

COMMENTS OF THE
NEW ENGLAND COALITION
ON NUCLEAR POLLUTION
ON THE
DRAFT ENVIRONMENTAL STATEMENT
RELATED TO THE OPERATION OF
SEABROOK STATION,
UNITS 1 AND 2
DOCKET NOS. 50-443 AND 50-444
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, ET AL.

JULY 6, 1982

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Introduction

The draft environmental statement for the Seabrook nuclear facility is an incomplete, cursory and misleading document which completely fails to satisfy the mandates of the National Environmental Policy Act. An environmental impact statement must provide "a record upon which a decision-maker could arrive at an informed decision." Sierra Club v. Froehlke, 486 F. 2d 946, 950 (7th Cir. 1973). In addition, it must "make available to the public, information on the proposed project's environmental impact and encourage public participation in the development of that information." Trout Unlimited v. Morton, 509 F. 2d 1276, 1282-3 (9th Cir. 1974). The responsible agency must "go beyond the mere assertions and indicate its basis for them' so that the end product is 'an informed and adequately explained judgment.'". Public Service Company of New Hampshire, (Seabrook Station, Units 1 and 2), ALAB-471, 7 NRC 477 (1978), quoting Silva v. Lynn, 482 F. 2d 1282, 1287 (1st Cir. 1973).

The great gaps of information in this DES, tenuously spanned by uninformative, conclusory statements, preclude any informed decision on the costs and benefits of operating the Seabrook nuclear station. The public's task, in commenting on such an incomplete and poorly documented statement, is not just to "participate" in the decision but

to reconstruct the proper contents of the DES. Thus, the NRC unfairly and illegally shifts the burden of "public disclosure" onto the shoulders of commentors, who are much less equipped for such a task.

NECNP believes this document must be redrafted and recirculated in order to provide the Commission and the public with the proper tools for assessing what is "the most intelligent, optimally beneficial decision" to be made about the operation of the Seabrook facility. Calvert Cliffs' Coordinating Committee v. Atomic Energy Commission, 449 F. 2d 1109, 1114 (D.C. Cir. 1971). Our comments on particular deficiencies in the DES are stated below.

1. Discussion of Beyond Design Basis Events

The DES's treatment of beyond design basis events violates the Commission's directives for the discussion of "Class 9 Accidents." "Nuclear Power Plant Accident Considerations Under the National Environmental Policy Act of 1969," Policy Statement of June 13, 1980, 45 Fed. Reg. 40101. The Commission requires that

Environmental Impact Statements shall include considerations of the site-specific environmental impacts attributable to accident sequences that can result in inadequate cooling of reactor fuel and to melting of the reactor core. In this regard, attention shall be given both to the probability of occurrence of such releases and to the environmental consequences of such releases.

The DES's discussion of beyond design basis events is superficial and incomplete, failing to inform reviewers or the public of the nature or magnitude of risks associated with a major accident. In particular, we note the following deficiencies.

One of the most striking omissions of the DES is its failure to describe the phenomenology of core melt accidents and their causes. The NRC Policy Statement requires the DES to discuss in-plant accidents that can lead to a spectrum of releases, including sequences that can result in inadequate cooling of reactor fuel and melting of the reactor core. The DES must also discuss external causes of accidents. Aside from acknowledging that core melts can occur, the DES gives no attention to the causes or effects of core melt accidents, making it impossible for the reviewer to weigh possible mitigative actions. Similarly, although core melt with containment breach poses the greatest risk to the public, the DES fails to discuss it or possible mitigative measures such as improved hydrogen control, filtered venting, or passive cooling systems. The fact that the Applicant may comply with Commission regulations does not conclusively establish the insignificance of the associated impacts and does not excuse the Staff from discussing them. See Public Service Company of Oklahoma (Black Fox Station, Units 1 and 2), 12 NRC 264, 277, (1980).

The risk of serious accidents is also given superficial and misleading treatment in the DES. Uncertainties in the computer codes used to calculate probabilities, in calculations of dose-response relationships, and in projecting accident consequences, are exposed only to the extent that the Staff acknowledges some uncertainty. However, the Staff does not present a complete and adequate discussion of the range of uncertainties. More important, the Staff does not incorporate the range of uncertainty into its overall assessment of risks. NEPA requires that the DES either disclose completely the magnitude of uncertainty and its impact on risk, or consider only the upper bounds of reasonably foreseeable environmental costs. NRDC v. NRC, No. 74-1586, D.C. Circuit, April 27, 1982, slip op. at 51.

Only four types of beyond design basis events are examined at all in the DES, the explanation given that these are expected to "dominate risk from the RSS-PWR design." DES at 3.2. Much more explanation than this is required to justify the DES's silence on even some of the thousands of other possible accident sequences to which Seabrook may be vulnerable. See WASH-1400. In particular, the Staff must justify its choice of bounding events which it fails to do. The history of unexpected near disasters from Browns Ferry to Three Mile Island emphasizes the need for careful analysis and justification of any such attempt to bound uncertainties. Furthermore, the DES fails to consider the

specific characteristics of the Seabrook facility and their effect on the causes of beyond design basis events.

The DES is also seriously deficient with respect to the required discussion of environmental consequences of a beyond design basis event. First, the risk of consequences in the event of a serious accident is not made specific to the Seabrook facility. In particular, the DES gives virtually no consideration to the particular features of the Seabrook facility which might affect the dimensions of those sequences. No independent analysis whatsoever is performed on the extent to which the Applicant's emergency plan will mitigate adverse effects. The DES merely accepts that a plan in conformance with NRC regulations will be issued without discussing any details of the plant which would allow objective consideration of its mitigative effect. The peculiar features of the Seabrook area, which lend considerable uncertainty to the probability that an evacuation can be carried out safely, are not mentioned. For instance, there is no mention of the limited exit routes, traffic problems, or the large number of tourists gathered along the narrow beach road in the summer. Most incredibly, in assessing radiological health effects, the DES accepts the Applicant's evacuation time assessments--critical supports for the assurance of evacuability--without even discussing what those figures are or their basis, let alone performing an independent evaluation

of their validity. The efficacy of an emergency plan is one of the crucial determinants of the cost of operating a nuclear power plant. The failure to provide any kind of evaluation of the Seabrook emergency plan is fatal to this draft environmental statement. Furthermore, the validity of any evaluation would be questionable in the absence of completed offsite state and local plans, which have not yet been submitted for Seabrook. The DES should be recirculated with an adequate assessment of both the onsite and offsite plans.

Finally, the risk of beyond design basis events is given virtually no weight in the cost-benefit analysis because the Staff has concluded that the probability of such an accident is extremely low. The fallacy of this shallow treatment is most clearly shown by the fact that four beyond design basis events have now occurred at U.S. nuclear reactors, at Three Mile Island, Rancho Seco, and Browns Ferry (where two such accidents occurred.) In fact, this is exactly the kind of treatment which the Commission's Policy Statement was designed to redress. The NRC Staff ignores the conclusion of the Brookhaven National Laboratories, made under contract with the NRC, that beyond design basis accidents dominate the risk to the public. NUREG/CR-0603. At the very least, the DES should discuss why the cost/benefit analysis does not favor improving both plant capability to withstand accidents and emergency planning for the Seabrook area.

2. Need for Power

NECNP believes that the Seabrook DES should include a discussion of the need for power, for two reasons. First, although the DES states that need for power is not treated therein, the DES cost benefit analysis lists the electricity to be generated by the plant and the improvement of PSC's and NEPOOL's ability to supply system load requirements as benefits of the proposed action. DES at 6-4. In fact, these constitute two of the three "large" benefits to be derived from operation of the Seabrook plant. Table 6.1. As the Appeal Board has noted, need for power is "a shorthand expression for the 'benefit' side of the cost-benefit balance which NEPA mandates for a proceeding considering the licensing of a nuclear power plant." Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station); Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-421, 6 NRC 33, 90 (1977). The DES, therefore, improperly uses the need for power factor in its cost-benefit analysis without discussing the basis for the finding of benefit.

If there is no need for power at Seabrook, the added capacity cannot be included in the cost/benefit equation as a "benefit." Indeed, absent a showing of need for power, justification for the proposed operation of the plant is "problematical." Id. If added capacity is to be factored into the cost-benefit equation as a benefit, some documentation

should be provided in support of that finding. The DES should discuss whether current forecasts actually show a need for the power to be generated by the Seabrook plant. The NRC should either adhere to its Commitment not to discuss need for power in this DES, or provide a complete discussion supporting its inclusion in the cost-benefit analysis.

A second reason for including a discussion of need for power in the DES is that energy demand is growing much more slowly than expected at the time that the construction permit for Seabrook was issued. Recent forecasts by the Applicant, the New England Power Pool (NEPOOL), the Public Utilities Commission, and Energy Systems Research Group, a consultant to NECNP, all show that peak energy demand growth over the next decade will be significantly lower than predicted when the construction permit was issued. Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), LBP-76-26, 3 NRC 857, 929-33 (1976). At that time, the Licensing Board declined to consider already-dropping demand rates because of the difficulty in predicting whether they were only temporary reactions to the oil shortage and recession of the mid-1970's. 3 NRC at 929. However, energy demand has continued to drop, and the need for both units of the Seabrook reactor is more questionable than ever. The Applicant, which at the

construction permit stage had predicted a 7.3% peak demand growth rate, last year predicted a rate of 3.7%.1/ Energy Systems Research Group predicts the same average rate of peak demand growth for 1978-2000.2/ NEPOOL's forecast is even lower: 2.1% over the next decade.3/ The Public Utilities Commission, which last year forecast a 3% peak demand growth rate for Public Service Company, may lower its forecast in the near future, as PSC's peak demand has grown by only 1% in the last six years.4/ Assuming growth rates in the range of 1 to 3.7%, PSC would not need to begin operating Unit 1 of the Seabrook plant for between 5 to 18 years.5/ In fact, neither unit is needed and both can be replaced by less costly and more efficient sources of power.

1/ Olinger, "The Future: Power to Spare." Concord Monitor, May 8, 1982.

2/ Energy Systems Research Group, "Base Case Forecasts of Energy and Peak for New England States," April, 1980.

3/ Olinger, supra.

4/ Id.

5/ Olinger, supra. (18 year figure extrapolated from Olinger's prediction of 5 year lag a 3.7% growth rate)

Need for power is the fundamental, indeed only, justification for construction and operation of a nuclear power plant. ALAB-421, supra, at 90. A cost/benefit analysis which relies on a need for power determination which is known to be outdated and erroneous cannot legally be used to judge the merits of operating a nuclear plant. Current information shows that the need for power determination at the construction permit stage was based on substantially overestimated demand forecasts. Even the Applicant's peak demand forecasts are significantly more conservative today than they were in 1976. This new information raises questions as to whether the Seabrook facility is needed at all.

When "significant new circumstances" arise or new information relevant to environmental concerns and bearing on the proposed action or its impacts," becomes available, an impact statement must be supplemented to reflect that change. CEQ Guidelines for the implementation of NEPA, 40 CFR 1502.9(c). The Board has a responsibility to assure itself "that the ultimate NEPA conclusions reached in the initial decision are not significantly affected by such new developments." Georgia Power Company (Alvin W. Vogtle Nuclear Plant, Units 1 and 2), ALAB-291, 2 NRC 404, 415 (1975). Although NRC regulations permit Applicants to omit discussion of the need for power in operating license stage DES's, the Commission may require the Applicant to do so. 10 CFR 51.23(e).

The DES asserts that need for power need not be considered at the operating license stage because the plant has already been substantially completed, and a finding of insufficient need would not tip the cost/benefit balance against operation of the plant. This reasoning is simply inapplicable to Unit 2, which is only 25% complete at this time. It is also invalid as to both units since the Staff's balancing fails to account properly and fully for the costs of the back end of the fuel cycle. NRDC v. NRC, No. 74-1586, D.C. Circuit, April 27, 1982.

The Staff also justifies the omission of a discussion of need for power on the ground that even in the absence of demand, nuclear power is cost-effective because it is cheaper than burning fossil fuels. Nowhere in the environmental statement is this assertion justified. The DES does not even discuss the nature of the other existing or planned power supply sources in the area. The assertion that nuclear power is cheaper than other fossil fuel power sources is not only subject to considerable debate, but unsupportable in light of the fact that the Commission's determinations on the costs of the back end of the uranium fuel cycle have been struck down by the D.C. Circuit. Unless and until the NRC re-examines its assessment of the costs of the nuclear fuel cycle, it has no basis for the assertion that nuclear power is cheaper than other forms of energy supply. NECNP submits

that re-examination of the need for power is required by NEPA in this case, especially with regard to Unit 2. The cost/benefit balance may indeed tilt toward abandonment of that unit in light of the new, clear evidence that energy demand has been drastically reduced. It may also tilt toward abandonment of both units when the costs of the back end of the fuel cycle are fully considered under NRDC v. NRC, supra.

3. In addition to the added capacity supplied by the Seabrook plant, the Staff has added local property taxes, employment, and payroll to the benefits side of the cost/benefit ledger. DES at 6-2. These factors constitute "transfer payments resulting in offsetting costs and benefits", and may not be included in a cost/benefit analysis. The DES must be corrected to omit their consideration. Arizona Public Service Company (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), ALAB-336, 4 NRC 3, 4 (1976); Vermont Yankee Nuclear Power Corporation (Vermont Yankee Nuclear Power Station) ALAB-179, 7 AEC 159, 177 (1974).

4. Reliance on Unavailable Sources

The DES provides no basis for its assertions that safety-related impacts of the Seabrook facility will be minimal because it relies on the Staff's Safety Evaluation Report (SER), which will not be made available to the public until at

last September of 1982, and may not even be completed at this time. The SER should contain the Staff's independent evaluation of the adequacy of safety features at the Seabrook plant. Without such an independent analysis, the Staff would be illegally relying on the assertions of the Applicant regarding the health and safety-related costs of the Seabrook plant. The Staff's independent determination that the plant can be operated safely is the cornerstone of its conclusion that the impacts of the plant will be minimal. NEPA unequivocally requires disclosure of the information supporting such a determination, as the "adequacy of the EIS must stand or fall on its own supporting documentation." Coalition for Canyon Preservation v. Bowers, 632 F. 2d 774, 783 (9th Cir. 1980). CEQ Guidelines for the implementation of NEPA also require that

If the information relevant to adverse impacts is essential to a reasoned choice among alternatives and is not known and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

40 CFR 1502.22. In this case, no cost would be incurred by waiting until the SER is available to circulate the DES. Construction of the plant is now approximately 22 weeks behind schedule, and there is no need to rush the DES through at this present premature stage.

By relying on a source which is unavailable to the public, the NRC also forecloses NECNP from full and effective participation in the NEPA process. The circulation for

comment of a draft environmental statement is the only opportunity given to the public to evaluate the decision and participate in the decision-making process. Issues which are not raised in commenting on the DES may not be raised in any later licensing or court proceedings. "It must be remembered that the public must be adequately informed of the probable significant environmental impacts by an impact statement." Trout Unlimited v. Morton, 509 F. 2d 1276, 1284, (9th Cir. 1974). Although supporting studies need not be attached to an EIS, they must be "available and accessible." Id. The NRC has not fulfilled its obligation to inform the public on what is perhaps the single most important impact of the Seabrook reactor--the risk of accident inherent in the design of the plant.

Reviewers of the DES are referred to the SER in the following passages:

1. The DES refers to the SER for a "detailed evaluation of the radwaste systems and the capability of these systems to meet the requirements of Appendix I" to 10 CFR Part 50. DES at 4-9. Although Appendix D of the DES gives estimates of radioactive releases from the plant, the basis for these calculations as related to the radwaste systems at the Seabrook facility is not discussed. Appendix D is also inadequate in that it posits calculations of annual average

relative concentration and relative deposition of radioactivity based on a generalized model, and postpones a discussion of the actual effects at Seabrook until the Applicant has examined the effects of the seabreeze on the model. "Modifications" will be incorporated into the Final Environmental Statement. DES at D-1. No indication is given as to whether the resultant changes are expected to be significant, in which case the public should be given an opportunity to review the new information.

2. The DES refers the reader to the SER for a discussion of the safety-related aspects of biofouling. DES at 4-23. The DES here states that "Although the safety-related aspects of biofouling at Seabrook will be addressed in the safety evaluation report, the environmental impacts of biofouling control are addressed in this environmental statement." Id. The Staff fails to recognize that "safety-related aspects" are also environmental impacts; indeed, safety and health impacts are the most serious environmental effects posed by a nuclear power plant. The public is entitled, therefore, to full disclosure of the safety impacts of the Applicant's biofouling program.

3. The DES's discussion of the Seabrook plant's design features to prevent or mitigate "accidental releases of radioactive fission products" is appallingly brief and conclusory. DES at 5-41, 42. Basically, the Staff refers

the reader to the FSAR for "much more extensive discussions of the Seabrook safety features and characteristics." Id. Such a referral is meaningless in light of the Staff's obligation under NEPA to make an independent evaluation of the plant's safety. For this, the DES merely indicates that the Staff evaluation of safety features "will be addressed in the Seabrook SER." DES at 5-42. The only other evaluation of the plant's safety features offered here is a vague and conclusory statement about the reduction in likelihood of degraded core accidents through implementation of the lessons learned at Three Mile Island. Id. The Staff should be required to explain this relationship and to discuss other ways core melt could result besides a TMI-type accident. The Staff should also be required to discuss the status of the degraded core rulemaking and how that affects the likelihood of core melts.

4. The DES does not discuss external hazards to the Seabrook plant (i.e. activities offsite that might adversely affect the operation of the plant and cause an accident), but refers reviewers to "a more detailed discussion" in the SER. DES at 5-44. The DES concludes that the risk of external hazards is "negligibly small" without explaining the basis for this conclusion. Id. Considering the fact that the Seabrook site lies in an area which encompasses

several large military facilities and a large amount of industry, this issue should be discussed in the DES. Some factual basis must be given to allow reviewers to evaluate for themselves whether the impact of external hazards is indeed so small.

5. The adequacy of the Seabrook emergency plan is one of the most important mitigative features in determining the costs of operating the plant. Yet, no assessment of the adequacy of the plan is provided in the DES. The DES merely refers reviewers to the SER, which is to determine the adequacy of the Applicant's emergency plan and to make findings on "the overall and integrated state of preparedness" which includes FEMA's evaluation of state and local plans. State and local emergency plans, FEMA evaluation of those plans, the NRC evaluation of the Applicant's emergency plan, and the NRC's overall assessment of emergency planning, are as yet unavailable to the public. There is therefore no basis whatsoever for an assessment of the emergency plan's effect on the impacts of the Seabrook facility. The DES should be withdrawn and recirculated when this information becomes available.

6. The DES relies on Table S-3, 10 CFR 51.20, for its assessment of the costs of the uranium fuel cycle. DES at 5-73. Table S-3 is no longer a valid basis for such an assessment. See NRDC v. NRC, No. 74-1586, D.C. Circuit, April 27, 1982. The costs of the uranium fuel cycle must be reassessed with relation to Seabrook because they may tip

the cost/benefit analysis toward abandonment of Unit 2, which is only partially completed. A change in the cost/benefit ratio is especially likely in light of other omissions and deficiencies in the DES cost/benefit analysis, cited herein, which require correction.

6. Impacts of Emergency Planning

The Staff has found that the only noteworthy impact of emergency planning at Seabrook will be the infrequent and insignificant effect of the testing of the early notification system. DES at 5-75. NECNP believes that emergency planning will result in a number of fundamental changes to the Seabrook area which will have profound effects on the local economy. First, a number of alterations may be required in the routing of traffic and traffic signals. These changes may have an effect on the local economy through added burdens on taxpayers and/or effects on roadside businesses. Towns in the Seabrook area may, for example, be required to maintain a fleet of public buses for transportation in the event of an emergency.

The effect of emergency planning on tourism may be enormous. To accommodate the large transient population in the area, effective emergency planning may require the posting of notices instructing evacuation measures and periodic loudspeaker addresses to the public on the beaches.

Because of the difficulty in evacuating large numbers of people on the narrow roads, the beaches may be lined with ugly and threatening bunkers which might have a profound effect on tourism and therefore the local economy. Streets and intersections may be posted with directions and instructions for emergency actions. No assessment is provided in the DES of the potential disuasive effect these measures might have on tourism in the Seabrook area. The discouraging effects of federal actions on tourism in an area whose economy is chiefly reliant on tourism is a "significant impact" requiring full disclosure and discussion under NEPA. See Coalition for Canyon Preservation v. Bowers, supra, 632 F. 2d at 783, where a discussion of impacts on tourism was required for an EIS on the extension of a 10.8-mile, four-lane segment of a highway into Glacier National Park. The Staff improperly dismissed the potential effects of the Seabrook emergency plan on local communities whose economies are dependent upon tourism. The DES should be corrected to include a discussion of these impacts.

7. Impacts of the Seabrook Facility on Tourism.

The DES's discussion of the effect of the existence and operation of the Seabrook facility on local tourism relies on pre-1979 studies for its conclusion that such impacts will be minimal. Strikingly absent from the evaluation is any reference to the accident at Three Mile Island and its potential

effect on the attitude of tourists toward the Seabrook facility. Although the NRC is not required to cite all the information at its disposal, it must certainly mention major factors affecting its assessment of environmental impact. The accident at Three Mile Island drastically altered the attitude of a large segment of the population toward nuclear power and its dangers. No evaluation of the impact of the Seabrook facility on the choices of tourists regarding whether to visit or stay in the Seabrook area can be complete without a discussion of this effect.

3. Health Effects

The DES's discussion of health effects of both normal operations and accidents is incomplete and severely underestimates the risks from projected radiation levels. Several major deficiencies make this discussion unacceptable as a basis for making a decision regarding the relative costs and benefits of operating the Seabrook facility.

First, the DES is grossly misleading in that it fails to discuss the full range of radiation effects and costs. Only fatalities are predicted for Seabrook. The risks of non-fatal cancers caused by radiation, and the vulnerability to infectious disease caused by radiation's weakening of bone marrow, are nowhere discussed. The enormous cost

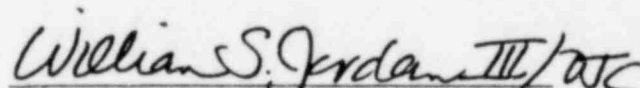
of medication, hospitalization, lost productivity of wages incurred by radiation-induced illness, or deaths are not discussed, and no attempt is made to quantify them. No discussion is provided regarding effects of radiation upon women, who are, for example, two to three times more vulnerable to breast cancer, and two times more sensitive to thyroid cancer than men. The DES does not discuss the effects of radiation on fetuses, the form of human life most sensitive to radiation.

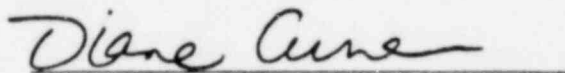
Furthermore, the DES relies on the BEIR I and BEIR III studies for its statistics and only mentions but does not discuss fully or extrapolate effects for the full range of risk possible. As acknowledged by the Staff, the probability of health effects from radiation is an uncertain area. It therefore requires some exploration of the entire range of potential effects. The BEIR studies are definitely not the last word on radiation effects, as the Committee which prepared the BEIR III report (which is largely similar to the BEIR I report) was not even in consensus regarding the health effects of radiation. Edward Radford, chairman of the committee which prepared the report, dissented because of his belief that radiation risks are 10 times greater than predicted in the study. The Staff adopts the range cited in BEIR III of 10 to 500 potential cancer deaths

per million person rems (m.p.r.). DES at 5-39. However, the DES should take into account other respected sources which place fatalities at even higher figures, including 900 deaths per m.p.r.^{6/} and 3,771 deaths per m.p.r.^{7/} In addition, instead of projecting health risks based on a median figure, the DES should project the risk posed by the Seabrook reactor based on either the entire range of risk or using the most conservative estimates.

NRDC v. NRC, supra, slip op. at 51.

Respectfully submitted,


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DATED: July 6, 1982

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- ^{6/} Estimate of Dr. Karl Morgan, personal correspondence with Robert Alvarez, Environmental Policy Institute.
- ^{7/} Estimate of Dr. John Goffman, Health Physics Magazine, July, 1981.