

**Use by the U.S. Nuclear Regulatory Commission of
the Obviously Superior Criterion for Alternative Sites**

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In its consideration of alternative sites for new nuclear power plants, the U.S. Nuclear Regulatory Commission (NRC) uses a standard that the applicant's proposed site will not be rejected in favor of an alternative site unless the NRC staff determines that the alternative site is "obviously superior" to the proposed site¹. In this paper I will summarize the historical development of this standard and how this standard has fared in the courts. I will then examine the extent to which this standard complies with the requirements of National Environmental Policy Act (NEPA) of 1969, as amended² and the associated regulations published by the Council on Environmental Quality³. I will also examine how the standard compares to the approaches used by other agencies, such as the U.S. Army Corps of Engineers (which uses a standard of the least environmentally damaging practicable alternative). In conclusion, I will discuss whether the NRC should consider modifying the standard either because of challenges to its past implementation, or foreseeable changes in future implementation.

What is the "obviously superior" criterion and how is it used?

The obviously superior criterion is used by the NRC during its evaluation of sites for new nuclear power plants under NEPA. The use of the criterion is described in the NRC staff's guidance for the evaluation of the power plant applicant's site selection process in the Environmental Standard Review Plan (ESRP), Section 9.3⁴. The ESRP directs the staff to determine whether any of the alternative sites is obviously superior to the applicant's proposed site.

In order to determine whether an alternative site is obviously superior, the staff must first determine whether it is environmentally preferable. The basis for this part of the evaluation is that the staff won't consider whether an alternative site is obviously superior unless it offers environmental advantages over the proposed site. If the staff concludes that an alternative site is environmentally preferable to the proposed site, then it must determine whether the alternative site is obviously superior to the proposed site. In this stage of the evaluation the staff will consider non-environmental factors such as the cost of building and operating the plant at each site, and institutional factors⁵.

The obviously superior criterion was developed specifically for use in the site selection process. However, by logical extension the NRC staff guidance includes similar considerations in the evaluation of alternative energy sources (ESRP Section 9.2.3)⁶. In this case, if the staff determines that an energy alternative is environmentally preferable to the proposed nuclear plant(s), then the staff would consider the cost of the alternative versus the proposed action to determine whether the alternative is obviously superior.

If the staff identifies an obviously superior alternative (either a site or an energy alternative), the guidance indicates that the staff should recommend to the Commission that the proposed action not be approved. The staff cannot recommend the adoption of the obviously superior alternative because the NRC does not have the authority to do so – it can only approve or disapprove the proposed action. The Commission is not required to follow the staff’s recommendation. NEPA does not mandate a specific outcome – it requires the consideration of environmental values in the decision-making process.

What are the origins of the “obviously superior” criterion?

Based on a search of historical records, the earliest record in which the term “obviously superior” was used in a licensing decision was during the licensing of the Seabrook Station. In the December 1974 final environmental statement for a construction permit for Seabrook⁷, the U.S. Atomic Energy Commission staff summarized its review of the proposed and alternative sites on page 9-10 and concluded by stating:

“Of the 19 potential sites that were evaluated, the staff concludes that none of the other sites offer any obvious superiority to the Seabrook location.”

Intervenors challenged the Seabrook application, in part because they believed the NRC staff had failed to properly consider alternative sites and had failed to recognize advantages at some of those sites. The Commission reviewed the staff’s evaluation, and the associated Licensing Board Panel decision⁸. The Commission stated its standard for the review of alternative sites in its

March 31, 1977, decision, CLI-77-8⁹. In its decision, on pages 522 and 526, the Commission wrote:

“What has proved less clear, however, is the basis on which this comparison [of sites] 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.

...

In this context, we conclude that our staff has correctly stated the test to be employed in assessing whether a proposed site is to be rejected in favor of any of the alternative sites considered, namely, whether an alternate site is obviously superior to the site which the applicant had proposed.” [Citation omitted]

The Commission went on to point out the nature of the consideration of alternatives under NEPA – specifically that NEPA does not require the selection of the best alternative from an environmental perspective. Rather, it requires the consideration of environmental values in making a decision. The Commission explained the basis for its reasoning regarding the obviously superior criterion in more detail on pages 528 to 530 of the decision:

“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 regarding 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. ... 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 confidence that one’s judgment is correct – a confidence that can only arise where an alternate site is obviously superior. [Footnote omitted.]

...

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 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. 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. [Footnote omitted.]

...

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. ... 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 when the alternative site is obviously superior.”

This Commission decision publicly documented the approach that the NRC staff was to use in its consideration of alternative sites and explained the legal basis for that approach.

Intervenors challenged the Commission’s March 1977 decision regarding Seabrook in court. Included in this challenge was the use of the obviously superior criterion. On August 22, 1978, The U.S. Court of Appeals, First Circuit, decided in favor of the Commission regarding this criterion in *New England Coalition on Nuclear Pollution v. NRC*¹⁰. In explaining the basis for its decision the Court stated in paragraph 30:

“The obvious superiority standard, as it is explained in the Commission's opinion, says nothing about whether or how the required studies [i.e., the “hard look” at alternatives required by NEPA] will be performed. Rather it goes to what the Commission will do with findings that the studies will generate. The standard is designed to guarantee that a proposed site will not be rejected in favor of a substitute unless, on the basis of appropriate study, the Commission can be confident that such action is called for. Given the necessary imprecision of the cost-benefit analyses involved and the fact that the proposed site will inevitably have been subjected to far closer scrutiny than any alternate site, we cannot say that it is unreasonable to insist on a high degree of assurance that the extreme action of denying an application is appropriate. This is especially so since NEPA does not require that a plant be built on the single best site for environmental purposes. All that NEPA requires is that alternative sites be considered and that the effects on the environment of building the plant at the alternative sites be carefully studied and factored into the ultimate decision.”

Thus, the Court concluded that the approach that was being employed by the NRC – the use of the obviously superior criterion – was appropriate and legally sound.

In the meantime, in the wake of the Commission’s decision on Seabrook, the NRC staff was working to address concerns related to the process of siting nuclear power plants. On August 16, 1977, the staff submitted to the Commission SECY-77-433, *Policy Statement on Alternative Site Evaluations under NEPA for Nuclear Generating Stations*¹¹. This paper was focused on a discussion of the appropriate decision standard that the NRC staff should use when comparing the proposed and alternative sites. The staff considered various options in the paper, and on pages 8-9 of the SECY recommended to the Commission the use of:

“A multi-part decision standard which reflects the three stages in the evaluation of alternative sites. For the identification of candidate sites a decision standard of among the best that could reasonably be found should be employed. For the selection of a preferred site from a set of candidate sites, a decision standard of no obviously superior alternative should be employed. To determine whether to reject the preferred site

because of contentions about its relative merit that arise during the CP [construction permit] review of its environmental suitability a decision standard which requires demonstration of an obviously superior alternative and consideration of the costs of completion should be employed.”

The first part of the decision standard, which is still used today, is that the NRC staff must conclude that the candidate sites identified by the applicant are among the best that could be identified. Implicit in this part of the standard is the recognition that the NRC staff is not required to determine that the candidate sites are the best sites. These sites are then considered in the next part of the process, in which the staff must determine whether any of the alternative sites is obviously superior to the proposed site. The final part of the standard recommended in this paper addresses a case in which site selection is challenged after construction at the site has commenced. In those cases, the NRC staff concluded that the sunk costs at the proposed site could be considered in weighing the advantages of the alternative sites because the applicant had spent those funds based on the NRC staff’s approval of a construction permit, i.e., the applicant had acted in good faith. Although the policy statement that was recommended in SECY-77-433 was never published, the explanation of the decision standard aligns with the practice employed by the NRC staff then, and today.

The obviously superior criterion was also prominent in an early site review performed by the NRC staff regarding the proposed Perryman site. In response to a request from Baltimore Gas & Electric (BG&E)¹², the staff prepared a report dated November 1977, *Evaluation of Alternative Sites – Perryman Early Site Review*¹³. In its review, the NRC staff was most concerned with the population around the site, although it also expressed concerns related to nearby industrial and military activities – the site was adjacent to the U.S. Army’s Aberdeen Proving Grounds. On page 3 of the *Summary and Conclusions*, the NRC staff stated:

“In summary, the preliminary balancing by the staff of significant environmental, economic, and safety related aspects of the alternative sites has led us to the conclusion that there is at least one alternative site available to BG&E which is obviously superior to the Perryman site.”

The staff considered the population issue and associated risks from accidents to be a factor that would be considered a part of the review performed under NEPA. See Section 9.2 of the February 1979 ESRP, Appendix C, *Criteria for Identifying Obviously Superior Sites*¹⁴.

Intervenors also challenged the NRC staff's handling of the alternative sites issue for the Sterling site, which Rochester Gas and Electric had proposed for use for a new nuclear station. The intervenors contended that the Ginna site, which already hosted a nuclear power plant, was a better choice. The issue was reviewed by the Atomic Licensing Appeal Board (ALAB) and in its October 19, 1978, decision, ALAB-502¹⁵, the Board stated:

“Application of this [obviously superior] standard mandates rejection of Ecology Action’s assertion that the Licensing Board was required to disapprove use of the Sterling site given its findings that the Ginna site is marginally preferable.

...

Indeed, were we called upon to determine on the record brought to us which site was on balance the best choice from an environmental standpoint, our task would be a most difficult one. Fortunately, however, we need not make that determination. All that we must decide is whether Ginna is “obviously” – in other words, clearly and substantially – superior to Sterling.”

Summarizing this history, the obviously superior criterion was developed by the NRC staff in the mid-1970s as part of the process used to evaluate alternative sites. It has been supported by licensing boards, the Commission, and the Courts. The criterion is intended to ensure that the NRC will not reject a proposed site in favor of an alternative unless such an action is clearly justified.

Is the obviously superior criterion consistent with Council on Environmental Quality (CEQ) guidance?

Guidance related to the consideration of alternatives is provided by CEQ in its “Forty Most Asked Questions about NEPA.”¹⁶ In the response to Question 6a, CEQ states:

“The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources.”

The response goes on to discuss a key challenge agencies face in the process of identifying an environmentally preferable alternative:

“The Council recognizes that the identification of the environmentally preferable alternative may involve difficult judgments, particularly when one environmental value must be balanced against another. The public and other agencies reviewing a Draft EIS can assist the lead agency to develop and determine environmentally preferable alternatives by providing their views in comments on the Draft EIS. Through the identification of the environmentally preferable alternative, the decisionmaker is clearly faced with a choice between that alternative and others, and must consider whether the decision accords with the Congressionally declared policies of the Act.”

The final sentence of the response references a key aspect of NEPA – that the decision maker is not required by NEPA to choose the alternative that causes the least environmental damage. Rather, the decision maker must consider environmental values in reaching a decision. But other non-environmental factors may lead to a decision to choose other than the environmentally preferable alternative.

This issue is further amplified in CEQ’s response to Question 4a, in which it states:

“The "agency's preferred alternative" is the alternative which the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic,

environmental, technical and other factors. The concept of the "agency's preferred alternative" is different from the "environmentally preferable alternative," although in some cases one alternative may be both.”

In other words, NEPA does not require the decision maker to consider only environmental factors, to the exclusion of all other considerations, when choosing among alternatives.

The obviously superior criterion, as used by the NRC staff, is consistent with this guidance. First, the NRC staff determines whether any of the alternative sites is environmentally preferable to the proposed site. In other words, the staff first determines whether, based purely on environmental factors, any alternative appears to be measurably better than the proposed site. If the answer to this question is “no”, then the proposed site prevails. This is appropriate because if no alternative site offers measurable advantages over the proposed site, then there is no reason under NEPA to reject the proposed site.

If the NRC staff determines that there is an environmentally preferable alternative site, then the staff must determine whether that alternative site is obviously superior to the proposed site, considering the cost of building and operating the plant at each site, and institutional factors. The term “institutional factors” is not currently defined in ESRP 9.3. However, information on this subject has been included in Interim Staff Guidance (ISG)-026¹⁷, Attachment 6, page 6 where it states:

Institutional constraints could include items such as (1) known objections of regulatory agencies, (2) grid stability issues at the alternative site, (3) lack of franchise privileges and eminent domain powers, (4) the need to restructure existing financial and business arrangements, and (5) the feasibility of obtaining the alternative site.

The staff’s approach is consistent with the CEQ guidance, under which economic, technical and other factors may be considered in choosing an agency preferred alternative that is not the environmentally preferable alternative.

Part of the underlying basis for the obviously superior criterion is that the proposed site has been studied in greater depth than the alternative sites. Because of this fact, the Commission and the Courts have recognized that it is likely that further study of the alternative sites would reveal additional problems at those sites. But is it acceptable to make a decision without having studied the alternative sites to the same depth as the proposed site? In the response to Question 5b, CEQ states:

“The degree of analysis devoted to each alternative in the EIS is to be substantially similar to that devoted to the "proposed action." Section 1502.14 is titled "Alternatives including the proposed action" to reflect such comparable treatment. Section 1502.14(b) specifically requires "substantial treatment" in the EIS of each alternative including the proposed action. This regulation does not dictate an amount of information to be provided, but rather, prescribes a level of treatment, which may in turn require varying amounts of information, to enable a reviewer to evaluate and compare alternatives.”

The approach used by the NRC staff comports with this portion of the CEQ guidance. The consideration of the alternative sites is based on the collection of reconnaissance level information for those sites – see Regulatory Guide (RG) 4.7, *General Site Suitability Criteria for Nuclear Power Stations*¹⁸, page 4, and RG 4.2, *Preparation of Environmental Reports for Nuclear Power Stations*¹⁹, Sections 9.2.1 and 9.2.2. Under this NRC staff guidance to applicants, the applicants are expected to obtain whatever information is available regarding the alternative sites. However, the NRC staff expects the applicants to compare the sites in a fair and unbiased manner. See the discussion under “Proposed and Alternative Sites” in Revision 1 to ESRP 9.3²⁰, *Site Selection Process*. Indeed, there have been cases in recent years in which the NRC staff has challenged a process used by an applicant because it did not treat all of the sites in the same way. For example, the NRC staff raised a number of questions related to the process used by the applicant in its original site selection process for the South Texas Plant, Units 3 and 4, combined license application, including questions related to the equitable treatment of sites^{21,22}. In response, the applicant performed a new siting evaluation, developed a revised set of alternative sites, and submitted an associated revision to its application²³.

As discussed previously, in *New England Coalition on Nuclear Pollution v. NRC*, the Court found the approach used by the NRC to be consistent with the intent of NEPA. In its decision the Court recognized that “the proposed site will inevitably have been subjected to far closer scrutiny than any alternate site.” In *Roosevelt Campobello International Park Commission v. United States Environmental Protection Agency*²⁴, a case involving similar issues before the U.S. Court of Appeals, First Circuit, the Court stated in paragraph 21:

“No purpose would be served by requiring EPA to study exhaustively all environmental impacts at each alternative site considered once it has reasonably concluded that none of the alternatives will be substantially preferable to the proposed site. Moreover, the guideline adopted by EPA to limit its study of alternatives appears, in this case, to be consistent with the "rule of reason" by which a court measures federal agency compliance with NEPA's procedural requirements.”

Based on the CEQ guidance and the Court cases, it’s clear that the alternative sites need not be studied to the same depth as the proposed site. Therefore, the use of reconnaissance-level information, as discussed in NRC staff guidance, is an appropriate approach for the consideration of alternatives. But equally important is the need to compare the sites in a way that is balanced and unbiased in order to conclude whether there is an obviously superior alternative site.

How does the obviously superior criterion compare to the approaches used by other agencies?

While the Courts have upheld the approach used by the NRC, how does it compare with the methods used by other agencies with a regulatory role? In considering this question, this paper compared the NRC approach with the approaches used by the U.S. Army Corps of Engineers (USACE) and the Federal Energy Regulatory Commission (FERC), two other agencies with regulatory (as opposed to resource management) functions.

The USACE evaluates alternatives using the Section 404(b)(1) guidelines under the Clean Water Act²⁵. Under the guidelines, the USACE must identify the least environmentally damaging practicable alternative (LEDPA). In order to accomplish this, the USACE must consider both

the environmental impacts of an alternative (with specific emphasis on impacts to the aquatic ecosystem) and the practicability of the alternative. The environmental component of the evaluation is similar to the NRC staff's evaluation of alternatives to determine whether any are environmentally preferable. However, for the USACE there will be special emphasis on impacts to the aquatic ecosystem (and in particular, to wetlands). The practicability portion of the evaluation is similar to the evaluation that the NRC staff would perform to determine whether an environmentally preferable alternative site is obviously superior to the proposed site. Specifically, the Section 404(b)(1) guidelines direct the USACE to consider an alternative to be practicable "if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." This is very similar to the NRC staff's consideration of the cost of building and operating the plant at each site, and institutional factors.

The USACE also considers "public interest factors" in its consideration of alternatives. As discussed in the introduction to Chapter 2 of the USACE draft EIS²⁶ for the Moffat Collection System Project near Denver, page 2-1:

"The alternatives must satisfy the Guidelines as well as the public interest review (33 CFR 320.4[a]). Therefore, for Corps permit actions, *the range of practicable alternatives is typically a subset of reasonable alternatives under NEPA*. According to the Corps' NEPA guidance, the alternatives analysis for actions subject to NEPA and the Guidelines can be integrated simultaneously to ensure alternatives carried forward for analysis are practicable and that the LEDPA has not been eliminated from further consideration. The comparison of alternatives should "allow a complete and objective evaluation of the public interest and a fully informed decision regarding the permit application" (33 CFR 325 Appendix B 9 [b][5])." (Emphasis added.)

The NRC staff has direct experience in the relative similarities and differences between its evaluations of alternative sites as compared to the evaluations of the USACE because the USACE has been a cooperating agency on recent EISs for new reactors (e.g., Levy County²⁷). In general, the NRC and the USACE have reached the same conclusions regarding the alternative

sites, with one notable exception. For the Levy County application, the NRC staff concluded that the Crystal River site (with its existing power plants) was a reasonable alternative for consideration under NEPA. But the USACE, based on input from the applicant, accepted that the Crystal River site was not a practicable alternative²⁸. The applicant for Levy County stated that the site was impracticable because installing so much generating capacity (over 5000 MW) in one location on the Florida coast would present a significant risk to the grid because a single event (hurricane, tornado) could cause the loss of all of that generating capacity²⁹. As a result of these different conclusions, the Crystal River site was considered in the NEPA evaluation prepared jointly by the NRC and the USACE, but it was not considered by the USACE in a comparison of sites to determine the LEDPA site.

Based on the regulatory requirements and on experience working with the USACE, the processes used by each agency to consider alternatives are similar.

FERC uses a somewhat different approach, as discussed in its guidance document, *Preparing Environmental Documents; Guidelines for Applicants, Contractors, and Staff*³⁰. The method that FERC uses essentially looks at all of the factors (environmental, economic, technical) at once to determine the best overall alternative. The guidance appears to be based on the assumption that it will be clear to the decision maker which alternative offers the best results overall, although the guidance also recognizes the difficulty in comparing disparate resources. For example, on page 73 the guidance states:

In evaluating alternatives, first we need to understand how the value of each competing resource varies for each option we are considering. This could be based on quantitative or qualitative information. This could involve a relatively straightforward relationship, such as the relationship between quantity of adult fish habitat (weighted usable area) and power benefits. Or it could be more involved. For example, how does raising the instream flow to improve fish habitat in the bypassed reach affect riparian vegetation, swimming and boating, and the project's power value or how does releasing more water to improve downstream water quality affect reservoir boating and fish habitat and amount of generation?

Based on the way the guidance is written (see, for example, page 72), it's clear that FERC has more authority to impose conditions than does the NRC. Starting around the time of the Yellow Creek decision³¹ in 1978 the NRC staff began to move away from its then common practice of placing environmental conditions on its licenses for resources that were under the authority of other agencies. Although the NRC's regulations still allow the staff to impose environmental conditions for other than the aquatic environment (see 10 CFR 50.36b³²), a recent rulemaking³³ has made clear that the NRC staff's reach is very limited. This difference in the authority between FERC and NRC may explain the difference in the approaches. Because FERC is in a position to impose conditions over a wider range of resources, it can essentially modify projects to minimize environmental impacts, while considering costs and the project purpose and need.

However, although the NRC is limited in its ability to impose conditions for issues not related to its mission of radiological protection, it does often rely in its EISs on conditions that other agencies plan to implement in other permits that an applicant must obtain to build and operate a nuclear plant. So for example, the NRC will not set a limit on the discharge temperature from the plant. But in evaluating the impacts to the receiving water body, the NRC staff will rely on the limit that the State has imposed (or will impose) in its National Pollutant Discharge Elimination System (NPDES) permit.

In developing its conditions for a license, FERC does consider the cost-benefit balancing for each condition. See Sections 4.3 and 5.2 of the FERC guidance. So in the end, the action recommended by FERC would be the practicable alternative that best limits the environmental impacts. While FERC has taken a rather different path based on its regulatory authority, it seems likely that the outcome would be similar to that which would be reached by either the NRC or the USACE.

Summary and Conclusions

The NRC staff developed the obviously superior criterion during the 1970s, at the height of the boom in new reactor licensing that was occurring at that time. The criterion was developed to

ensure that the NRC would not reject a site (through the associated reactor licensing application) unless it was clearly justified in doing so. In addition, the criterion and its usage appear to be consistent with CEQ guidance and with the processes used by other regulatory agencies. The essential reasons that led to the development of the criterion – the nature of the NRC licensing decision as either approval or rejection of the proposed site and the use of reconnaissance level information for the alternative sites – remain unchanged.

The criterion has been challenged in front of licensing and appeal boards, the Commission, and the courts, and has consistently withstood those challenges. During the more recent reactor licensing reviews, starting in 2003, there have been no challenges specifically aimed at the obviously superior criterion, although the criterion has been invoked in every associated environmental impact statement.

Based on the preceding, there would appear to be no reason to consider changing the criterion. The process works as intended and provides the decision-maker with the information that is needed to make an informed decision under NEPA.

¹ U.S. Nuclear Regulatory Commission (NRC). (2007a). *Environmental Standard Review Plan* (NUREG-1555), Section 9.3, Site Selection Process, page 9.3-5. Washington, DC.

² National Environmental Policy Act (NEPA) of 1969, as amended. 42 USC 4321 et seq.

³ Code of Federal Regulations, Title 40, *Protection of the Environment*, Parts 1500-1508. (40 CFR 1500). *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. Washington, DC.

⁴ U.S. Nuclear Regulatory Commission (NRC). (2007a). *Environmental Standard Review Plan* (NUREG-1555), Section 9.3, Site Selection Process. Washington, DC.

⁵ U.S. Nuclear Regulatory Commission (NRC). (2007a). *Environmental Standard Review Plan* (NUREG-1555), Section 9.3, Site Selection Process, page 9.3-13. Washington, DC.

⁶ U.S. Nuclear Regulatory Commission (NRC). (2007b). *Environmental Standard Review Plan* (NUREG-1555), Section 9.2.3, Assessment of Competitive Alternative Energy Sources and Systems. Washington, DC.

⁷ U.S. Atomic Energy Commission (AEC). (1974). *Final Environmental Statement Related to the Proposed Seabrook Station, Units 1 and 2*. Washington, DC.

⁸ U.S. Nuclear Regulatory Commission (NRC). (1977a). In the Matter of Public Service Company of New Hampshire, et al. (Seabrook Station, Units 1 and 2). ALAB-366, 5 NRC 39 (1977).

⁹ U.S. Nuclear Regulatory Commission (NRC). (1977b). In the Matter of Public Service Company of New Hampshire, et al. (Seabrook Station, Units 1 and 2). CLI-77-8, 5 NRC 503 (1977).

¹⁰ *New England Coalition on Nuclear Pollution v. NRC*. 582 F.2d 87 (1st Circuit 1978).

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- ¹¹ U.S. Nuclear Regulatory Commission (NRC). (1977c). Policy Statement on Alternative Site Evaluations under NEPA for Nuclear Generating Stations. August 16, 1977. Washington, DC.
- ¹² Baltimore Gas & Electric Company (BG&E). 1977. Application for limited early site review of the proposed Perryman nuclear plant site. Baltimore, MD.
- ¹³ U.S. Nuclear Regulatory Commission (NRC). (1977d). *Evaluation of Alternative Sites – Perryman Early Site Review*. Washington, DC.
- ¹⁴ U.S. Nuclear Regulatory Commission (NRC). (1979). *Environmental Standard Review Plan for the Environmental Review of Construction Permit Applications for Nuclear Power Plants* (NUREG-0555), Section 9.2, Alternative Sites, Appendix C, Criteria for Identifying Obviously Superior Sites. Washington, DC.
- ¹⁵ U.S. Nuclear Regulatory Commission (NRC). (1978a). In the Matter of Rochester Gas and Electric Corporation, et al. (Sterling Power Project, Nuclear Unit No. 1). ALAB-502, 8 NRC 383 (1978). Washington, DC.
- ¹⁶ Council on Environmental Quality (CEQ). (1981). Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations. Retrieved from <http://ceq.hss.doe.gov/nepa/regs/40/40p1.htm>. Washington, DC.
- ¹⁷ U.S. Nuclear Regulatory Commission (NRC). (2014a). Combined License and Early Site Permit COL/ESP-ISG-026, Environmental Issues Associated with New Reactors, Interim Staff Guidance. Washington, DC.
- ¹⁸ U.S. Nuclear Regulatory Commission (NRC). (2014b). *General Site Suitability Criteria for Nuclear Power Stations*, Regulatory Guide 4.7. Washington, DC.
- ¹⁹ U.S. Nuclear Regulatory Commission (NRC). (1976). *Preparation of Environmental Reports for Nuclear Power Stations*, Regulatory Guide 4.2. Washington, DC.
- ²⁰ U.S. Nuclear Regulatory Commission (NRC). (2007a). *Environmental Standard Review Plan* (NUREG-1555), Section 9.3, Site Selection Process, pages 9.3-11 to 12. Washington, DC.
- ²¹ U.S. Nuclear Regulatory Commission (NRC). (2008a). Letter from Paul Kallan, NRC, to Gregory Gibson, STPNOC, dated May 19, 2008, Request for Additional Information, Letter Number One Related to the Environmental Report for the South Texas Combined License Application. Washington, DC.
- ²² U.S. Nuclear Regulatory Commission (NRC). (2008b). Letter from Paul Kallan, NRC, to Gregory Gibson, STPNOC, dated November 18, 2008, Request for Additional Information, Letter Number Two Related to the Environmental Report for the South Texas Combined License Application.
- ²³ South Texas Project Nuclear Operating Company (STPNOC). (2009). Letter from Scott Head, STPNOC, to NRC, dated June 29, 2009, Response to Request for Additional Information. Bay City, TX.
- ²⁴ *Roosevelt Campobello International Park Commission v. United States Environmental Protection Agency*. 684 F.2d 1041 (1st Circuit 1982).
- ²⁵ Code of Federal Regulations, Title 40, *Protection of the Environment*, Part 230. *Guidelines for Specification of Disposal Sites for Dredged or Fill Material*. Washington, DC.
- ²⁶ U.S. Army Corps of Engineers (USACE). (2009). *Draft Environmental Impact Statement; Moffat Collection System Project*, Volume 1 of 6. Omaha, NE.

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- ²⁷ U.S. Nuclear Regulatory Commission (NRC). (2012). *Environmental Impact Statement for the Combined Licenses (COLs) for Levy Nuclear Plant Units 1 and 2*, NUREG-1941. Washington, DC.
- ²⁸ U.S. Army Corps of Engineers (USACE). (2010). Letter from Gordon A. Hambrick III, USACE, to Paul Snead, Progress Energy, dated June 17, 2010. Summary of Meeting at the U.S. Army Corps of Engineers' Office in Panama City, Florida Regarding Progress Energy Florida's Alternative Sites Analysis. Panama City, FL.
- ²⁹ Progress Energy Florida, Inc. (PEF). 2010. Letter from Robert Kitchen, PEF, to Gordon A. Hambrick III, USACE, dated June 30, 2010, Enclosure 3. *Levy Nuclear plant Units 1 and 2 (LNP) Section 404(b)(1) Alternatives Analysis*. Report 338884-FM-TM-001, prepared by CH2M Hill, Section 3.2.3.3. St. Petersburg, FL.
- ³⁰ Federal Energy Regulatory Commission (FERC). (2008). *Preparing Environmental Documents; Guidelines for Applicants, Contractors, and Staff*. Washington, DC.
- ³¹ U.S. Nuclear Regulatory Commission (NRC). (1978b). In the Matter of Tennessee Valley Authority (Yellow Creek Nuclear Plant, Units 1 and 2). ALAB-515, 8 NRC 702 (1978). Washington, DC.
- ³² Code of Federal Regulations, Title 10, *Energy*, § 50.36b, Environmental conditions. Washington, DC.
- ³³ U.S. Nuclear Regulatory Commission (NRC). (2007c). *Limited Work Authorizations for Nuclear Power Plants; Final Rule*, 72 FR 57416. Washington, DC.