UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:
Marcus A. Rowden, Chairman
Victor Gilinsky
Richard T. Kennedy

In the Matter of **Docket Nos. 50-443**
50-444

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, et al.

(Seabrook Station, Units 1 and 2) **March 31, 1977**

Upon review of ALAB-366, 5 NRC 39, which suspended the effectiveness of the outstanding construction permits for the facility because of uncertainties introduced by the Environmental Protection Agency's (EPA) continuing consideration of the facility's cooling system, the Commission (1) rules that the case is appropriate for review; (2) concludes that the construction permits providing for once-through cooling must be suspended in light of the uncertainty concerning EPA's course of action and the inadequacy of the record and the Licensing Board's findings with respect to closed-cycle cooling; (3) outlines how the Licensing Board should conduct the additional site comparison called for; and (4) outlines the circumstances under which construction may resume.

Appeal Board decision affirmed with modifications discussed in prior orders; matter remanded to Licensing Board.

RULES OF PRACTICE: APPELLATE REVIEW

While 10 CFR 2.786 states the ordinary practice for Commission review, the Commission has inherent supervisory authority over the adjudicatory proceedings before it; it may step into a proceeding to provide guidance on important issues of law or policy. *Clinch River*, CLI-76-13, NRCI-76/8 67, 75-76.

RULES OF PRACTICE: APPELLATE REVIEW

The Commission does not generally sit to review factual determinations made by its subordinate panels. *Public Service Company of New Hampshire* (Seabrook, Units 1 and 2), CLI-76-17, NRCI-76/11 451, 467.

NEPA: CONSIDERATION OF ALTERNATIVES

While a particular type of cooling system might be excluded by NRC for safety reasons, the environmental preferability of an alternative cooling system is not enough to exclude an option which may be required for extrinsic reasons.

NEPA: CONSIDERATION OF ALTERNATIVES

The test to be employed in assessing whether a proposed site is to be rejected in favor of any of the alternative sites considered is whether an alternate site is obviously superior to the proposed site.

NEPA: CONSIDERATION OF ALTERNATIVES

The fact that a competent and responsible state authority has approved the environmental acceptability of a site or a project after extensive and thorough environmentally sensitive hearings is entitled to "substantial weight" in the NRC's NEPA analysis. *Virginia Electric and Power Co.* (North Anna, Units 1 and 2), LBP-75-50, 2 NRC 879, 890 (1975), *aff'd*, ALAB-325, 3 NRC 404 (1976); *pet. for rev. pending, Culpeper League for Protection* v. *NRC*, Nos. 76-1484 and 76-1532 (D.C. Cir.).

NEPA: CONSIDERATION OF ALTERNATIVES

In considering alternatives, NEPA does not require an unbalanced weighting of environmental over other factors such as economic considerations or the possible health and safety advantages of particular locations.

NEPA: CONSIDERATION OF ALTERNATIVES

In comparing applicant's proposed site to alternative sites, adjudicatory boards must consider the cost and time actually required to complete the facility at the proposed site, compared to the cost and time required to complete the facility at each alternative site, assuming that the NEPA process has been generally sound up to the point of comparison.

NEPA: RULE OF REASON

The fact that a possible alternative is beyond the Commission's power to implement does not absolve the NRC of the duty to consider it, but that duty is subject to a "rule of reason." *NRDC* v. *Morton*, 458 F.2d 827 (D.C. Cir. 1972); *Concerned about Trident* v. *Rumsfeld*, ___ F.2d ___, 9 ERC 1370, 1380 (D.C.

Cir. 1976). Factors to be considered in applying the "rule of reason" to alternate site analyses include the distance from the facility to the load center, the possible institutional and legal obstacles associated with construction at an alternate site, and various technical considerations.

NUCLEAR REGULATORY COMMISSION: ENVIRONMENTAL RESPONSIBILITIES

The scope and focus of any NEPA analysis depend upon the nature of the particular proposal being considered and the factual predicate existing at the time the analysis must be performed by the agency. NEPA is more demanding in a case involving direct Federal action than in a case involving Federal approval of private action; in the Federal approval cases, NEPA seeks only to assure environmental consideration during the formulation of a position on the proposal submitted by private parties. *Kleppe* v. *Sierra Club*, ___ U.S. ___, 49 L. Ed. 2d 576, 595-96 n. 1 (1976)(Marshall, J., concurring and dissenting).

FWPCA: EPA AUTHORITY

Pursuant to Section 511 (c)(2) of the Federal Water Polution Control Act Amendments of 1972, 33 U.S.C. 1371(c)(2), the Commission must accept the Environmental Protection Agency's determination on effluent limitations for each facility. The Commission must either license or not license an EPA-approved cooling system but cannot require it to be modified.

EPA AUTHORITY: INTERPRETATION

The opinion of the General Counsel of the Environmental Protection Agency is final for purposes of EPA adjudicatory hearings. 40 CFR 125.36(m). Thus, the Commission may properly defer to a construction of EPA's authority by the General Counsel of that agency.

FWPCA: SECTION 401 CERTIFICATION

The NRC cannot issue a construction permit without having in hand a certificate from the state, under Section 401 of the Federal Water Pollution Control Act (33 U.S.C. §1341). But the Commission may not review the "adequacy" of such a certificate (33 U.S.C. 1371(c)(2)(A)).

Appearances

Thomas G. Dignan, Jr., and **John A. Ritsher**, for the Applicant, Public Service Company of New Hampshire

Anthony Z. Roisman, for the Intervenor, New England Coalition on Nuclear Pollution

Robert A. Backus, for the Intervenors, Seacoast Anti-Pollution League and Audubon Society of New Hampshire

Ellyn R. Weiss, for the Commonwealth of Massachusetts

Martin G. Malsch and **Richard C. Browne,** for the Regulatory Staff

MEMORANDUM AND ORDER

I. FACTUAL AND PROCEDURAL BACKGROUND

The Public Service Company of New Hampshire proposes to build a two-unit nuclear electric generating station near the seacoast of New Hampshire in the Town of Seabrook. An application for construction permits was tendered to the former Atomic Energy Commission March of 1973. Following a preliminary review for completeness by the Commission staff, the initial application was rejected in May 1973 for lack of sufficient information. Additional information was thereafter submitted and the application was found acceptable for docketing in July 1973. In accordance with Section 189(a) of the Atomic Energy Act, the Commission issued a "Notice of Hearing on Application for Construction Permits," which was published in the *Federal Register* in August 1973. 38 *Fed. Reg.* 21519.

The Act provides that in connection with an application for a reactor construction permit, we shall grant a hearing "upon the request of any person whose interest may be affected" and that any such person shall be admitted as a party to the proceeding. Requests for hearing and petitions for leave to intervene were received from several individuals, organizations and governmental bodies. Admitted as parties were two private individuals, the State and Attorney General of New Hampshire, the Audubon Society of New Hampshire, the Society for Protection of New Hampshire Forests, the New England Coalition on Nuclear Pollution and the Seacoast Anti-Pollution League. In addition, the Commonwealth of Massachusetts was granted leave to participate as an interested state pursuant to 10 CFR 2.715(c). Prehearing conferences were held in October 1973, March, May and December 1974, and April 1975. The Board admitted into controversy a broad range of issues, including eight categories of issues arising under the Atomic Energy Act and sixteen under the National Environmental Policy Act. Illustrating the range and complexity of this proceeding, the following categories of environmental issues were admitted into controversy:

- Consideration of alternative sites
- Need for power
- Alternative energy sources
- Aquatic effects of the condenser cooling system
- Location of transmission lines
- Reliability of operation
- Impact on tourism
- Consideration of effects of turbidity and water runoff during construction
- Consideration of effects on wildfowl
- Effects of decommissioning
- Consideration of aesthetic effects
- Archaeology of the site
- Effect on access to public lands
- Effect on fishing industry
- Effect on clam flats
- Cost-benefit analysis

Evidentiary hearings were held at various places in New Hampshire between May and November 1975. The record was reopened for additional hearings on certain seismic issues in February 1976. The Board conducted evidentiary hearings for a total of 61 days, compiling a massive record of direct testimony, cross-examination and exhibits.

The Atomic Safety and Licensing Board rendered its initial decision authorizing issuance of construction permits in June 1976. The permits were issued in July, and construction activities at the site commenced shortly thereafter (10 CFR 2.764).

The parties filed numerous exceptions to the initial decision with the Atomic Safety and Licensing Appeal Board, supported by extensive briefs. The Appeal Board twice denied applications for a stay of construction pending resolution of the appeals. ALAB-338, NRCI-76/7 10; ALAB-356, NRCI-76/11 525. The movants for a stay sought review of the stay denials in the United States Court of Appeals for the First Circuit. That court has declined to review the stay denials pending further agency consideration of aspects of this case we will describe in greater detail hereafter, notably the doubt presently surrounding the kind of cooling system that will be required for the Seabrook facility. *Audubon Society of New Hampshire* v. *NRC*, No. 76-1347 (1st Cir. December 17, 1976) (slip op. at 12).

Although most of the issues raised by the numerous appeals from the Licensing Board's initial decision have not yet been decided by the Appeal Board—additional oral argument was heard on one issue earlier this month—we have before us for review an Appeal Board decision suspending the effectiveness of the outstanding construction permits for the Seabrook facility. ALAB-366, 5

NRC 39 (January 21, 1977).[1] This is the second such decision we have reviewed in the space of a few months. Our earlier review concerned the Appeal Board order in ALAB-349, NRCI-76/9 235 (1976) which suspended the permits for reasons which a majority of the Appeal Board found to flow from problems concerning environmental assessment of the effects of the uranium fuel cycle in the reactor licensing context. We set aside the Board decision primarily on the basis of subsequent events. *See Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-76-17, NRCI-76/11 451.

The present review also concerns a divided Appeal Board decision. Here, a majority of the Board voted to suspend the outstanding construction permits because of uncertainties introduced by the Environmental Protection Agency's (EPA) continuing consideration of the type of cooling system appropriate for the Seabrook facility. This decision follows oral argument before the Appeal Board on the merits of the initial decision, but, as noted above, does not resolve all pending issues. A number of other contentions respecting the Seabrook facility, including seismic and emergency evacuation plan concerns, remain before the Appeal Board for decision.

We see no need to catalog the complex background and procedural history of the matter presently before us; the relevant facts are set forth at some length in the decision under review. Aspects of the factual background require at least brief summary, however, to place the issues before us in perspective.

Modern nuclear power plants require large quantities of cooling water. For example, the two Seabrook units would cycle approximately 1.2 billion gallons of water per day through their heat dissipation systems. As proposed by the applicants, Seabrook would have a "once-through" cooling system. The system would employ sea water that would be drawn from the ocean, channeled through the facility to absorb waste heat, and discharged about 39 Fahrenheit degrees warmer than its intake temperature through a system of tunnels back into the ocean at a point some distance from shore. The discharge of such heated water into rivers, lakes, or the ocean—commonly called "thermal pollution"—can cause significant environmental harm in some situations. Alternative cooling systems exist which depend on evaporation for cooling; these "closed-cycle" systems take in much less water and return water to its source with little net heat addition. They have, however, other possibly significant environmental impacts.

Under the present Federal statutory regime, this Commission, the EPA, and state agencies share regulatory authority over the discharge of waste heat from nuclear power plants. This elaborate (and sometimes, as here, difficult) regulatory scheme was described at length by the Appeal Board in ALAB-366, 5 NRC at 48-53, and we adopt their description as our own. Suffice it to say here that

[1] [This footnote, which referred to citations of the slip opinion of ALAB-366, is being omitted since citations herein are to the published version of ALAB-366.]

EPA has the leading role in determining the type of cooling system to be used at a nuclear plant, through its controls over thermal discharges. And it was the uncertainty surrounding the nature of the cooling system that EPA would require that led a majority of the Appeal Board to conclude that the outstanding construction permits for Seabrook should be suspended.

Until November of last year, when the responsible EPA official reversed himself on the cooling system question, this complex case has proceeded on the assumption that Seabrook would operate with once-through cooling. Recognizing that a once-through cooling system would require an exemption from the EPA regulation mandating closed-cycle (no thermal discharge) systems, the applicant sought the necessary EPA exemptions in August 1974. In June and November 1975, the Regional Administrator of EPA made initial determinations in which he approved the use of once-through cooling for Seabrook. The staff's environmental statement and the testimony at the hearing focused primarily on once-through cooling. And it was with the assumption that once-through cooling would be finally approved by EPA that the Licensing Board reached its conclusion that NEPA cost-benefit analysis favored the proposed Seabrook facility.

The initial EPA determination was challenged in that agency by several parties who are also intervenors here, and they received an adjudicatory hearing before the EPA Regional Administrator. On November 9, 1976, several months after our Licensing Board's initial decision and commencement of construction, the EPA Regional Administrator rendered a second decision vacating his earlier determinations. He held, in substance, that the applicant had not borne its burden of proof in demonstrating that once-through cooling, as proposed, would be environmentally acceptable at Seabrook. The Administrator of EPA has undertaken to review that decision. However, the Administrator's decision may not be forthcoming for some time, and any decision which is taken may simply precipitate more hearings. As a result, there is now considerable doubt concerning what position EPA will ultimately take as to the cooling system required for the Seabrook facility, at least should the applicant adhere to its preference for once-through cooling.

EPA was not the only other agency from which the applicant was required to secure permission.[2] One year before it filed an application with the Commission, the applicant sought approval of the Seabrook site from the Site Evaluation Committee of the New Hampshire Public Utilities Commission. After a two-year proceeding, including 32 days of hearings with cross-examination resulting in 5800 pages of testimony involving approximately 120 witnesses and 200 exhibits, the Seabrook site was approved.

Furthermore, before we may issue a construction permit we must receive a

[2] In the Applicant's Environmental Report (ER), it listed 43 separate licenses, permits and approvals which applicant believed were necessary in connection with Seabrook. 2 ER 12.2.

certificate from state authorities certifying that proposed operations at the proposed site will meet applicable Federal water quality standards, and any additional standards which state law may impose. In this case, this certificate, issued pursuant to Section 401 of the Federal Water Pollution Control Act (FWPCA), was the result of a proceeding before the New Hampshire Water Supply and Pollution Control Commission. That Commission decided in May and October 1975, that the proposed facility complied with the relevant provisions of the FWPCA. No site other than Seabrook was apparently presented to or qualified by that Commission. The 401 certificate was issued:

> [i]n light of, and conditioned upon, the provisions of EPA *"Determinations,"* relative to Sections 316(a) and 316(b), FWPCA, as regards the condenser cooling system, issued on March 18, 1975, and modified by letter dated May 16, 1975.[3]

Neither the New Hampshire Commission nor the state has acted to rescind the certificate which, at this writing, remains in force.

Strongly related to the cooling system question, and an integral part of the NEPA analysis in this case, is the analysis of possible sites for the proposed plant. The plant is to be designed, constructed and operated by the lead applicant, Public Service Company of New Hampshire, pursuant to an Agreement for Joint Ownership, Construction and Operations of New Hampshire Nuclear Units, on behalf of a group of utility joint owners. Eleven separate utilities—all members of the New England Power Pool—are parties to the agreement. However, Public Service Co. of New Hampshire, as a 50% owner of the facility, has by far the largest ownership share. Three other utilities would have ownership shares of 20%, 12% and 9%, respectively. The remaining seven utilities would have very small ownership interests, ranging from 2.5% to less than 1%. In light of this distribution of ownership interests, the Public Service Company's environmental report and the staff's environmental statement confined consideration of alternative sites to sites located in or near the lead applicant's service area.

Within that area, 19 possible sites in New Hampshire and on the southernmost seacoast of Maine were reviewed, with four alternatives receiving particularly close attention. The staff's environmental statement discusses alternate sites in some detail and includes the following summary of areas considered:

> Nineteen potential locations for siting a nuclear power station have been considered. None of the five potential seacoast locations in Maine were adjudged suitable. Three estuarine locations in New Hampshire were evaluated and rejected. Offshore locations, either floating nuclear stations or a station sited on one of the Isles of Shoals, were likewise considered and found to be

[3] The somewhat complicated history of this 401 certificate is discussed in ALAB-366, 5 NRC at 55-56.

unsuitable. Four seacoast locations in New Hampshire were considered; of these, Seabrook was considered to be the best choice. Six inland sites in New Hampshire were evaluated of which two were found to be potentially suitable and were then compared with the Seabrook site (Table 9.2). Final Environmental Statement 9-10; *see id.* at 9-4 to 9-10.

It is in the nature of these applications that the site chosen by the applicant receives the most intensive analysis—it is this site which must be certificated by State and EPA authorities and evaluated as safe and environmentally suitable by our own staff. Here, that effort required detailed environmental information about the Seabrook site comprising several hundred pages of the applicant's environmental report.[4] Four other sites were examined with some care, as reflected in the environmental report and the Licensing Board's initial decision.[5]

This focussed analysis is, however, the result of a process which injects our staff and the public at stages well before actual hearing. As explained in greater detail within, the Commission's staff may be consulted even before an application is filed, at a time when significantly less of a commitment attaches to any particular site. Public awareness of a proposed site and possible alternatives to it begins no later than the simultaneous docketing of an application and the applicant's environmental report, and the public's opportunity to participate in the process of evaluation and choice begins at the same moment. The staff's draft environmental statement (DES) provides a further opportunity for public comment; and the licensing hearing following publication of the Final Environmental Statement (FES) is a final check.

The sufficiency of the alternate site analysis and the adequacy of the Seabrook site—both individually and comparatively—for closed-cycle cooling are now central to the review proceeding before us. Before proceeding to the merits of these and related issues, a brief recapitulation of the Licensing and Appeal Board determinations on these points is warranted.

The Licensing Board was urged both by our staff and by the applicant to find Seabrook suitable for closed-cycle as well as open-cycle cooling. By a divided vote it found the site suitable for once-through cooling—member Salo concluding in dissent that Seabrook was unacceptable with once-through cooling. The Board unanimously concluded that the site was unacceptable for closed-

[4] *See* Environmental Report, Seabrook Station, Vols. I-III.

[5] These were the sites located at Litchfield, Rollins Farm, Gerrish Island and Moore Pond. The advantages and disadvantages of each of these sites relative to Seabrook are summarized at some length, including consideration of transmission lines, cooling water requirements, impact on biota, population distribution, loss of productive farmland, aesthetics, and several other factors. *See Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-76-26, 3 NRC 857, 907-11 (June 29, 1976).

cycle cooling, albeit with little in the way of supportive findings or reasoning.[6] Apparently for this reason, it made comparisons with alternative sites only on the assumption that open-cycle cooling would be employed at the Seabrook facility.

So far as comparative sites are concerned, the Board concluded, without specific reference to sites distant from the applicant's service area, that "there had been adequate consideration of alternative sites." *Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-76-26, 3 NRC 857, 911 (June 29, 1976).

Each of these rulings was taken up on review. The Appeal Board was unanimous in rejecting the Licensing Board's finding that the Seabrook site was unacceptable with closed-cycle cooling, as unsupported by the record and based upon an improper legal analysis. The Board also unanimously concluded that the record did not contain adequate consideration of the environmental acceptability of Seabrook as a closed-cycle site both with regard to Seabrook itself and compared with other sites. The Board unanimously held that further hearings were necessary to remedy that deficiency. On the question of *which* alternative sites were to be compared with Seabrook, the Appeal Board majority found that any possible need to consider sites distant from the applicant's service area had been pretermitted by the intervenor's failure to raise these contentions in a timely fashion. The dissenter, going beyond this procedural ruling, found a basis in the record for concluding that considerations of load distribution made intervenors' choice of sites in the southern New England region unreasonable.

Perhaps the principal disagreement between the Appeal Board majority and the dissenting member concerned the impact of the present uncertainty concerning what kind of cooling system EPA will ultimately approve for Seabrook. The majority concluded that an adequate NEPA cost-benefit analysis could not be performed until the uncertainty had been finally resolved and that, in the circumstances, the permits must be suspended. This was so because, as they read FWPCA, the EPA Administrator might ultimately allow once-through cooling, but on the basis of different technical parameters and consequent higher cost. The resulting cost differences might be enough to tilt the NEPA cost-benefit analysis away from Seabrook and toward some alternate site or to make the costs of Seabrook outweigh its benefits. While agreeing that the record did not contain an

[6] *See* 3 NRC at 897, 929, 939. The majority referred, without elaboration, to "cost, the major aesthetic impact, and other environmental impacts, and the fact that the Seabrook site was chosen originally because of the availability of the ocean for cooling water" in concluding that "use of natural-draft cooling towers [at Seabrook] is unacceptable." The Board went on to state, without explanation, that "closed-cycle cooling of any type should not be employed for the Seabrook Station." *Id.* at 929. Dr. Salo in dissent stated merely that he agreed with the majority that "cooling towers are not compatible with the Seabrook site." *Id.* at 939.

adequate analysis of closed-cycle cooling, the dissenter concluded that EPA would have to approve a closed-cycle system, if one were proposed by the applicant.[7] On the basis of that legal analysis, he reasoned that a licensing board could perform a "worst-case" analysis, under which the higher cost of a closed-cycle system would be used. Should that analysis favor continued construction of Seabrook, even under the majority's reasoning, construction could be resumed prior to a definitive EPA ruling on the cooling system question.

On January 24, 1977, we issued an order taking review of ALAB-366, and calling for briefs from the parties. The effect of the Appeal Board's decision was stayed briefly, until the oral argument and until we had an opportunity to review any further stay applications.[8] In addition, we transmitted a copy of ALAB-366 to the General Counsel of EPA, asking particularly for comment on the question whether that agency would be authorized to require an applicant to use once-through cooling, rejecting its closed-cycle proposals.[9] Briefs and reply briefs were received from the parties, and oral argument was heard February 7, 1977. That same day, we issued an order denying the applicant's request for a further stay of the Appeal Board decision and allowing the Appeal Board's suspension order to go into effect, with minor modifications.[10] At the same

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[7] *See* notes 9 and 49 *infra*.

[8] In that same order, we asked the Appeal Board to identify the remaining issues on the merits of the appeals before it which it had suggested in ALAB-366 might be "troublesome" and to provide us with a statement of their seriousness and the competing considerations involved. The Appeal Board responded on January 27, 1977, stating that "at this juncture we are still unable to forecast the probable result on the still unresolved questions." It noted that some of the unresolved issues may have no bearing on siting–whether a nuclear plant should be built at Seabrook as distinguished from another location. The Board listed five specific issues which it then viewed as "troublesome" in the sense of "difficult" or "close." The Board concluded with a caveat that it was "intimating no opinion at this time as to what ultimate conclusions will be reached on *any* of . . ." the listed issues. *Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-368, 5 NRC 124.

[9] The General Counsel of the EPA responded on February 2, 1977. A copy of his letter is included as an appendix to this opinion. The General Counsel was of the view that EPA did not have the authority to reject an applicant's proposal for closed-cycle cooling. The letter stated, among other things:

> . . . In short, EPA does not have the authority under the Federal Water Pollution Control Act to prohibit *per se* a closed-cycle cooling system at an existing source such as Seabrook. EPA only has authority to establish maximum effluent limitations guidelines for pollutants such as heat. A discharger may apply any technology which allows it to comply with the applicable effluent limitation guidelines. Such technology may result in an even greater degree of control on the discharge than required by the effluent limitation. Thus EPA cannot preclude a discharger from doing more than the permit condition requires to limit its discharge.

[10] The Board's order allows the applicant to continue to conduct activities at the site to the extent necessary to ensure the protection of (1) the environmental integrity of the site and (2) buildings, materials or personnel at the site. By our orders of February 7 and 17, we

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time, we invited the parties to respond to questions which had troubled us in the course of oral argument, and which we address at length in the pages within.[11]

The pages that follow show our reasoning in reaching the following conclusions:

First, the case is appropriately before us for review. It fits the relevant portions of our rules and, in any event, has a significance fully warranting Commission attention.

Second, we affirm the Appeal Board's basic conclusions in this case: that the construction permit for Seabrook with once-through cooling must be suspended in light of the present uncertainty concerning EPA's future course and the absence of a finding that the Seabrook site is acceptable for closed-cycle cooling; that the Licensing Board's analysis and the record before it does not establish that the Seabrook site is either acceptable or unacceptable for closed-cycle cooling; and that any analysis of closed-cycle cooling at Seabrook must include comparison with other sites.

Third, we outline how the Licensing Board should conduct the additional site comparison called for. In particular, we instruct that an application should not be denied on the basis of a comparison between the applicant's proposed site and an alternative site unless the alternative site appears to be obviously superior to the proposed site. We also hold that it is permissible for the cost-benefit comparison between an applicant's proposed site and any alternative site to reflect the actual cost and time necessary to complete a facility at each of the locations in question. We provide that the Licensing Board must decide whether to consider as additional alternative

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construed this order to permit new materials to be brought on site if a substantial economic penalty could be shown for failure to do so, and also allowed the applicant to continue excavation for Unit 1 pending the decision. Upon further consideration and for the reasons set forth in our order of February 17, the applicant will be allowed to complete that excavation.

[11] Those questions were:

1. What is the legal standard of comparison with reference to which alternative sites should be judged? Must the Board select the "best" site, or is it enough that there is no other site that is clearly superior to the Seabrook site, all relevant factors being taken into consideration?
2. In any comparison of Seabrook with other sites, what are the appropriate costs and time periods to be considered for the Seabrook site?
   a) The cost and time required to complete Seabrook from its present state?
   b) The cost and time which might reasonably have been anticipated at the time of the Seabrook CP [construction permit] issuance, as against other sites which had not progressed to the point of decision?
   c) The cost and time which might reasonably have been anticipated for the Seabrook site once the utility had selected it as its preferred site?
   d) Some other alternative?

sites, sites in New England where other nuclear plants either exist or were planned, and give guidance as to the bases for that Board decision and the scope of such added alternative site consideration as the Board may undertake. This section of the opinion concludes with a brief discussion of the significance of the recent case of *Kleppe* v. *Sierra Club*, ___ U.S. ___, 49 L.Ed.2d 576 (1976), which we find supports each of these conclusions.

Finally, we outline the circumstances in which construction at Seabrook may resume. We provide that if there has not been final determination by EPA of what cooling system may be used at Seabrook, and if the Licensing Board finds that Seabrook is an acceptable site for a facility with a closed-cycle cooling system both by itself and in comparison with alternate sites, then construction may resume on all portions of the facility except for the cooling system. If, alternatively, EPA were to decide that once-through cooling as planned at Seabrook is acceptable, the barriers to construction reflected in this opinion would largely disappear. In either event, any resumption of construction will possibly be affected by the resolution of other issues concerning the facility, issues still pending before our Appeal Board.

Overall, the sense with which we leave this case is that the parties and the law as it has been developing have placed too much emphasis on the procedure by which the Licensing Board reaches its conclusions after hearing, and too little on the process of environmental analysis by which proposals for licensing action are developed. By this opinion and through other means, the Commission seeks to stress the need for early efficient and environmentally sensitive resolution of site-related issues. We seek to do this by minimizing unnecessary and wasteful procedural burdens and by other means including as appropriate reliance on the judgment of other governmental bodies also called upon to make site acceptability determinations.

II. APPROPRIATENESS OF COMMISSION REVIEW

Initially we face a suggestion by counsel for the New England Coalition on Nuclear Pollution (NECNP) and the Seacoast Anti-Pollution League (SAPL) that it would be inappropriate for us to review the Appeal Board's order, or to speak to the two questions which we identified in our Order of February 7. Counsel views ALAB-366 as limited to its facts and presenting no issues of general importance warranting Commission review. As to the two identified questions, which obviously do have such significance, he urges us "to refrain from reaching any decision on or stating any tentative thoughts on the two issues identified in its Order at least until the ASLB has had an opportunity, with the benefit of the

parties, to more properly frame the issues consistent with the facts of this case." We reject these suggestions. We think it is entirely appropriate that this important case be reviewed now at the Commission level and that we provide as much guidance as we can for the further proceedings that are required.

Counsel's first argument proceeds from a judicial analogy which has only partial application in our licensing proceedings. While we may deal with matters before us in adjudicatory hearings only on the basis of the record which has been compiled, the Nuclear Regulatory Commission is not a court constrained to the "passive virtues" of judicial action, which can afford in every instance to wait for the better-framed issue or fully developed argumentation. We have a regulatory responsibility which includes the avoidance of unnecessary delay or excessive inquiry in our licensing proceedings. Nor can we regard the proceedings of our appellate and hearing tribunals with the detachment the Supreme Court may bring to trial and intermediate appellate action; the analogy is imperfect. Ultimately the members of the Commission are responsible for the actions and policy of this agency, and for that reason we have inherent authority to review and act upon any adjudicatory matter before a Commission tribunal—subject only to the constraints of action on the record and reasoned explanation of the conclusions—constraints imposed on all agencies by the Congress.

To be sure, as counsel notes, our normal practice for review is stated in 10 CFR 2.786(a).[12] Our election to review this decision is fully warranted by that rule. As already remarked, this has been a sharply contested case, one in which both hearing panel and appeal board have been divided in their approach. The Appeal Board directed a new hearing, but divided over both the course and the outcome of that hearing and, as we will develop, failed to give the guidance necessary to keep that hearing within appropriate bounds.

More importantly, however, our authority to intervene and provide guidance in a pending proceeding is not limited by the terms of 10 CFR 2.786(a). As we stated in the recent *Clinch River* proceeding, while that rule "states the ordinary practice for review, it does not—and could not—interfere with our inherent supervisory authority over the conduct of adjudicatory proceedings before this Commission." We noted further that "in the interest of orderly resolution of disputes, there is every reason why the Commission should be empowered to step into a proceeding and provide guidance on important issues

[12] That regulation provides in part:

. . . the Commission . . . may on its own motion direct that the record of the proceeding be certified to it for review on the ground that the decision or action of the Atomic Safety and Licensing Appeal Board (1) is, with respect to an important matter, in conflict with statute, regulation, case precedent, or established Commission policy, and (2)(i) could significantly and adversely affect the public health and safety or the common defense and security, or (ii) involves an important question of public policy. The effect of the Atomic Safety and Licensing Appeal Board's decision or action is then stayed until the Commission's review of the proceeding has been completed.

of law or policy." *United States Energy Research and Development Administration* (Clinch River Breeder Reactor Plant), (hereinafter *Clinch River*), CLI-76-13, NRCI-76/8 67, 75-76 (August 27, 1976).

In this light, we are not disposed to accept counsel's suggestion that we leave the question of what standards are to govern the NEPA analysis directed on remand to resolution in the first instance by the hearing board. The questions we asked counsel to address are of obvious significance, and of the character to which appellate bodies regularly speak when they conclude their guidance may be useful in avoiding further error or misunderstanding. *See, e.g., Aeschliman* v. *NRC*, 547 F.2d 622 (D.C. Cir. 1976), *cert. granted*, 45 U.S.L.W. 3570 (February 22, 1977). The questions are not fact-dependent, and resolution of them now could materially shorten these proceedings and guide the conduct of other pending proceedings. It would be wasteful and possibly counterproductive to send the matter back to the Licensing Board without any guidance on these questions. The Board will have full authority to develop an appropriate factual record in the light of the guidance we are providing.

This case has been widely depicted as a serious failure of governmental process to resolve central issues in a timely and coordinated way—a paradigm of fragmented and uncoordinated government decisionmaking on energy matters and of a system strangling itself and the economy in red tape.[13] This is a matter of obvious and appropriate concern at the Commission level. In reviewing this case and providing such guidance as we can from the present perspective, we seek to promote a more coordinated and rational approach to the regulatory process, within the constraints imposed upon us by present Federal legislation.

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[13] In ALAB-366 at 51-54, the Appeal Board described how the responsibilities of the Commission and EPA are supposed to mesh in passing upon an applicant's proposal. Normally, pursuant to the Second Memorandum of Understanding between EPA and the NRC, 40 *Fed. Reg.* 60115 (December 31, 1975), EPA will have completed its determinations relating to cooling systems in advance of issuance of the FES and so well in advance of Licensing Board action. The Second Memorandum is to be applied "to the maximum extent practical" to pending proceedings such as Seabrook. 40 *Fed. Reg.* at 60120. *See* ALAB-366 at 52 n. 21. Even the Second Memorandum will not eliminate problems in situations similar to Seabrook in which applicants seek an exemption from EPA regulations pursuant to Section 316 of the FWPCA. At oral argument the Staff informed us that several applicants for construction permits were currently seeking such exemptions from EPA.

Although the Second Memorandum was intended to speed EPA decisionmaking rather than to delay that of the NRC, it is possible that the Commission may in some cases be delayed if it waits until EPA and the state have made their determinations as to the acceptability of proposed cooling systems. However, since, as we indicate below, the existence of those approvals has weight for NEPA purposes, by ensuring that those approvals are given before deciding on licenses, the vulnerabilities of applications on NEPA grounds will be lessened. Even so, NEPA analyses will continue to be required for all applications and in particular cases the results of such analyses may require denial or modification of applications.

III. ADEQUACY OF THE RECORD ON CLOSED-CYCLE COOLING AT SEABROOK

On the merits, the major question before us concerns the adequacy of the record with respect to the use of closed-cycle cooling at the Seabrook facility. This possibility was analyzed in the environmental documents submitted by the applicant and by the staff, although not with the thoroughness attending the preferred open-cycle design. If it could be concluded on this record either that the site was unacceptable with closed-cycle cooling, or that it was qualified as a closed-cycle site, the need for further proceedings would be sharply reduced.

On this issue the Licensing Board concluded that Seabrook would be unacceptable with closed-cycle cooling; it conditioned the construction permits on the use of once-through cooling. The Appeal Board was unanimous that the record was insufficient to support that conclusion, noting that necessary factual findings had not been made. ALAB-366 at 63. The Appeal Board was also unanimous that the opposite finding, that the use of closed-cycle cooling was acceptable, also could not be made on the basis of the present record, although it divided over the degree of effort that would be required to produce a record on which either finding could be based. *Compare id.* with *id.* at 81-82. The disagreement principally concerns the suitability of the Seabrook site for closed-cycle cooling, which the dissenter regards as essentially established. Comparison of a closed-cycle cooling Seabrook facility with alternative sites, all agree, remains to be done.

We have not closely reviewed the Appeal Board's determination in this respect. "As a general matter, this Commission does not sit to review factual determinations made by its subordinate panels." *Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-76-17, *supra* NRCI-76/11 at 467. Hearings are required, and findings must be made, both as to the acceptability of closed-cycle cooling at the Seabrook site, *per se*,[14] and as to the characteristics of that site vis-a-vis others if such cooling is employed. The outcome of the hearings will depend on the entire record, and we believe the Licensing Board on remand must be free to secure whatever information it deems required to resolve the issues before it.

In this context, and intending no limitation on its proceedings, we note our own impression after limited review that, as the dissenting Appeal Board member noted, the record already contains much helpful analysis. A substantial body of material appears to show that the most appropriate closed-cycle cooling

[14] The Licensing Board's error may have arisen from the belief that if once-through cooling was preferable at Seabrook, no alternative cooling system was acceptable. While closed-cycle cooling might be excluded, for example, for reasons of safety, the environmental preferability of an alternative is not enough to exclude an option which may be required for extrinsic reasons–here, EPA decisions.

system for Seabrook would be wet natural-draft cooling towers.[15] The FES also contains analysis supporting a conclusion that wet natural-draft towers would be environmentally acceptable for Seabrook, subject to appropriate development and analysis of location and design particulars in the normal course of licensing.[16] In reaching its conclusion that wet natural-draft towers would be an acceptable alternative to once-through cooling, the staff took into account increased costs for the towers over once-through, loss of overall plant efficiency, and increased air and land impacts, as well as the fact that the reduced volume and temperature of the water returned to the ocean would decrease the aquatic impact as compared with a once-through system[17] (FES 11.9.2.3 and Table 11.6).

[15] Alternative closed-cycle cooling systems were rejected, upon analysis, for various reasons:

(a) Applicant and staff rejected wet mechanical-draft towers because salt deposition (with seawater cooling) and fogging and icing could be major problems. Noise would be at levels viewed as unacceptable by HUD over an approximately 2.8 square-mile area (in which 473 people lived in 1970) (FES 9.2.1.2, 11.9.2.1 and Table 11.6). These drawbacks were judged to be controlling, in spite of advantages offered by the mechanical-draft towers, *viz.*, that, being lower than natural-draft (60 ft. v. 500 ft.), they would be less visible and less likely to have birds collide with them; and that they would cost about $14 million less than natural-draft, though about $46 million more than the once-through design proposed (FES 9.2, 11.9 and Table 11.6; ASLB Transcript at 5795-5796, 6199-6203).

(b) Dry cooling towers were eliminated by the staff as "not a practical alternative" for Seabrook, because the loss of power-generation efficiency that they would entail would lead to about 15 percent higher electric energy cost (at the bus bar) than with wet towers and would require development of new turbine design (FES 9.2.1.3).

(c) Cooling ponds were rejected for their large impacts on land use and the salt marshes (FES 9.2.1.4).

(d) Spray ponds and canals were rejected on the grounds that their probable environmental effects, of fogging, icing and salt drift, would outweigh a small economic advantage (FES 9.2.1.5).

[16] The following two paragraphs, quoted from the Final Environmental Statement are particularly relevant here:

(a) The impacts . . . are deemed sufficiently minor that it is concluded that natural-draft cooling towers would be an acceptable alternative, environmentally, to the once-through cooling system (FES 11.9.2.2).

(b) It is concluded that the benefit/cost ratio considering only the environmental impacts of the natural-draft tower is not appreciably altered compared to the preferred once-through cooling system. Although the benefit/cost ratio of the natural-draft tower considering economics is reduced compared to that of the preferred once-through cooling system (Table 11.6), the benefit/cost ratio remains sufficiently attractive to warrant construction (FES 11.9.2.3).

[17] Specific impacts considered include water use (ALAB Tr. at 10519, 10873, and FES 11.9.2.3), appearance of the towers and the esthetic impact of that appearance (FES 9.2.1.1, 11.9.2.2; and ALAB Tr. at 5778, 5793-5797), visible plumes from the towers (FES 11.9.2.2; Applicant's Environmental Report, Table 10.1-3), fog probability (FES 11.9.2.2; Applicant's ER, Table 10.1-5), saline drift (FES 11.9.2.2; Applicant's ER, Table 10.1-2), and noise (FES 11.9.2.2). Impact on wildfowl, though not noted in the FES, was discussed at the ASLB hearing (Tr. at 6199-6203).

On the other hand, the staff, a unanimous Appeal Board, and every party except the applicant, all recognize, in varying degree, significant deficiencies in the record. The record does not appear to contain detail sufficient for (a) assessment of the most important impacts to permit adequate overall comparison of Seabrook with alternative sites,[18] and (b) assessment of the impacts of specifics of the design of a closed-cycle system, such as should occur in the normal course of licensing (*e.g.*, locations and general design of towers, intake and discharge systems, and nature and impact of effluents). In this respect, we find the Appeal Board dissent's analysis of the deficiencies helpful, but would not view them as definitive. The Licensing Board, with the help of the parties, may well find modification of the list of deficiencies to be appropriate.

The Appeal Board and the parties are divided over what the status of the Seabrook construction permits should be in the interim pending the determinations of the Licensing Board on remand. The Appeal Board majority carefully analyzed prior Commission precedent and the case of *Hodder* v. *NRC*, No. 76-1709 (D.C. Cir. 1976) (unpublished *per curiam* order), before concluding that ". . . it makes no sense for construction now to proceed at Seabrook when there remains not just a theoretical but a manifestly real possibility that the site will ultimately be rejected in favor of some alternative to it." ALAB-366 at 72; *see Id.* at 68-72. The Appeal Board majority declined to employ the approach suggested by our staff—an approach we had ordered to be used in considering *pendente lite* suspension of permits in the quite different setting considered by us in our General Statement of Policy on fuel cycle issues (GSP), 41 *Fed. Reg.* 34707 (August 10, 1976). Dr. Buck would have employed the GSP test, and would not have suspended the permits. ALAB-366 at 84-91. The practical urgency of this question has been greatly reduced by the decision of the applicant to scale down substantially its activities at Seabrook pending resolution of the cooling system question.

Were it generally applicable—a matter disputed by both staff and the applicants—the approach suggested by the court's order in the *Hodder* case would seem to require suspension of outstanding construction permits whenever the NEPA requirement of consideration of alternate sites was found not to have

[18] The staff's comparison of alternate sites was based on cooling systems deemed (at the time of making the comparisons) the most appropriate for each site. Thus, for inland sites natural-draft wet cooling towers were postulated; for coastal sites, notably Seabrook, once-through systems using seawater were posited. This was consistent with the general view that inland sites would take closed-cycle cooling unless proved otherwise in a particular case (ASLB Tr. 10514).

been met. We do not need to decide whether that approach is applicable here.[19] It suffices to agree with the view, implicit in both opinions below, that the question of suspension of the permits herein must at the least be decided on the basis of (1) traditional balancing of equities and (2) consideration of any likely prejudice to further decisions that might be called for by the remand. This test is to be distinguished from the more stringent test of *Virginia Petroleum Jobbers' Association* v. *FPC*, 259 F.2d 921, 925 (D.C. Cir. 1958), which has been used in ruling on stays pending review. *See, e.g., Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-338, NRCI-76/7 10, 13 (1976).

Wholly apart from issues of comparison in this case there remains open the question whether Seabrook is an acceptable site if closed-cycle cooling is required by EPA, as it well may be. That fact is decisive. Neither this Commission, nor any of its subordinate tribunals, has yet determined that Seabrook is an acceptable site for construction of a facility employing a closed-cycle cooling system and until such a finding is made, we cannot permit construction to continue when use of such a system which could render the site unacceptable may be required. Before construction may be resumed at Seabrook, the open question of site acceptability as well as other open issues, must be resolved in the fashion discussed in Part IV.B. of our opinion below, and we therefore conclude that construction activities beyond those already authorized, n. 10, *supra*, must remain suspended pending the resolution of that question, and the further issues of comparison.

IV. SITE COMPARISON AND PROVISIONAL RESUMPTION OF CONSTRUCTION

If the Licensing Board should again conclude, in this instance with detailed findings, that—wholly apart from issues of comparison—closed-cycle cooling is unacceptable for the Seabrook facility, that finding would bring this aspect of the proceeding to an end. Construction of the facility could continue only if and when final EPA approval to proceed with once-through cooling had been obtained.[20] However, if closed-cycle cooling at Seabrook proves environmentally

[19] We note that there are major distinctions between the *Hodder* case and this case. In particular, in *Hodder* the Appeal Board found that the FES treated the alternate site analysis in a "cavalier and misleading fashion" which appeared to reflect significant failures of effort by responsible parties. *Florida Light and Power Company* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-335, 3 NRC 830, 839-40 (1976). Here, the problem arises from the Licensing Board's statements regarding closed-cycle acceptability and EPA's unanticipated about-face.

[20] At oral argument one of the intervenors suggested that we must defer action until after completion of judicial review of the final EPA action. We believe, however, that we may rely on a presumption of administrative regularity in this respect. *Cf.* K. Davis, Administrative Law Treatise, § 11.06 (1958), *See* text accompanying n. 50, *infra*.

acceptable, but nevertheless imposes an economic and environmental penalty, this will give rise to the need to reassess the attractiveness of the site with this added burden, in comparison to other possible locations for nuclear facilities. It will also raise the question whether, and under what circumstances, construction of the facility could resume in advance of a final EPA decision. It is these issues—site comparison and provisional resumption of construction—with which we are principally concerned.

A. Site Comparison

The need to compare the Seabrook facility with other possible sites arises directly from NEPA, which requires that the cognizant Federal agency consider alternatives to a proposed major Federal action. Section 102(2)(C)(iii); 42 U.S.C. 4332(c)(iii). Consideration of alternatives has been called the "linchpin" of environmental analysis. *See Monroe County Conservation Society, Inc.* v. *Volpe,* 472 F.2d 693, 697-698 (2nd Cir. 1972). Beyond consideration of alternatives, the courts have found an additional requirement for a cost-benefit analysis in which the need for the proposed action is weighed against its environmental costs. *See, e.g., Calvert Cliffs' Coordinating Committee* v. *AEC,* 449 F.2d 1109 (D.C. Cir. 1971).

In the nuclear power reactor licensing setting, the siting of proposed nuclear power plants has frequently been the most vigorously contested issue. Disputes over proposed sites have often had both absolute and relative aspects—absolute, in the sense that the site itself is challenged as unsuitable for a nuclear plant on either environmental or safety grounds (or suitable only if specified measures are taken to preserve identified safety or environmental values); relative, in the sense that alternative sites are argued to be more advantageous from an environmental or safety point of view.

It is the latter comparison which we address in this section of our opinion. We have an undoubted obligation to consider possible alternative sites for proposed nuclear reactors, and both applicants and our staff recognize that obligation in their preparation of environmental impact analyses. What has proved less clear, however, is the basis on which this comparison is to occur—whether we may approve a proposed reactor only if the proposed site proves the most advantageous among those considered, *i.e.,* the optimal site, or whether some less rigorous standard is appropriate. A further issue is to what, if any, extent we may consider, in making the requisite comparison, that the proposed site may have been brought closer to fruition than alternatives which have been proposed. Both issues were posed to the parties following oral argument in this case, and both issues, discussed below, have proved to be difficult. Finally, we consider a question raised by intervenors before the Appeal Board and before us—whether the search for alternative sites was sufficiently broad, or should have extended to additional sites relatively distant from the lead applicant's service area.

Each of these issues bears on the reasonableness of the Commission's process for implementing NEPA. It is therefore appropriate to begin with a fuller description of that process as it relates to site selection and comparison, and as it occurred in this case. Particularly with respect to the latter aspect, we are conscious that the Licensing Board is far better aware than we of the history of site analysis in this case and, indeed, that the dissenting member of that Board appears to have doubted the adequacy of our staff's pursuit of site-related issues. In stressing, then, in the pages that follow, the importance of process to the conclusions we reach, we should not be understood as finding that the process in this case did meet the standards which should be achieved.

While the Licensing Board's hearing and decision mark the first adjudicatory consideration of a proposed license, that consideration, in fact, comes late in our licensing process. The full range of NEPA considerations, including technological alternatives to a facility and alternate sites for a facility are ventilated and considered in a lengthy and environmentally sensitive process that begins well before an application is formally docketed with the Commission. A Commission regulatory guide, Regulatory Guide 4.2, establishes guidelines as to the type of information and analysis an applicant should provide in an application for purposes of facilitating NEPA review. These guidelines are designed to sensitize the applicant to environmental considerations at the very outset of the applicant's preparation of a possible application.

A formal proposal for "major Federal action," in the NEPA sense, does not exist until an application has been docketed and brought to the point where the staff must determine whether it can support the application. Interactions with our staff, however, begin at a much earlier point, and the staff may discourage or reject proposed sites at an earlier stage. Our procedures are designed to encourage that result when appropriate. Section 2.101 of our regulations, 10 CFR 2.101, provides procedures by which prospective applicants may confer informally with the staff prior to filing an application, so that the staff may preliminarily review the application.[21] All applications for construction permits or operating licenses, whether or not they were informally discussed with the

[21] The staff has long encouraged prospective applicants to inform it of a planned application as much as twelve months in advance of actually tendering the application. Beginning in the summer of 1974, our staff has routinely been sending a letter to prospective applicants requesting that pre-tender notice include certain specified information, including information about the proposed facility's location; population densities; nearby transportation, industrial and military facilities; foundation characteristics; seismology; meteorology generally for the area; the proposed date on which applicant intends to initiate data collection for the proposed site; and hydrology. Our study of the record in this case does not indicate whether or when preapplication information may have been submitted to the Commission, or whether any meetings to discuss the intended application occurred, other than those associated with the initial tendering of the application in March 1973, its rejection and subsequent retendering and docketing.

staff at an earlier point, are subjected to an initial format review for completeness and conformity with Commission requirements before being formally docketed. The application in this case was initially tendered in March 1973, and rejected on May 7, 1973, following such a preliminary review for completeness. The staff's letter to the applicant, on file in our Washington, D.C., Public Document Room, indicates that among the reasons for this rejection was that the proffered environmental data lacked "information and detailed evaluation of alternate sites for the Seabrook station including sufficient data and justification to allow the staff to perform an independent evaluation of alternate sites." The application was refiled on June 29, 1973, with the submission of additional information, and on July 9, 1973, found acceptable and docketed. *See* 3 NRC at 850.

At the time of docketing of the application the applicant files its environmental report (ER). This document must follow the format for an Environmental Impact Statement. 10 CFR 51.20. It is placed in our Public Document Room as well as in state, regional and metropolitan clearinghouses in the vicinity of the proposed facility. 10 CFR 51.50. Filing of the application and the ER initiates an intensive staff review of the proposal during which the staff must assure itself that adequate consideration has been given to environmental concerns, again including alternatives to the proposed activity. This process takes place through exchange with the applicant which often lead to the filing of supplements to the ER, and through collection of information which may be in the hands of others, such as other governmental bodies; written comments on the ER may be received.[22] In this case, applicants submitted "Supplementary Information" to the Environmental Report in October 1973 and on December 15, 1973; additional information, captioned "Supplemental Environmental Information" was submitted under cover of a letter dated May 5, 1975, and in July 1975. These supplements contained further exploration of environmental site-related concerns. For example, the staff requested, among other information, that applicant supply ecological and other data appropriate for staff analysis of site alternatives to the Seabrook site, *see, e.g.*, question 9.3 (December 15, 1973).

The hearing process begins at the same time. A Licensing Board is established after docketing, and the parties to the hearing (including intervenors, if any) begin a parallel process of review of the adequacy and accuracy of the ER through the medium of prehearing discovery, including interrogatories. In the Seabrook application, we note that extensive interrogatories were filed between

[22] The record in the Commission's Washington, D.C., Public Document Room shows that comments on the ER were received from the State of New Hampshire and from the Advisory Council on Historic Preservation. Review of the record indicates staff contacts with other state bodies in a position to provide relevant information. *Infra*, p. 525 and p. 526 n. 23.

the applicant, staff and the various intervenors on environmental matters, including issues pertinent to site selection, *see, e.g.*, interrogatories dated November 8 and 21, 1973; January 5, 7, 14, 15, 18, 22, 30 and 31, 1974; February 1, 4, and 20, 1974; March 14, 21, 25 and 26, 1974.

Subsequent issuance of a Draft Environmental Statement (DES)—typically 12 months after docketing—marks the first stage at which the staff formally indicates its views on the development of the environmental review of the proposal. The DES may indicate staff doubts about the proposal. Indeed, if the staff believes that inadequate data about environmental considerations is available or that reasonable alternatives have not been adequately explored, it can and should decline to issue a DES. During the preparation of the DES the staff may and should, to the extent appropriate under the circumstances, conduct independent analysis of the environmental questions that arise in connection with the proposed facility. We note that the record indicates that, with respect to the Seabrook application, the staff and its consultants reviewed, apart from material prepared by or for the applicant, a number of independent studies and sources on the issue of alternate sites (Tr. 10420, 10421) and spoke to members of the New Hampshire Site Evaluation Committee, State Fish and Game personnel and the Southeastern New Hampshire Planning Commission on this matter. In addition to the proposed site itself, the following sites were visited by staff: Lamprey Pond, Philbrick Pond, Gerrish Island, Moore Pond (on two occasions), Litchfield, Garvins Falls, Odiornes Point, Rollins Farm and southern Maine coastal sites as far north as Kennebunkport. Testimony indicates that of these, the sites at Lamprey Pond, Philbrick Pond, and on the Androscoggin River, were visited at the instigation of the staff. The staff also surveyed generally the Connecticut River area.

The DES is itself subject to public comment. Specifically, as required by NEPA, the DES is circulated for comment to the Council on Environmental Quality, Federal agencies with special expertise or jurisdiction by law with respect to any environmental impacts involved, the Environmental Protection Agency, appropriate state and local agencies, the relevant public document rooms and clearinghouses, and all parties to the pertinent proceeding. Additional public comment is encouraged through news releases provided local newspapers, and notice in the *Federal Register*. For the Seabrook DES, *see* 39 *Fed. Reg.* 13305 (April 12, 1974), a press release (AEC # T-164) was issued to approximately 3,250 recipients of daily and weekly AEC mailings, including newspapers, other media and the general public.

After receipt of this round of comment the staff prepares and releases a Final Environmental Statement (FES). It is the obligation of the staff in the FES to "make a meaningful reference to the existence of any responsible opposing view not adequately discussed" in the DES, "indicating the response to the issues raised." 10 CFR 51.26(b). All substantive comments received are attached

to the FES, whether or not that comment is individually discussed in the test of the FES. 10 CFR 51.40(b).[23] The Licensing Board hearing follows publication of the FES.

Previous rulings of this Commission have emphasized the continuum of environmental review which is outlined above. In rejecting arguments that a Licensing Board should have independently reexamined all of the issues of an environmental nature covered by an FES, the Appeal Board has made clear the importance of staff review and the nature of the Licensing Board's role as a final check in the NRC NEPA process.

> A licensing board in a construction permit proceeding such as this is expected to evaluate independently and resolve the appropriate contentions of the various parties, to assure itself that the regulatory staff's review has been adequate, and to inquire further into areas where it may perceive problems or find a need for elaboration. If it finds itself not satisfied with the adequacy or completeness of the staff review, or of the evidence presented in support of the license application, it may, for example, reject the application, or may require further development of the record to support such application. In that connection, it may issue an order which in effect requires one or more of the parties to perform additional research. But for the Board to duplicate the role of the staff, or for it to perform independent basic research, is inconsistent with its adjudicatory role and beyond the scope of its delegated authority. *Consumers Power Company* (Midland Plant, Units 1 and 2)(*"Midland"*), ALAB-123, 6 AEC 331, 334, *rev'd. on other grounds sub nom., Aeschliman* v. *NRC, supra.*

This emphasis on process appropriately reflects both the fundamentally procedural character of NEPA, and the inevitable development in a proposal w
will have occurred during the lengthy and arduous review process.

1. Standard of Comparison

In this context, we conclude that our staff has correctly state
employed in assessing whether a proposed site is to be rejected i
the alternative sites considered, namely, whether an alternat
superior to the site which the applicant had proposed (ALAB
conclusion is particularly appropriate where, as here, applica
was earlier approved in a state proceeding, in which one req
that construction of the facility "will not have an unreasonable
esthetics, historic sites, air and water quality, the natural envi

[redacted]

[23] The FES indicates that comments were received on alternate si
Attorney General of New Hampshire, the Society for the Protection o
Forests, L. Beers and J. Willcox Brown, members of the public.

public health and safety." N.H. Rev. Stat. Ann. 162-F:8 (Chapter 357 of the Laws of 1971). The fact that a competent and responsible state authority has approved the environmental acceptability of a site or a project after extensive and thorough environmentally sensitive hearings is properly entitled to "substantial weight" in the conduct of our own NEPA analysis. *Virginia Electric and Power Company* (North Anna Nuclear Power Station, Units 1 and 2), LBP-75-50, 2 NRC 879, 890 (1975), *aff'd.*, ALAB-325, 3 NRC 404 (1976); *pet. for rev. pending, Culpeper League for Protection* v. *NRC,* No. 76-1484 and 76-1532 (D.C. Cir.). Such limited reliance is clearly acceptable under NEPA. *Cf. Essex County Preservation Association* v. *Campbell,* 536 F.2d 956, 959-60 (1st Cir. 1976).

We are urged by intervenors, however, that only "that ideal alternative which would achieve all the goals of the project and all of the environmental goals established by NEPA" may be approved. NECNP response to Commission Order of February 7, 1977, at 11 (February 14, 1977). The proposition urged on us is that the ". . . environmentally preferable alternatives [should] be preferred over Seabrook unless Seabrook is substantially better on other grounds . . . ." *Id.* at 13. This assertion is easily answered. NEPA does not require such an unbalanced weighting of environmental over other factors such as economic considerations or the possible health and safety advantages of particular locations. In the Seabrook record, for example, the advantages of the Moore Pond site are primarily environmental. The population near the site is significantly lower than that near the Seabrook site, and the site has lesser potential for aquatic impact. However, the remoteness of the site would lead to increased construction costs and require about 370 miles of additional transmission lines, and rail access is difficult.[24] Similarly, an environmentally attractive site may be somewhat more active seismically than an alternative location. Even though design measures with attendent increased costs could be taken that would make the more active site acceptable from a safety perspective, it would be unreasonable to say that the environmental advantages must automatically take precedence.

The purpose of the National Environmental Policy Act was to insure that

[24] There may be costs in placing a generating unit on a site which, though it is environmentally attractive, is, for example, remote from population centers. Even if one were able to ignore the cost of constructing additional transmission lines it is necessary to consider that when power is transmitted, some portion of it is lost from the transmission lines. The longer the transmission line, the greater the loss. This cost, which is capable of quantification, was noted as a disadvantage with respect to the Moore Pond site. *And see Northern Indiana Public Service Company* (Bailly Generating Station, Nuclear-1), ALAB-224, 8 AEC 244 (1974). Additionally, transmission lines themselves give rise to environmental costs in terms of additional land use and aesthetics. *See, e.g., Virginia Electric and Power Company* (North Anna Power Station, Units 1 and 2), LBP-75-70, 2 NRC 879 (1975).

agencies of the United States give *appropriate* consideration to environmental values in the decisionmaking "along with economic and technical considerations." Section 102(2)(b). Having found that government agencies, by and large, had been giving little or no weight to the environmental consequences of their actions, the Congress mandated a reordering of priorities "so that environmental costs and benefits will assume their *proper* place along with other considerations." *Calvert Cliffs, supra,* 449 F.2d at 1112 (emphasis added). But, as the *Calvert Cliffs* decision noted, "Congress did not establish environmental protection as an exclusive goal." *Id.* at 1112.[25]

Two significant realities of the NEPA process support the use of the standard of obvious superiority—the inherent imprecision of cost/benefit analysis and the probability that more adverse information has been developed respecting the closely examined proposed site than any alternates. The imprecision springs from the nature of the cost/benefit analysis the Commission must perform: in the nuclear licensing context the factors to be compared range from broad concerns of system planning, safety, engineering, economic and institutional factors to environmental concerns, including ecological, biological, aesthetic, sociological, recreational, and so forth. Much of the underlying cost-benefit data is difficult of articulation, much less quantification. Given these difficulties, any evaluation of a particular site must inevitably have a wide margin of uncertainty.[26] If accurate overall assessments of these diverse factors were realistically available, one could appropriately employ a fairly strict standard of comparison and still have a high degree of confidence that the correct result had been reached. But where the data to be compared necessarily present a wide margin of uncertainty, one site must appear to be substantially "better." To reject an application—the only means available for indicating the preferability of an alternate site—at this late stage in the licensing process requires substantial

[25] The *Calvert Cliffs* decision contains the often quoted statement that "[o]nly in that fashion is it likely that the most intelligent, optimally beneficial decision will ultimately be made." 449 F.2d at 1114. We agree with the staff that, taken in context, the *Calvert Cliffs* Court was "suggesting that 'optimally beneficial' decisions are the hoped for result of a government decisionmaking process that complies with the procedural requirements" of NEPA. In any event, appropriate distinctions may be drawn between those environmentally protective measures which can be achieved by agency action, as through conditioning a granted license, and those which may merely be hoped for. Where rejection followed by reapplication is the alternative indicated by environmental analysis, the agency's inability to assure optimum benefit may be taken into account.

[26] Attempts in previous licensing proceedings to assign values to, for example, flora and fauna have not been notably successful, and illustrate the imprecision with which we must necessarily work in this area. *See Consumers Power Company* (Midland Plant, Units 1 and 2), LBP-72-34, 5 AEC 214, 224 (1972), where intervenors attempted to place values on bird and animal life, assigning values of $10 per sparrow and $10 per mouse, and alleging a total "conservative" value of $36,000,000 to the wildlife to be disturbed by construction.

confidence that one's judgment is correct—a confidence that can only arise where an alternate site is obviously superior.

This conclusion appears the stronger when one considers that the applicant's proposed site comes before the Board after having been intensively studied by the applicant, staff and intervenors for a period of years. The applicant is required to have produced an inventory of information about the geology, hydrology, meterorology and ecology of the proposed site. Through this required monitoring it is hoped that every major environmental impact that may result from construction of the facility will have been located and the potential problems with the site will have been identified. The alternate sites to which the proposed site is compared have undergone no comparable study. Common sense teaches that the more closely a site is analyzed, the more adverse environmental impacts are likely to be discovered.[27] It would, therefore, be mistaken to conclude that an alternate site which appeared marginally superior to the proposed site, would remain superior upon further investigation, considering all of the possible but unknown disadvantages of the alternate site. Nor does, as one intervenor has suggested, the solution to this problem lie in requiring more intensive analysis of alternate sites by applicants before they submit their applications. Absent a mechanism which would permit banking of any sites which might be previously approved—a mechanism this Commission has sought legislatively—the costs of that approach could not conscionably be imposed on private applicants and their ratepayers.[28]

Our acceptance of the "obviously superior" standard for site selection derives, as well, from the reality of our situation in passing on license applications. The licensing process is structured for rejection or acceptance of the proposed site rather than choice of sites. If one of our licensing boards disapproves a proffered site, it lacks authority to require an application to be filed for a facility at another location. Rather, the applicant must choose to do so and the whole process of staff review leading to hearing must be rerun if the facility is to be at the alternate site.[29] The Board's powers in this respect stand in contrast

[27] The Tennessee snail darter, for example, was found only as the result of close environmental examination. *Hill* v. *TVA*, ____ F.2d ___, No. 76-211 (6th Cir. January 31, 1977).

[28] Even if applicants did submit exhaustive analyses of several alternative sites along with their application, the Commission would still have to consider additional alternatives raised by the staff or, as here, by the intervenors. It would be impossible to generate the necessary information on each of those sites to allow an equal comparison between them and the proposed site.

[29] The Commission has long encouraged, as a legislative or regulatory matter, measures which would permit site approvals in advance of particular reactor applications and in this manner permit creation of a "bank" of qualified sites. *See* S. 1717 and H.R. 7002, 94th Cong., 1st Sess. (1975); S. 3286 and H.R. 13512, 94th Cong., 2nd Sess. (1976); and *see* the proposed rule making entitled "Early Site Reviews and Limited Work Authorizations," 41

(continued on next page)

with its authority to require environmentally protective measures at the particular location site proposed in the application. In granting a proposed license, the Board may condition it upon some precautionary measures required at the chosen site. Such conditions are comprehended within the proposed licensing action; selection of an alternative site is not, and that influences the nature of the review. In sum, we think it appropriate that a licensing board refuse to take the proposed "major Federal action," *i.e.*, deny the requested license, not when some alternative site appears marginally "better" but only when the alternative site is obviously superior.[30]

2. Comparison of Facility Completion Costs

One component in cost-benefit analysis is the cost of a proposal in purely economic terms. During oral argument we realized that a possibly significant issue in connection with performing the comparative cost-benefit analyses called for by ALAB-366 would be the manner in which the time and costs of completing a facility at Seabrook would be compared to the time and costs of constructing such a facility at alternate sites. Accordingly, we asked the parties to address the question:

> In any comparison of Seabrook with other sites, what are the appropriate costs and time periods to be considered for the Seabrook site?
>
> a. The cost and time required to complete Seabrook from its present state?
>
> b. The cost and time which might reasonably have been anticipated at the time of the Seabrook CP issuance, as against other sites which had not progressed to the point of decision?

(continued from previous page)

Fed. Reg. 16835 (April 16, 1976). These proposals all focus on early and separate review of facility sites as one of the best means to eliminate unnecessary delays and improve the licensing process.

In this regard, our staff is now conducting a study of Federal and state functions and their overlap in nuclear power plant siting. After completion of this study, practical licensing reforms—in particular, those relating to early site review—can be addressed more comprehensively by the Commission and Congress. We expect this study, to be completed within the next two months, will result in specific recmmmendations for reforms to lessen duplicative Federal and state reviews, to make environmental reviews more efficient, and to aid more effective public participation in the siting process.

[30] In so ruling, we do not wish to be misunderstood as suggesting that the obligations of NEPA *analysis* are any less than have previously been required by our staff with respect to alternate sites, or that the standard adopted above is appropriate for deciding whether to condition a proposed license. NEPA requires that the performance of the analysis which has been done, and the thoroughness and good faith of that analysis to remain an issue to be resolved before a license may issue. In its early dealings with applicants, particularly, we expect our staff to assure that preliminary analyses of possible sites are thorough and even-handed, so that the site applied for is likely, in fact, to prove superior.

c. The cost and time which might reasonably have been anticipated for the Seabrook site once the utility had selected it as its preferred site?
d. Some other alternative?

Stated in other terms, the question is to what extent the Commission may consider in comparing alternate sites the fact that one site has been brought closer to final use as a facility site than others.

The positions of the parties on this question may be summarized as follows. Applicant would accept the first alternative. So also would the staff. The intervenors take somewhat different approaches. Audubon-SAPL would have the Commission ignore the economic and time advantages of completing Seabrook in comparison to a fresh start at another site and consider Seabrook as a *tabula rasa*,[31] that is, as if no time and effort had been expended there. NECNP, apparently differing somewhat from their position at oral argument, believes that, "possible delay from implementing a preferable alternative is irrelevant" and, "economic costs should be disregarded." NECNP submission of February 14, 1977, at 13, 16. Massachusetts takes a more flexible position and while disregarding the economic advantages of continuing at the present site would apparently permit some consideration of any delay necessitated by shifting to an alternative site.

We find that, for the ordinary case, the position of staff and applicants is more convincing both as a matter of policy and of law, although we would modify it somewhat as discussed below. To adopt any of the other alternatives referred to in the question quoted above (including Audubon's *tabula rasa*) would compel us to require the Licensing Board on remand to strike a cost-benefit balance based on a set of assumptions that no longer fairly described the facts as they are.

We reach this conclusion in two steps, the first of which takes us to the point of initial license issuance. It is inevitable that in any licensing proceeding, a proposed site will be substantially closer to completion, and hence less costly and time-consuming in comparison with otherwise comparable alternates. In order to bring the site to the point of hearing, the applicant will have had to conduct geological and seismic analyses, prepare environmental surveys, hire architects and engineers to prepare a plant design, obtain other state, local and Federal approvals, and so forth. If the applicant does not undertake them, its application will automatically be denied. Therefore, they are realistically the factual predicate for any Federal action, *i.e.*, NRC licensing, at all. Each of these expenses and events is to some degree site specific and considering them in a comparison between applicant's preferred site and alternative sites necessarily favors applicant's site. Our staff and the public may and should work with the

[31] This term was suggested by a Commissioner at oral argument and was adopted by Audubon-SAPL to describe its position.

applicant to identify significant environmental deficiencies at an early stage, when this weighting will not be as pronounced and alternative courses can be taken with less loss and waste motion. But in the usual case, where our NEPA processes have worked as they should, these realities may be considered at the hearing stage, subject to the cautions expressed within.

More difficult than the question of whether time and money expended may weigh in favor of the proposed site at hearing is whether such a rule should apply when, as here, appellate review of a licensing board's judgment leads to the conclusion that further analysis of the alternative site question is required. A rule which takes account of work done on the proposed site for purposes of doing a new NEPA analysis is troubling where the NEPA deficiency calling for the new analysis arises from an inadequate consideration of alternative sites, for such a rule necessarily disadvantages these very alternatives. Moreover, such a rule, by giving "credit" for any work done after issuance of a construction permit, would seem inconsistent with our policy that although licensing board decisions are immediately effective, 10 CFR 2.764, any work done in reliance on the unreviewed decision is done at the applicant's risk.

Nevertheless, it is simply not rational where our NEPA process has generally been sound, to disregard these realities.[32] Unless reason for the contrary course can be shown, the NEPA analysis on remand should be done on the basis of the factual predicate existing at the time of the analysis. This means that in comparing construction costs of the proposed site and at alternate sites, actual completion costs should be used. To compare actual completion costs merely emphasizes, once again, the necessary costs of choice–the importance of the Commission's NEPA process as process, requiring expenditures of time and money, and the importance of early involvement of and participation by the public as well as our staff to insure that the process fulfills its functions.[33]

[32] In normal cases the absolute amount irrevocably committed to the applicant's site at the pre-CP stage will not be a major portion of the cost of the facility. There was some discussion at oral argument of an affidavit by applicant indicating that it had spent or committed some $200 million on Seabrook before issuance of the CP. Presumably, much of this expense was for planning and equipment that could be used at an alternate site as well as at Seabrook.

[33] Our disposition of the issues before us in this proceeding must also be considered in a broader context. Matters relating to considerations of alternative sites are already under review by our staff as a distinct component of a broad reexamination of reactor siting policy and process now in progress. A Commission statement or proposed rule will result, further articulating Commission policy on these matters. N. 29, *supra*.

The adjudicatory setting here largely constrains us to take the structure of our licensing process as we find it. Rule making normally provides the opportunity for major revisions and adjustments to the licensing process, itself, if these appear warranted. Thus, insofar as it sets out new principles for our licensing process generally, we regard today's decision as providing guidance embodying the Commission's current views on the issues raised which may be subject to adjustment during the course of our on-going general review of siting matters.

Indeed, our conclusion substantially depends on the integrity of the NEPA process which leads up to the point of hearing. Where that integrity is absent—where time and money have been *mis*spent—it may be proper to restrike a NEPA analysis on the basis of a set of facts no longer existing, *i.e.*, as though those expenditures had not been made, which would put the proposed site and alternatives on a more equal albeit somewhat unrealistic footing. Staff submission of February 14, 1977, at 23. The cost to society of making a decision on information known to be distorted from reality might be justifiable, if use of the existing set of facts would be unjust—for example, because an applicant intentionally withheld significant information about deleterious environmental consequences of construction at its proposed site. In such circumstances, a NEPA cost-benefit analysis based on existing conditions would allow the applicant to profit by its wrongdoing; to ignore the realities in such cases would also have a useful deterrent effect on others. Any such decision, however, should be made only after a careful weighing of the need to protect the integrity of the Commission's NEPA process, and the possible cost to the public in basing a decision on completion cost assumptions that do not reflect existing circumstances.

In this case, the factors of which we are aware argue for the realistic approach, that comparison of alternatives on remand should consider the actual forward costs of completion of applicants' facility at the proposed sites and of the alternatives at the time of the comparison. Here the NEPA process, from the point of initiation, appears to have been fundamentally sound, with vigorous and continuing public as well as staff participation.[34] Parallel intensive state siting proceedings reached the same result. The occasion for requiring additional NEPA review is ascribable principally to external events, the complications introduced by EPA's *volte face*, and it may yet prove permissable for a once-through cooling system to be employed—for which the present analysis largely suffices. *Prima facie*, then, we believe the approach which applicant and the staff support to be the more appropriate.[35]

The policy we adopt today is supported by the few cases squarely on point. In *Aeschliman* v. *NRC, supra*, the court remanded a construction permit to the Commission for, *inter alia*, restriking of NEPA balances. The court noted (547 F.2d at 628) that "agencies . . . may deal with circumstances 'as they exist and

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[34] We repeat that these remarks are intended as observations on the state of the record as it appears to us, and that the Licensing Board is free to substitute its more thorough knowledge of the record and proceedings.

[35] In any event we are very doubtful that consideration of the difference between the forward costs of Seabrook at the time of issuance of its construction permit in July and the present completion will itself be the decisive factor in a comparison between Seabrook and an alternate. On remand, the Licensing Board should, however, make separate findings as to the completion costs of Seabrook in July versus alternative sites and that comparison as of the present.

are likely to exist,'" citing *Carolina Environmental Study Group* v. *United States*, 510 F.2d 796 (D.C. Cir. 1975). The court gave specific instructions on how the NEPA balance would be struck on remand. Quoting from *Union of Concerned Scientists* v. *AEC*, 499 F.2d 1069, 1084 n. 37 (D.C. Cir. 1974), the court said:

> An alternative to be considered is complete abandonment of the project, just as it was at both the construction and full-power operating license stages. [Citation to record omitted.] As at those stages, sunk costs are not appropriately considered costs of abandonment, although replacement costs may be if construction of a substitute facility could reasonably be expected as a consequence of abandonment.

Aeschliman, supra, 547 F.2d at 632 n. 20.

The abandonment the court referred to in *Aeschliman* is to be distinguished from the possible abandonment considered when the cost-benefit balance for the facility itself is considered. In the latter case abandonment refers to the "no plant" alternative. In comparing the alternative of no plant to completion of Seabrook, moneys already spent are clearly not relevant. Money spent is spent. But in the context of alternate site analysis, abandonment of Seabrook means building another plant somewhere else. In that analysis, *Aeschliman* tells us, we may properly consider the fact that at another site, reviews and work already completed at Seabrook will have to be duplicated.

The other component referred to in the second question addressed to the parties, comparative time until completion, has also been the subject of a recent judicial decision. Again, the decision was that, in comparing one site with another, it is appropriate to consider that one may be brought into operation more easily than another. In *Porter County Chapter of the Izaak Walton League* v. *AEC*, 533 F.2d 1011, 1017, n. 10 (7th Cir. 1976), the court noted:

> The chief economic disadvantage of Schahfer was found to be the delay associated with moving there, estimated to be from two to four years. RAI-74-4, 624. Petitioners urge that this factor should not have been considered, since it was the result of NIPSCO's choice of the Bailly site. This argument is not without force, but we conclude that AEC did not abuse its discretion in deciding to consider this factor, having in mind the public interest in avoiding future shortages of power and the estimates as to when the additional power to be generated by the nuclear facility would be needed.

The discretion approved of in *Porter County* is the same discretion that must be employed in deciding whether in any particular case to make site comparisons on a completion-cost basis for purposes of restriking the NEPA balance. *And see Steubing* v. *Brinegar*, 511 F.2d 489, 497 (2d Cir. 1975).

In connection with the delay factor, we note that delay is not a factor which carries uniform weight in all circumstances. If the delay would result in an inability to construct the plant in time to meet a predicted need for power, then delay is a factor to be weighed against an alternative. If there is no such problem, then delay may figure only as a cause of additional cost, and then only if it does in fact cause costs to increase. The need for power question as it relates to Seabrook is presently before the Appeal Board. After the Appeal Board's decision and review, if any, by the Commission, the Licensing Board would be better able to evaluate the significance of delay in comparing Seabrook with alternative sites. However, it does not follow that the Licensing Board should wait for the final resolution of that issue. Particularly if consideration of the other factors indicates to the board that the need for power issue is not decisive, it should proceed without awaiting that further guidance.[36]

The issues of forward cost and of delay are individual factors among the many to be considered in reaching an overall assessment of alternative sites. We remark, again, that this assessment process is necessarily imprecise, and that it must be influenced, as well, by our inability to require the licensee to relocate his facility at an alternative site or even to know at the time of our action that such a site will ultimately prove licensable if applied for. We can only reject the site for which application has been made. Despite these difficulties, we would be concerned if a proposed site with severe handicaps vis-a-vis others were to prevail merely because lower completion costs and shorter completion times at the proposed site appeared to outweigh these handicaps.

Accordingly, on remand the Licensing Board should first determine if any alternative to the Seabrook site with either once-through or closed-cycle cooling is obviously superior to it without regard to the fact that a facility at Seabrook is closer to completion. Only then should the Board consider whether the advantage of the Seabrook site's being closer to fruition, an advantage the Board should attempt to assess with precision, is sufficient to overcome this obvious superiority. If after this assessment an alternative retains an obvious superiority over the Seabrook stie, the latter should be rejected. Of course, it may well be that the initial screening noted above will reveal that no alternative site is obviously superior to Seabrook. In such an event it would not be necessary to

[36] We emphasize that the foregoing discussion applies only in the context of our responsibility under NEPA. Under the Atomic Energy Act, 42 U.S.C. 2011 *et seq.*, our responsibility to protect the public health and safety is such that we may not consider to any extent any investment that an applicant has made in a facility when we are passing on the safety of the plant. This is true even at the operating license stage when an adverse safety finding may mean that an applicant's investment of billions of dollars "may go for naught." *Power Reactor Development Company* v. *International Union of Electrical, Radio and Machine Workers*, 367 U.S. 396, 415 (1961).

reach the question of the weight to be given Seabrook's lower forward costs. A similar process must be followed by the Board in any case in which the differences in forward costs or completion times resulting from the advanced state of development of a particular proposal appear to be the decisive element in the conclusion that no other site is obviously superior. Should such a situation be concretely found to exist, the Commission expects to give very close attention to the reasoning that led the Board to the acceptance of the otherwise disadvantaged site.

3. Southern New England Sites

We come now to an issue raised by intervenors claiming error in ALAB-366. The Appeal Board held that in its further deliberations, the Licensing Board need consider, for comparison purposes, no more than the 19 alternative sites in or near the lead applicant's service area in New Hampshire and Maine, which were identified in the FES (ALAB-366 at p. 65). Intervenors had suggested before the Appeal Board that consideration of alternate sites should have included sites in southern New England, including "sites on the Connecticut River, sites where other units had been proposed and were postponed, sites where other units already exist and sites where other units are postponed." NECNP Memorandum in Support of Partial Affirmance of and Partial Reversal of ALAB-366, at 4.[37] The basis for the Appeal Board decision was agreement with the applicants that "the [contrary] assertion was concretely advanced far too late in the proceeding below."[38] Thus, the Appeal Board distinguished this

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[37] NECNP's exceptions to the Licensing Board's decision state the defect they perceived as follows: "the staff . . . did not require consideration of sites other than in New Hampshire and Southern Maine . . . although the load centers to be served were also in Massachusetts and Rhode Island . . . and did not consider sites previously selected for nuclear plants in New England where construction had been deferred (Tr. 10327). Neither the staff nor the Board took a 'hard look' at the question of alternate sites." NECNP Brief in Support of Exceptions, September 17, 1976, at 22.

Similarly, *see Brief Submitted on Behalf of Seacoast Anti-Pollution League and Audubon* Society of New Hampshire (September 14, 1976) at 52-54. "The Seabrook project forms an integral part of a coordinated plan to deal with the problems of supply and energy to the New England region. Therefore, because of its size and scope, the range of alternatives which must be thoroughly and carefully evaluated are more numerous than those alternatives which have been studied to date." (Citation omitted).

[38] The Appeal Board noted that the assertion "apparently first surfaced in October 1975 during corss-examination of witnesses for the applicant and staff at a late stage of the trial itself (Tr. 10313). Long before that time, in mid-1974, SAPL-Audubon and the Coalition received, and took advantage of, the opportunity to comment upon the Draft Environmental Statement. None of their comments contained the slightest suggestion that the staff's alternate site analysis should have included scrutiny of possible southern New England sites. FES, pp. A-52, *et seq.* and A-94, *et seq*."

case from the situation in *Aeschliman* v. *NRC*, *supra*, where the intervenors' comments on the draft environmental statement had been found to have raised a "colorable alternative not presently considered therein" in a manner which brought "sufficient attention to the issue to stimulate the Commission's consideration of it." The Appeal Board found "no hint" in the *Aeschliman* opinion "that an intervenor can await the commencement of the actual trial and then come forward with a claim that the staff's environmental review culminating in the FES should have explored specific alternatives beyond those identified in the DES."[39]

The intervenors have renewed their arguments on this issue in our review of ALAB-366. They emphasize the relationship of the applicant to the New England power pool, an interconnected group of utilities serving most of the New England region:

> We are dealing with an integrated region. And who owns the plants in New England, or who has title to the property in which they stand isn't a particularly relevant situation. The question is who gets the power . . . .

SAPL-Audubon Brief at 9. NECNP also asserts that the question of southern New England sites had been raised prior to publication of the FES, citing comments of the State of New Hampshire (FES A-34 to A-35) and two letters it had submitted after the comment period on the DES had closed but shortly before publication of the FES. NECNP Brief at 3 and Appendices.[40] These letters referred to alternate sites at the locus of other proposed nuclear power plants, in the context of pursuing issues concerning the need for the power to be generated by the proposed Seabrook plant. NECNP also argues, on the merits, that the dissent's treatment cannot be the basis for a finding against these sites.

Applicant agrees with the Appeal Board that the issue of alternate sites

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[39] ALAB-366 at p. 66. While not deciding the question on such grounds, the Appeal Board also implied that there were substantive reasons why the objections were properly rejected. Citing the *Bailly* opinion, *Northern Indiana Public Service Company* (Bailly Generating Station, Nuclear-1), ALAB-224, 8 AEC 244 (1974), the Board noted that alternative site analysis normally "rightly" focuses on the territory within or in the vicinity of the service area of the utility which is to build and operate the plant. Normally, only "special considerations" warrant looking farther afield. "If SAPL-Audubon and the Coalition believes there to be such considerations here, the proper time for bringing them to the fore was clearly the comment period on the DES," when there would have been adequate time for the staff to explore the notion. *See also Clinch River*, *supra* at 92 n. 30.

[40] The most important letter, dated November 18, 1974, was received about two weeks before the December 7 publication of the FES; the second letter was dated December 6, 1974, and received December 11.

distant from its service area was not raised in a timely fashion.[41] But applicant also points out that merely because the proposed Seabrook reactors would be linked to a power pool does not mean, as a practical matter, that the reactors could be built anywhere in the pool area. The pool, it says, does not put up money to build plants; the companies do. Since the applicant here will own 50 percent of the plant—the next largest share is twenty percent—it might be expected to prefer a site in or near its own service area in northern New England. Moreover, it contends that the other sites suggested by intervenors are simply not available to it. Applicant's Reply Brief to NECNP at 2.

In its written submission, the staff's position was that the "timeliness of the assertion need not be faced since exclusion of the sites in southern New England from the prior . . . alternate site analysis was based on substantive reasons amply supported by the record." Staff brief at p. 28. In oral argument, however, the staff position changed somewhat; there, staff conceded that the issue had been raised in timely fashion, and urged that the "matter be disposed of on the basis of the record, as referenced by Dr. Buck in his dissent." Tr. at 126.[42]

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[41] Applicant argues that the intervenors were presented with the opportunity to raise these issues when they were asked, through interrogatories, to suggest alternative sites which should be considered; applicant suggests that intervenors then recommended the exploration of certain sites. Each of the sites suggested by intervenors was investigated and was among the 19 sites considered in the FES and by the Licensing Board. Brief of Applicant in Opposition to Certain Exceptions of Other Parties at 16-19 (November 12, 1976), cited to this Commission in Applicant's Reply to "New England Coalition on Nuclear Pollution Memorandum in Support of Partial Affirmance of and Partial Reversal of ALAB-366" (February 3, 1977). Further opportunity in this regard came when the DES was circulated for comment. Applicant says that at no time, until cross-examination, was there suggested any site in "or even a general exploration of possible sites in Massachusetts, Connecticut or Rhode Island, nor was there any suggestion of exploring the use of an already developed site." *Id.*

[42] Dr. Buck's review of the record led him to state the relevant evidence as follows: "[t]he Licensing Board found, the Seabrook facility will be owned by several New England utilities, each of which is a participant in the New England Power Pool (NEPOOL). The need for Seabrook is related to the requirements both of NEPOOL and of the lead applicant, Public Service Co. (3 NRC at 899). A NEPOOL witness testified that NEPOOL views it as important, for technical reasons that

> the generation and load be fairly evenly distributed so as to minimize the very heavy flow from one end of the grid to another, and to enhance the reliability system by reducing the dependence on long transmission lines which will have the greatest exposure to the kind of problems that led to, for example the 1965 blackout [Tr. 10166].

Accordingly, NEPOOL has divided the New England area into eight subareas (Tr. 10168). New Hampshire is one of these subareas, and the record indicates that by 1982 it will be deficient in generating capacity absent a new facility such as Seabrook (Applicants' Direct Testimony No. 14, fol. Tr. 10162, pp. 20-23). Furthermore, no nuclear capacity other than Seabrook is planned for that subarea (*Id.* at 23). [In sum, according to a NEPOOL witness] . . .

Our necessarily limited review of the facts indicates that the Appeal Board majority's determination of untimeliness has support in the record. Normally, as *Aeschliman* implies, 547 F.2d at 627-28, the stage at which intervenors must raise additional alternatives is the DES comment period. *See* ALAB-366 at 66-67 nn. 46 and 47. The early opportunities afforded the public to participate in siting considerations, as we have noted, make appropriate what is in practical effect an increasing burden of justification for forcing consideration of new site alternatives. However, the fact is that this case must be remanded to the Licensing Board on other grounds for a new comparison of Seabrook with possible alternate sites, on the assumption of closed-cycle cooling. Nor is it clear what attention the Appeal Board panel gave the late-filed comments of NECNP. Although late in terms of filing, these comments may have been timely responses to developing circumstances. Our staff was in any event made aware of the more important of these shortly before publication of the FES. Our conclusion is that it would be improper to rely on timeliness grounds to exclude the issues raised by NECNP regarding sites where units already exist, and sites where planned units have been postponed[43] unless that suggestion can be shown to have been unreasonably delayed rather than a prompt response to developing events.

In so ruling, we do not exclude the possibility that the Licensing Board will find, on the basis of evidence already in the record and other relevant factors, that a limit on alternate site consideration to the area in or near the lead applicant's service area is appropriate in the context of this application. Careful examination of the substance of the intervenors' claims about Southern New England sites indicates that a large part of their argument deals with ways in which the applicant might satisfy its power requirements without being lead applicant for a power facility. For when the applicant indicates legal and technical barriers to its obtaining sites outside the 19 that were considered in the FES, the intervenor suggests that the plant might be built elsewhere by another utility, in which case applicant presumably may buy a share of that other plant, or purchase power from it. But this Commission sits to license, or not to license, a nuclear power plant proposed by a particular applicant. It is not within our

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> It's clear that where we really needed the capacity was in this area north of Boston and up in New Hampshire, and so we were definitely encouraging locations in the Seabrook area.

Tr. 10184. Even discounting the accuracy of the need-for-power figures advanced by the applicants, it appears that the limitation of the area for examination of sites in this case is technically well founded and should be accepted by us as dispositive of the general claim that southern New England sites should have been explored."

[43] New Hampshire's comment respecting Connecticut River sites south of Lebanon, N.H., was not pursued by the state, which has approved the Seabrook site, and may well have been limited to New Hampshire locations.

power to order that a different plant be built by another utility. The fact that a possible alternative is beyond this Commission's power to implement, does not absolve us of any duty to consider it, but our duty is subject to a "rule of reason," *NRDC* v. *Morton*, 458 F.2d 827 (D.C. Cir. 1972); *Concerned About Trident* v. *Rumsfeld*, ___ F.2d ___, 9 ERC 1370, 1380 (D.C. Cir. 1976). And NEPA does not require that we reformulate a discrete licensing question in terms as broadly as intervenors suggest.

Application of the "rule of reason" here may well justify exclusion or but limited treatment of the suggested sites. We leave this decision in the first instance, to the Licensing Board, but note the several factors which bear on it.

First, alternative sites in or near the load centers to be served by the facility have obvious practical advantages for the applicant and its ratepayers.[44] Construction at a relatively distant site—here, a southern New England site—may necessitate longer transmission lines, with consequent greater expense, aesthetic affront and loss of power. *See Northern Indiana Public Service Company* (Bailly Generating Station), ALAB-224, 8 AEC 244, 267-268 (1974). We note that the 19 sites already considered cover a broad geographic area including sites on the southern Maine coastline, and that the general area of northern Massachusetts along the Merrimack River and the Commonwealth's northeast corner had also been considered at an earlier stage in the alternate site exploration. FES 9.1.2; ASLB Tr. 2935. It is also appropriate for the Board, in applying the "rule of reason," to consider the possible institutional and legal obstacles associated with construction at an alternate site, such as the lack of franchise privileges and eminent domain powers and the need to restructure existing financial and business arrangements. The record indicates that while the Massachusetts area, where the lead applicant enjoyed neither franchise privileges nor eminent domain powers, was eliminated as offering no advantage over New Hampshire, some consideration was nevertheless given it. *See* FES at 9-5, 9-7. Finally, as the Appeal Board dissent noted, if Seabrook is needed primarily for power in New Hampshire and northern Massachusetts, and usefully balances NEPOOLS's transmission system, those factors, and other technical considerations such as system reliability, may also limit the "reasonableness" of considering sites in southern New England. The Licensing Board may conclude that these factors make consideration of any existing or planned unit sites "unreasonable," or it may reach particular sites and compare them with Seabrook, depending on the record made before it. Should the Licensing Board conclude that an individual comparison of

[44] We have suggested consideration of out-of-service area sites in another case, where co-applicants included a Federally owned utility and an agency of the Executive Branch—each of which had undoubted NEPA responsibilities to conduct full alternative reviews. *Clinch River, supra* at 92 n. 30. Even in that context we stated that "consideration of [out-of-service] alternatives need go no further than to establish whether or not substantially better alternatives are likely to be available." *Id.*

Seabrook with one or more of these sites is called for in the present circumstances, that comparison should be undertaken whether closed-cycle or once-through cooling is to be employed at Seabrook.

4. Kleppe v. Sierra Club

We are reinforced in our conclusions by the recent decision of the Supreme Court in *Kleppe* v. *Sierra Club*, ___ U.S. ___, 49 L. Ed. 2d 576 (1976) which fully supports the results we have reached above. In *Kleppe*, the Court started with the proposition that NEPA obligations arise only in connection with a "recommendation or report on proposals for . . . major Federal actions significantly affecting the quality of the human environment." NEPA Section 102(2)(C). The Court made clear that that obligation does not arise until there is a proposal, and a proposal for major *Federal* action. We must keep a clear focus on what the "major Federal action" is in this case. That action is "Federal approval of private action rather than Federal initiation of its own project." *Kleppe, supra*, at 595-96 n. 1 (Marshall, J. concurring and dissenting). As Justice Marshall noted in *Kleppe*, NEPA is more demanding in a case involving direct Federal action than in a case involving Federal approval of private action. *See also Aberdeen & Rockfish R.R.* v. *SCRAP*, 422 U.S. 289, 320 (1975). In Federal approval cases, "NEPA seeks only to assure [environmental] consideration 'during the formulation of a position on *the proposal submitted by private parties*,'" *Kleppe*, 49 L.Ed.2d, *supra* at 595-96 n. 1 (Marshall, J.) quoting in part from *Kleppe, supra* at 590 (opinion of the court)(emphasis supplied).

The Court noted "the kind of impact statement required depends on the kind of 'Federal action' being taken." *Id.* at 586 n. 14. That proposition is a specific application of the general approach we have taken above, that the scope and focus of any NEPA analysis depends upon the nature of the particular proposal being considered and the factual predicate existing at the time the analysis must be performed by the agency. This proposition has consequences for all three facets of our decision discussed above. A formal proposal exists only when an application is docketed; it becomes a proposal for Federal action only when our staff has completed environmental (and other) analyses and decided to support the application in the hearing process.

To ignore the factual predicate that exists when a specific application comes before us would be to convert the Commission's NEPA analysis from one appropriate for Federal licensing action to one appropriate for primary Federal activity. If the "Federal action" being taken were *construction* of Seabrook, not licensing, NEPA would assure environmental consideration at the *outset* of the project and would require consideration of a wide range of alternate sites or technologies. *See id., supra* at 595-96 n. 1 (Marshall, J.). But the "Federal action" here is licensing, not constructing Seabrook, and that means that NEPA

requires environmental consideration primarily of those issues which could preclude the requested license, or which could be affected by license conditions. *Id.* Necessarily that means that our NEPA analysis must and should be more limited and should focus on "the proposal submitted by private parties" rather than on some broader but ill-defined concept extrapolated from that proposal. The broader issues are relevant but only insofar as they affect our decision on the Seabrook application. They do not define the perimeters within which we must evaluate that application.

To hold otherwise—to require that an agency when acting on a request for a license must consider the situation as it was before the applicant ever did anything at all and must consider all possible alternatives to the proposed action—would make compliance with NEPA an obligation of private parties. An applicant would then have to do a NEPA analysis before beginning any course of action that might ultimately require some government approval or other action. *Kleppe* confirms that NEPA distinguishes between direct Federal action and Federal approval of private action and that NEPA requires an analysis appropriate for the proposal and not the maximum possible environmental analysis for every proposal. A statute that imposed the requirements of NEPA on private parties might be a beneficial complement to NEPA, but it would not be NEPA. NEPA is addressed to the Federal government alone and we are not inclined to use the pretext of "liberal construction" or "*tabula rasa*" as a means of extending it to private parties. *See Gage* v. *AEC*, 479 F.2d 1214, 1219-1220 (D.C. Cir. 1973).

B. Provisional Resumption of Construction

There remains one final question. Assuming that the Licensing Board on remand determines that the Seabrook site is suitable for a facility with closed-cycle cooling and also concludes after the NEPA alternate site analysis discussed above that it can approve a construction permit for Seabrook (for either once-through or closed-cycle cooling), what authority does the Board have to act if (1) a final decision has been reached by EPA; or (2) if no final decision has yet been reached by EPA?[45]

[45] The consequences of other contingencies such as, *e.g.*, the results of the Appeal Board's consideration of the remaining issues still before it, will not be addressed herein. We assume that the Appeal Board will have spoken to those issues before the Licensing Board issues its decision and that decision will necessarily take full account of the Appeal Board's action and any Commission review. Should those other issues not have been finally resolved within the Commission by the time the Licensing Board is prepared to decide, it may proceed to decision, recognizing that its decision is subject to the usual appellate remedies, including possible stay.

1. Final EPA Action

It is possible—and entirely desirable—that EPA will have taken final action on the Seabrook cooling system before the Licensing Board has to act. Such action might take the form of reversing the Regional Administrator's decision outright, and reinstating EPA approval of the once-through system already approved by the Licensing Board. It might take the form of requiring the applicant, if it is to use once-through cooling, to use a particular set of intake and discharge locations that would be significantly more expensive to construct than the two sets approved by the Licensing Board.[46] Finally, the EPA might provide the applicant could use only a closed-cycle system. Pursuant to Section 511(c)(2) of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1371(c)(2), the Commission must accept EPA's determination on effluent limitations. As a practical matter, then, the Commission must either license or not license an EPA-approved cooling system but cannot require it to be modified. Accordingly, whatever decision EPA reaches will be binding on the Licensing Board.

Should EPA reverse the Regional Administrator, as the Appeal Board noted in ALAB-366 at 67, applicant could rely on the cost-benefit analysis already performed by the Licensing Board, which is still subject, however, to review by the Appeal Board and possibly by the Commission.[47] If that analysis is not overturned on review (or the permits are not denied or suspended for other reasons), then EPA action would permit a virtually immediate end to the suspension of the permits. If EPA should order applicant to choose between a new once-through system or a closed-cycle system, or should it find that only closed-cycle cooling is acceptable at Seabrook, it would be up to the applicant either to propose the new once-through system approved by EPA or a closed-cycle system to the Board. Should the applicant propose a specific EPA-approved once-through cooling system, the Licensing Board would have to do a new NEPA analysis of that system, including alternate site consideration.[48] Should the

[46] If the EPA Administrator simply affirmed the Regional Administrator, still further EPA proceedings would be required before the Regional Administrator before either an open-cycle system is approved or closed-cycle cooling is ordered. Regional Administrator's Decision at 78-79. The termination of these further proceedings is the final EPA action referred to in the text.

[47] The Appeal Board in ALAB-366 at 67-68 indicated that it was deferring review of that analysis pending final EPA action. While such deferral would have the benefits the Appeal Board outlined, we would prefer the Board to make that review at the same time as it reviews the other currently outstanding issues in this proceeding.

[48] Such an analysis should consider only the incremental consequences of the changes between the EPA-approved once-through system and the ones previously considered by the Board. Because of the obvious significance of any proposed change to the cooling system at Seabrook it is appropriate in this case that the Licensing Board immediately address itself to any such change, rather than waiting until the staff brings the matter to the attention of the Board as normal under Part 2 of our rules.

applicant propose a specific closed-cycle system, the Board need only refine the "worst-case" analysis of such a system that it will already be performing.

2. No Final EPA Action

The majority and the dissent in ALAB-366 disagreed on what the Licensing Board might do if there has been no final EPA action when the Board reaches the point of decision. The majority found no absolute bar to a Licensing Board's issuing an initial decision before EPA made its final decision on the facility's cooling system. ALAB-366 at 57-58. However, the majority did hold that a balancing test must be employed to determine "whether on balance the public interest warrants the Licensing Board in going ahead." *Id.* Employing that test, the Appeal Board found that the uncertainties over whether the EPA Regional Administrator's decision would be affirmed by the Administrator and, more generally, what cooling system EPA would eventually approve for Seabrook, were so great as to preclude the Licensing Board from approving the Seabrook site prior to final EPA action. *Id.* at 67-68. The Appeal Board noted that the maximum economic cost and environmental impact of a closed-cycle system at Seabrook could be determined even though the precise contours of a particular system had not been fixed. *Id.* at 67 n. 48. However, the Appeal Board held that this could not be done with respect to a once-through system since the cost and environmental impact of such a system depend to a high degree on the location of the intake and discharge structures for such a system, and there was no way for the Commission to limit this range of locations which might be selected by EPA. *Id.* at 67. Since the Appeal Board felt that EPA might have the authority to reject a proposed closed-cycle system and order a once-through system to be used, *id.* at 54-55, 68 n. 49, it felt that no upper limit could be placed on the possible costs and impacts of the Seabrook cooling system and, therefore, the Licensing Board could not approve Seabrook until EPA resolved the cooling system controversy.

The dissent to ALAB-366 took issue with the majority's interpretation of EPA's authority,[49] believing that EPA lacked authority to disapprove of all closed-cycle systems for a facility. ALAB-366 at 74. The dissent suggested that the applicant be permitted to demonstrate on a "worst-case" basis what the costs and environmental impacts of closed-cycle cooling at Seabrook would be. If the Licensing Board found that Seabrook with the "worst-case" closed-cycle system "survives an environmental balancing vis-a-vis both alternate sites and the need for the plant," construction permits could be authorized. *Id.*

[49] The majority did not say that EPA had the authority in question; it said that EPA might have it and that possibility introduced further uncertainty into the proceeding. ALAB-366 at 55.

We felt that resolution of the question of EPA authority was crucial to determination of this facet of the case and addressed a request for comment to the General Counsel of EPA. The reply to that request was made available to the parties before oral argument and was addressed at that argument. The EPA reply is quoted above, but it may briefly be summarized as agreeing with the interpretation of EPA regulations expressed in the dissent to ALAB-366. The consequence of that reply is that it means that the Licensing Board will be able to determine an upper limit for the environmental and economic costs of the Seabrook facility. As Dr. Buck's dissent to ALAB-366 recognized if such a worst case survived "environmental balancing," then certainly an actual Seabrook would also be acceptable. EPA regulations implementing the National Pollutant Discharge Elimination System under the FWPCA indicate that the opinion of the General Counsel on legal questions is final for purposes of EPA adjudicatory hearings. 40 CFR 125.36(m). We may properly defer to a construction of EPA's authority by the General Counsel of that agency.[50]

The applicant originally sought approval from the Licensing Board for a proposal to construct Seabrook with once-through cooling unless the cost of that system exceeded that of a closed-cycle system in which case it would use closed-cycle. Applicant's Proposed Finding, paragraphs W 82-84, GG-2(b). We intend that the Licensing Board should adopt a somewhat similar approach, if at the time it is prepared to render a decision on this remand, EPA has not finally acted. The Licensing Board should make a NEPA analysis of Seabrook with closed-cycle cooling on a worst-case basis with regard to both cost and environmental impact. Should it determine that approval of construction permits for Seabrook would still be justified, it should issue conditioned permits for construction of Seabrook provided, however, that the applicant could not construct any portion of the cooling system at all until after final EPA action. After that final EPA action the applicant could determine whether to construct the particular once-through systems approved by EPA, if any such system is approved, or to construct a closed-cycle system. Should EPA authorize once-through cooling, the license condition should provide for Commission approval of the applicant's selection following economic and environmental analysis[51] before construction on the cooling system could begin, unless EPA approves a once-through system substantially similar to what has already been approved by the Board.[52]

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[50] *And see* n. 20, *supra.*

[51] Acting initially through our Licensing and Appeal Boards as is customary under our rules. *See also* n. 48, *supra.*

[52] In *Philadelphia Electric Company* (Limerick Generating Station, Units 1 and 2), ALAB-262, 1 NRC 163, 199-205, *pet for review denied*, 524 F.2d 1403 (3d Cir. 1975), the same panel of the Appeal Board that decided ALAB-366 authorized issuance of a construc-

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Two other points need to be discussed. We approve of the Appeal Board's analysis of the issue concerning the 401 certificate issued by New Hampshire herein. ALAB-366 at 55-57. We agree that the certificate indicates a "willingness on the part of the State to defer to EPA's judgment . . . ." *Id.* at 56.

The Appeal Board correctly noted that Section 511(c)(2)(A) of the Water Pollution Control Act Amendments of 1972 prevents the Commission from reviewing the "adequacy" of a 401 certificate. *Id.* at 56. However, the Board recognized that the proposal for a 401 certificate which was submitted to New Hampshire involved once-through cooling and the State approval was evinced in that context. As the Board noted, in a discussion which we adopt as our own, it is an open question whether New Hampshire could rescind the outstanding 401 certificate should applicant propose, EPA require or the Licensing Board permit, construction of Seabrook with closed-cycle cooling. *See* ALAB-366 at 57 nn. 30 and 32. New Hampshire has not indicated any belief that its 401 certificate is no longer valid, *id.*, and the question of its possible authority to rescind the 401 certification will have to be resolved only if one of the three events mentioned above should happen and then not until the Licensing Board receives some

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tion permit for the Limerick facility on the basis of a particular system for supply water to the facility. There were two other proposed water supply systems and no final decision had been made by applicant amongst the three. One of the other two systems was clearly environmentally superior to the system upon which approval was based and imposed no additional economic or operating costs, but it required construction of a major project which was not assured. The other alternative would have increased environmental costs but would have allowed more efficient operation of the facility. The Appeal Board approved issuance of the permit recognizing that should the first alternate system become available, or should the second be determined to increase the *net* benefit of the facility,

> nothing will stand in the path of a direction to the applicant [to employ one of them]. This will be true even if, by that time, the construction of Limerick has been substantially completed. *Id.* at 201-02.

This issuance of a permit on the basis of a "worst case" with recognition that should a superior alternative become available, it must be adopted, is exactly what we are instructing the Licensing Board to do on remand should it in fact determine that issuance of construction permits for Seabrook on the basis of a "worst-case" closed-cycle system is justifiable.

The parties addressed the *Limerick* case in their briefs. Intervenors suggested that *Limerick* was distinguishable from Seabrook because the various alternatives and their respective impacts were known at the time of the Limerick decision while the impact of a "worse case" closed-cycle system at Seabrook is not now known. This is true, but it misses the point. Only after those impacts are evaluated, and only if those impacts are found to permit licensing of Seabrook, will "worst case" conditioned permits be issued. At that time the analogy with Limerick will be complete.

official indication of a desire on the part of New Hampshire to rescind the certificate.[53]

We also note that at oral argument applicant's counsel said that the cooling system at Seabrook was now the "critical path" item. We understand this to mean that any delay in construction of the cooling system will cause a corresponding delay in completion of the facility. Obviously, this reduces the utility of the permission to construct other portions of the facility since, according to applicant, that work cannot advance final completion. At oral argument, however, the applicant's counsel called our attention to the obvious consideration that advance on other portions of the facility may still be helpful in avoiding unanticipated delays, the need for costly overtime, and the like, and indicated that the applicant would wish to proceed on the basis of the conditioned permit if that were found to be permissible. The decision whether or not to use any conditioned permit will be applicant's to make as it sees fit.

V. CONCLUSION

For the reasons set forth above the decision of the Appeal Board in ALAB-366 is affirmed with the modifications discussed in our prior orders of February 7 and 17. The Licensing Board is directed to proceed expeditiously with the further proceedings called for by this decision.

It is so ORDERED.

By the Commission

Samuel J. Chilk
Secretary of the Commission

Dated at Washington, D.C.
this 31st day of March 1977.

[53] We note, however, that a 401 certificate is the state's certification that discharges will comply with Sections 301, 302, 306 and 307 of the FWPCA. Those sections all deal with discharges of pollutants, including heat, into the water. There appears to be general agreement by the parties that the environmental impact of discharges into the water resulting from a closed-cycle cooling system is much less than that of an once-through system such as those New Hampshire has already approved for Seabrook by issuing the outstanding 401 certificate.

Commissioner Kennedy concurring:

I join in the Commission's opinion. I would have preferred, however, to go further in one respect. For me, it does not suffice to justify rejection of an applied-for site on the grounds that some other site appears to be "obviously superior." Under the test the Commission adopts today, an applicant may have his site found acceptable by a licensing board after a full review, only to have it rejected because an "obviously superior" site is put forward, perhaps at a later time. The "obviously superior" test applies not only where a recomparison of sites is being made, but also in initial selection. The opinion asserts that NEPA mandates not only a comparison of alternative sites, but that it also mandates rejection by the Federal agency of wholly acceptable sites when much better ones can be found.

Analysis of alternative sites is valuable, in my view, as a means of illustrating the advantages and disadvantages of the proposed site. Comparison of the proposed site with alternatives may point up evident and irremediable deficiencies which would so handicap a proposed site from an environmental or other perspective as to make it unacceptable. In such a case the application should be rejected. If on the other hand, the site applied for does not in itself prove unacceptable, I think it dubious to find a sufficient basis for rejecting the application in the fact that some other site appears to be "obviously superior." I believe we should take that step only when the application itself is flawed.

It is in fact "acceptability vs unacceptability" which I suggest should be the standard of comparison. Of a selection of 15 sites, for example, some will be found unacceptable for reasons of environmental characteristics, seismicity, population density, etc. But others may be found to be acceptable in all respects. Within the acceptable group one or more may be "obviously superior" to the others. But it does not necessarily follow that those "obviously superior" sites must always be the first approved for use by the Commission. Nor does it follow that the other "acceptable" sites must be reserved for use only after all "obviously superior" sites have been utilized. In fact, any of the sites found "acceptable" would be allowed for use.

The approach taken in the opinion appears to threaten acceptable sites with a continuing comparison against an unlimited range of sites in order to determine whether "obviously superior" sites exist. An environmentally acceptable site should not be forced to run a gauntlet of additional alternative sites, sites which may be put forward relatively late in the application process. Late identified sites are particularly unlikely to have been given the same rigorous analysis by applicant, staff and intervenors to which the proposed site and its original alternatives were subjected. Yet any one of these additional alternatives could later be determined "obviously superior." Both on initial selection and on reconsideration of site analysis, such as is occurring in this case, only evidence of

inherent "unacceptability" should lead the Commission to reject an applicant's site. This approach seems to me to be a fair recognition of our limited authority to affect siting choices under law, yet it fully illuminates the consequences of the proposed Federal action as NEPA demands.

I recognize that this approach which I suggest may depart from current understandings of NEPA held by our staff and varies from what some believe has been established by the courts, notably the court of appeals decision in the Calvert Cliffs case. It is for that reason that I join my colleagues today. In our staff's continuing review of our NEPA responsibilities and procedures, however, this alternative course should receive full consideration. Early, full and candid assessment of siting alternatives is our responsibility.

The process I have outlined could assure that that responsibility is fulfilled. It could also assure that we avoid unnecessary, encumbering, and expensive procedures which add unwarranted time and costs to the licensing process–costs which the public must ultimately pay.