The National Environmental Policy Act and the Revised CEQ Regulations: A Fate Worse Than the "Worst Case Analysis?"

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NOTE

THE NATIONAL ENVIRONMENTAL POLICY ACT AND THE REVISED CEQ REGULATIONS: A FATE WORSE THAN THE "WORST CASE ANALYSIS?"

When a federal agency proposes a project that will significantly affect the quality of the human environment, the agency must prepare an Environmental Impact Statement ("EIS"). The

1 See 42 U.S.C. § 4332(C) (1982). Section 4332(C) calls for agencies to:
   (C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—
      (i) the environmental impact of the proposed action,
      (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
      (iii) alternatives to the proposed action,
      (iv) the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity, and
      (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Id.

The EIS details environmental impacts, reasonable alternatives and economic costs and benefits. See Sierra Club v. United States Dep’t of Transp., 753 F.2d 120, 123 (D.C. Cir. 1985); Comment, Offshore Oil Development and the Demise of NEPA, 7 B.C. Envtl. Aff. L. Rev 83, 83 (1978). The EIS need not be prepared when a project is merely contemplated, but must be prepared when a project is proposed, Weinberger v. Catholic Action of Hawaii/Peace Educ. Project, 454 U.S. 139, 146 (1981), that is, an EIS must be prepared prior to taking any action on the project. Id.

Alternate affirmative measures undertaken by an agency may eliminate the necessity for preparing an EIS. For example, an EIS is not required where “specific mitigation measures . . . completely compensate for any possible adverse environmental impacts stemming from the original proposal.” Friends of Endangered Species, Inc. v. Jantzen, 760 F.2d 976, 987 (9th Cir. 1985)(citing Cabinet Mountains Wilderness v. Peterson, 685 F.2d 678, 682 (D.C. Cir. 1982)).

In addition, the preparation of an Environmental Assessment (“EA”), 40 C.F.R. § 1508.9 (1985), briefly outlining the reasons why an EIS is unnecessary will suffice in some cases. See Catholic Action, 454 U.S. at 141. The purpose of an EA is to determine whether a formal EIS is required. Id. at n.1; River Rd. Alliance, Inc. v. Corps of Eng’rs of United
EIS must discuss environmental impacts and unavoidable adverse environmental effects that will result from the proposed action.\(^2\)

Alternatives to the project must be considered.\(^3\) In addition, the EIS must examine the relationship between short-term uses of the environment and long-term environmental productivity,\(^4\) as well as any irreversible and irretrievable commitment of resources resulting from the proposal.\(^5\) Agencies proposing projects that will affect the environment clearly have a duty to disclose all known environmental effects of the project in an EIS.\(^6\) This duty is not as clear, however, when uncertainty exists as to what the impacts of the project will be or when the information necessary for such a determination is unavailable.\(^7\)

In the past, when faced with such uncertainty, the Council on
Environmental Quality ("CEQ") has required the agency to prepare a "worst case analysis." Initially, the worst case analysis reg-

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8 See 42 U.S.C. § 4342 (1982). The CEQ, instituted by NEPA and charged with the duty of overseeing the implementation of NEPA, develops guidelines to aid federal agencies in assessing the environmental impacts of proposals. See National Environmental Policy Act Regulations; Incomplete or Unavailable Information, 51 Fed. Reg. 15,618, 15,619 (1986) [hereinafter Amendment]. In 1977, by executive order, the CEQ was delegated the duty to promulgate binding regulations implementing the procedural requirements of NEPA. Id. CEQ was to "make the environmental impact statement process more useful to decisionmakers and the public; and to reduce paperwork and the accumulation of extraneous background data, in order to emphasize the need to focus on real environmental issues and alternatives." Id.

The duties of CEQ are multifarious. See, e.g., Sierra Club v. United States Dep't of Transp., 753 F.2d 120, 124 (D.C. Cir. 1985) (CEQ established to resolve interagency disputes over proposed federal actions); Stop H-3 Ass'n v. Dole, 740 F.2d 1442, 1461 (9th Cir. 1984) (promulgate uniform, mandatory regulations for implementing procedural provisions of NEPA), cert. denied, 105 S. Ct. 2344 (1985). Its present duties include: monitoring federal agency compliance with the regulations, reviewing court interpretations of the regulations, requesting public comment, holding public meetings, and issuing guidelines interpreting the regulations. See Proposed Amendment to 40 C.F.R. § 1502.22, 50 Fed. Reg. 32,234, 32,234 (1985)[hereinafter Proposed Amendment].

9 See Proposed Amendment, supra note 8, at 32,236. The worst case analysis is an assessment of possible worst case impacts based on certain assumptions regarding gaps in available scientific data. North Slope Borough v. Andrus, 486 F. Supp. 332, 347 (D.D.C. 1980). This regulation requires federal agencies to include in an EIS a discussion of possible adverse effects which will have a significant impact on the environment. Note, NEPA's Worst Case Analysis Requirement: Cornerstone or Stumbling Block, 25 NAT. RESOURCES J. 495, 501-02 (1985).

The CEQ has stated that "[e]arly in the history of interpreting NEPA, it was decided that an agency cannot avoid drafting an EIS because some information regarding the potential environmental impacts is unknown; indeed, 'one of the functions of a NEPA statement is to indicate the extent to which environmental effects are essentially unknown.'" Id. (citing Scientists' Inst. for Pub. Information, Inc. v. Atomic Energy Comm'n, 481 F.2d 1079, 1092 (D.C. Cir. 1973)).

Until recently, in such circumstances of uncertainty, the CEQ provided for a worst case analysis. See 40 C.F.R. § 1502.22 (1985). Section 1502.22 stated:

When an agency is evaluating significant adverse effects on the human environment in an environmental impact statement and there are gaps in relevant information or scientific uncertainty, the agency shall always make clear that such information is lacking or that uncertainty exists.

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

(b) If (1) the information relevant to adverse impacts is essential to a reasoned choice among alternatives and is not known and the overall costs of obtaining it are exorbitant or (2) the information relevant to adverse impacts is important to the decision and the means for obtaining it are beyond the state of the art the agency shall weigh the need for the action against the risk and severity of possible adverse impact were the action to proceed in the face of uncertainty. If the agency proceeds, it shall include a worst case analysis and an indication of the
ulation was thought of as permissive rather than mandatory.\textsuperscript{10} By executive order in 1977,\textsuperscript{11} however, the regulation became binding on all federal agencies.\textsuperscript{12} In recent years, the worst case analysis has been the subject of much criticism.\textsuperscript{13} In response to this criticism, the CEQ has recently removed the worst case analysis entirely from its regulation addressing unavailable or incomplete information.\textsuperscript{14}

This Note will discuss the worst case analysis, its criticism, and its ultimate survival despite such criticism. In addition, it will analyze the CEQ's recent revision of the regulation regarding the worst case analysis. In surveying the requirements and policies underlying the National Environmental Policy Act of 1969 ("NEPA") and the case law surrounding the worst case analysis, this Note will


\textsuperscript{11} Executive Order No. 11,991, 3 C.F.R. 124 (1978). In 1970, President Nixon directed the CEQ "to issue guidelines to assist federal agencies in developing their own procedures for environmental analysis of the projects for which they were responsible." Roady, supra note 10, at 155 (citing Executive Order No. 11,514, 3 C.F.R. 902 (1970)). This order resulted in a variety of interpretations "and in turn spawned much litigation charging that various agencies had failed to follow the mandates of the Act or the spirit of the guidelines." Id.

In response to this confusion, President Carter ordered federal agencies to comply with the regulations promulgated by the CEQ. See id. (citing Executive Order No. 11,991, 3 C.F.R. 124 (1978)). The executive order directed the CEQ to make the environmental impact statement more useful in deciding environmental issues. See id. The President's authority to order the CEQ to issue binding guidelines for federal agencies has not been questioned by the Supreme Court despite the absence of specific statutory language authorizing the CEQ to do so. Id.

Executive approval of the CEQ has waned in recent years. In 1981, President Reagan engaged in CEQ staff firings and budget cuts. See McCrea, Annual Review of Significant Developments — 1981, 15 NAT. RESOURCES J. 275, 290 (1982). During 1981, the White House directed the head of the CEQ to fire almost its entire staff. Id. (citation omitted). The Reagan Administration reduced the CEQ's budget 66 percent from $3.3 million to $0.9 million. Id.


\textsuperscript{13} See infra notes 24 to 33 and accompanying text.

\textsuperscript{14} See Amendment, 51 Fed. Reg. supra note 8, at 15,621; infra note 38 (full text of amended regulation).
conclude that there is no substantive difference between the old and newly revised regulations. The worst case analysis is still required when a federal agency is faced with unavailable or incomplete information when preparing an EIS.

THE WORST CASE ANALYSIS

The worst case analysis is the part of the EIS process whereby an agency discusses the worst possible scenario that may result from a proposed action together with the probability of its occurrence.15 Such an analysis has been performed on a wide variety of environmental issues ranging from the operation of nuclear power plants and storage of nuclear waste, to the use of pesticides and toxic chemicals and the construction of highways.16 Section 1502.22 of the CEQ regulations, which required the worst case analysis, was specifically designed to cope with the problem of scientific uncertainty regarding the impacts of a project, and therefore, was triggered only in those cases where such uncertainty existed.17

Several threshold questions were to be addressed by the agency proceeding in the face of uncertainty prior to including a worst case analysis in an EIS.18 The agency first had to determine whether the missing information was essential to the decision making process.19 The agency was then required to decide whether the information was unobtainable or whether the overall cost of obtaining such information was exorbitant.20 If these questions were answered in the affirmative, and the agency nevertheless decided

15 See supra note 9 and accompanying text.
19 See id. § 1502.22(b)(1).
20 See id.
to proceed with the project, a worst case analysis was to be included in the EIS.\textsuperscript{21}

The CEQ's regulation requiring a worst case analysis has been embraced by courts as necessary to ensure that agencies consider environmental issues before undertaking projects, and to guarantee that the public is fully informed of the consequences of such projects.\textsuperscript{22} Although courts have afforded CEQ regulations great deference,\textsuperscript{23} much controversy has surrounded the worst case analysis despite the support of the courts.\textsuperscript{24}

\textbf{Criticism of the Worst Case Analysis}

Varied interpretations of the worst case analysis have followed the promulgation of section 1502.22.\textsuperscript{25} Substantial litigation has also been subsequently generated concerning the types of risks to be discussed, and the probability of the occurrence of those risks.\textsuperscript{26} A number of courts have extended the worst case analysis to situations where the impacts were catastrophic but where the probabili-

\begin{footnotesize}
\begin{enumerate}
\item See id. § 1502.22(b)(3).
\item See Proposed Amendment, supra note 8, at 32,236; infra notes 25 to 33 and accompanying text.
\item See, e.g., Northwest Indian Cemetery Protective Ass’n v. Peterson, 764 F.2d 581, 587 (9th Cir. 1985) (potential risks to water quality from landslides); City of N.Y. v. United States Dep’t of Transp., 715 F.2d 732, 747 (2d Cir. 1983) (worst case from trucking accident involving plutonium would include latent cancer fatalities, early morbidities, and land damages), cert. denied, 465 U.S. 1055 (1984); Sierra Club v. Sigler, 695 F.2d 957, 969 (5th Cir. 1983) (worst case is total cargo loss by oil supertanker); North Slope Borough v. Andrus, 642 F.2d 589, 605 (D.C. Cir. 1980) (worst case is major oil spill).
\item See, e.g., City of N.Y. v. United States Dep’t of Transp., 715 F.2d 732, 747 (2d Cir. 1983) (despite seriousness of worst case, very low probability of occurrence not significant enough to merit worst case analysis), cert. denied, 465 U.S. 1055 (1984); Save Lake Washington v. Frank, 641 F.2d 1330, 1335 (9th Cir. 1981) (remote and speculative consequences not included in EIS); Warm Springs Dam Task Force v. Gribble, 621 F.2d 1017, 1026 (9th Cir. 1980) (remote and speculative consequences not included in EIS).
\end{enumerate}
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ties of occurrence were minimal. Consequently, concerns over the dangers inherent in a project were elevated over the probability of its occurrence. While this interpretation has some merit, it has tended to initiate unlimited and somewhat exaggerated speculation. One can always make a worst case “worse” by the addition of factors that were not initially contemplated. For example, would the occurrence of a nuclear meltdown in the middle of the night be the worst case or would a meltdown on a summer afternoon in close proximity to the beach be the worst case? Such overly speculative scenarios have led to a line of decisions rejecting the worst case analysis. While situations of low probability/cata-

27 See, e.g., San Luis Obispo Mothers for Peace v. NRC, 751 F.2d 1287, 1302 (D.C. Cir. 1984) (worst case analysis required where probability of impact is assumed to be “very small”)(footnote omitted); Save Our Ecosystems v. Clark, 747 F.2d 1240, 1244 (9th Cir. 1984) (worst case analysis must consider spectrum of possible events); Southern Or. Citizens Against Toxic Sprays, Inc. v. Clark, 720 F.2d 1475, 1479 (9th Cir. 1983) (agency may not omit worst case analysis even if believed unlikely), cert. denied, 105 S. Ct. 446 (1984). An agency’s contention that it need not analyze a worst case unless it is probable contradicts the clear language of section 1502.22. Id. at 1479; see also Yost, Don’t Gut Worst Case Analysis, 13 Env’tl. L. Rep. 10,394, 10,395 (1983) (worst case analysis must address low probability/severe consequences).

28 See Yost, supra note 27, at 10,395. The concerns over the severity of the environmental impact as opposed to the probability of the impact have led to decisions to site potentially hazardous projects in areas which minimize the impact. Id. “We do not sit nuclear power plants in downtown Washington, D.C. or San Francisco, not because of what will happen but because of what could happen.” Id. (emphasis in original). In addition to an analysis of a low probability/catastrophic impact, the worst case analysis would necessarily include those impacts of higher probability but less catastrophic impact. See City of N.Y. v. United States Dep’t of Transp., 715 F.2d 732, 753 (2d Cir. 1983) (Oakes, J., dissenting), cert. denied, 465 U.S. 1055 (1984); Sierra Club v. Sigler, 695 F.2d 957, 972 (5th Cir. 1983).


30 See Proposed Amendment, supra note 8 at 32,236. The “limitless nature” of the worst case inquiry has led one commentator to note “[i]t is not surprising that no one knows how to do a worst case analysis.” Id.


32 See, e.g., City of N.Y. v. United States Dep’t of Transp., 715 F.2d 732, 752 n.20 (2d Cir. 1983) (hard to imagine any agency action not subject to causing serious injury), cert. denied, 465 U.S. 1055 (1984); Save Lake Wash. v. Frank, 641 F.2d 1330, 1335 (9th Cir. 1981) (remote and conjectural consequences not required by NEPA); Warm Springs Dam Task Force v. Gribble, 621 F.2d 1017, 1026 (9th Cir. 1980) (remote or conjectural consequences not required by NEPA). Some courts have not totally rejected the worst case analysis but have severely limited the requirement where it is found that the agency has carefully studied the potential environmental impacts of the proposed action. See San Luis Obispo Mothers for Peace v. Nuclear Regulatory Comm’n, 751 F.2d 1287, 1302 (D.C. Cir. 1984);
strophic impact should be discussed in an EIS, the infinite speculation that has been associated with a worst case analysis has undermined support for such discussion.33

The 1986 Version of Section 1502.22

Due to the criticism surrounding the worst case analysis, the CEQ received numerous requests from both governmental and private entities since 1983 to review and amend section 1502.22.34 After only one attempt to clarify the worst case analysis,35 the CEQ acquiesced to these requests and proposed an amended version of the regulation.36 In April of 1986, following comment from diverse interest groups37 and further review, the CEQ published the final version of section 1502.22 which no longer contained an explicit worst case analysis requirement.38


33 See supra notes 27-32 and accompanying text.
34 See Amendment, supra note 8, at 15,619.
35 See id. at 15,620. Prior to the criticism which ensued in 1983, the CEQ offered guidance concerning the worst case analysis only once. See Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 46 Fed. Reg. 18,026, 18,032 (1981) [hereinafter Forty Questions]. On August 11, 1983, the CEQ asked for comment concerning the worst case analysis. Amendment, supra note 8, at 15,619. The draft suggested that an initial threshold of probability should be reached before the section became applicable. See id. The response was so varied the CEQ withdrew the proposal, deciding to give the matter further consideration. See id.

36 See Proposed Amendment, supra note 8, at 32,234. After discussion with federal agencies and other interested parties, the CEQ concluded that due to its conjectural nature, the worst case analysis was an unsatisfactory approach for an agency faced with uncertainty. See id. at 32,236. This "indulgence in speculation for its own sake" was thought to be counterproductive, causing agencies to invest substantial time and resources without apparent beneficial results. Id. See Amendment, supra note 8, at 15,619-20 (discussion of public comment process which led to amendment of 1502.22).

37 See Amendment, supra note 8, at 15,620. The CEQ received 184 comments in response to the proposed amendment, including comments from business and industry, private citizens, public interest groups, federal agencies, state and local governments and a member of Congress. Id.

38 See id. The amended version of section 1502.22 states:

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

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

(b) If the information relevant to reasonably foreseeable significant adverse
Subsection (a)

In examining the text of the 1986 regulation, it is difficult to discern any substantive difference between the opening paragraph and subparagraph (a) of both regulations. Subsection (a) of the 1979 regulation remains substantially intact in that the regulation still becomes applicable when an agency, preparing an EIS on a major federal action significantly affecting the quality of the human environment, finds that there is incomplete or unavailable information regarding environmental impacts. The agency must still disclose such lack of information in the EIS. The only substantive difference in subsection (a) is the 1986 addition of the phrase “reasonably foreseeable” to modify “significant adverse impacts.”

Subsection (b)

The major textual difference between the two regulations occurs in subsection (b). Section 1502.22(b) now requires a four-step process whereby the agency must first disclose the fact that there

impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement: (1) A statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment; (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment, and (4) the agency’s evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, “reasonably foreseeable” includes impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

Id.

39 Compare 40 C.F.R. § 1502.22 (1985) with Amendment, supra note 8, at 15,625; id. at 15,620-21. While there is no apparent textual difference between the opening paragraph and subparagraph (a) of both regulations, CEQ points out that the terms “incomplete or unavailable information” or “unavailable information” are now to be considered as synonymous terms. See id. at 15,621. In addition, the Council notes that the changes in subsection (a) are intended “primarily for the purpose of attempting to clarify and simplify the existing requirements.” Id.

40 Compare 40 C.F.R. § 1502.22 (1985) with Amendment, supra note 8, at 15,625; id. at 15,621.

41 Compare 40 C.F.R. § 1502.22 (1985) with Amendment, supra note 8, at 15,625; id. at 15,621.
is incomplete or unavailable information. Second, the agency must discuss why this lack of information is relevant to the evaluation of reasonably foreseeable significant adverse impacts. Third, a summary of the existing credible scientific evidence which is relevant to evaluate the reasonably foreseeable significant adverse impacts must be included. Finally, the agency’s evaluation of such impacts must be based upon theoretical approaches or research methods generally accepted in the scientific community. A caveat is placed at the end of the fourth requirement, requiring that the term “reasonably foreseeable” shall include low probability/catastrophic impacts, provided that the analysis of the impact is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason. The language of the former subsection (b), requiring a worst case analysis, has been removed from the 1986 revision of section 1502.22. While the requirement of a worst case analysis has been formally removed from the regulation, it is within the agency’s discretion to include a worst case analysis for those impact statements which were in progress during the promulgation of the amended regulation.

Effect of Revision of Section 1502.22

The CEQ has hailed the revised section 1502.22 as substantially different from the original regulation, concluding that the revision provides a wiser and more manageable approach to the evaluation of reasonably foreseeable significant adverse impacts when there is incomplete or unavailable information. This Note will suggest, however, that the removal of the worst case analysis requirement and the addition of the “rule of reason” and “low

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42 See Amendment, 51 Fed. Reg., supra note 8, at 15,625.
43 See id.
44 See id.
45 See id. In evaluating the potential impacts, an agency is encouraged to specify which of the impacts are the most likely to occur. See id. at 15,625.
46 See id. at 15,625-26.
47 See id. at 15,621; compare 40 C.F.R. § 1502.22 (1985) with Amendment, supra note 8, at 15,625.
48 See Amendment, 51 Fed. Reg., supra note 8 at 15,626. The CEQ states that the amended regulation is applicable to all environmental impact statements for which a Notice of Intent, see 40 C.F.R. § 1508.22 (1985), is published on or after May 27, 1986. See Amendment, supra note 8 at 15,626. “For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.” Id.
49 See Amendment, supra note 8, at 15,620.
probability/catastrophic impact” requirements will not substantially affect those agencies preparing an EIS when faced with incomplete or unavailable information. It is submitted that the legislative history, policies and case law surrounding NEPA, the judicial interpretations of the worst case analysis, and public policy considerations as well as a fair reading of the revised regulation underscore the importance of the worst case analysis, and mandate its continued central role in the NEPA process.

THE CONTINUING VALIDITY OF THE WORST CASE ANALYSIS

Legislative History and Policies Underlying NEPA

Modern technological advances have intensified a trend toward environmental degradation. In response to this trend, Congress enacted the National Environmental Policy Act of 1969 ("NEPA"). The primary purpose of NEPA was to promulgate a national policy which harmonizes technological growth with environmental considerations. A theme of environmental protection

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50 See H.R. Rep. No. 378, 91st Cong., 1st Sess. 4, reprinted in 1969 U.S. Code Cong. & Admin. News 2751, 2753 [hereinafter HOUSE REPORT 378]. The House Report defines the present environmental problem: "The problem is deep, and it touches on practically every aspect of everyday life: economic, scientific, technological, legal, and even interpersonal . . . it is a problem which we can no longer afford to treat as of secondary importance." Id.


The purposes of this chapter are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.
pervades the act. Section 4332 of NEPA makes the responsibility to preserve and enhance the environment applicable to federal agencies.

Although NEPA outlines substantive goals for the nation as a whole, its mandate to federal agencies is essentially procedural. The procedural requirements set forth in section 4332 serve a dual purpose. First, these requirements ensure that an agency considers environmental issues before undertaking any major environmental action. Second, the requirements serve to inform the public that the agency has considered these environmental concerns in

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Id.

6 See, e.g., 42 U.S.C. § 4331 (1982) (emphasizing profound human impact on all components of environment); id. § 4332(A) (utilize approach which insures integrated use of natural sciences, social sciences and environmental design arts in planning and decisionmaking which impact on man's environment). See generally House Reporr 378, supra note 50, at 2751-67 (purpose, legislative background and need for environmental legislation). The theme of environmental protection and preservation is further indicated by the six goals of NEPA. See 42 U.S.C. § 4331(B) (1982).

6 See 42 U.S.C. § 4332 (1982). Section 4332 provides that the policy and public law of the United States is to be interpreted and administered in accord with NEPA. See id. § 4332(1). To that end, all agencies of the Federal Government are directed to utilize a systematic, interdisciplinary approach in decisionmaking which may impact on the environment; to develop methods and procedures to insure that environmental values are given appropriate consideration in decisionmaking; and to include an EIS in every proposal for legislation and other major federal action. See id. § 4332(2).

6 Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 558 (1978). There is a direct relationship between the substantive and procedural goals of NEPA. It has been noted that while the "strictures of NEPA are procedural in character...[t]hey ensure solicitude for the environment through formal controls and thereby help realize the substantive goal of environmental protection." North Slope Borough v. Andrus, 642 F.2d 589, 598 (D.C. Cir. 1980), aff'd in part, rev'd in part, 642 F.2d 589 (1980); see also Comment, NEPA's Role in Protecting the Environment, 131 U. Pa. L. Rev. 353, 356 (1982) (preparation of EIS is procedural, designed to ensure fully informed decisionmaking).

6 See, e.g., Baltimore Gas & Elec. Co. v. NRDC, 462 U.S. 87, 97 (1983); Weinberger v. Catholic Action of Hawaii/Peace Educ. Project, 454 U.S. 139, 143 (1981); Sierra Club v. Clark, 774 F.2d 1406, 1411 (9th Cir. 1985); City of Aurora v. Hunt, 749 F.2d 1457, 1465-66 (10th Cir. 1984). One court has referred to the dual purpose of NEPA as the process of raising and disclosing environmental impact issues. Warm Springs Dam Task Force v. Grisble, 565 F.2d 549, 554 (9th Cir. 1977).

6 Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553 (1978). The Vermont Yankee Court stated, "[t]he object [of NEPA] is for an agency to make a decision only upon which it is fully informed and only after the decision has been well-considered." Id.; see also Friends of Endangered Species, Inc. v. Jantzen, 760 F.2d 976, 985 (9th Cir. 1985) ("purpose of NEPA is to assure that federal agencies are fully aware of the impact of their decision on the environment"); Sierra Club v. United States Dep't of Transp., 753 F.2d 120, 126 (D.C. Cir. 1985) ("purpose of the Act is to require agencies to consider environmental issues before taking any major action"); Comment, supra note 1, at 83-84 ("NEPA ensures federal agency will not undertake major project without first considering environmental consequences").
its decision making process. It is submitted that the worst case analysis is well-grounded in NEPA policy, since neither the decisionmaker nor the public can be fully informed unless a worst case analysis, where applicable, is included in the EIS. This position is supported by case law construing NEPA prior to the worst case regulation, case law interpreting the worst cases analysis, and statements by the CEQ itself.

Case Law Under NEPA

Courts have consistently held that the worst case analysis is a codification of NEPA case law. In the seminal case interpreting NEPA requirements, Scientists' Institute For Public Information, Inc. v. Atomic Energy Commission ("SIPI"), the court considered whether the Atomic Energy Commission's ("AEC") failure to file an EIS regarding its nuclear reactor program was a violation of NEPA. The SIPI decision stated that the AEC was not relieved of its responsibility to prepare an EIS even though the effects of the breeder reactor were unknown. Rather, the basic thrust of an agency's responsibility under NEPA is to predict the environmental effects of a proposed action before the action is taken. To the

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See Sierra Club v. United States Army Corps of Eng'rs, 701 F.2d 1011, 1029 (2d Cir. 1983), aff'd in part, rev'd in part, 776 F.2d 383 (2d Cir. 1985). The agency "must set forth sufficient information for the general public to make an informed evaluation," 701 F.2d at 1029, as well as make diligent efforts to involve the public. 40 C.F.R. § 1500.1(b) (1985). There are some cases, however, where public disclosure of an environmental impact is not feasible due to considerations of national security. See Weinberger v. Catholic Action of Hawaii/Peace Educ. Project, 454 U.S. 139, 142-43 (1981). Weinberger involved the proposed construction of ammunition and weapons storage facilities, capable of storing nuclear weapons, in Hawaii. Id. at 141-42. Information concerning the facilities, however, was classified for national security reasons, therefore, it was unknown whether nuclear weapons were actually kept at the facilities. Id. Although rejecting the need for the Navy to prepare a "hypothetical EIS," see id., the Court concluded that if the Navy proposed to store nuclear weapons at the facilities, an EIS must be prepared for internal purposes, even though it was not to be disclosed to the public. See id. at 146. "The Navy must consider environmental consequences in its decisionmaking process, even if it is unable to meet NEPA's public disclosure goals. . . ." Id.


See id. at 1092.
extent that reasonable forecasting and speculation were deemed implicit in NEPA, the SIPI court contended that the discussion of future environmental effects within the EIS must not be rejected as "crystal ball inquiry." Although the SIPI court did not specifically require the agency to prepare a worst case analysis, it is apparent that a worst case analysis was intended.

**Case Law Interpreting the Worst Case Analysis**

Cases that interpret the worst case analysis concur in the proposition that this analysis is well-grounded in NEPA policy. The first United States Court of Appeals case to interpret the worst case analysis was *Sierra Club v. Sigler.* In *Sigler,* environmental groups concerned with the preservation of Galveston Bay, which serves as a nursery for fish and wildlife habitat, sought to enjoin the Army Corps of Engineers from transporting oil by supertanker through the Bay. The Fifth Circuit required that the Corps prepare a worst case analysis discussing the effect that a major oil spill would have on the Bay. Noting that NEPA demands reasonable speculation regarding potential risks, the court concluded that the Corps' interpretation that no worst case analysis was required in this situation rendered the NEPA process ineffective. While admitting the speculative nature of the worst case analysis, the court concluded that its interpretation complied with the plain

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64 See id.
65 See Amendment, 51 Fed. Reg., supra note 8, at 15,625. The CEQ stated that case law prior to the promulgation of section 1502.22 required agencies "to describe the reasonably foreseeable environmental impact[s]" in the face of unavailable information. Id. (citing *SIPI,* 481 F.2d at 1092). "The 'worst case analysis' requirement was a technique adopted by the CEQ as a means of achieving the goals enunciated in such case law." Id. The CEQ notes, however, that the worst case analysis per se was clearly an innovation on its part. See id. (citing Comment, *New Rules for the NEPA Process: CEQ Establishes Uniform Procedures to Improve Implementation,* 9 ENVTL. L. REP. 10,005, 10,008 (1979)).
66 See *Sierra Club v. Sigler,* 695 F.2d 957, 972 (5th Cir. 1983). The Sigler court noted that, "there is ... some support for a worst case analysis in NEPA's legislative history which illustrates congressional awareness of man's limited understanding of the environmental consequences of his actions." Id. at 970 n.9.
67 Id.
68 See id. at 961.
69 See id. at 968.
70 See id. at 974. The Fifth Circuit reversed the District Court's finding that an environmental impact statement need not discuss speculative consequences. See id. The court held "the fact that the possibility of a total cargo loss by a supertanker is remote does not obviate the requirement of a worst case analysis. . . ." See id.
language of the regulation and with NEPA as well. 71

The Sigler court maintained that, at a minimum, NEPA requires an EIS to contain information sufficient to alert the public and the decision maker to all known possible environmental consequences. 72 In keeping with that requirement, an agency must present, to the fullest extent possible, the spectrum of events that may result from the agency's actions and the potential consequences for the environment. 73 The Sigler court determined that the imposition of an affirmative duty on an agency to exceed the limits of currently available information when necessary for an informed decision is a major innovation and improvement in the EIS process. 74 Cases decided subsequent to the Sigler decision overwhelmingly concur with the proposition that these policies of NEPA support the inclusion of a worst case analysis in an EIS when an agency is faced with uncertainty. 75 In fact, past statements by the CEQ itself support the conclusion that NEPA policy requires a worst case analysis. 76

Statutory Language of NEPA

The worst case analysis is not only supported by the policies of NEPA, but it is also generally supported by the language of

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71 See id. at 971.
72 See id. at 972.
73 Id. To illustrate, the Sigler court asserted that an agency, in presenting the spectrum of possible events, should discuss low probability/catastrophic impacts as well as "events of higher probability but less drastic impact." Id. (citations omitted). The Court stated:
For example, if there are scientific uncertainty and gaps in the available information concerning the numbers of juvenile fish that would be entrained in a cooling water facility, the responsible agency must disclose and consider the possibility of the loss of the commercial or sport fishery. In addition to an analysis of a low probability/catastrophic impact event, the worst case analysis should also include a spectrum of events of higher probability but less drastic impact.
Id. (quoting Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 46 Fed. Reg. 18-026, 18-032 (1981)).
74 See id.
75 See Friends of Endangered Species, Inc. v. Jantzen, 760 F.2d 976, 988 (9th Cir. 1985); Save Our Ecosystems v. Clark, 747 F.2d 1240, 1244-45 (9th Cir. 1984); Southern Oregon Citizens Against Toxic Sprays, Inc. v. Clark 720 F.2d 1475, 1478 (9th Cir. 1983), cert. denied, 469 U.S. 1028 (1984).
76 See Forty Questions, supra note 35, at 18-032. It is a minimum requirement of NEPA to alert the public and Congress to all known possible environmental consequences. See id. The CEQ states that the most important obligation of the federal government is "to present to the fullest extent possible the spectrum of consequences that may result from agency decisions, and the details of their potential consequences for the human environment." Id.
NEPA itself. According to section 4332(c) of NEPA, a threshold question which must be answered affirmatively before an EIS is required is whether the agency proposes to undertake a major federal action which significantly affects the quality of the human environment. The statute, however, does not define "significant." Resolution of this substantive issue has traditionally been left exclusively to the agency proposing the action, with the result that the term "significant" is defined on an *ad hoc* basis. In considering the significant impact requirement under NEPA, reviewing courts consistently describe "significant impact" in absolute terms, requiring that an agency discuss "every" significant environmental impact. A worst case accident would indisputably be a "significant impact" within the meaning of section 4332(c).

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77 See *Sigler*, 695 F.2d at 969.
79 See generally 42 U.S.C. §§ 4321-4361 (1982). The CEQ, in defining "significant," states that "[t]he degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks" should be taken into account. 40 C.F.R. § 1508.27(b)(5) (1985). One reviewing court has described these guidelines as offering "little help." *River Rd. Alliance, Inc. v. United States Army Corps of Eng'rs*, 764 F.2d 445, 450 (7th Cir. 1985), *cert. denied*, 105 S. Ct. 1283 (1986); see also *San Luis Obispo Mothers for Peace v. Nuclear Regulatory Comm'n*, 751 F.2d 1287, 1302-03 n.77 (D.C. Cir. 1984) (CEQ regulations not persuasive authority).
82 See *Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 97 (1983)(agency must factor in all significant environmental risks); *Sierra Club v. Sigler*, 695 F.2d 957, 972 (5th Cir. 1983)(disclosure of all known environmental consequences of agency action) (citations omitted).
83 See *Sigler*, 695 F.2d at 973 (total cargo loss by supertanker is significant adverse impact).
Judicial Review of NEPA

While NEPA does not specifically provide for judicial review of agency actions affecting the environment, judicial review is implicit in the statute due to its vague wording. Acknowledging that courts do not possess the technical expertise of an agency, reviewing courts have afforded great deference to agency determinations, particularly when the uncertain information is "at the frontiers of science." The reviewing court will not question the procedures employed by an agency, provided that the agency complied with its own rules and applicable statutes. An agency's in-

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85 Calvert Cliffs' Coordinating Comm., Inc. v. United States Atomic Energy Comm'n, 449 F.2d 1109, 1115 (D.C. Cir. 1971); Environmental Defense Fund, Inc. v. United States Army Corps of Eng'rs, 470 F.2d 289, 293 (8th Cir. 1972), cert. denied, 412 U.S. 931 (1973); see also Comment, supra note 55, at 356 (NEPA's exceedingly general language invites judicial review).

86 See Sierra Club v. Clark, 774 F.2d 1406, 1408 (9th Cir. 1985). The agency decision making process has traditionally been afforded a high degree of deference and a presumption of validity. See Sierra Club v. United States Army Corps of Eng'rs, 772 F.2d 1043, 1051 (2d Cir. 1985) (citations omitted). This policy of deference by the courts is consistent with the concept of federalism where the court may not "interject itself within the area of the executive as to the choice of the action to be taken." Id. at 1051 (quoting Kleppe v. Sierra Club, 427 U.S. 390, 410 n.21 (1976)). "Congress has excluded the courts from the fact-finding process and any attempt to turn the clock back and renew the contest by reinsinuating the judiciary into the area now reserved to executive expertise should be sharply rejected." 772 F.2d at 1051.

87 Baltimore Gas & Elec. Co. v. NRDC, 462 U.S. 87, 103 (1983); see also San Luis Obispo Mothers for Peace v. NRDC, 751 F.2d 1287, 1293-94 (D.C. Cir. 1984) (great deference due expert determinations of agencies); cf. Carstens v. Nuclear Regulatory Comm'n, 742 F.2d 1546, 1557 (D.C. Cir. 1984) (courts must be deferential when reviewing scientific determinations of agency) (citations omitted), cert. denied, 105 S. Ct. 2875 (1985); Stop H-3 Ass'n v. Dole, 740 F.2d 1442, 1455 (9th Cir. 1984) (court does not possess technical expertise of agency), cert. denied, 105 S. Ct. 2344 (1985). Due to modern technological advances, the courts are now asked to review agency decisions concerning "sophisticated data." City of N. Y. v. United States Dep't of Transp., 715 F.2d 73, 76 (2d Cir. 1983), cert. denied, 465 U.S. 1055 (1984). For this reason, a court must be reluctant to reverse an agency's expert opinion. See Carstens, 742 F.2d at 1557 n.17. To illustrate, the Carstens court stated that, "[t]he uncertainty of . . . earthquake prediction . . . serves to emphasize the limitations of judicial review and the need for greater deference to policymaking entities." Id. at 1557.

88 See Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 548 (1978). The Vermont Yankee Court indicated "that a totally unjustified departure from well-settled agency procedure of long standing" may merit judicial intervention. Id. at 542.
terpretation of its own regulation is of controlling weight as long as environmental impacts are reasonably considered. Under the present standards of review, an agency may be arguably "wrong" in its determination regarding uncertain impacts, but its decision to pursue the project would be sanctioned by the court in the name of judicial deference. Thus, the danger that too much or too little weight will be accorded to situations of low probability/catastrophic impact is presented, and this situation reinforces the need for the disclosure contained in the worst case analysis.

It does not seem adequate to hope that an agency will voluntarily include a worst case analysis without a requirement to do so. In light of the purposes of NEPA, neither the decision maker nor the public can be fully informed of the impacts of the project unless the agency has carefully considered all reasonably foreseeable environmental impacts in a detailed EIS. The inclusion of a worst case analysis in an EIS is, therefore, proof that the agency

81 See Sierra Club v. United States Army Corps of Eng'rs, 772 F.2d 1043, 1050 (2d Cir. 1985) (ensure agency considered environmental consequences); Friends of Endangered Species, Inc. v. Jantzen, 760 F.2d 976, 986 (9th Cir. 1985) (decision must be fully informed and well-considered); Stop H-3 Ass'n v. Dole, 740 F.2d 1442, 1461 (9th Cir. 1984) (environmentally informed choice), cert. denied, 105 S. Ct. 2344 (1985); Town of Orangetown v. Gorsuch, 718 F.2d 29, 35 (2d Cir. 1983) (consider environmental consequences), cert. denied, 465 U.S. 1099 (1984); North Slope Borough v. Andrus, 642 F.2d 588, 599 (D.C. Cir. 1980) (agency must acquire and digest useful environmental information).
82 See North Slope Borough, 642 F.2d at 599. As long as the agency followed a discernible path in its decision making process, that is, conformed to the court's standard of review, the court will uphold a decision of "less than ideal clarity." Sierra Club v. United States Army Corps of Eng'rs, 772 F.2d 1043, 1051 (2d Cir. 1985).
84 See supra notes 52-58 and accompanying text.
85 See supra notes 52-58 and accompanying text.
engaged in careful deliberation. Inasmuch as an agency must discuss the environmental impacts of a proposed action commensurate with the significance of the impact, all low probability environmental impacts should be discussed, however briefly, including a worst case analysis.

**Amended Regulation Parallels Interpretations of Worst Case Analysis**

The rationale underlying the worst case analysis parallels the language of the 1986 revision of section 1502.22 indicating that, despite claims to the contrary, a worst case analysis is still required when an agency is faced with uncertainty. The CEQ alleges that the 1986 regulation is an improvement over the earlier worst case analysis requirement because an agency is now required to base its evaluation of unavailable information on credible scientific evidence. This allegation blatantly ignores worst case analysis case law. Reviewing courts have consistently stated that agencies need not go beyond the state of the art technology in preparing a worst case analysis. In fact, NEPA has never demanded an agency to go
beyond presently known scientific data.\textsuperscript{99}

In addition, the CEQ asserts that under the new regulation, the agency is to be guided by a "rule of reason."\textsuperscript{100} Early case law interpreting NEPA required an agency to be guided by the rule of reason when preparing an EIS.\textsuperscript{101} Subsequently, reviewing courts have followed suit, concluding that the rule of reason pervades the NEPA process at all stages.\textsuperscript{102} Those cases which have interpreted the worst case analysis are no exception.\textsuperscript{103} An agency has never

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Oregon Citizens Against Toxic Sprays, Inc. v. Clark, 720 F.2d 1475, 1479 (9th Cir. 1983), cert. denied, 105 S. Ct. 446 (1984); Sigler, 695 F.2d at 974.

\textsuperscript{99} See Friends of Endangered Species, Inc. v. Jantzen, 760 F.2d 976, 986 (9th Cir. 1985).

"NEPA does not require that we decide whether an EIR [under state law analogous to EIS] is based on the best scientific methodology available, nor does NEPA require us to resolve disagreements among various scientists as to methodology." \textit{Id.} The agency is not required to address remote and speculative consequences. \textit{See} San Luis Obispo Mothers For Peace v. NRC, 751 F.2d 1287, 1300 (D.C. Cir. 1984); Warm Springs Dam Task Force v. Gribble, 621 F.2d 1017, 1026-27 (9th Cir. 1980); Environmental Defense Fund, Inc. v. Andrus, 619 F.2d 1388, 1375 (10th Cir. 1980).

\textsuperscript{100} \textit{See} Amendment, supra note 8, at 15,625-26.

\textsuperscript{101} \textit{See} Scientists' Inst. For Pub. Information v. Atomic Energy Comm'n, 481 F.2d 1079, 1092 (D.C. Cir. 1973). The SIPI court stated:

Section 102(C)'s requirement that the agency describe the anticipated environmental effects of proposed action is subject to a rule of reason. The agency need not foresee the unforeseeable, but by the same token neither can it avoid drafting an impact statement simply because describing the environmental effects of and alternatives to particular agency action involves some degree of forecasting . . . . "The statute must be construed in the light of reason if it is not to demand what is, fairly speaking, not meaningfully possible . . . . But implicit in this rule of reason is the overriding statutory duty of compliance with impact statement procedures to the fullest extent possible." \textit{Id.} (citations omitted).

\textsuperscript{102} \textit{See}, e.g., Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 551 (1978); City of N.Y. v. United States Dep't of Transp., 715 F.2d 732, 742 (2d Cir. 1983), cert. denied, 465 U.S. 1055 (1984); Roosevelt Campobello Int'l Park Comm'n v. EPA, 884 F.2d 1041, 1047 (1st Cir. 1989); North Slope Borough v. Andrus, 642 F.2d 589, 600 (D.C. Cir. 1980); Citizens for Mass Transit, Inc. v. Adams, 630 F.2d 309, 313 (5th Cir. 1980). The case law makes clear that the rule of reason governs judicial review of the preparation of an EIS. \textit{See} San Luis Obispo Mothers For Peace v. NRC, 751 F.2d 1287, 1301 (D.C. Cir. 1984). NEPA "must be construed in the light of reason if it is not to demand what is, fairly speaking, not meaningfully possible." \textit{Sigler}, 695 F.2d at 970. In fact, NEPA "permits, even demands" reasonable speculation. \textit{Id.} at 974.

\textsuperscript{103} \textit{See}, e.g., \textit{San Luis}, 751 F.2d at 1302; Village of False Pass v. Clark, 733 F.2d 605, 616 (9th Cir. 1984); \textit{Sigler}, 695 F.2d at 970-71; North Slope Borough v. Andrus, 642 F.2d 589, 601 (D.C. Cir. 1980). Under the well-established rule of reason, an agency need not discuss in detail those impacts where the probability of occurrence is "inconsequentially small." \textit{San Luis}, 751 F.2d at 1300. "The Court must weigh the reasonableness of the worst case analysis in light of its purpose of alerting the decisionmaker to the risks presented by proceeding despite gaps in information." \textit{North Slope}, 642 F.2d at 599. It is indeed possible to create an informative worst case analysis which reasonably limits speculation. \textit{See} \textit{Sigler},
been required to go beyond the rule of reason when preparing a worst case analysis, and therefore, the 1986 regulation adds nothing new to guide an agency proceeding in the face of uncertainty.

Furthermore, the 1986 regulation describes "reasonably foreseeable" impacts as those which have catastrophic consequences even if their probability of occurrence is low. It is submitted that the CEQ contradicts itself by removing the worst case analysis from section 1502.22, but then stating that low probability/catastrophic impacts must be included in an EIS when there is uncertainty. Low probability situations are exactly what the worst case analysis is meant to address. An impact is deemed probable when there is enough scientific data to make this determination of likelihood. When sufficient scientific data is available, however, section 1502.22 does not come into play at all for the section only addresses incomplete or unavailable information situations. It is asserted then, that since worst cases are, in actuality, low probability situations by their nature because of such lack of information, the revised regulation merely reinstitutes a worst case analysis requirement despite the CEQ's claims to the contrary.

**PUBLIC POLICY CONSIDERATIONS**

Public policy considerations also dictate a conclusion that the worst case analysis is still a valid and necessary part of the NEPA process. An agency is no longer required, in an EIS, to weigh the need for the proposed action against the risk and severity of the possible adverse impacts. While certain risks are necessary for

695 F.2d at 974.

104 Amendment, supra note 8, at 15,625.

105 See Save Our Ecosystems v. Clark ("SOE"), 747 F.2d 1240, 1246 (9th Cir. 1984); Sigler, 695 F.2d at 971. The worst case analysis requires an analysis of a spectrum of events. For instance, "[a] worst case analysis could discuss . . . a 1% chance of event X, a 10% chance of event Y and a 20% chance of event Z . . . ." SOE, 747 F.2d at 1245 n.7. A low probability of occurrence does not obviate the need for a worst case analysis, for there can still be a significant impact even if the probability of occurrence is low. See Southern Oregon Citizens Against Toxic Sprays, Inc. v. Clark, 720 F.2d 1475, 1479 (9th Cir. 1983).

106 See Amendment, supra note 8, at 15,620.

107 Compare 40 C.F.R. § 1502.22 (1985) with Amendment, supra note 8, at 15,625-26; id. at 15,621. The CEQ correctly concluded that a balancing test which weighs the need for the proposed action against the risk and severity of the possible adverse impacts were the agency to proceed in the face of uncertainty should take place after the EIS has been filed, not during the preparation of the EIS. See id.; Strycker's Bay Neighborhood Council v. Karlen, 444 U.S. 223, 227 (1980); cf. Weinberger v. Catholic Action of Hawaii/Peace Educ. Project, 454 U.S. 139, 146 (1981)("EIS need not be prepared simply because a project is
the continuation of technological progress,\textsuperscript{108} society demands to be informed of those which pose a threat to human life and the environment.\textsuperscript{109} It is clear that there are some risks which society refuses to tolerate.\textsuperscript{110} The public can only weigh these risks when fully informed by the agency of the environmental consequences of a proposed action.\textsuperscript{111} It is not unduly burdensome for an agency to take these public policy considerations into account when preparing an EIS.\textsuperscript{112}


\textsuperscript{110}\ Cf. Industrial Union, AFL-CIO v. American Petroleum Inst., 448 U.S. 607, 655 (1980). For example, one in a billion odds that a substance will cause cancer might not be considered significant, but one in a thousand odds might be considered significant thereby requiring appropriate steps to decrease or eliminate that risk. \textit{See id.}

\textsuperscript{111}\ See Sierra Club v. United States Army Corps of Eng'rs, 772 F.2d 1043, 1049 (2d Cir. 1985). It is necessary for the public to "weigh the project's benefits against its environmental costs." \textit{Id.; see Town of Orangetown v. Gorsuch, 718 F.2d 29, 39 (2d Cir. 1983), cert. denied, 465 U.S. 1099 (1984). The legislative history surrounding NEPA expresses the concern over man's abuse of his environment which underlies the need for the public to be informed of the environmental consequences of proposed actions. Illustrative of this concern are the statements of Senator Jackson:

\begin{quote}
The expression "environmental quality" symbolizes the complex and interrelated aspects of man's dependence upon his environment. Most Americans now understand, far better than our forebears could the nature of man-environmental relationships . . . the Nation has in many areas overdrawn its bank account in life sustaining natural elements. For these elements — air, water, soil and living space, technology at present provides no substitutes.
\end{quote}

\textsuperscript{115}\ CONG. REC. 19,012 (1969).

The House Report regarding NEPA further amplifies this concern:

By land, sea, and air the enemies of man's survival relentlessly press their attack. The most dangerous of all these enemies is man's own undirected technology. The radioactive poisons from nuclear tests, the runoff into rivers of nitrogen fertilizers, the smog from automobiles, the pesticides in the food chains, and the destruction of topsoil by strip mining are examples of the failure to foresee and control the untoward consequences of modern technology.


\textsuperscript{111}\ See, e.g., Sierra Club v. Clark, 774 F.2d 1406, 1411 (9th Cir. 1985); North Slope Borough v. Andrus, 642 F.2d 589, 605 n.93 (D.C. Cir. 1980); Oregon Envtl. Council v. Kunzman, 614 F. Supp. 657, 665 (D. Or. 1985); Comment, \textit{supra} note 55, at 353 (NEPA
Experience shows that worst case accidents do indeed occur and for this reason the worst case analysis cannot safely be discarded. Although the CEQ has decided to remove the worst case analysis from section 1502.22, all this really accomplishes is the removal of the sensationalism of the worst case. The amendment cannot and does not, however, remove the underlying need for the worst case analysis.

CONCLUSION

It is submitted that, although the CEQ has recently removed the worst case analysis from section 1502.22 when an agency is faced with unavailable or incomplete information in preparing an EIS, a worst case analysis is still an integral facet of the EIS process. The legislative history, policy, language and case law surrounding NEPA support this conclusion. In addition, the expectations under the worst case analysis as evidenced by the case law interpreting the regulation directly parallel the language of the amended version of 1502.22 indicating that there is no significant difference between the two regulations. Finally, public policy con-

designed to ensure actions of federal government reflect environmental concerns as well as political and economic pressures).

Agencies are accorded a great deal of deference by the courts in preparation of an EIS. See supra notes 86-91 and accompanying text. There are also a number of other hurdles to overcome when challenging an agency's decision. Standing is a prerequisite to judicial review of an agency's action. Glass Packaging Inst. v. Regan, 737 F.2d 1083, 1087 (D.C. Cir.), cert. denied, 105 S. Ct. 509 (1984). Unless the damages alleged by the plaintiff are “within the zone of interest to be protected by [NEPA],” the court cannot reach the merits of the claim. Id. In addition, “[A]ll plaintiffs must demonstrate an actual or threatened injury caused by the allegedly illegal conduct of the defendant which can be fairly traced to the challenged action and which is likely to be redressed by a favorable decision.” Id. (citations omitted). The plaintiff must prove his allegations by a preponderance of the evidence and not merely prove a prima facie case. See Sierra Club v. Morton, 510 F.2d 813, 818 (5th Cir. 1975); Sierra Club v. Callaway, 499 F.2d 982, 992 (5th Cir. 1974).

See City of N.Y. v. United States Dep't of Transp., 715 F.2d 732, 753 (2d Cir. 1983) (Oakes, J., dissenting), cert. denied, 465 U.S. 1055 (1984). It should be noted that:

‘[W]orst-case accidents have a way of occurring — from Texas City to the Hyatt Regency at Kansas City, from the Tacoma Bridge to the Greenwich, Connecticut, I-95 bridge, from the Beverly Hills in Southgate, Kentucky, to the Cocoanut Grove in Boston, Massachusetts, and from the Titanic to the DC-10 at Chicago to the I-95 toll-boo crash and fire . . . .

Id. See Yost, supra note 27, at 10,395 (worst cases are improbable but not inconceivable and in some cases not very improbable).

See Amendment, 51 Fed. Reg., supra note 8, at 15,624. The CEQ states that the amended regulation is a less sensational approach to an EIS. See id.
Considerations demand an agency to include a worst case analysis in the preparation of an EIS.

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