plan (NUREG 74-087, Sept. 1975) and Regulatory Guide, 4.7, General Site Suitability Criteria for Nuclear Power Stations (Nov. 1974); (2) a novel reactor design (a type of power reactor other than a light water reactor); or (3) a



combination of a unique design and a unique siting mode. <sup>3/</sup>

In Public Service Company of Oklahoma the Commission noted in addition to these three criteria that proximity of a plant to a "man-made or natural hazard" might also represent "the type of exceptional case that might warrant additional consideration." The results of the staff's review for "special circumstances" follow.

### Diablo Canyon

As described in Sec. 4 of the Safety Evaluation Report <sup>4/</sup> and Sec. 1.3 of the Final Safety Analysis Report <sup>5/</sup> the Nuclear Steam Supply System for each unit of the

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<sup>3/</sup> See 45 Fed. Reg. 40102 (June 13, 1980); Public Service Elec. & Gas Co. (Salem Nuclear Generating Station, Unit 2), DD-80-17, Docket No. 50-311, "Director's Denial of Request under 10 CFR 2.206", at 33 n. 21 (April 16, 1980). In the first category fell the Perryman site, for which the staff performed an informal assessment in the early site review of the relative differences in Class 9 accident consequences among the alternative sites. The Clinch River Breeder Reactor, a liquid metal cooled fast breeder reactor which is different from the more conventional light water reactor, fell within the category of novel reactor design, and the staff included a discussion in the final environmental statement (NUREG-0139, Feb. 1977) of its consideration of Class 9 accidents.

The floating nuclear power plants represented the third category of special circumstances, a combination of unique design and a unique siting mode. Because the plants would be mounted on a floating barge, there would be no soil structure to retard the release and dispersal of activity beneath the plant following a core melt accident as would be the case for land-based plants. The staff concluded that the most likely exposure to the population from the liquid pathway for a floating nuclear plant is significantly greater than for a land-based plant.

In view of the Commission's intention in Offshore Power Systems, supra note 1, that the staff bring to the Commission's attention individual cases in which the staff believes environmental consequences of Class 9 accidents should be considered, the staff reviewed these categories of special circumstances for purposes of responding to two other petitions under 10 CFR 2.206 which requested consideration of Class 9 accidents. Public Serv. Elec. & Gas Co., supra, and Public Serv. Co. of N.H. (Seabrook Station, Units 1&2), DD-80-6, Docket Nos. 50-443 & 50-444, "Director's Decision under 10 CFR 2.206" (Feb. 11, 1980).

<sup>4/</sup> Safety Evaluation Report for Diablo Canyon Station, Units 1 and 2 (Oct. 1977).

<sup>5/</sup> Final Safety Analysis Report for the Diablo Canyon Station, Units 1 and 2.



Diablo Canyon plant is a Westinghouse pressurized water reactor using a four-loop coolant system. The reactor design is basically similar to that of several other Westinghouse reactor designs (Trojan, Zion 1 and 2, and D.C. Cook plants). The Diablo Canyon plant is, therefore, a typical light water reactor facility and the design is not novel.

The Diablo Canyon plant is located in a remote, undeveloped and relatively uninhabited region of San Luis Obispo County. Within 10 miles of the plant, the 1970 resident population density was about 20 persons per square mile. Within radii of 20 and 30 miles, the densities were 55 and 40 residents per square mile, respectively. The population densities were projected to approximately double by the year 2000, thus remaining well within the guidelines of Regulatory Guide 4.7 and 10 CFR Part 100. Therefore, population distribution near the plant is not an unusual circumstance warranting reopening or expanding proceedings on Diablo Canyon.

The Diablo Canyon plant also does not represent a "combination of a unique design and a unique siting mode". The Diablo Canyon site is located adjacent to the Pacific Ocean, which is the only surface water body which could be affected by liquid releases from a Class 9 accident. <sup>6/</sup> Ground water near the site is limited to the streambed of Diablo Canyon Creek, an intermittent stream which empties into the ocean. The sandstone bedrock underlying station foundations is, at most, partially saturated (i.e., no water table) for a considerable vertical distance. Its low permeability, combined with the lack of a near surface water table, would preclude lateral movement of contaminated water from the station toward the ocean at more than an extremely slow

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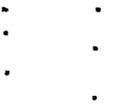
<sup>6/</sup> The staff uses the term "Class 9 accident" in the ensuing discussion only for the purposes of evaluating, as provided in the Commission's new interim policy, whether "special circumstances" that would warrant reopening or expanding proceedings exist for plans which were reviewed under the now withdrawn Annex.



rate. As a minimum, many years would be available to interdict any such flow. Therefore, there are no unusual hydrogeologic features of the site which would warrant consideration of the environmental consequences of a Class 9 accidents.

The staff analyzed the site characteristics and other nearby features to assure the potential for impairment of safety-related portions of station facilities due to natural or man-made hazards occurring nearby. The Safety Evaluation Report states the staff conclusion that there are no industrial, transportation, or military facilities in the area of the site which have potential to adversely affect plant safety systems. The staff review specifically ensures that station design is adequate to accommodate other natural characteristics of the site environs. The staff review has not identified any unusual circumstances with respect to external hazards that would warrant reopening or expanding proceedings on Diablo Canyon.

Briefly stated, none of the "special circumstances" which would warrant reopening or expanding proceedings is present for the Diablo Canyon plant. An additional factor would weigh in favor of not considering special regulatory action under 10 CFR 2.206. Following the occurrence of the Three Mile Island accident, the Joint Intervenors filed on May 9, 1979, a motion with the Atomic Safety and Licensing Board currently sitting in the case to reopen the record for further consideration of "Class 9" accidents at Diablo Canyon. On May 24, the NRC staff proposed that the Board defer ruling on the motion pending completion of the staff report on TMI and its specific implications for Diablo Canyon. On June 5, the Board agreed to defer its ruling. The staff report has not been completed and consequently the Board has not yet ruled on the motion to reopen the record for further consideration of "Class 9" accidents. In view of the pendency of the proceedings before the Licensing Board, the staff believes that it would be inappropriate to institute another proceeding at the FOE's



request. <sup>7/</sup>

Palo Verde

The Palo Verde Nuclear Generating Station, currently under construction, will have three Combustion Engineering, Inc. "system 80" type pressurized water reactors to provide steam for the turbogenerator system. Heat will be transferred from each reactor core to steam generators by circulating pressurized water in two closed loops containing two pumps in each loop. The reactors are described in detail in the Safety Evaluation Report for this station (NUREG 75-098, issued on October 10, 1975) and in the Preliminary Safety Analysis Report. Reactors of similar design were used in the Perkins and Cherokee plants. The Palo Verde reactors may, therefore, be considered typical light water reactors not of a novel design.

The desert area in the immediate vicinity of the Palo Verde site is very sparsely inhabited. The 1970 population densities within radii of 10, 20, and 30 miles were 6, 7, and 7 residents per square mile, respectively. The corresponding projected densities in the year 2000 were 18, 23, and 21 residents per square mile, respectively. These population densities are well within the guidelines of Regulatory Guide 4.7 and 10 CFR Part 100. Therefore, population distribution near the plant is not a "special circumstance".

The Palo Verde plant is located in an arid region which had been irrigated before 1975. Return flows from this irrigation percolated through the upper granular soils and perched on top of a thick zone of relatively impermeable material. This perch water mound is slowly spreading laterally and downward. If this water were

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<sup>7/</sup> This view is consistent with the Commission's decision in Consolidated Edison Co. (Indian Point Station, Units 1-3), CLI-75-8, 2 NRC 173, 177 (1975). The staff also notes the Commission has ordered that no new operating licenses may be issued except after action of the Commission itself. "Interim Statement of Policy and Procedure", 44 Fed. Reg. 58559 (Oct. 10, 1979).



contaminated by a severe accident, it would migrate slowly downward through the aquitard to the regional aquifer about 200 feet below the surface. The staff estimated that it would take about 5000 years for the contaminated liquid to reach water wells 2 miles south of the station. Due to this slow rate of groundwater movement, there would be less than average difficulty in interdicting any radioactivity releases from a Class 9 accident by the groundwater pathway, should such action be necessary. In view of the above considerations, there is not, in the case of the Palo Verde Station, a "combination of unique design and unique siting mode".

The staff analyzed the site characteristics and other nearby features to assess the potential for impairment of safety-related portions of station facilities due to natural or man-made hazards. The Safety Evaluation Report states the staff's conclusion that there were no off-site hazards which required special consideration in the design of the proposed Palo Verde facilities, except the military aircraft training flights operating out of Luke Air Force Base. The staff has analyzed the existing Air Force program for such flights, the Air Force arrangements for notification of the applicant of changes in flight routes or training programs at Luke Air Force Base as they may relate to the Palo Verde station, the probability of aircraft impacts on the station facilities, and experience from other sites. Supplement No. 1 to the Safety Evaluation Report states the staff conclusion that existing arrangements are acceptable. The staff review has not identified any unusual circumstances with respect to external hazards that would warrant special considerations of Class 9 accidents. These matters would be given further consideration by the staff in the event that there is a significant change in circumstances. The aircraft impact issue and other safety considerations will be examined again during operating license review.

In sum, then, there are no unusual circumstances which would warrant reopening the construction permit proceeding for Palo Verde. The staff notes, however, that the



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final environmental statement for the Palo Verde operating licenses will be subject to the more extensive accident analysis prescribed by the Commission's new interim policy.

#### Rancho Seco

The Rancho Seco Nuclear Generating Station consists of a single Babcock and Wilcox pressurized water reactor with a net electrical power capacity of 913 Mw. Heated pressurized water is circulated from the reactor to two steam generators which provide steam to drive a Westinghouse turbine generator. The reactor design is generally similar to that of other Babcock and Wilcox reactors such as are used at the Davis-Besse, Arkansas 1, Indian Point 1, Oconee 1-3, Crystal River 3, and Three Mile Island plants.

Following the March 28, 1979, accident at Three Mile Island, Unit 2, the NRC has placed a number of special requirements on all operating reactors, particularly Babcock and Wilcox reactors, to minimize the probability of an accident of the Three Mile Island type. Pursuant to its Order of May 7, 1979, 44 Fed. Reg. 27779, the Commission imposed requirements on the Rancho Seco facility which involve changes in reactor design, in operator training and in operating procedures. A hearing, to which FOE was a party (FOE has since withdrawn) is currently being conducted on the Order. In addition, the Rancho Seco facility is subject to an Order, 45 Fed. Reg. 2447 (January 11, 1980), imposing the short-term "Lessons Learned" requirements described in NUREG-0578. The Rancho Seco plant is currently undergoing staff review to assure that its design and operation satisfy these requirements. (The Diablo Canyon and Palo Verde units will also have to meet similar requirements and undergo staff review.) When the required changes in reactor design, operator training and operating procedures have been carried out and approved, the staff believes that there will be reasonable assurance that the Rancho Seco facility can be safely operated. In view of these required changes and



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general similarity of Babcock and Wilcox design to that of other pressurized water reactors, the Rancho Seco design is not considered novel, but rather typical for a land-based pressurized water reactor.

The Rancho Seco vicinity is sparsely populated with 1970 population densities of 19 residents per square mile within a radius of 10 miles and 95 residents per square mile within 20 miles. However, the cities of Sacramento and Stockton, about 25 miles away, raise the 1970 population density to about 320 residents per square mile within a radius of 30 miles. In 1972, the Sacramento County Planning Commission estimated a population increase rate of 5.2% per year, as reported in the FES. At this high rate of increase, the population in the year 2000 would quadruple that in 1970, exceeding the population density guidelines for a 30-mile radius in Regulatory Guide 4.7. However, the FES also reports that the California Department of Finance predicted growth rates of 1.3% per year and 1.8% per year for Sacramento and San Joaquin Counties, the most populous counties near Rancho Seco. These growth rates resulted in population densities well within the guidelines for the year 2000. In reviewing the FOE's petition, the staff investigated population growth data from the Sacramento County Planning Commission for the years 1975 and 1979 for the populous counties around Rancho Seco. These factual data through the year 1979 indicate that a more realistic growth rate estimate is less than 3% per year. On this basis, the projected population in the year 2000 within 30 miles will remain within the guidelines of Regulatory Guide 4.7 and 10 CFR Part 100. Consequently, population distribution would not warrant re-opening proceedings on the Rancho Seco facility.

The Rancho Seco Station is located on gently rolling terrain about 25 miles southeast of Sacramento. Water bodies in the vicinity are small streams which are normally dry except during periods of high rainfall. The intermittent flow characteristics of these streams indicate that they are not fed by groundwater.



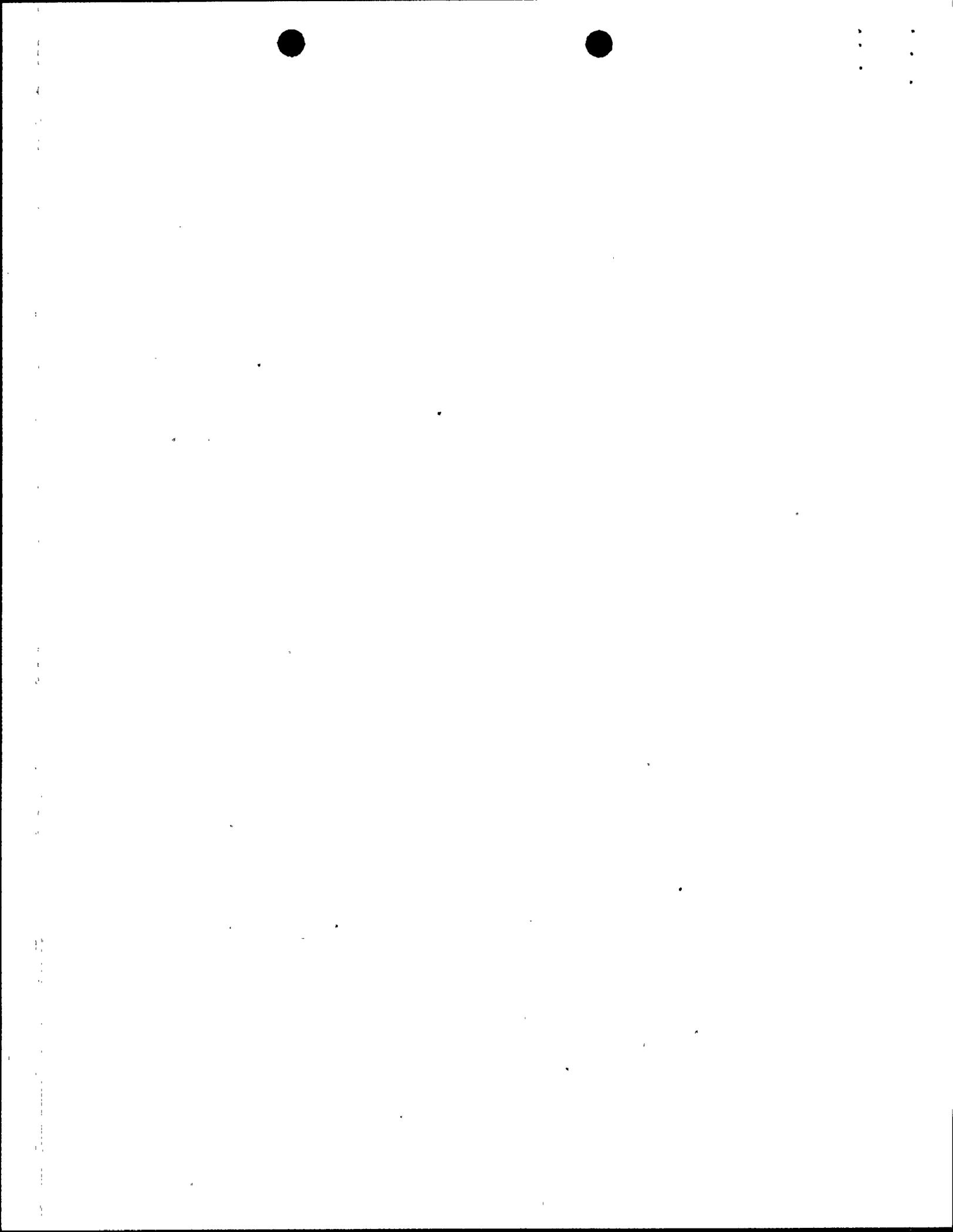
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Liquid releases from a Class 9 accident would migrate slowly downward and southward into the groundwater. Using conservative assumptions, the staff estimates that it would take tens of years for contaminated groundwater to migrate to the nearest well which is located at the site boundary. Due to this slow rate of groundwater movement, the staff concludes that there are no unusual features or special circumstances with regard to the groundwater contamination interdiction characteristics of this site that would distinguish it from other land-based light water reactor sites to the extent that, under the present Commission policy, warrants reopening environmental proceedings on Rancho Seco. The Rancho Seco Station does not represent a "combination of unique design and unique siting mode".

The staff analyzed the site characteristics and other nearby features to assess the potential for impairment of safety-related portions of the station facilities due to natural or man-made hazards. The Safety Evaluation Report states the staff conclusion that the nature and remoteness of industrial, transportation and military facilities in the region of the site preclude their posing a hazard to the safety features of the station. The staff also concluded that the station design is acceptable in relation to the geologic, seismic, and foundation conditions of the site. The staff review has not, therefore, identified any unusual circumstances with respect to external hazards. The staff would conduct further assessments and actions in the event of significant changes in these circumstances.

In summary, there are no special or unusual circumstances surrounding the Rancho Seco Station which would warrant re-opening environmental proceedings on the facility.

The staff has proposed a further detailed NRC study of the hydrologic features of all reactor sites, according to the task action plans described in Draft NUREG-0660. The liquid pathway interdiction study is designated Task Action III.D.2. The brief



discussions given above, based on currently available data, indicate that there is small likelihood of any hydrologic problems at Diablo Canyon, Palo Verde and Rancho Seco. In the event that significant possible impacts are identified in the more thorough study, methods of interdiction and mitigation will be specified. A number of mitigation methods are available, including pumping and construction of slurry walls.

### III. OTHER CONSIDERATION GIVEN TO SEVERE ACCIDENTS

The FOE emphasizes in its petition the need "to prepare to meet the possible consequences" of a serious accident at reactor sites. The staff believes that the ~~Commission is taking~~ positive measures to prevent severe accidents and to mitigate their consequences. The Commission noted a number of these measures in its new statement of interim policy on accident considerations. Among these measures taken or under consideration by the Commission and the staff are:

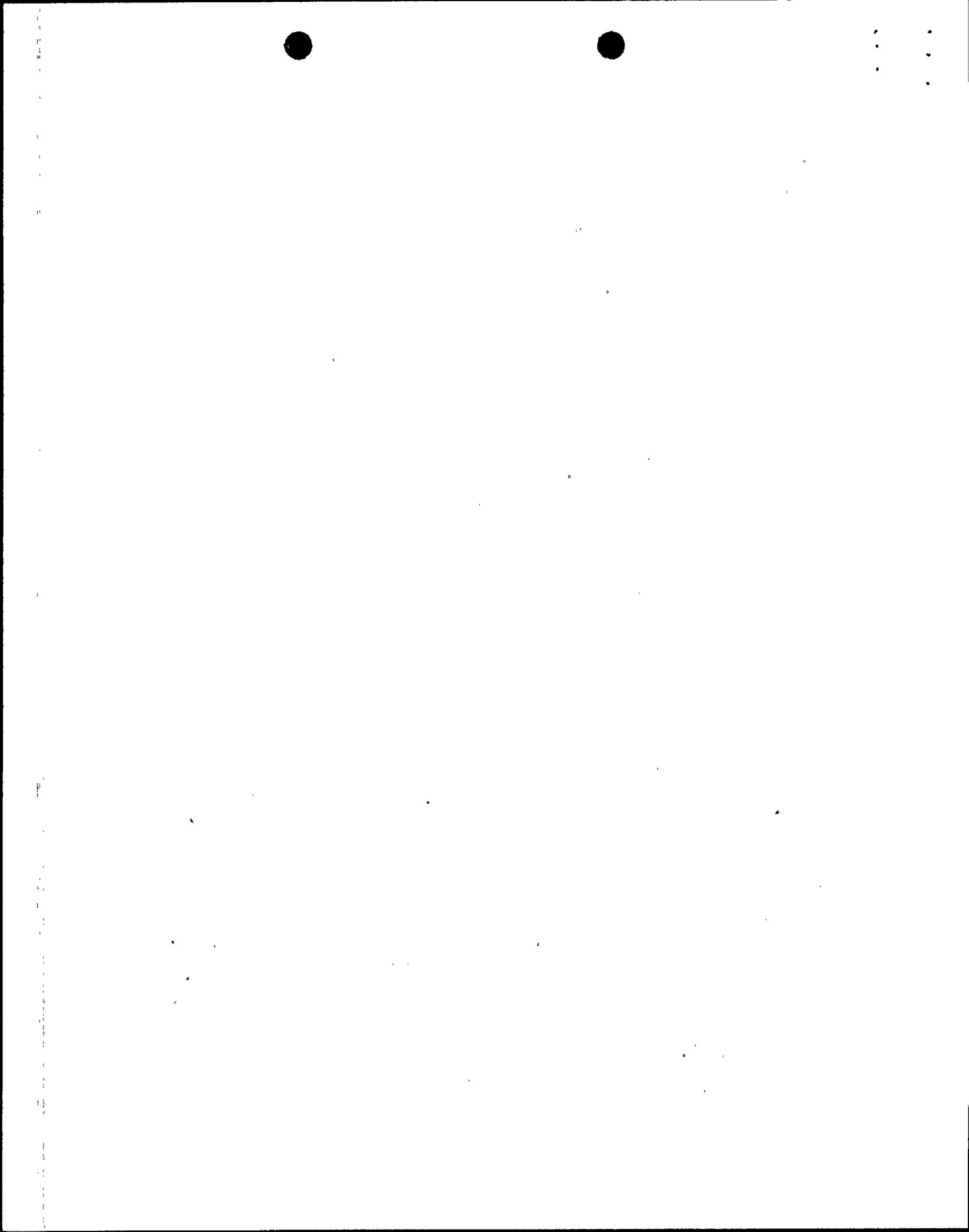
- A proposed rule issued for public comment, 44 Fed.Reg. 75167 (Dec. 19, 1979), which would significantly revise requirements in 10 CFR Part 50 for emergency planning at nuclear power plants.
- Recommendations of the Siting Policy Task Force (see NUREG-0625, Aug. 1979) with respect to possible changes in the reactor siting policy and criteria set forth in 10 CFR Part 100. One goal of the recommendations is to consider in siting the risk associated with accidents beyond the design basis (i.e., Class 9) by establishing population density and distribution criteria.
- Proposed "Action Plans" (see Draft NUREG-0660, Dec. 1979) for implementing recommendations made by bodies that have investigated the Three Mile Island accident. Among other matters these plans incorporate recommendations for rulemaking related to degraded core cooling and core melt accidents.
- Imposition of additional requirements on operating reactors, e.g., the short-term "lessons-learned" recommendations. See "TMI-2 Lessons Learned Task Force Status Report and Short-term Recommendations", NUREG-0578 (1979), and Orders published in 45 Fed. Reg. 2427-2455 (Jan. 11, 1980).



As the Commission stated in its new interim policy, "It is the Commission's policy and intent to devote NRC's major resources to matters which the Commission believes will make existing and future nuclear power plants safer, and to prevent a recurrence of the kind of accident that occurred at Three Mile Island." 45 Fed. Reg. at 40104.

#### IV. CONCLUSION

The staff has concluded that no "special circumstances" exist which would warrant reopening environmental proceedings for the Diablo Canyon, Palo Verde, and Rancho Seco nuclear plants. In the staff's view, the "special circumstances" standard under the Commission's new interim policy is appropriate for judging whether past NEPA reviews should be reopened. An administrative agency is empowered to revise its policies in an evolutionary process as it gains experience in the application of the laws which the agency is charged to administer. See NLRB v. J. Weingarten, Inc., 420 U.S. 251, 265-67 (1975); cf. Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, 435 U.S. 519 (1978). Thus, a change in policy to allow broader consideration of accidents in future NEPA reviews does not invalidate the findings in past reviews under the Annex, particularly in light of judicial approval of the Commission's past practice. See note 1 supra. By establishing a "special circumstances" standard for reopening completed environmental reviews, the Commission has recognized that it may be appropriate to supplement a past environmental review under certain circumstances in view of the transformation in policy which the Commission is undertaking. The staff does not believe, however, that such "special circumstances" are present in the three instant cases. In all events, NEPA does not require an agency to reopen the environmental record unless new information or circumstances would clearly mandate a change in result. Greene County Planning Board v.

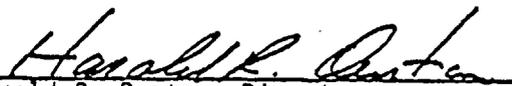


FPC, 559 F.2d 1227, 1233 (2d Cir. 1976), cert. denied, 434 U.S. 1086 (1978).

With respect to the Commission's "repudiation" of WASH-1400 as a basis for FOE's request that supplemental environmental statements be issued, the staff notes that WASH-1400 published in draft form in 1974 did not form the bases for the 1971 Annex's conclusion that the probability of occurrence of Class 9 accidents was too low to warrant their site-specific consideration under NEPA. See 45 Fed. Reg. at 40102; Pennsylvania Power and Light Company. (Susquehanna Steam Electric Station, Units 1&2), LBP 79-29, 10 NRC 586, 589 (1979). The Commission's policy statement on WASH-1400 in light of the critique of the study by the Risk Assessment Review Group does not provide, therefore, a basis for reopening the environmental record for the three plants at issue.

Finally, the staff again notes that the Commission has taken several actions by rulemaking and by order to assure that adequate measures are taken to prevent serious accidents, like the one at Three Mile Island, and to mitigate the consequences of serious accidents. In view of the foregoing, the petition of the FOE is denied.

A copy of this decision will also be filed with the Secretary for the Commission's review in accordance with 10 CFR 2.206(c) of the Commission's regulations. As provided in 10 CFR 2.206(c), this decision will constitute the final action of the Commission twenty (20) days after the date of issuance, unless the Commission on its own motion institutes the review of this decision within that time.

  
Harold R. Denton, Director  
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland  
this 19th day of June, 1980.



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EXHIBIT C

Cite as 11 NRC 919 (1980)

DD-80-22

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matters of

Docket No. 50-528 CP

50-529 CP

50-530 CP

ARIZONA PUBLIC SERVICE  
COMPANY

(Palo Verde Nuclear  
Generating Station, Units 1,  
2, and 3)

PACIFIC GAS AND ELECTRIC  
COMPANY

(Diablo Canyon Nuclear Power  
Plant, Units 1 and 2)

Docket No. 50-275 CP

50-323 CP

SACRAMENTO MUNICIPAL  
UTILITY DISTRICT

(Rancho Seco Nuclear  
Generating Station, Unit 1)

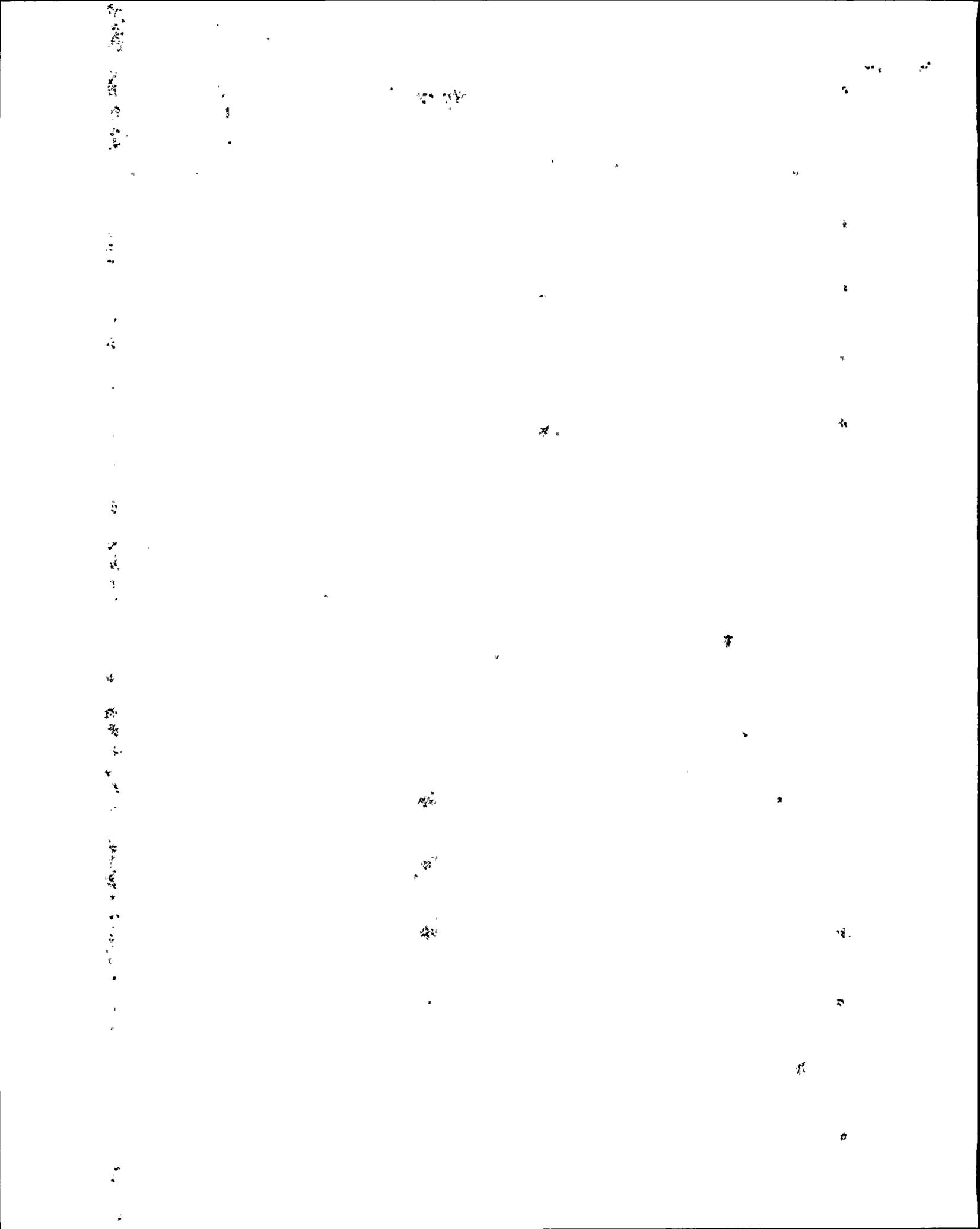
Docket No. 50-312 OL

June 19, 1980

The Director of Nuclear Reactor Regulation denies a request under 10 CFR 2.206 that the Commission prepare supplemental environmental impact statements to consider the impact of "Class 9" accidents at three power reactor sites.

DUPE OF  
919

80-0626-161



**NEPA: SEVERE ACCIDENT CONSIDERATIONS  
RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

As provided in the Commission's June 1980 "Statement of Interim Policy," the Staff will not take action to reopen past NEPA reviews in response to a petition under 10 CFR 2.206 in the absence of some "special circumstances."

**RULES OF PRACTICE: SHOW CAUSE PROCEEDING**

Where an issue is pending before one of the Commission's adjudicatory panels, the Staff will not take action under 10 CFR 2.206 to institute another proceeding to consider the same issue.

**NRC: ENVIRONMENTAL RESPONSIBILITIES**

The Commission is empowered to revise its past policies in an evolutionary process as it gains experience in the application of the laws which it is charged to administer. A change in policy to allow broader consideration of accidents in future NEPA reviews does not invalidate the findings in past reviews, particularly in view of judicial approval of the Commission's past practices.

**DIRECTOR'S DECISION UNDER 10 CFR 2.206**

By petition dated October 24, 1979, W. Andrew Baldwin on behalf of the Friends of the Earth (FOE), San Francisco, California, requested that the Director of Nuclear Reactor Regulation take action pursuant to 10 CFR 2.206 to require preparation of supplemental environmental impact statements on Class 9 accidents at the Diablo Canyon, Palo Verde, and Rancho Seco nuclear plants. Notice of receipt of the FOE's petition was published in the *Federal Register*, 44 FR 70241 (December 6, 1979). Counsel for the Sacramento Municipal Utility District (SMUD), the licensee of the Rancho Seco Nuclear Generating Station, submitted on December 21, 1979, a response opposing the FOE's petition. Arizona Public Service Company responded to the petition on February 27, 1980.

The petition requests relief with respect to power reactors under various stages of construction or operation licensed to three primary licensees at three different sites. The Arizona Public Services Company holds construction permits authorizing construction of the Palo Verde Nuclear Generating Station, Units 1, 2, and 3, located at the Winterburg site in Arizona. The Pacific Gas and Electric Company is constructing the Diablo Canyon



Nuclear Power Plant, Units 1 and 2, at its site in California, and has applied for operating licenses for those two units. The Sacramento Municipal Utility District is authorized by the Commission to operate the Rancho Seco Nuclear Generating Station, Unit 1, also located in California.

The FOE asks that the Commission prepare supplemental environmental impact statements on each of these facilities for the following reasons:

1. The environmental impact statements summarily discuss consideration of Class 9 accidents, based on early estimates of reactor accidents probabilities and on the Reactor Safety Study, WASH-1400, which has since been repudiated by the Commission; and
2. The accident at Three Mile Island, which the NRC concedes constituted a Class 9 accident, emphasized the need to evaluate the possible impact of a serious (Class 9) accident and to prepare to meet the possible consequences.

For the reasons stated in this decision, the FOE's petition is denied.

#### **I. COMMISSION POLICY ON ACCIDENT CONSIDERATIONS**

The term "Class 9 accident" was employed in a Commission rulemaking which had been proposed in December 1971: "Consideration of Accidents in Implementation of the National Environmental Policy Act of 1969," 36 FR 22851 (1971). The proposed rulemaking would have added an Annex to Appendix D of 10 CFR Part 50 to set forth the manner in which various categories of accidents should be taken into account in the environmental review for a nuclear power plant. Since the FOE's petition was filed, the Commission has withdrawn the proposed Annex and has provided in its place new interim guidance for the treatment of accident risk considerations in NEPA reviews. See "Nuclear Power Plant Accident Considerations under the National Environmental Policy Act of 1969," 45 FR 40101 (June 13, 1980). This decision has been made in light of the Commission's new interim policy. It is useful, however, to briefly review the now withdrawn Annex and other events leading to the Commission's new interim policy.

In the proposed Annex, the Commission divided a theoretical spectrum of accidents into classes ranging in severity from "trivial" (Class 1) to "very serious" (Class 9). Each class of accidents, except Classes 1 and 9, was required to be analyzed in environmental reports and statements. According to the Annex, Class 1 accidents need not be considered because of their trivial consequences. Accidents within Classes 2 through 8 which were "found to have significant adverse environmental effects shall be evaluated as to probability, or frequency of occurrence, to permit estimates to be made of environmental risk or cost arising from accidents of the given

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class." 36 FR 22852 (1971). With regard to "Class 9" accidents, the proposed Annex stated:

"The occurrences in Class 9 involve sequences of postulated successive failure more severe than those postulated for the design basis for protective systems and engineered safety features. Their consequences could be severe. However, the probability of their occurrence is so small that their environmental risk is extremely low. Defense in depth (multiple physical barriers), quality assurance for design, manufacture, and operation, continued surveillance and testing, and conservative design are all applied to provide and maintain the required high degree of assurance that potential accidents in this class are, and will remain, sufficiently remote in probability that the environmental risk is extremely low." 36 FR 22862 (1971).

Accordingly, the Annex did not require discussion of Class 9 accidents in environmental reports and statements.

Although the Annex was never formally adopted by the Commission, the Commission noted upon publication that the Annex would be useful as "interim guidance" until the Commission took further action on the Annex. 36 FR 22851 (1971). Upon promulgation of 10 CFR Part 51 in 1974, the Commission stated that the adoption of Part 51 did not affect the proposed Annex, which was "still under consideration by the Commission." 39 FR 26279 (1974). The staff consistently applied the proposed Annex from 1971 to 1979 as not requiring the consideration of Class 9 accidents in its environmental statements. Reliance on the Annex has been upheld by decisions of the Commission's adjudicatory panels and by federal courts.<sup>1</sup>

In September 1979, the Commission announced in *Offshore Power Systems* (Floating Nuclear Power Plants), CLI-79-9, 10 NRC 257 (1979), that it intended to complete the rulemaking begun by the Annex and to re-examine the Commission's policy regarding accident considerations.<sup>2</sup> The Commission requested additionally that the staff:

1. Provide us with its recommendations on how the interim guidance of the Annex might be modified, on an interim basis and until the rule making on this subject is completed, to reflect development since 1971 and to accord more fully with current staff policy in this area; and

<sup>1</sup>See cases cited in *Offshore Power Systems* (Floating Nuclear Power Plants), CLI-79-9, 10 NRC 257, 259 nn. 5 and 6 (1979) and ALAB-489, 8 NRC 194, 210 n. 52 (1978).

<sup>2</sup>In *Offshore Power Systems*, the Commission determined that consideration of a Class 9 accident in the environmental review for floating nuclear power plants was appropriate. 10 NRC at 260-61. The Commission did not use the proceeding to resolve the generic issue of consideration of Class 9 accidents at land-based reactors, but noted that "[s]uch a generic action is more properly and effectively done through rulemaking proceedings in which all interested persons may participate." *Id.* at 262. See also *Public Service Company of Oklahoma* (Black Fox Station, Units 1 and 2), CLI-80-8, Docket Nos. 50-556 and 50-557, at 434, 435 (March 21, 1980).

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2. In the interim, pending completion of the rule making on this subject, bring to our attention, any individual cases in which it believes the environmental consequences of Class 9 accidents should be considered." 10 NRC 262-63. See also *Public Service Company of Oklahoma, supra* note 2, at 3-4.

In response to the Commission's first request, the staff sent to the Commission recommendations on accident considerations under NEPA in SECY-80-131, dated March 11, 1980. On May 16, 1980, the Commission issued a statement of interim policy in which it withdrew the proposed Annex and suspended the rulemaking that began in 1971 with the publication of the proposed Annex. "Nuclear Power Plant Accident Considerations under the National Environmental Policy Act of 1969," 45 FR 40101 (June 13, 1980). The Commission also provided guidance on accident considerations in on-going NEPA reviews in licensing proceedings where a Final Environmental Statement has not yet been issued. Under the Commission's new guidance, environmental impact statements for on-going and future NEPA reviews will give consideration to a broader spectrum of accidents including severe accidents that may have been designated "Class 9" under the Annex. For the consideration of environmental risks, or impacts, attributable to accidents at a facility, the Commission gave the following guidance:

"In the analysis and discussion of such risks, approximately equal attention shall be given to the probability of occurrence of releases and to the probability of occurrence of the environmental consequences of those releases....

"Events or accident sequences that lead to releases shall include but not be limited to those that can be expected to occur. In-plant accident sequences that can lead to a spectrum of releases shall be discussed and shall include sequences that can result in inadequate cooling of reactor fuel and to melting of the reactor core." 45 FR at 40103.

With respect to plants for which Final Environmental Statements have been issued, the Commission stated in its new interim policy that:

"It is expected that these revised treatments will lead to conclusions regarding the environmental risks of accidents similar to those that would be reached by a continuation of current practices, particularly for cases involving special circumstances where Class 9 risks have been considered by the staff.... Thus, this change in policy is not to be construed as any lack of confidence in conclusions regarding the environmental risks of accidents expressed in any previously issued Statements, nor, absent a showing of similar special circumstances, as a basis for opening, reopening or expanding any previous or on-going proceeding.<sup>3</sup>

<sup>3</sup>Commissioners Gilinsky and Bradford disagree with the inclusion of the preceding two sentences. They feel that they are absolutely inconsistent with an evenhanded reappraisal of the former, erroneous position on Class 9 accidents. 45 Fed. Reg. at 40103.



"However, it is also the intent of the Commission that the staff take steps to identify additional cases that might warrant early consideration of either additional features or other actions to prevent or to mitigate the consequences of serious accidents. Cases for such consideration are those for which a Final Environmental Statement has already been issued at the Construction Permit stage but for which the Operating License review stage has not yet reached. In carrying out this directive, the staff should consider relevant site features, including population density, associated with accident risk in comparison to such features at presently operating plants. Staff should also consider the likelihood that substantive changes in plant design features which may compensate further for adverse site features may be more easily incorporated in plants when construction has not yet progressed very far.

The staff has reviewed information concerning the Diablo Canyon, Palo Verde and Rancho Seco plants to determine whether "special circumstances" exist which would warrant "opening, reopening, or expanding any previous or on-going proceeding" concerning these facilities.

## II. STAFF'S REVIEW FOR SPECIAL CIRCUMSTANCES

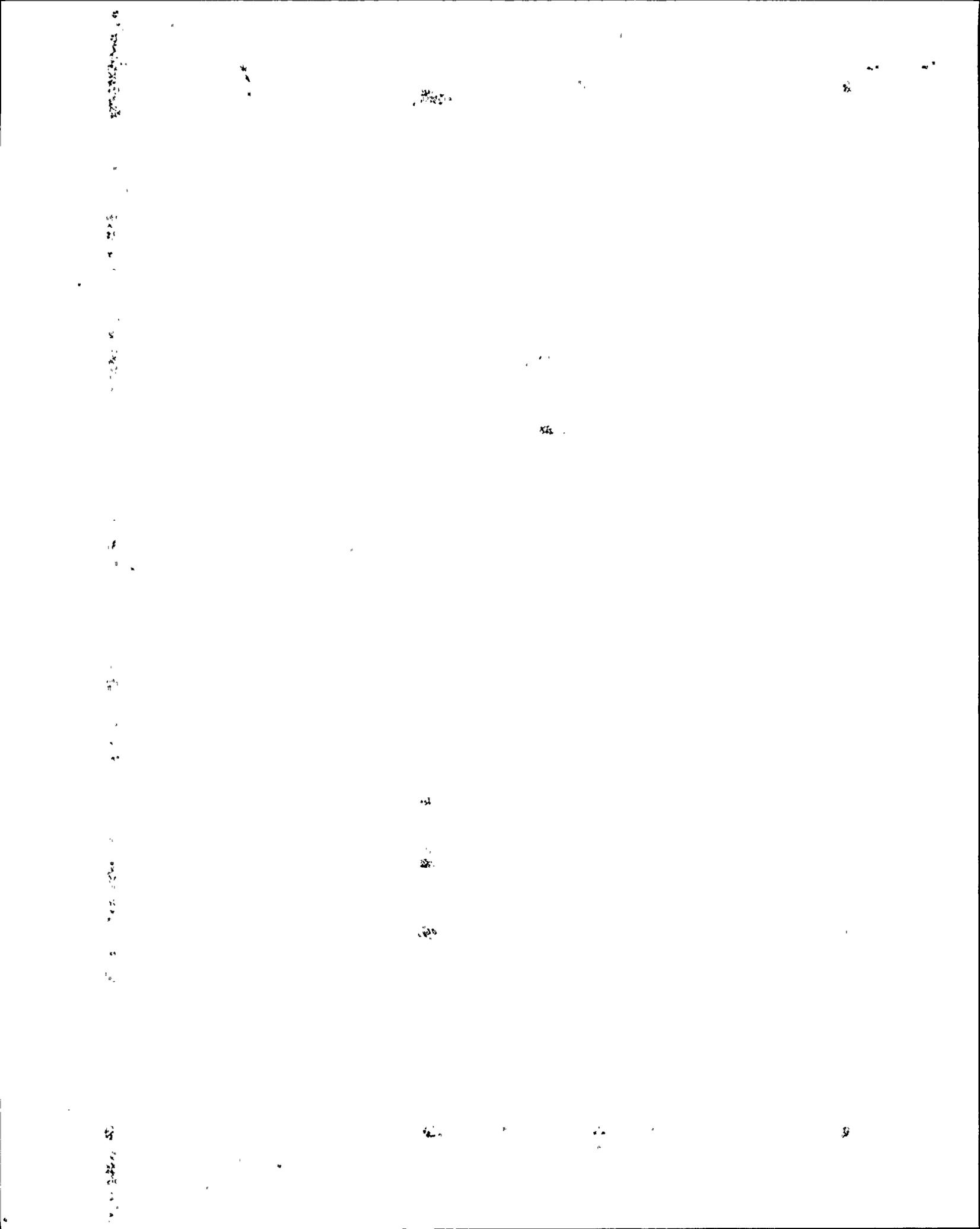
As the Commission noted in its new statement of interim policy, the staff has identified in the past special circumstances which would warrant more extensive consideration of Class 9 accidents. The special circumstances fell within three categories: (1) high population density around the proposed site, *i.e.*, above the trip points in the Standard Review Plan (NUREG 74-087, September 1975) and Regulatory Guide, 4.7, *General Site Suitability Criteria for Nuclear Power Stations* (November 1974); (2) a novel reactor design (a type of power reactor other than a light water reactor); or (3) a combination of a unique design and a unique siting mode.<sup>3</sup>

<sup>3</sup>See 45 FR 40102 (June 13, 1980); *Public Service Electric and Gas Company* (Salem Nuclear Generating Station, Unit 2), DD-80-17, Docket No. 50-311. "Director's Denial of Request under 10 CFR 2.206," at 33 n. 21 (April 16, 1980). In the first category fell the Perryman site, for which the staff performed an informal assessment in the early site review of the relative differences in Class 9 accident consequences among the alternative sites. The Clinch River Breeder Reactor, a liquid metal cooled fast breeder reactor which is different from the more conventional light water reactor, fell within the category of novel reactor design, and the staff included a discussion in the final environmental statement (NUREG-0139, February 1977) of its consideration of Class 9 accidents.

The floating nuclear power plants represented the third category of special circumstances, a combination of unique design and a unique siting mode. Because the plants would be mounted on a floating barge, there would be no soil structure to retard the release and dispersal of activity beneath the plant following a core melt accident as would be the case for land-based plants. The staff concluded that the most likely exposure to the population from the liquid pathway for a floating nuclear plant is significantly greater than for a land-based plant.

In view of the Commission's intention in *Offshore Power Systems*, *supra* note 1, that the staff bring to the Commission's attention individual cases in which the staff believes environmental consequences of Class 9 accidents should be considered, the

(FOOTNOTE CONTINUED ON NEXT PAGE)



In *Public Service Company of Oklahoma* the Commission noted in addition to these three criteria that proximity of a plant to a "man-made or natural hazard" might also represent "the type of *exceptional* case that *might* warrant additional consideration." The results of the staff's review for "special circumstances" follow.

#### Diablo Canyon

As described in Section 4 of the Safety Evaluation Report<sup>4</sup> and Section 1.3 of the Final Safety Analysis Report<sup>5</sup> the Nuclear Steam Supply System for each unit of the Diablo Canyon plant is a Westinghouse pressurized water reactor using a four-loop coolant system. The reactor design is basically similar to that of several other Westinghouse reactor designs (Trojan, Zion 1 and 2, and D.C. Cook plants). The Diablo Canyon plant is, therefore, a typical light water reactor facility and the design is not novel.

The Diablo Canyon plant is located in a remote, undeveloped and relatively uninhabited region of San Luis Obispo County. Within 10 miles of the plant, the 1970 resident population density was about 20 person per square mile. Within radii of 20 and 30 miles, the densities were 55 and 40 residents per square mile, respectively. The population densities were projected to approximately double by the year 2000. Thus remaining well within the guidelines of Regulatory Guide 4.7 and 10 CFR Part 100. Therefore, population distribution near the plant is not an unusual circumstance warranting reopening or expanding proceedings on Diablo Canyon.

The Diablo Canyon plant also does not represent a "combination of a unique design and a unique siting mode." The Diablo Canyon site is located adjacent to the Pacific Ocean, which is the only surface water body which could be affected by liquid releases from a Class 9 accident.<sup>6</sup> Ground water near the site is limited to the streambed of Diablo Canyon Creek, an intermittent stream which empties into the ocean. The sandstone bedrock underlying station foundation is, at most, partially saturated (i.e., no water

<sup>4</sup>(FOOTNOTE CONTINUED FROM PREVIOUS PAGE)

staff reviewed these categories of special circumstances for purposes of responding to two other petitions under 10 CFR 2.206 which requested consideration of Class 9 accidents. *Public Service Electric and Gas Company, supra*, and *Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), DD-80-6, Docket Nos. 50-443 and 50-444, "Director's Decision under 10 CFR 2.206" (February 11, 1980).

<sup>4</sup>Safety Evaluation Report for Diablo Canyon Station, Units 1 and 2 (October 1977).

<sup>5</sup>Final Safety Analysis Report for the Diablo Canyon Station, Units 1 and 2.

<sup>6</sup>The staff uses the term "Class 9 accident" in the ensuing discussion only for the purposes of evaluating, as provided in the Commission's new interim policy, whether "special circumstances" that would warrant reopening or expanding proceedings exist for plans which were reviewed under the now withdrawn Annex.

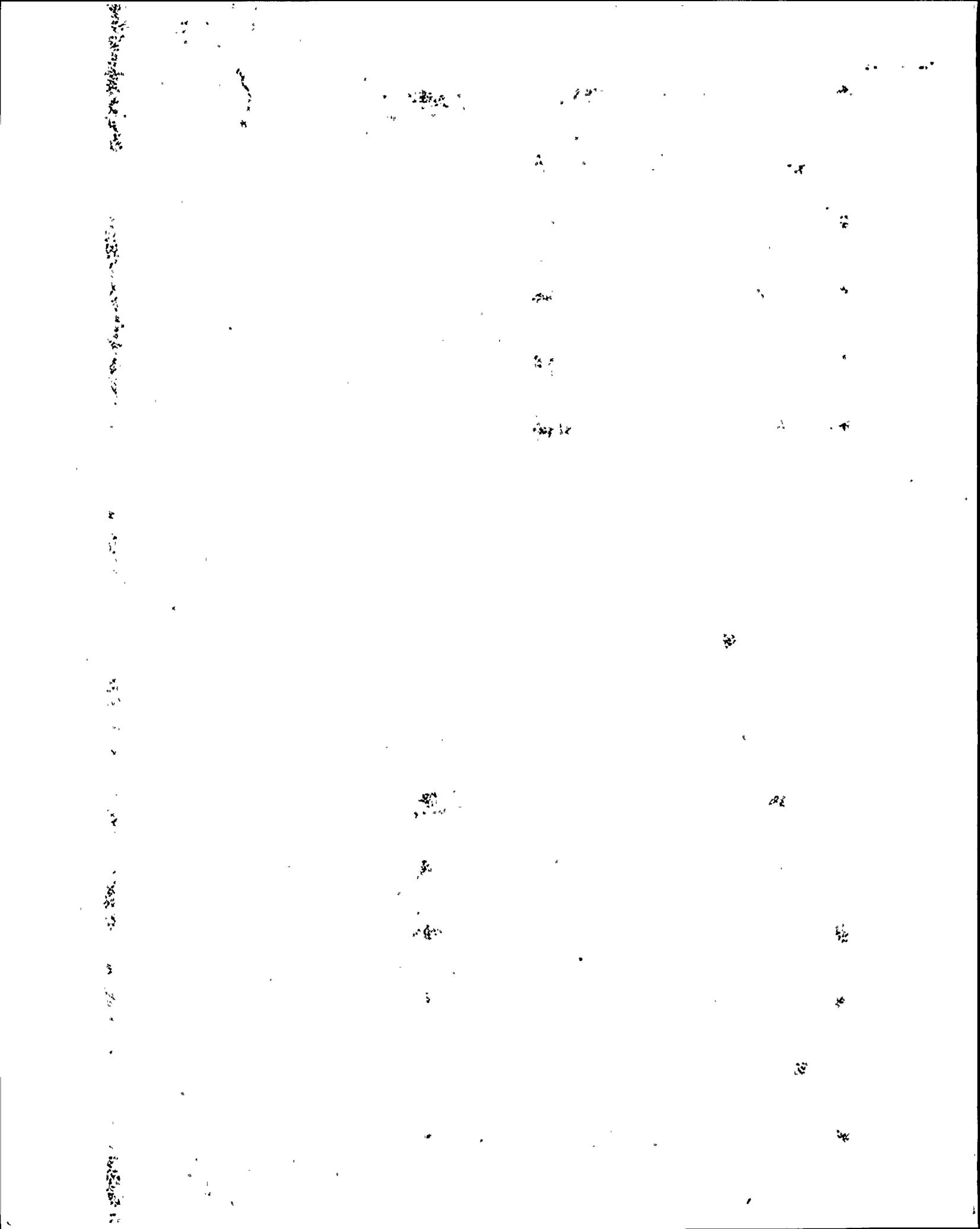


table) for a considerable vertical distance. Its low permeability, combined with the lack of a near surface water table, would preclude lateral movement of contaminated water from the station toward the ocean at more than an extremely slow rate. As a minimum, many years would be available to interdict any such flow. Therefore, there are no unusual hydrogeologic features of the site which would warrant consideration of the environmental consequences of a Class 9 accident.

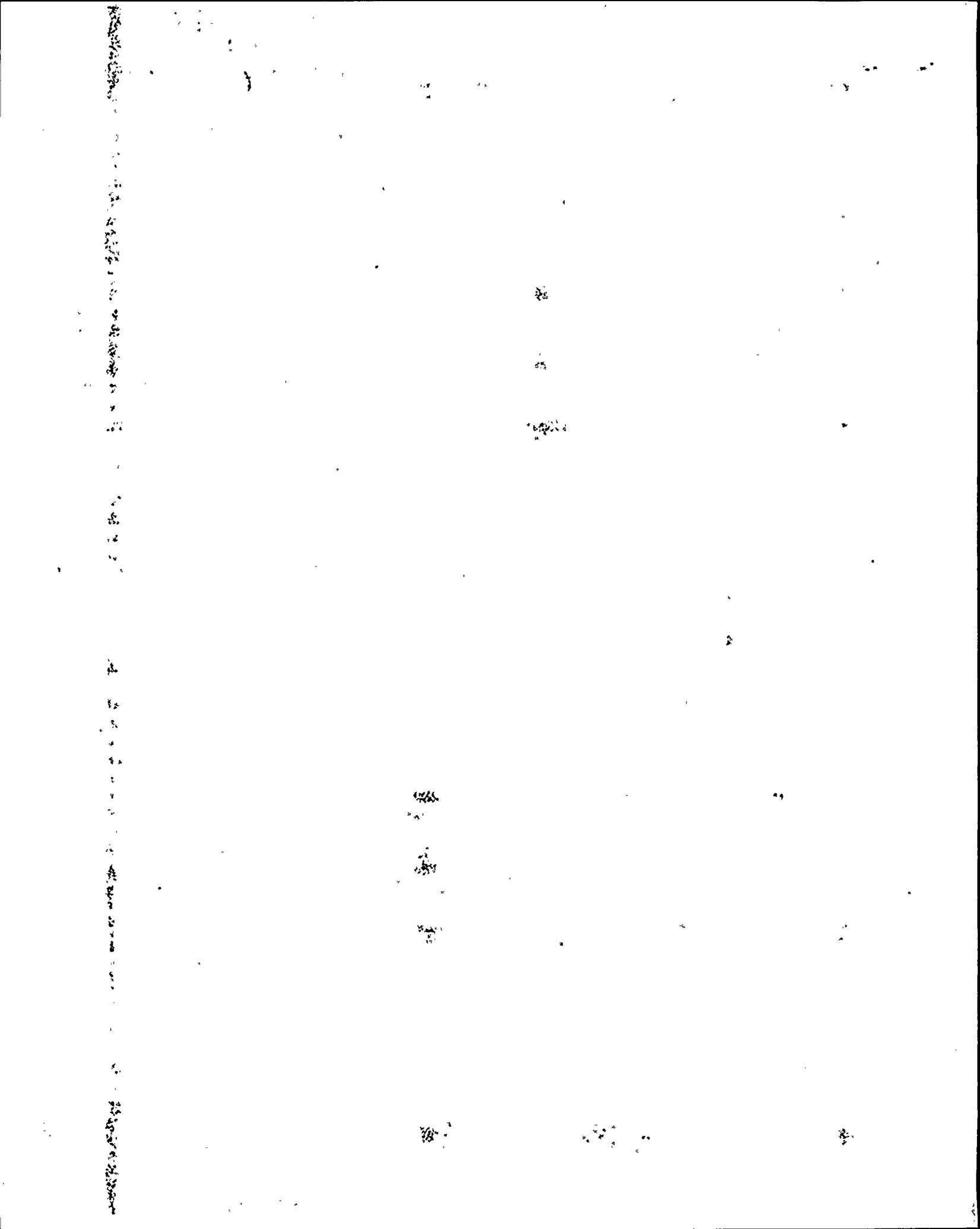
The staff analyzed the site characteristics and other nearby features to assure the potential for impairment of safety-related portions of station facilities due to natural or man-made hazards occurring nearby. The Safety Evaluation Report states the staff conclusion that there are no industrial, transportation, or military facilities in the area of the site which have potential to adversely affect plant safety systems. The staff review specifically ensures that station design is adequate to accommodate other natural characteristics of the site environs. The staff review has not identified any unusual circumstances with respect to external hazards that would warrant reopening or expanding proceedings on Diablo Canyon.

Briefly stated, none of the "special circumstances" which would warrant reopening or expanding proceedings is present for the Diablo Canyon plant. An additional factor would weigh in favor of not considering special regulatory action under 10 CFR 2.206. Following the occurrence of the Three Mile Island accident, the Joint Intervenors filed on May 9, 1979, a motion with the Atomic Safety and Licensing Board currently sitting in the case to reopen the record for further consideration of "Class 9" accidents at Diablo Canyon. On May 24, the NRC staff proposed that the Board defer implications for Diablo Canyon. On May 24, the NRC staff proposed that the Board defer ruling on the motion pending completion of the staff report on TMI and its specific implications for Diablo Canyon. On June 5, the Board agreed to defer its ruling. The staff report has not been completed and consequently the Board has not yet ruled on the motion to reopen the record for further consideration of "Class 9" accidents. In view of the pendency of the proceedings before the Licensing Board, the staff believes that it would be inappropriate to institute another proceeding at the FOE's request.<sup>7</sup>

#### **Palo Verde**

The Palo Verde Nuclear Generating Station, currently under construction, will have three Combustion Engineering, Inc. "system 80" type pressurized water reactors to provide steam for the turbogenerator system.

<sup>7</sup>This view is consistent with the Commission's decision in *Consolidated Edison Co.* (Indian Point Station, Units 1-3), CLI-75-8, 2 NRC 173, 177 (1975). The staff also notes the Commission has ordered that no new operating licenses may b

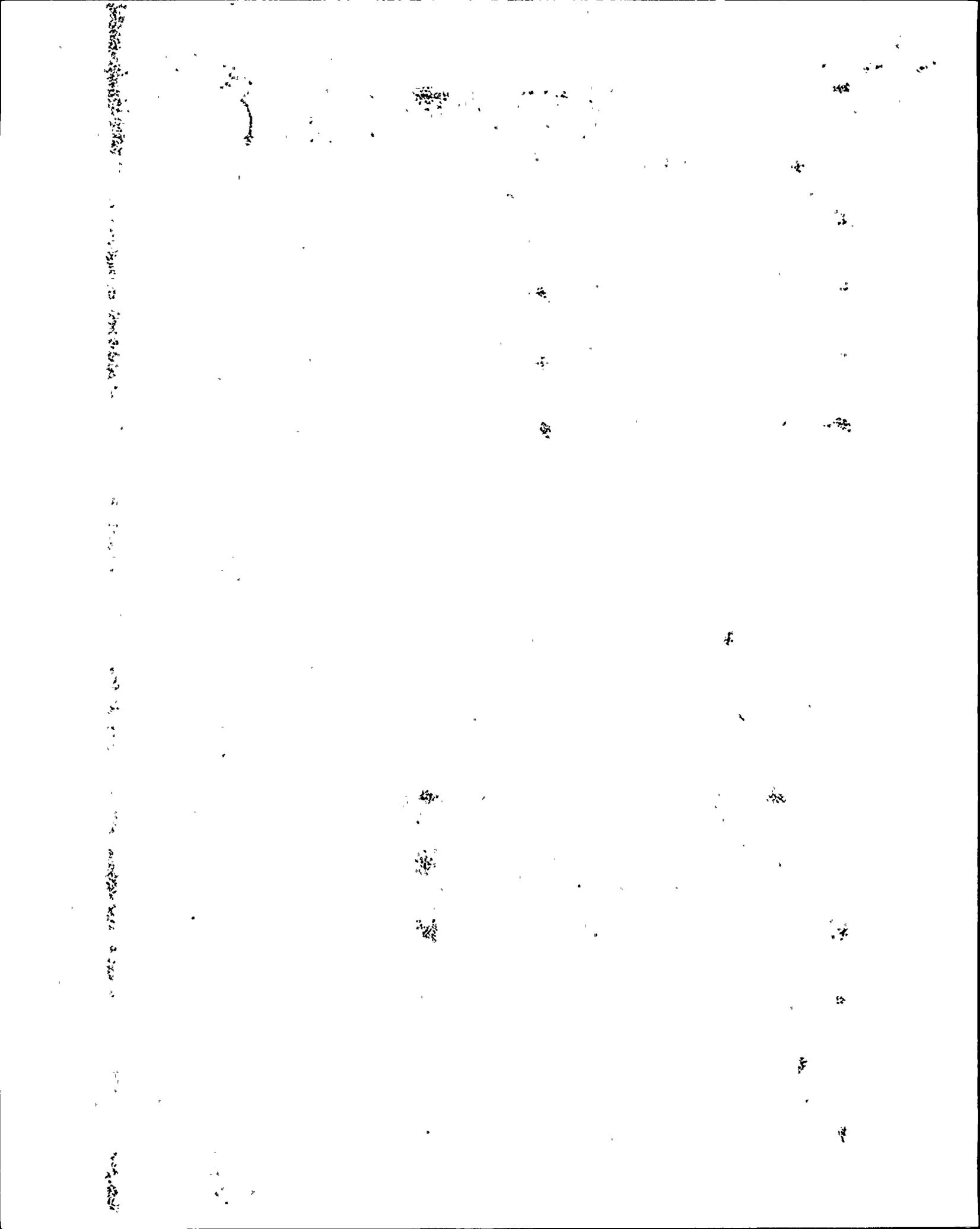


Heat will be transferred from each reactor core to steam generators by circulating pressurized water in two closed loops containing two pumps in each loop. The reactors are described in detail in the Safety Evaluation Report for this station (NUREG 75-098, issued on October 10, 1975) and in the Preliminary Safety Analysis Report. Reactors of similar design were used in the Perkins and Cherokee plants. The Palo Verde reactors may, therefore, be considered typical light water reactors not of a novel design.

The desert area in the immediate vicinity of the Palo Verde site is very sparsely inhabited. The 1970 population densities within radii of 10, 20, and 30 miles were 6, 7, and 7 residents per square mile, respectively. The corresponding projected densities in the year 2000 were 18, 23, 21 residents per square mile, respectively. These population densities are well within the guidelines of Regulatory Guide 4.7 and 10 CFR Part 100. Therefore, population distribution near the plant is not a "special circumstance."

The Palo Verde plant is located in an arid region which had been irrigated before 1975. Return flows from this irrigation percolated through the upper granular soils and perched on top of thick zone of relatively impermeable material. This perch water mound is slowly spreading laterally and downward. If this water were contaminated by severe accident, it would migrate slowly downward through the aquitard to the regional aquifer about 200 feet below the surface. The staff estimated that it would take about 5000 years for the contaminated liquid to reach water wells 2 miles south of the station. Due to this slow rate of groundwater movement, there would be less than average difficulty in interdicting any radioactivity releases from a Class 9 accident by the groundwater pathway, should such action be necessary. In view of the above considerations, there is not, in the case of the Palo Verde Station, a "combination of unique design and unique siting mode."

The staff analyzed the site characteristics and other nearby features to assess the potential for impairment of safety-related portions of station facilities due to natural or man-made hazards. The Safety Evaluation Report states the staff's conclusion that there were no off-site hazards which required special consideration in the design of the proposed Palo Verde facilities, except the military aircraft training flights operating out of Luke Air Force Base. The staff has analyzed the existing Air Force program for such flights, the Air Force arrangements for notification of the applicant of changes in flight routes or training programs at Luke Air Force Base as they may relate to the Palo Verde station, the probability of aircraft impacts on the station facilities, and experience from other sites. Supplement No. 1 to the Safety Evaluation Report states the staff conclusion that existing arrangements are acceptable. The staff review has not identified any unusual circumstances with respect to external hazards that would warrant



special considerations of Class 9 accidents. These matters would be given further consideration by the staff in the event that there is a significant change in circumstances. The aircraft impact issue and other safety considerations will be examined again during operating license review.

In sum, then, there are no unusual circumstances which would warrant reopening the construction permit proceeding for Palo Verde. The staff notes, however, that the final environmental statement for the Palo Verde operating licenses will be subject to the more extensive accident analysis prescribed by the Commission's new interim policy.

#### **Rancho Seco**

The Rancho Seco Nuclear Generating Station consists of a single Babcock and Wilcox pressurized water reactor with a net electrical power capacity of 913 Mw. Heated pressurized water is circulated from the reactor to two steam generators which provide steam to drive a Westinghouse turbine generator. The reactor design is generally similar to that of other Babcock and Wilcox reactors such as are used at the Davis-Besse, Arkansas 1, Indian Point 1, Oconee 1-3, Crystal River 3, and Three Mile Island plants.

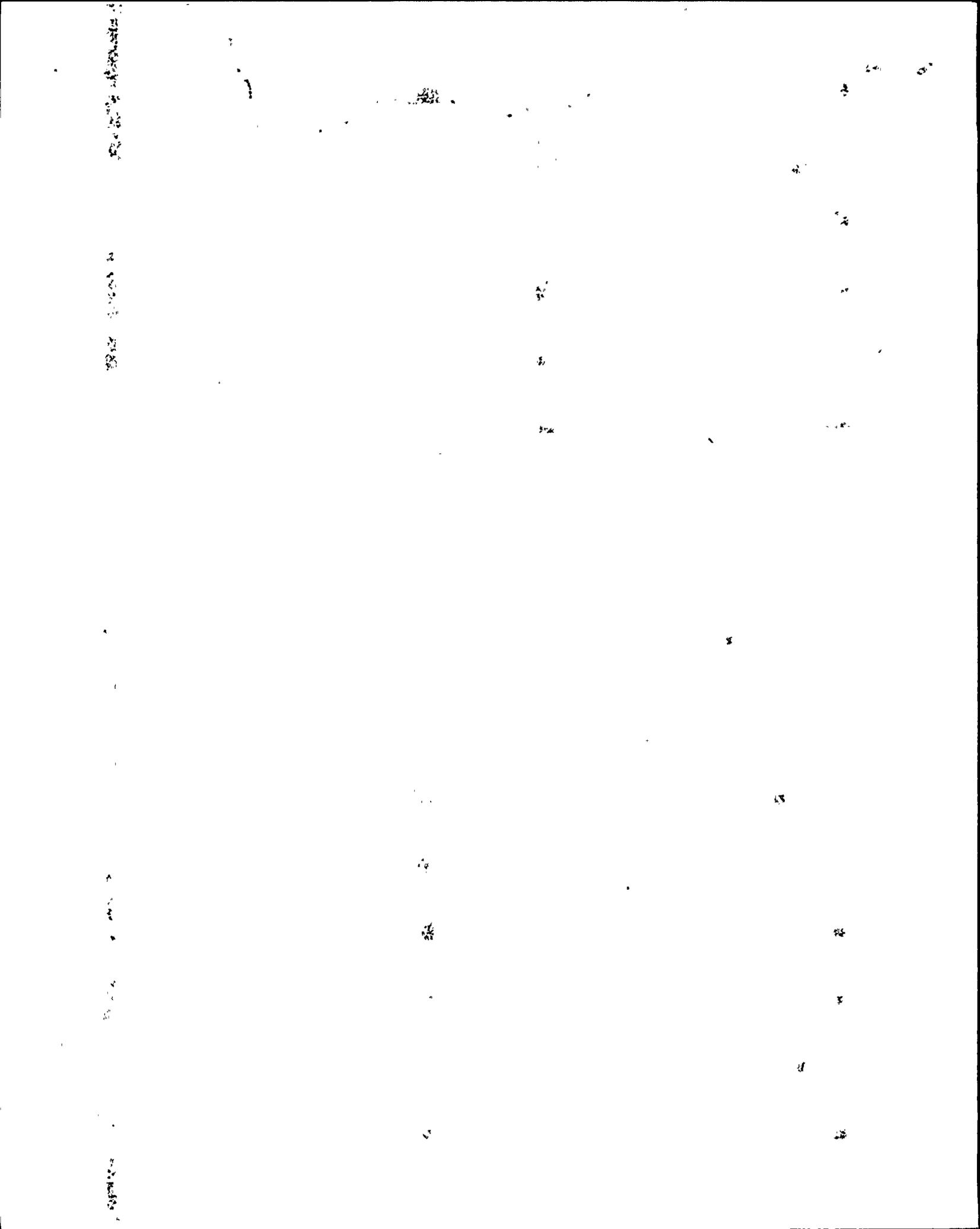
Following the March 28, 1979, accident at Three Mile Island, Unit 2, the NRC has placed a number of special requirements on all operating reactors, particularly Babcock and Wilcox reactors, to minimize the probability of an accident of the Three Mile Island type. Pursuant to its Order of May 7, 1979, 44 FR 27779, the Commission imposed requirements on the Rancho Seco facility which involve changes in reactor design, in operator training and in operating procedures. A hearing, to which FOE was a party (FOE has since withdrawn) is currently being conducted on the Order. In addition, the Rancho Seco facility is subject to an Order, 45 FR 2447 (January 11, 1980), imposing the short-term "Lessons Learned" requirements described in NUREG-0578. The Rancho Seco plant is currently undergoing staff review to assure that its design and operation satisfy these requirements. (The Diablo Canyon and Palo Verde units will also have to meet similar requirements and undergo staff review.) When the required changes in reactor design, operator training and operating procedures have been carried out and approved, the staff believes that there will be reasonable assurance that the Rancho Seco facility can be safely operated. In view of these required changes and general similarity of Babcock and Wilcox design to that of other pressurized water reactors, the Rancho Seco design is not considered novel, but rather typical for a land-based pressurized water reactor.



The Rancho Seco vicinity is sparsely populated with 1970 population densities of 19 residents per square mile within a radius of 10 miles and 95 residents per square mile within 20 miles. However, the cities of Sacramento and Stockton, about 25 miles away, raise the 1970 population density to about 320 residents per square mile within a radius of 30 miles. In 1972, the Sacramento County Planning Commission estimated a population increase rate of 5.2% per year, as reported in the FES. At this high rate of increase, the population in the year 2000 would quadruple that in 1970, exceeding the population density guidelines for a 30-mile radius in Regulatory Guide 4.7. However, the FES also reports that the California Department of Finance predicted growth rates of 1.3% per year and 1.8% per year for Sacramento and San Joaquin Counties, the most populous counties near Rancho Seco. These growth rates resulted in population densities well within the guidelines for the year 2000. In reviewing the FOE's petition, the staff investigated population growth data from the Sacramento County Planning Commission for the years 1975 and 1979 for the populous counties around Rancho Seco. These factual data through the year 1979 indicate that a more realistic growth rate estimate is less than 3% per year. On this basis, the projected population in the year 2000 within 30 miles will remain within the guidelines of Regulatory Guide 4.7 and 10 CFR Part 100. Consequently, population distribution would not warrant re-opening proceedings on the Rancho Seco facility.

The Rancho Seco Station is located on gently rolling terrain about 25 miles southeast of Sacramento. Water bodies in the vicinity are small streams which are normally dry except during periods of high rainfall. The intermittent flow characteristics of these streams indicate that they are not fed by groundwater. Liquid releases from a Class 9 accident would migrate slowly downward and southwestward into the groundwater. Using conservative assumptions, the staff estimates that it would take tens of years for contaminated groundwater to migrate to the nearest well which is located at the site boundary. Due to this slow rate of groundwater movement, the staff concludes that there are no unusual features or special circumstances with regard to the groundwater contamination interdiction characteristics of this site that would distinguish it from other land-based light water reactor sites to the extent that, under the present Commission policy, warrants reopening environmental proceedings on Rancho Seco. The Rancho Seco Station does not represent a "combination of unique design and unique siting mode."

The staff analyzed the site characteristics and other nearby features to assess the potential for impairment of safety-related portions of the station facilities due to natural or man-made hazards. The Safety Evaluation Report states the staff conclusion that the nature and remoteness of



industrial, transportation and military facilities in the region of the site preclude their posing a hazard to the safety features of the station. The staff also concluded that the station design is acceptable in relation to the geologic, seismic, and foundation conditions of the site. The staff review has not, therefore, identified any unusual circumstances with respect to external hazards. The staff would conduct further assessments and actions in the event of significant changes in these circumstances.

In summary, there are no special or unusual circumstances surrounding the Rancho Seco Station which would warrant re-opening environmental proceedings on the facility.

The staff has proposed a further detailed NRC study of the hydrologic features of all reactor sites, according to the task action plans described in Draft NUREG-0660. The liquid pathway interdiction study is designated Task Action III.D.2. The brief discussions given above, based on currently available data, indicate that there is small likelihood of any hydrologic problems at Diablo Canyon, Palo Verde and Rancho Seco. In the event that significant possible impacts are identified in the more thorough study, methods of interdiction and mitigation will be specified. A number of mitigation methods are available, including pumping and construction of slurry walls.

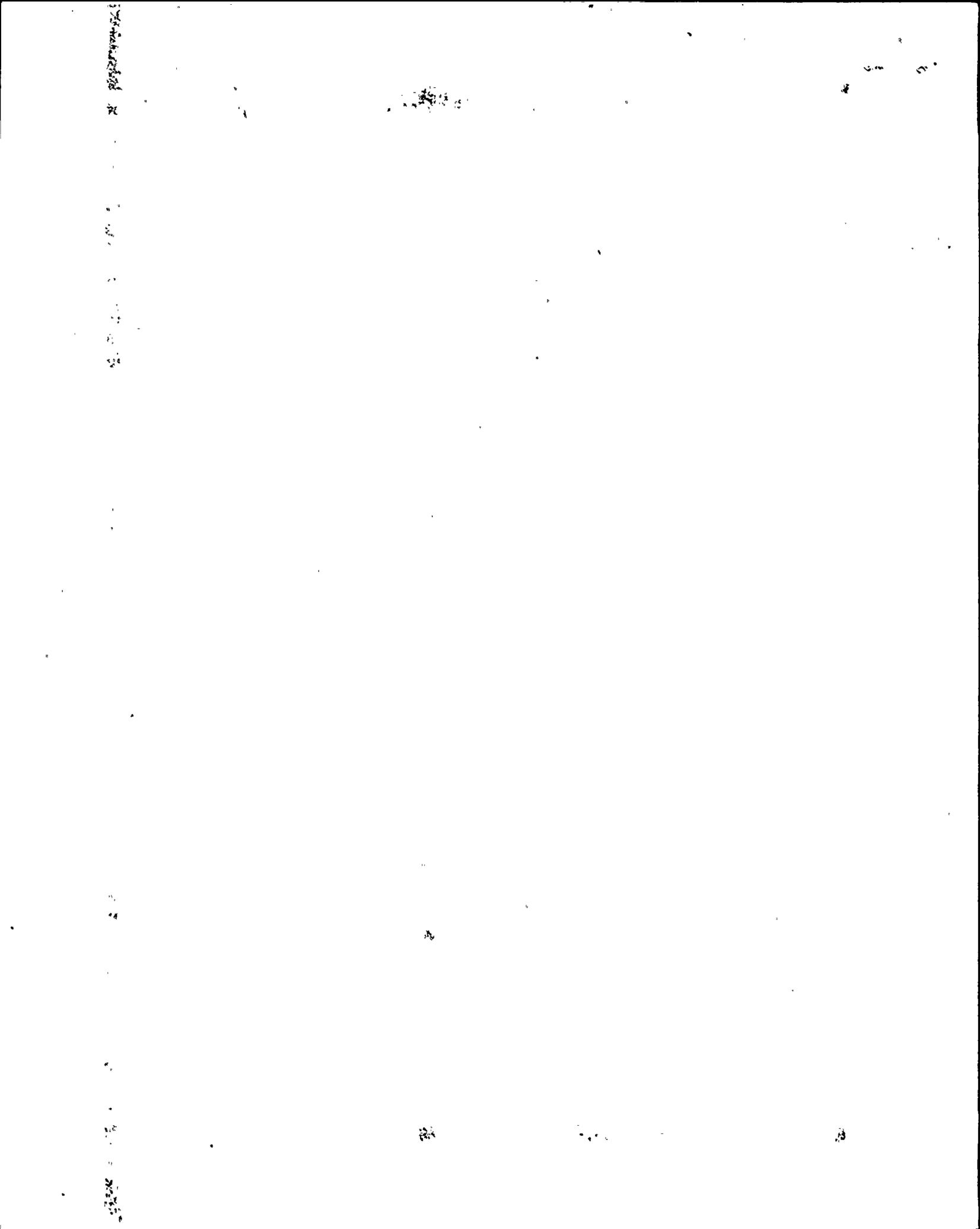
### III. OTHER CONSIDERATION GIVEN TO SEVERE ACCIDENTS

The FOE emphasizes in its petition the need "to prepare to meet the possible consequences" of a serious accident at reactor sites. The staff believes that the Commission is taking positive measures to prevent severe accidents and to mitigate their consequences. The Commission noted a number of these measures in its new statement of interim policy on accident considerations. Among these measures taken or under consideration by the Commission and the staff are:

A proposed rule issued for public comment, 44 FR 75167 (December 19, 1979), which would significantly revise requirements in 10 CFR Part 50 for emergency planning at nuclear power plants.

Recommendations of the Siting Policy Task Force (see NUREG-0625, August, 1979) with respect to possible changes in the reactor siting policy and criteria set forth in 10 CFR Part 100. One goal of the recommendations is to consider in siting the risk associated with accidents beyond the design basis (i.e., Class 9) by establishing population density and distribution criteria.

Proposed "Action Plans" (see Draft NUREG-0660, December 1979) for implementing recommendations made by bodies that have investigated the Three Mile Island accident. Among other matters these plans incorporate recommendations for rulemaking related to degraded core cooling and core melt accidents.



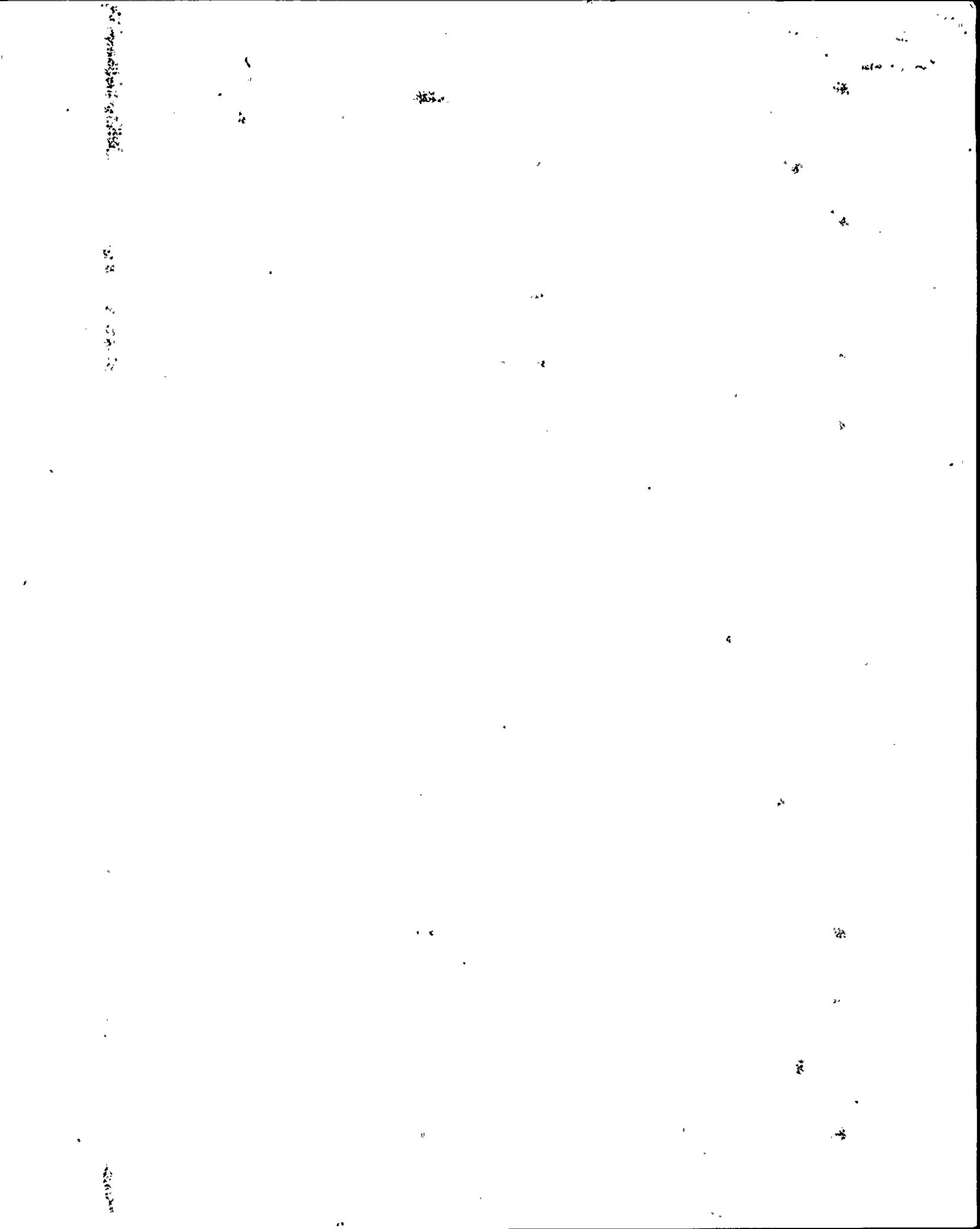
Imposition of additional requirements on operating reactors, e.g., the short-term "lessons-learned" recommendations. See "TMI-2 Lessons Learned Task Force Status Report and Short-term Recommendations," NUREG-0578 (1979), and Orders published in 45 FR 2427-2455 (January 11, 1980).

As the Commission stated in its new interim policy, "It is the Commission's policy and intent to devote NRC's major resources to matters which the Commission believes will make existing and future nuclear power plants safer, and to prevent a recurrence of the kind of accident that occurred at Three Mile Island." 45 FR at 40104.

#### IV. CONCLUSION

The staff has concluded that no "special circumstances" exist which would warrant reopening environmental proceedings for the Diablo Canyon, Palo Verde, and Rancho Seco nuclear plants. In the staff's view, the "special circumstances" standard under the Commission's new interim policy is appropriate for judging whether past NEPA reviews should be reopened. An administrative agency is empowered to revise its policies in an evolutionary process as it gains experience in the application of the laws which the agency is charged to administer. See *NLRB v. J. Weingarten, Inc.*, 420 U.S. 251, 265-67 (1975); cf. *Vermont Yankee Nuclear Power Corporation v. Natural Resources Defense Council*, 435 U.S. 519 (1978). Thus, a change in policy to allow broader consideration of accidents in future NEPA reviews does not invalidate the findings in past reviews under the Annex, particularly in light of judicial approval of the Commission's past practice. See note 1 *supra*. By establishing a "special circumstances" standard for reopening completed environmental reviews, the Commission has recognized that it may be appropriate to supplement a past environmental review under certain circumstances in view of the transformation in policy which the Commission is undertaking. The staff does not believe, however, that such "special circumstances" are present in the three instant cases. In all events, NEPA does not require an agency to reopen the environmental record unless new information or circumstances would clearly mandate a change in result. *Greene County Planning Board v. FPC*, 559 F.2d 1227, 1233 (2d Cir. 1976), *cert. denied*, 434 U.S. 1086 (1978).

With respect to the Commission's "repudiation" of WASH-1400 as a basis for FOE's request that supplemental environmental statements be issued, the staff notes that WASH-1400 published in draft form in 1974 did not form the bases for the 1971 Annex's conclusion that the probability of occurrence of Class 9 accidents was too low to warrant their site-specific consideration under NEPA. See 45 FR at 40102; *Pennsylvania Power and Light Company* (Susquehanna Steam Electric Station, Units 1 and 2), LBP 79-29, 10 NRC 586, 589 (1979). The Commission's policy statement on



WASH-1400 in light of the critique of the study by the Risk Assessment Review Group does not provide, therefore, a basis for reopening the environmental record for the three plants at issue.

Finally, the staff again notes that the Commission has taken several actions by rulemaking and by order to assure that adequate measures are taken to prevent serious accidents, like the one at Three Mile Island, and to mitigate the consequences of serious accidents. In view of the foregoing, the petition of the FOE is denied.

A copy of this decision will also be filed with the Secretary for the Commission's review in accordance with 10 CFR 2.206(c) of the Commission's regulations. As provided in 10 CFR 2.206(c), this decision will constitute the final action of the Commission twenty (20) days after the date of issuance, unless the Commission on its own motion institutes the review of this decision within that time.

Harold R. Denton, Director  
Office of Nuclear Reactor  
Regulation

Dated at Bethesda, Maryland  
this 19th day of June 1980

