Volume 19
Number 4 *Summer 1985*

*pp.*899-932

Summer 1985

Psychological Distress Under NEPA

Michael A. Christofeno

PSYCHOLOGICAL DISTRESS UNDER NEPA

I. INTRODUCTION

On March 28, 1979, Three Mile Island, the site of Metropolitan Edison's nuclear reactors, experienced the worst nuclear accident in American history.[1] People within five miles of the accident suffered symptoms of psychological health damage.[2] There are two nuclear reactors at the Three Mile Island site.[3] While the accident occurred at Metropolitan Edison's Three Mile Island Unit 2, Metropolitan Edison's Three Mile Island Unit 1 was coincidentally shut down for refueling.[4] Before the dormant reactor could be restarted, the Nuclear Regulatory Commission (NRC) ordered a hearing to determine if the inactive reactor could be operated safely.[5] The NRC invited interested parties to intervene in the hearing.[6] People Against Nuclear Engergy (PANE)[7] accepted the invitation to intervene.[8] PANE wanted the NRC to consider the psychological health damage that a restart of the shutdown reactor would have on people in the vicinity of Three Mile Island.[9] These circumstances raised the issue of whether psychological

---

1. *See* People Against Nuclear Energy v. United States Nuclear Regulatory Commission, 678 F.2d 222, 223 (D.C. Cir. 1982).

2. The symptoms included increased tension, vulnerability, skin rashes, aggravated ulcers, skeletal problems, and muscular problems. *See, e.g.*, BAUM, GATCHEL, FLEMING, AND LAKE, CHRONIC AND ACUTE STRESS ASSOCIATED WITH THE THREE MILE ACCIDENT AND DECONTAMINATION: PRELIMINARY FINDINGS OF A LONGITUDINAL STUDY (1981); BROMET, THREE MILE ISLAND: MENTAL HEALTH FINDINGS (1980); HOUTS, MILLER, TOKUHATA, AND HAM, HEALTH RELATED BEHAVIORAL IMPACT OF THE THREE MILE ISLAND NUCLEAR INCIDENT, pt. 2 (1980). *See also* Brief for Respondent People Against Nuclear Engery, at 3, Metropolitan Edison Co. v. People Against Nuclear Energy, 103 S. Ct. 1556 (1983).

3. Metropolitan Edison Co. v. People Against Nuclear Energy, 103 S. Ct. 1556, 1558 (1983).

4. *Id.*

5. *Id.*

6. *Id.*

7. PANE is a group of residents from in and around the Three Mile Island area who oppose the operation of either reactor. *Id.*

8. *Id.*

9. *Id.* PANE actually had two contentions. PANE's first contention was that the restart of the shutdown reactor would aggravate the physical manifestations from the psychological stress of the accident by causing more stress. PANE's second contention was that restart of the shutdown reactor would make the community less stable and cohesive. *Id.* at 1159 n.2. PANE's second contention is a classical secondary effect. *See infra* notes 145 and 151 and accompanying text.

health effects are cognizable under the National Environmental Policy Act (NEPA).[10]

Historically, courts have been reluctant to recognize social and economic effects under NEPA.[11] Psychological effects are similar to social and economic effects because they all are indirectly caused by agency action. Psychological effects are caused indirectly because they require human perception before they can be realized. While psychological impacts occur indirectly from agency action just as socio-economic impacts, psychological impacts are similar to health impacts because psychological impacts affect human health. The judiciary readily recognizes human health effects as falling under NEPA.[12] This recognition occurs because NEPA states that the protection of human health is one of NEPA's primary purposes.[13] Thus, the question arose whether psychological health effects should be cognizable under NEPA, as health effects are, or rather should be excluded from such consideration, as socio-economic effects are.[14]

The United States Supreme Court concluded that psychological health effects may be cognizable under NEPA,[15] but distinguished the

10. National Environmental Policy Act of 1969, §§ 101-209, 42 U.S.C. §§ 4321-4347 (1976).

11. Courts are reluctant to recognize socio-economic effects as being within NEPA's purview when there is no significant primary impact on the environment from the agency's action. *See, e.g.*, Image of Greater San Antonio v. Brown, 570 F.2d 517, 522-23 (5th Cir. 1978) (socioeconomic impacts are to be considered only if there is a primary impact on the natural environment); Breckinridge v. Rumsfeld, 537 F.2d 864, 867 (6th Cir. 1976) (NEPA was not meant to cover social problems like unemployment), *cert. denied*, 429 U.S. 1061 (1977); Monarch Chem. Works, Inc. v. Exon, 466 F. Supp. 639, 657 (D. Neb.) (the psychological and sociological effects of a prison on people who live nearby need not be evaluated under NEPA), *aff'd sub nom.* Monarch Chem. Works, Inc. v. Thone, 604 F.2d 1083 (8th Cir. 1979); Como-Falcon Community Coalition, Inc. v. Department of Labor, 609 F.2d 342, 345-46 (8th Cir. 1979) (social and economic factors not encompassed by the provisions of NEPA include crime, social services, changed character of neighborhood), *cert. denied*, 446 U.S. 936 (1980).

12. *See, e.g.*, Manygoats v. Kleppe, 558 F.2d 556 (10th Cir. 1977); Natural Resources Defense Council, Inc. v. Tennessee Valley Authority, 367 F. Supp. 128 (E.D. Tenn. 1973), *aff'd per curiam*, 502 F.2d 852 (6th Cir. 1974); National Pork Producers Council v. Bergland, 484 F. Supp. 540 (S.D. Iowa), *rev'd on other grounds*, 631 F.2d 1353 (8th Cir. 1980); National Org. for the Reform of Marijuana Laws v. Department of State, 452 F. Supp. 1226 (D.D.C. 1978); Citizens Against Toxic Sprays v. Bergland, 428 F. Supp. 908 (D. Or. 1977).

13. 42 U.S.C. § 4321 (1976). One of NEPA's purposes is to "stimulate the health and welfare of man . . . . " *Id.*

14. Compare the cases *supra* note 11 with the cases *supra* note 12 to see the difference in cognizability under NEPA between socio-economic effects and health effects, respectively.

15. Metropolitan Edison Co. v. People Against Nuclear Energy, 103 S. Ct. 1556, 1560-61 (1983).

psychological health effects alleged by PANE, holding that they do not fall within NEPA's purview because they were not caused by a change in the physical environment.[16] The Court cited the lack of a proximate causal relation between a change in the physical environment and the psychological health damages alleged by PANE as another reason for disallowing PANE's contentions.[17] Thus, the psychological health effects suffered by residents near Three Mile Island following the near catastrophe at one nuclear reactor were held not cognizable under NEPA in connection with the proposed restart of another nuclear reactor at the same location.

This note explores the purposes and procedures of NEPA to ascertain when various effects are cognizable under that statute.[18] After exploring the statutory purposes and procedures, there is an examination of whether NEPA amounts to substantive law for the purposes of judicial review.[19] The discussion then turns to how courts, prior to *Metropolitan Edison Company v. People Against Nuclear Energy*[20] (*PANE*), interpreted when the effects of a proposed agency action must be recognized under NEPA.[21] Next, the note outlines the *PANE* standard for when psychological health effects fall under NEPA[22] and criticizes that standard, showing its effect upon the cognizability of environmental impacts under NEPA.[23] Finally, the note considers alternatives to the *PANE* standard.[24]

II. NEPA'S PROCEDURAL BACKGROUND

To understand NEPA, one must understand the purposes and procedures of the Act. Congress enacted NEPA to protect the environment.[25] Section 101 of NEPA establishes a national policy "to use all practicable means and measures . . . to create and maintain

16. *Id.* at 1561.
17. *Id.*
18. *See infra* notes 25-82 and accompanying text.
19. *See infra* notes 83-120 and accompanying text.
20. 103 S. Ct. 1556 (1983).
21. *See infra* notes 121-40 and accompanying text.
22. *See infra* notes 140-73 and accompanying text.
23. *See infra* notes 175-245 and accompanying text.
24. *See infra* notes 217-45 and accompanying text.
25. 42 U.S.C. § 4321 (1976). One of NEPA's purposes is to "promote efforts which will prevent or eliminate damage to the environment . . . ." *Id. See also* 115 Cong. Rec. 29,067 (1969) (remarks of Sen. Jackson, the sponsor of NEPA, where he implied that NEPA would halt the rapid deterioration of the physical environment); 40 C.F.R. § 1500.1(a) (1984) (describing NEPA as a "basic national charter for protection of the environment").

conditions under which man and nature can exist in productive harmony. . . ."[26] To implement this policy, NEPA establishes procedures for federal agencies to follow when considering federal action.[27] The main procedure requires that every federal agency prepare an environmental impact statement[28] (EIS) on "proposals for legislation and other major Federal actions significantly affectng the quality of the human environment . . . ."[29] In addition to the EIS requirement, Section 202 of NEPA created the Council on Environmental Quality (CEQ) to evaluate the federal government's performance in meeting the objectives of the policy set forth in Title I of the Act.[30] The CEQ also advises the executive branch concerning additional policies to improve the environment.[31] Further, the CEQ regulations are to be given establishment of the CEQ, a national environmental policy, and procedures to implement that policy, Congress intended to assure enhanced protection of the environment.[33]

NEPA protects the environment by providing information both to the public and the decision-making agencies about the effects proposed actions will have on the environment.[34] This information is provided by the EIS. An accurate and detailed EIS not only informs the

---

26. 42 U.S.C. § 4331(a) (1976).

27. *See* 42 U.S.C. §§ 4332-4335 (1976).

28. 42 U.S.C. § 4332(2)(c). An EIS is a detailed statement which must include the following:

> (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.

29. *Id.*

30. 42 U.S.C. § 4342 (1976).

31. *Id.*

32. *See* Andrus v. Sierra Club, 442 U.S. 347, 358 (1979) (ruling that agencies should give substantial deference to CEQ regulations). *See also* Note, *NEPA After Andrus v. Sierra Club: The Doctrine of Substantial Deference to the Regulations of the Council on Environmental Quality*, 66 VA. L. REV. 843 (1980).

33. *See supra* note 25 and accompanying text.

34. 40 C.F.R. § 1500.1(b) (1984) ("NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken."). *See also* McGarity, *The Courts, the Agencies,*

agency of the environmental effects of a proposed federal action, but also informs the public of such effects.[35] Further, the EIS provides the court with a record upon which to review the agency's decision.[36] Agencies must prepare an EIS for every proposed action "significantly affecting the quality of the human environment."[37] If an agency is uncertain whether its proposed action requires an EIS, the agency must prepare an environmental assessment.[38]

An environmental assessment examines the need for the proposed action, its likely effects, and all feasible alternatives.[39] Based on the environmental assessment, the agency either prepares an EIS or makes a "finding of no significant impact"[40] providing reasons why an EIS is not required. Regardless of whether the agency files an EIS or a finding of no significant impact, the agency fulfills the informational purpose of NEPA by producing a documented decision based on consideration of the relevant factors and by providing full public access.[41]

In deciding whether a proposed action requires an EIS, an agency must determine whether the action crosses the threshold limitations of section 102(2)(c) of NEPA.[42] Section 102(2)(c) requires an agency to prepare an EIS for all proposed actions that are "major Federal actions significantly affecting the quality of the human environment."[43] The

---

and NEPA Threshold Issues, 55 TEX. L. REV. 801, 803-07 (1977). *See also* Baltimore Gas and Electric Co. v. Natural Resources Defense Council, Inc., 103 S. Ct. 2246, 2252 (1983) (the twin aims of NEPA).

35. *See* McGarity, *supra* note 34, at 804.

36. *Id.* at 807. Judicial review of agency action occurs under § 10(e) of the Administrative Procedure Act, 5 U.S.C. § 706 (1970). *See also* McDonald, *The Relationship Between Substantive and Procedural Review Under NEPA: A Case Study of Scrap v. U.S.*, 4 ENVTL. AFF. 157 (1975).

37. 42 U.S.C. § 4332(2)(c) (1976).

38. An environmental assessment is a statement by an agency of the reasons why an EIS is or is not needed for a proposed action. *See* 40 C.F.R. § 1508.9 (1984). The CEQ regulations authorize agencies to classify proposed actions as: routinely requiring an EIS; not requiring an EIS because the proposed action is a categorical exclusion under 40 C.F.R. §1508.4; or possibly requiring an EIS thus requiring an environmental assessment to determine the need for an EIS. 40 C.F.R. § 1507.3(b)(2) (1984).

39. 40 C.F.R. § 1508.9 (1984).

40. 40 C.F.R. § 1508.13 (1984) (a "finding of no significant impact" means a proposed action will not significantly affect the human environment so that no EIS is required).

41. For a more complete discussion of NEPA's informational purpose, that being public disclosure and informed agency decision-making, see McGarity, *supra* note 34, at 804.

42. 42 U.S.C. § 4332(2)(C) (1976).

43. *Id.*

Act limits the expenditure of agency time and resources to proposed actions where the informational purpose of NEPA is served by the agency expenditure.[44] The informational purpose of NEPA is served when the threshold limitations are met. The threshold limitations are that a proposed action be a major[45] federal action, with a significant effect, and the effect must be on the human environment. If all of these factors are present, the agency must prepare an EIS.

In determining the necessity for preparing an EIS, an agency must evaluate the nature of its proposed action. Initially, the question arises whether the "proposal"[46] qualifies as "federal action."[47] "Federal action" includes federal funding where the agency retains control over use of the funds, approval of specific projects, initiation of new or revised agency regulations, and adoption of official policy, formal plans or programs.[48] Failure by an agency to act is also federal action if it is either judicially or administratively reviewable.[49] There is no federal action if the agency has no opportunity to make a decision.[50] If an agency decides that a proposed action qualifies as a federal action under NEPA, the first threshold requirement is satisfied in determining whether the agency should prepare an EIS.

Once a determination is made that a proposal is a federal action, the next requirement is that the effects of the federal action are significant.[51] According to the CEQ regulations, both adverse and beneficial

---

44. *See* McGarity, *supra* note 34, at 805.

45. *See* 40 C.F.R. § 1508.18 (1984). The CEQ regulations state that "major" has no independent meaning from "significance." The Supreme Court followed this ruling in Andrus v. Sierra Club, 442 U.S. 347, 364 n. 23 (1979). *Compare* Hanley v. Mitchell, 460 F.2d 640, 644 (2d Cir. 1972) (not all major federal actions have a significant impact), *cert. denied*, 409 U.S. 990 (1972), *with* Minnesota Pub. Interest Research Group v. Butz, 498 F.2d 1314, 1321-22 (8th Cir. 1974) (proposing unitary approach of defining "major" and "significantly").

46. 40 C.F.R. § 1508.23 (1984) (A "proposal" exists when meaningful evaluation of the effects from an agency's manner of attaining a goal may be accomplished). See Kleppe v. Sierra Club, 427 U.S. 390, 406 (1976) (an agency must determine when a "potential proposal" becomes a "proposal requiring an EIS").

47. 40 C.F.R. § 1508.18 (1984) (defining "federal action" as action where the Federal Government is in control or is responsible).

48. *Id.*

49. *Id.*

50. *See, e.g.*, NAACP v. Medical Center, Inc., 584 F.2d 619 (3d Cir. 1978) (holding that there is no federal action and thus no need for an EIS where Department of Health, Education, and Welfare had ministerial approval under Social Security Act of capital expenditure by private hospital, approved by state agency, and the Department did not plan, promote, or financially fund the project).

51. 42 U.S.C. § 4332(2)(C) (1976). A proposed action must have some significant effect on the human environment before preparation of an EIS by an agency

effects of a proposed action may be significant.[52] However, agencies have generally been required to address only adverse effects.[53] The CEQ regulations also require an agency to consider the significance of an effect with regard for both the "intensity," or severity of the effect, and the "context," or setting of the effect.[54] An effect that is significant locally may be insignificant on a national level. For example, building a jail in a residential area has significant effects locally but not nationally. The context and intensity of an effect are important factors in determining an effect's significance.

---

is required. Thus, there must be a significant effect to trigger the requirement of the preparation of an EIS by an agency. Once the agency decides to prepare an EIS, the EIS must address the severity of all reasonably foreseeable effects. The content of an EIS is limited by the "rule of reason," that being an agency need only consider alternatives that a reasonable person would think significant enough to warrant discussion. Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 435 U.S. 519, 551 (1978). Therefore, a significant effect is required to trigger an EIS, but once triggered, the scope of the EIS is not limited to significant effects.

In discussing effects, a number of adjectives are used to describe the effect. An effect may be either "direct" or "indirect." "Direct" effects occur at the same time and place as the action while "indirect" effects occur later or more distant from the action. For example, the direct effect of building a highway is the physical change of the existence of the highway. The highway may promote other development which is the indirect effect of constructing the highway. This could also be described as the "primary" and "secondary" effects respectively. Unfortunately, primary and secondary have the connotation of more and less important, respectively. Since socio-economic effects usually occur indirectly from agency action, they are labeled as secondary effects. As secondary effects, socio-economic effects are thought of as less important than primary effects.

This misconception that secondary effects are less important than primary effects has caused some courts to required a significant effect on the physical environment to trigger an EIS. *See supra* note 11. Some courts hold that a significant socio-economic effect, that is secondary effect, cannot trigger the need for an EIS. *See infra* notes 136-38 and accompanying text. This note adopts the position that the threshold limitation to trigger the need for an EIS may be met by either primary or secondary effects so long as there is a change in the physical environment from the proposed action. *See infra* notes 231-35 and accompanying text. Thus, a change in the physical environment that causes insignificant primary effects to the physical environment would trigger the preparation of an EIS if there were signficant secondary effects which might be socio-economic. This note opposes the view that secondary effects need only be cosidered in an EIS when there is a significant primary effect on the physical environment which triggers the EIS requirement. *See infra* notes 231-35 and accompanying text. *See also* Note, *Psychological Effects of NEPA's Threshold*, 83 COL. L. REV. 336, 367 (1983).

52. 40 C.F.R. § 1508.27(b)(1) (1984).

53. *See, e.g.*, Hanly v. Kleindienst, 471 F.2d 823, 830 (2d Cir. 1972) (discussing federal action in terms of adverse effects only), *cert. denied*, 412 U.S. 908 (1973). *But see* Environmental Defense Fund v. Marsh, 651 F.2d 983, 993 (5th Cir. 1981) (beneficial as well as adverse effects must be treated in an EIS).

54. 40 C.F.R. § 1508.27 (1984) (one of the relevant factors in considering in-

In addition to context and intensity, another factor in assessing the significance of an effect is the degree to which a proposed action will cause more or different adverse environmental effects than those caused by existing uses.[55] Proposed action that is similar to the existing uses is less likely to be significant than if the proposed action is a departure from the existing uses.[56] For example, the construction of a tall building in New York City is less likely to be significant than construction of the same building in a small, relatively undeveloped town. Therefore, the extent to which the proposed action deviates from the present use is a relevant factor in determining significance.

In deciding the significance of an environmental effect, the agency should also consider the quantitative adverse environmental effects of the proposed action.[57] The adverse environmental effects from the proposed action must be appraised both individually and cumulatively for their impact on the environment.[58] An adverse environmental effect that is insignificant by itself may become significant when assessed with other environmental effects.[59] For example, the air pollution from a new factory may be insignificant when considered alone, but may be intolerable when added to the air pollution from other factories in the area.[60] Thus, the cumulative impact, the degree of deviation from existing uses, the context, and the intensity of an environmental effect are all relevant factors an agency should consider to determine if the environmental effect is significant. If information about the effect is necessary for an informed decision by the agency, the effect is significant.[61]

The threshold limitation of significance implies a causal connection between the agency action and the significant effect.[62] This causal

---

tensity is the severity of the affect to public health or safety).

55. Hanley v. Kleindienst, 471 F.2d 823, 830 (2d Cir. 1972), *cert. denied*, 412 U.S. 908 (1973). *Hanly* dealt with the construction of a jail in New York City across from two apartment buildings. The court of appeals remanded the case because the EIS prepared by the General Services Administration was inadequate due to its failure to discuss risk of increased crime and a possible drug detoxification center at the jail. *Hanley*, 471 F.2d at 836.

56. *Id.* at 831.

57. *Id.*

58. *Id.*

59. *Id.*

60. *Id.*

61. McGarity, *supra* note 34, at 848.

62. The direct impact on the physical environment need not be significant to trigger an EIS. *See* Note, *The Role of Secondary Impacts Under NEPA*, 6 ENVTL. AFF. 127 (1977). *See also supra* note 51.

relationship is not a "but for" test of causality,[63] but rather is a "likelihood" test.[64] If a proposed action "could"[65] significantly affect the human environment, or has the "potential"[66] to do so, the causal relationship is sufficient to require an EIS.[67] If there is insufficient likelihood that the agency action will cause a significant effect upon the human environment, no EIS is necessary.[68]

The final threshold requirement to trigger the preparation of an EIS is met if the significant effect is on the human environment. The CEQ regulations define "human environment" as "the natural and physical environment and the relationship of people with that environment."[69] Further, the CEQ regulations incorporate the definition of effects into its definition of human environment[70] so that the human environment includes the following effects: "ecological, aesthetic, historic, cultural, economic, social, and health."[71] Thus, health effects are part of the human environment.

Where a proposed action is a major federal action likely to cause a significant effect on the human environment,[72] NEPA's threshold requirements for an EIS are met, and the agency must prepare an EIS.[73] Initially, the agency is concerned with which effects cross

---

63. The "but for" test is met if the effects in issue would not have occurred except for the federal action. PROSSER AND KEETON, THE LAW OF TORTS § 41, 263-72 (1984).

64. *Compare* Duke City Lumber Co. v. Butz, 382 F. Supp. 362 (D.D.C. 1974) (holding that an EIS was unnecessary because the "but for" test was not met because trees could be cut for lumber by big business if not by small business), *aff'd*, 539 F.2d 220 (D.C. Cir. 1976) *with* Scenic Rivers Ass'n v. Lynn, 520 F.2d 240 (10th Cir. 1975), *rev'd on other grounds sub nom.* Flint Ridge Dev. Co. v. Scenic Rivers Ass'n, 426 U.S. 776 (1976) (refusing to use the "but for" test). *See also* McGarity, *supra* note 34, at 857-60.

65. *See* Minnesota Pub. Interest Research Group v. Butz, 498 F.2d 1314, 1320 (8th Cir. 1974).

66. *See* Tierrasanta Community Council v. Richardson, 4 ENVTL. L. REP. 20,309, 20,311 (S.D. Cal. 1973).

67. *See supra* notes 65 and 66.

68. *See* North Dakota v. Andrus, 483 F. Supp. 255, 260 (D.N.D. 1980) (no EIS required because environmental effects of legislative proposal for federal and state cost-sharing on water projects not reasonably foreseeable); Gifford-Hill & Co. v. FTC, 389 F. Supp. 167, 175 (D.D.C. 1974) (where FTC prevented merger of cement manufacturers and the supplier of sand and gravel, the conclusion that prevention of the merger would cause strip mining was too speculative).

69. 40 C.F.R. § 1508.14 (1984).

70. 40 C.F.R. § 1508.14 (1984) (the definition of human environment includes the definition of "effects" in § 1508.8).

71. 40 C.F.R. § 1508.8 (1984).

72. For a fuller discussion of the definition of "human environment," see Shaw and Robichaux, *Council on Environmental Quality: Defining Human Environment*, 16 CAL. W.L. REV. 201 (1980).

73. If an EIS is necessary, the CEQ regulations provide for public and in-

NEPA's threshold to trigger the preparation of an EIS.[74] After the agency decides to prepare an EIS, the agency is concerned with which effects the EIS must include.[75] The CEQ regulations explain that social and economic effects cannot by themselves trigger the need for an EIS.[76] However, if an EIS is prepared, the CEQ regulations require that the EIS include all social and economic effects that are interrelated with effects on the physical environment.[77] Thus, the human environment consists of both effects on the physical environment and socio-economic effects.

Protection of the human environment is the primary purpose of NEPA.[78] The EIS is the primary procedure by which NEPA accomplishes this purpose.[79] NEPA requires that an agency prepare an EIS

---

teragency involvement. Agencies must solicit comments on the draft of an EIS from the public and from appropriate state and federal agencies. 40 C.F.R. § 1503.1 (1984). The agencies have a duty to comment. 40 C.F.R. § 1503.2 (1984). In appropriate cases, public hearings or meetings must be held. 40 C.F.R. § 1506.6 (1984). The agency preparing the EIS must consider the comments made on the drafts EIS, and respond to the comments in a final EIS. 40 C.F.R. § 1503.4 (1984). If subsequent to filing the final EIS, the agency makes substantial changes in the proposed action or if new circumstances or information arise, a supplement to the final EIS must be prepared and circulated. 40 C.F.R. § 1502.9 (1984).

Section 102 of NEPA directs agencies to enforce the policies and procedures of NEPA to the "fullest extent possible." 42 U.S.C. § 4332 (1976). This phrase has been interpreted to mean that an agency may avoid the provisions of NEPA only when compliance is impossible due to a conflict with another statute. *See* Flint Ridge Development Co. v. Scenic Rivers Ass'n, 426 U.S. 776, 791 (1976) (requiring clear conflict of statutory duty). *See also* 40 C.F.R. § 1500.6 (1984).

For an explanation of the judicial review of threshold decisions by an agency concerning the necessity of an EIS, see Shea, *The Judicial Standard for Review of Environmental Impact Statement Threshold Decisions*, 9 B.C. ENVTL. AFF. L. REV. 63 (1980).

74. There must be a significant effect on the human environment to trigger the necessity to prepare an EIS. *See supra* note 51.

75. This has to do with the scope of the EIS, that is the range of effects the EIS will cover. *See* 40 C.F.R. § 1508.25 (1984). *See also supra* note 51.

76. 40 C.F.R. § 1508.14 (1984).

77. *Id.* The CEQ regulations only say that socio-economic effects cannot by themselves trigger an EIS. *Id.* The regulations do not address the issue of whether a primary significant effect on the physical environment is necessary to trigger an EIS. Thus, the regulations do not preclude an insignificant primary effect on the physical environment being coupled with a significant secondary effect from a proposed action to satisfy the threshold to prepare an EIS. *Id. See also supra* note 51.

78. *See supra* notes 26-42 and accompanying text. That the primary purpose of NEPA is to protect the human environment is implied in the fact that the main procedure of NEPA, the EIS, is triggered by significant effects on the human environment. *See also supra* note 13 and accompanying text.

79. *See supra* notes 34-37 and accompanying text.

for proposed agency action that is federal action likely to cause a significant effect on the human environment.[80] The EIS is the means by which the informational purpose of NEPA is satisfied.[81] Moreover, NEPA's ultimate goal of protecting the human environment is attained by requiring informed agency decision-making.[82]

III. NEPA'S SUBSTANTIVE BACKGROUND

While it is a clear purpose of NEPA to protect the human environment through its procedural requirements, the question arises whether NEPA contains any substantive law along with its procedural law.[83] The standard of review for agency decisions under NEPA is discussed first.[84] Next, recent Supreme Court decisions will show the direction the Court is taking in this area.[85] The final discussion involves the importance of the issue.[86]

While section 102[87] of NEPA contains the procedures to implement the policies of section 101,[88] the Act is void of any reference to judicial review.[89] Suppose an agency complies with the procedures of NEPA by filing an EIS for a proposed action with severe environmental effects. In spite of the severe environmental effects, the agency decides to go ahead with the proposal. The question is whether the reviewing court is restricted to looking at whether the agency followed the correct procedures, or whether the reviewing court is allowed to consider whether the agency adequately balanced the priorities in deciding to proceed with the proposal.[90]

The standard of review for non-adjudicatory procedures by agencies under NEPA is given in the case of *Citizens to Preserve Overton*

---

80. *See supra* notes 42-77 and accompanying text.
81. *See supra* notes 34-41 and accompanying text.
82. *See supra* notes 25-41 and accompanying text.
83. *See infra* notes 87-90 and accompanying text.
84. *See infra* notes 91-96 and accompanying text.
85. *See infra* notes 97-115 and accompanying text.
86. *See infra* note 116 and accompanying text.
87. 42 U.S.C. § 4332 (1976). *See supra* notes 25-45 and accompanying text.
88. 42 U.S.C. § 4331 (1976). *See supra* notes 22-33 and accompanying text.
89. 42 U.S.C. §§ 4321-4347 (1976) (NEPA does not discuss judicial review).
90. The distinction being made is between procedural review and substantive review. Suppose an agency decides not to prepare an EIS for a proposed federal action. If on review the court finds fault for the agency's inadequate discussion of reasonable alternatives to the proposed action, the court reverses on procedural grounds. However, if the court finds fault with the value an agency gave a particular alternative that the agency considered in deciding not to prepare an EIS, the court reverses on substantive grounds.

Park, Incorporated v. Volpe.[91] The *Overton Park* test finds all agency action judicially reviewable except where Congress expressly prohibits judicial review, or where a statute is so broad that there is no effective law to apply.[92] Congress does not expressly prohibit judicial review in NEPA.[93] If the policies and purposes found in section 101 of NEPA which protects the human environment are not too broad to be construed by courts as constituting no applicable law under the *Overton Park* test, NEPA may allow for substantive judicial review of agency action. If NEPA allows for substantive judicial review of agency action, the standard of review under Section 701 of the Administrative Procedure Act[94] is whether the agency action was "arbitrary and capricious."[95] However, the United States Supreme Court has held that the requirements of NEPA are essentially procedural.[96]

The Supreme Court addressed the issue of whether NEPA affords substantive review in the case of *Strycker's Bay Neighborhood Council, Incorporated v. Karlen.*[97] The case dealt with the site for a low-income housing project financed by the Department of Housing and Urban Development.[98] The United States Court of Appeals for the Second Circuit held that environmental factors, such as the concentration of low-income housing into an area, should be given determinative weight.[99] In reversing, the Supreme Court held that NEPA only requires consideration of environmental consequences by an agency.[100]

One could argue that the Supreme court limited NEPA to procedural law in *Strycker's Bay*. However, in a footnote, the Court noted that it might recognize substantive law in NEPA if an agency acted in an "arbitrary and capricious" manner.[101] In *Strycker's Bay*, the Court

---

91. 401 U.S. 402 (1971).

92. Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402, 410 (1971) (dealt with the Secretary of Transportation's decision to fund a state highway through a park when federal law prohibited such action if reasonable alternatives existed).

93. *See supra* note 89.

94. Administrative Procedure Act, 5 U.S.C. § 701-706 (1976).

95. Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402, 414 (1971) (the "arbitrary and capricious" standard is the most deferential to an agency because the agency must act in a manner that is clearly wrong to violate the "arbitrary and capricious" standard).

96. Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 435 U.S. 519, 558 (1978).

97. 444 U.S. 223 (1980) (per curiam).

98. *Id.* at 223-24.

99. *Id.* at 227.

100. *Id.*

101. "If we could agree with the dissent that the Court of Appeals held that

held that the agency had not acted arbitrarily and capriciously.[102] Thus, *Strycker's Bay* held that a reviewing court may not raise environmental concerns over other legitimate concerns under NEPA.[103]

The Supreme Court gave its most recent holding on judicial review under NEPA in *Baltimore Gas and Electric Company v. Natural Resources Defense Council, Incorporated.*[104] In that case, the Natural Resources Defense Council questioned the assumption of the NRC in licensing a nuclear power plant; the NRC assumed that the storage of the spent fuel from the reactor would have no significant impact on the environment because technology would be developed to safely store the waste.[105] The Court of Appeals for the District of Columbia on review held that the NRC had acted "arbitrarily and capriciously" in its estimation of the uncertainty as to storing the hazardous waste from the reactor.[106] The Supreme Court reversed.[107]

The Court held that the NRC had not acted "arbitrarily and capriciously."[108] Further, the Court invoked the rule that agencies must be given great deference when acting within their area of expertise.[109] The Court cautioned that agencies must take a "hard look" at the environmental consequences of proposed action but held they need not give priority to environmental concerns over other appropriate considerations.[110] The role of a reviewing court under NEPA is not to decide how the agency should have ruled.[111] Instead, the Court held that the role of a reviewing court is to make sure that the agency adequately considered and disclosed the environmental effects of federal actions and that the agency decision is not arbitrary and capricious.[112]

In view of the Court's discussions of arbitrary and capricious agency actions under NEPA, it appears that substantive judicial review under

---

HUD had acted 'arbitrarily' in redesignating the site for low-income housing, we might also agree that plenary review is warranted." *Id.* at 228.

102. *Id.*

103. *Id.* at 227. *See also* Note, *Judicial Review of Agency Decisions Under the National Environmental Policy Act of 1969—Strycker's Bay Neighborhood Council, Inc. v. Karlen*, 10 B.C. ENVTL. AFF. L. REV. 79 (1982).

104. 103 S. Ct. 2246 (1983).

105. *Id.* at 2249-52.

106. *Id.* at 2252.

107. *Id.* at 2258.

108. *Id.* at 2249.

109. *Id.* at 2256.

110. *Id.* at 2253.

111. *Id.*

112. *Id.*

NEPA still exists.[113] While the Court theoretically recognizes substantive judicial review under NEPA, it has refused to overturn any agency action or decision on substantive grounds under NEPA.[114] Thus, the Court has not brought substantive NEPA review out of the theoretical and into the practical. With the Court's present deference to agency expertise and its essentially procedural interpretations of NEPA, the Court is not likely to find that an agency acted arbitrarily and capriciously such that substantive judicial review under NEPA becomes a reality.[115]

In order to protect the human environment, however, it is important that NEPA have substantive judicial review. Without substantive law, NEPA becomes merely procedure which informs the agency and the public of a proposed action's potential harm to the human environment. If the agency chooses to institute the proposed action after considering the harm to the human environment, the courts are powerless to prevent the agency from doing so unless NEPA has substantive law. While it is true that the public will be informed of the proposed agency action, the action may be completed and the human environment harmed before the public can organize to prevent the harm. Information concerning the potential harm is useless in protecting the human environment if an agency may consider it without being forced to adjust its actions accordingly. Substantive judicial review under NEPA would give the courts the power to protect the human environment by insuring that agencies give the proper consideration to environmental concerns.[116]

NEPA seems to meet the *Overton Park* test such that NEPA allows substantive judicial review of agency action.[117] The Supreme Court recognizes substantive judicial review under NEPA as theoretically existing.[118] However, the Court has never upheld the reversal

---

113. *See supra* note 101 and accompanying text.

114. *See* Strycker's Bay Neighborhood Council, Inc. v. Karlen, 444 U.S. 223 (1980) (per curiam). *See supra* notes 97-103 and accompanying text. *See also* Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 103 S. Ct. 2246 (1983). *See supra* notes 104-12 and accompanying text.

115. The reluctance of the Supreme Court to recognize substantive judicial review makes it more likely that district courts will find an EIS inadequate rather than overturn an agency decision on substantive grounds. This is because the appellate courts are more likely to reverse a district court that overturns an agency decision on substantive grounds than a district court that rules the agency EIS is inadequate.

116. There is a tension between a court giving deference to the expertise of the agency and substituting the court's priorities for the agency's priorities in the decision.

117. *See supra* notes 91-96 and accompanying text.

118. *See supra* notes 97-115 and accompanying text.

of an agency's decision on substantive grounds.[119] If NEPA is to accomplish its purpose of protecting the human environment, NEPA must have substantive judicial review.[120]

IV. THE JUDICIAL TREATMENT OF ENVIRONMENTAL EFFECTS PRIOR TO *PANE*

The human environment encompasses both physical and socio-economic aspects that may be affected by proposed agency action. While it was clear before *PANE* that significant effects on the physical environment triggered an EIS, it was not clear that significant socio-economic effects could trigger the need for an EIS when the significant socio-economic effects were not accompanied by significant effects on the physical environment. Courts were reluctant to require an EIS in these instances.[121] In the past, courts charactized socio-economic effects as "unquantifiable,"[122] as outside the ecological limits of NEPA,[123] and as lacking association with a significant primary effect on the physical environment.[124]

Because socio-economic effects are not easily quantified, courts have allowed their exclusion from an agency's determination whether to prepare an EIS.[125] In *Hanly v. Kleindienst*,[126] the General Services Administration decided not to prepare an EIS based on the environmental assessment of the proposed action. The proposed action was the construction of a federal jail across from two apartment buildings

---

119. *See supra* notes 97-115 and accompanying text.

120. *See supra* note 116 and accompanying text.

121. *See* Image of Greater San Antonio v. Brown, 570 F.2d 517 (5th Cir. 1978); Breckinridge v. Rumsfeld, 537 F.2d 864 (6th Cir. 1976), *cert. denied*, 429 U.S. 1061 (1977); Nucleus of Chicago Homeowners Ass'n v. Lynn, 524 F.2d 225 (7th Cir. 1975), *cert. denied*, 424 U.S. 967 (1976); Maryland-National Capital Park and Planning Comm'n v. United States Postal Serv., 487 F.2d 1029 (D.C. Cir. 1973); Monarch Chem. Works, Inc. v. Exon, 466 F. Supp. 639 (D. Neb.), *aff'd sub nom.* Monarch Chem. Works. Inc. v. Thone, 604 F.2d 1083 (8th Cir. 1979).

122. *See* Hanley v. Kleindienst, 471 F.2d 823 (2d Cir. 1972), *cert. denied*, 412 U.S. 908 (1973). *See also infra* notes 125-30 and accompanying text.

123. *See* Image of Greater San Antonio v. Brown, 570 F.2d 517 (5th Cir. 1978). *See also infra* notes 131-33 and accompanying text.

124. *See* Como-Falcon Community Coalition v. United States Dept. of Labor, 609 F.2d 342 (8th Cir. 1979), *cert. denied*, 446 U.S. 936 (1980). *See also infra* notes 136-38 and accompanying text.

125. *See Hanly v. Kleindienst*, 471 F.2d 823, 833 (2d Cir. 1972), *cert. denied*, 412 U.S. 908 (1973). *See also* Trinity Episcopal School Corp. v. Romney, 387 F. Supp. 1044, 1079 (S.D.N.Y. 1974) (citing *Hanly* and holding that objective analysis of sociological and psychological effects is difficult), *cert. denied*, 424 U.S. 967 (1976).

126. 471 F.2d 823 (2d Cir. 1972), *cert. denied*, 412 U.S. 908 (1973).

in New York City.[127] The *Hanly* court found that the plaintiff's allegations were based on personal distaste for living near a jail instead of factual disagreements with the agency's environmental assessment.[128] In dicta, the United States Court of Appeals for the Second Circuit doubted whether the sociological and psychological effects on neighbors of the jail could be measured.[129] Because non-ecological effects are difficult to measure, they were not required in agency determinations of whether an EIS is necessary.[130]

Parallel to the view that socio-economic effects are nonquantifiable is the theory that NEPA is directed toward the natural environment as opposed to socio-economic effects.[131] This theory suggests that NEPA's aim is in preventing environmental effects such as pollution or depletion of natural resources,[132] but not effects such as unemployment[133] or the influx of low-income people into an area.[134] To

---

127. *Hanly*, 471 F.2d at 826.

128. *Id.* at 833. The General Services Administration prepared an environmental assessment stating that no EIS was required because there were no significant environmental impacts. *Id.*

129. The court of appeals did not have to address the issue of sociological and psychological effects of a jail on local residents because there was already a jail in the community. *Id.* at 833. However, the court of appeals did remand the case to the General Services Administration for its failure to consider the possibility of increased crime and for its inadequate discussion of the non-resident out-patient observation program. *Id.* at 834.

130. The fact that non-ecological effects are difficult to measure is not a legitimate reason for agencies to exclude them from a determination of whether to prepare an EIS because NEPA expressly directs agencies to consider effects that are difficult to measure, 42 U.S.C. § 4331(b) (1976), and to develop procedures to give these effects proper consideration, 42 U.S.C. § 4332(2)(B) (1976). Examples of non-ecological effects are aesthetic, historic, economic, cultural and social effects. 40 C.F.R. § 1508.8 (1984).

131. *See* Image of Greater San Antonio v. Brown, 570 F.2d 517, 522 (5th cir. 1978) (the reduction in force at a military base is not an effect on the natural environment, and thus cannot trigger an EIS under NEPA); National Ass'n of Gov't Employees v. Rumsfeld, 418 F. Supp. 1302, 1306 (E.D. Pa. 1976) (the importance of secondary effects under NEPA is their possible indirect effect on the "resource base").

132. *See* Image of Greater San Antonio v. Brown, 570 F.2d 517, 522 (5th Cir. 1978) (NEPA's primary concern is with physical environmental resources); National Ass'n of Gov't Employees v. Rumsfeld, 418 F. Supp. 1302, 1306 (E.D. Pa. 1976) (the importance of secondary effects under NEPA is their possible indirect effect on the "resource base").

133. *See* Breckinridge v. Rumsfeld, 537 F.2d 864, 867 (6th Cir. 1976) (the environmental goals of NEPA do not include social problems like unemployment), *cert. denied*, 429 U.S. 1061 (1977).

134. *See* Maryland-National Capital Park & Planning Comm'n v. United States Postal Serv., 487 F.2d 1029, 1037 (D.C. Cir. 1973) (The court feared that someone could argue that the influx of low-income people into an area could technically be considered

avoid the danger that NEPA would be used to prevent the influx of "undesirable" people into a neighborhood,[135] courts have defined NEPA as being concerned with the natural environment.

Stemming from the theory that NEPA's concern is with the natural environment is the view that in order for socio-economic effects to be within NEPA's purview, they must be accompanied by a primary significant effect on the physical environment.[136] Under this view, socio-economic effects cannot trigger the need for an EIS no matter how severe they might be unless there is also some primary significant effect on the physical environment.[137] Accordingly, socio-economic effects should be included in an EIS only if there is a primary significant effect on the physical environment which triggers an EIS.[138] By requiring a primary significant effect on the physical environment to trigger an EIS, this view emphasizes NEPA's concern with the natural environment.

---

an impact on the environment because an influx of people increase the noise, sewage, and traffic of a community. Thus, allowing socio-economic effects to trigger an EIS would allow the use of NEPA to prevent the influx of people into the area.).

135. *Id.*

136. *See* Como-Falcon Community Coalition v. United States Dep't of Labor, 609 F.2d 342, 346 (8th Cir. 1979) (where the only change in the physical environment is the reconditioning of existing buildings for use as a jobs center, socio-economic effects are not cognizable), *cert. denied*, 446 U.S. 936 (1980); Image of Greater San Antonio v. Brown, 570 F.2d 517, 522 (5th Cir. 1978) (absent an impact on the physical environment, the reduction in force at a military base is insufficient to trigger an EIS); Breckinridge v. Rumsfeld, 537 F.2d 864, 866 (6th Cir. 1976), *cert. denied*, 429 U.S. 1061 (1977) (an EIS need address factors other than physical environmental effects only when there is an effect on the physical environment); Nucleus of Chicago Homeowners Ass'n v. Lynn, 524 F.2d 225, 231 (7th Cir. 1975), *cert. denied*, 424 U.S. 967 (1976) (the sociological factors concerning an influx of people into a community are insufficient alone to require an EIS); Monarch Chem. Works, Inc. v. Exon, 466 F. Supp. 639, 656 (E.D. Neb.) (no consideration of secondary impacts required where correctional facility will have no direct significant effect on the physical environment), *aff'd sub nom.* Monarch Chem. Works, Inc. v. Thone, 604 F.2d 1083 (8th cir. 1979); James v. Tennessee Valley Auth., 538 F. Supp. 704, 709 (E.D. Tenn. 1982) (socio-economic effects are insufficient to trigger preparation of an EIS where there are no significant impacts on the physical environment).

137. *Id.*

138. *See* Chelsea Neighborhood Ass'ns v. United States Postal Serv., 516 F.2d 378, 388 (2d Cir. 1975) (requiring an EIS to assess the emotional response to isolation for tenants in a proposed apartment complex above a postal facility); National Ass'n of Gov't Employees v. Rumsfeld, 418 F. Supp. 1302, 1306 (E.D. Pa. 1976) (requiring inclusion of socio-economic effects when an EIS is triggered by a significant primary effect on the environment). *But see* Strycker's Bay Neighborhood Council, Inc. v. Karlen, 444 U.S. 223 (1980) (per curiam) (density of low-income housing is an environmental effect); McDowell v. Schlessinger, 404 F. Supp. 221 (W. D. Mo. 1975) (requiring an EIS for the socio-economic effects of closing a military base in the absence of any significant primary effect on the physical environment); Tierrasanta Community Council v.

While courts have been reluctant to define socio-economic effects as environmental effects capable of triggering an EIS, courts have been less reluctant to define health effects as environmental effects capable of triggering an EIS.[139] Psychological effects seem similar to socio-economic effects because they too generally occur indirectly from agency action. Moreover, psychological effects seem similar to socio-economic effects because psychological effects are subjective and require human perception before they can be realized. However, psychological effects are also health effects because they affect the well-being of humans. Since psychological effects are similar to socio-economic effects, a court might not allow a significant psychological effect to trigger an EIS. However, since psychological effects are also health effects, a court might hold that psychological effects can trigger an EIS. In *Metropolitan Edison Company v. People Against Nuclear Energy (PANE)*,[140] the Supreme Court addressed the issue of when psychological effects are cognizable under NEPA.

V. *PANE'S* STANDARD

PANE[141] stemmed from the nuclear accident at Three Mile Island. On March 28, 1979, while Metropolitan Edison's Three Mile Island Unit 1 (TMI-1) was inoperative for refueling, Metropolitan Edison's Three Mile Island Unit 2 (TMI-2) caused the worst nuclear accident in American history.[142] The Nuclear Regulatory Commission

---

Richardson, 6 ENV'T REP. CAS. (BNA) 1065 (S.D. Cal. 1973) (requiring an EIS for the significant effects of a federal youth facility in a planned residential area even though the ecological effects were not significant).

139. *See* Southern Oregon Citizens Against Toxic Sprays v. Watt, 13 ENVTL. L. REP. 20,174, 20,175 (D. Or. 1982) (requiring an EIS for health risks posed by herbicide spraying); National Pork Producers Council v. Bergland, 484 F. Supp. 540 (S.D. Iowa), *rev'd on other grounds*, 631 F.2d 1353 (8th Cir. 1980) (striking a rule by the Department of Agriculture allowing the increased sale of uncured meat because of the potential public health effect in spite of the fact that the rule had no other environmental aspect).

140. 103 S. Ct. 1556 (1983).

141. *Id.*

142. People Against Nuclear Energy v. United States Nuclear Regulatory Comm'n, 678 F.2d 222, 223 (D.C. Cir. 1982) [hereinafter cited as *PANE v. NRC*]. The accident began when the pumps which supply water to the steam generators did not operate. Without water, there soon would be no steam. Therefore, the automatic safety system shut off the steam turbine. The temperature and pressure within the reactor began to rise. A relief valve opened allowing steam and water to drain out of the reactor and onto the floor of the containment building. The reactor scrammed because of the rise in pressure, which means the reactor halted nuclear fission so that pressure within the reactor coolant system could drop. While the panel light indicated that

(NRC) ordered TMI-1 to remain inactive until a proceeding to insure its safe operation could be held.[143] People Against Nuclear Energy (PANE), an organization of local residents, intervened in the TMI-1 restart proceeding.[144] PANE contended that the NRC should consider both the psychological distress to individuals and the harm to the community as a whole in an EIS before deciding to restart TMI-1.[145] In a split decision, the NRC ruled that psychological distress and community deterioration need not be assessed in deciding whether to restart TMI-1.[146]

On review, the United States Court of Appeals for the District of Columbia held that psychological effects are cognizable under NEPA.[147] The court reasoned that since health effects are cognizable under NEPA, and since psychological effects are health effects, psychological effects must be cognizable under NEPA.[148] The court limited the inclusion of psychological effects within NEPA's purview to cases of "post-traumatic" anxieties.[149] Thus, the court of appeals excluded any possible future claims of fear of increased crime, reduced property values, or changed neighborhood character by a plaintiff hoping to prevent the influx of people into an area.[150] The court viewed

---

the relief valve had closed, the relief valve remained open allowing water to drain from the reactor. As much as two-thirds of the reactor core was uncovered. This was a near nuclear core meltdown. This is a very brief summary of the accident taken from THE REPORT OF THE PRESIDENT'S COMMISSION ON THE ACCIDENT AT THREE MILE ISLAND, THE NEED FOR CHANGE: THE LEGACY OF TMI (1979).

143. *PANE v. NRC*, 678 F.2d 223 (D.C. Cir. 1982).

144. *Id.* The NRC asked interested parties to respond before it made a decision on the restart of TMI-1. PANE accepted the invitation. *Id.*

145. *Id.* at 224. PANE argued that the accident at TMI-2 caused anxiety and fear in people in the community which manifested itself in physical disorders like skin rashes and ulcers. To allow restart of TMI-1 after the accident at TMI-2, PANE contended, would aggravate the psychological stress incurred by the people around Three Mile Island. PANE contended that this psychological distress was cognizable under NEPA, and the NRC should therefore consider it in an EIS. *Id.* at 226-27. The NRC licensing board agreed with PANE that the NRC should consider psychological distress in deciding whether to restart TMI-1. *Id.* at 224.

146. *Id.* at 224-25.

147. *Id.* at 229.

148. *Id.* at 229-30.

149. *Id.* at 229. The court of appeals uses "post-traumatic" psychological health effects to describe the psychological aftermath that the residents near Three Mile Island suffered after the accident. To be "post-traumatic," psychological effects must occur after a very threatening event. *Id.* at 228. A war, a flood, a nuclear accident, and an earthquake would all be examples of events threatening enough to cause psychological effects on the public at large. Thus, "post traumatic" restricts the inclusion of psychological effects to very unique events. *Id.* at 229.

150. *Id.* at 229. *See supra* note 135 and accompanying text.

PANE's contention that restart of TMI-1 would cause deterioration of the community as a classical secondary effect which need only be considered if an EIS was found to be necessary.[151] The court then classified the psychological effects caused by the restart of TMI-1 as post-traumatic anxieties cognizable under NEPA.[152]

In a unanimous decision, the United States Supreme Court reversed the court of appeals.[153] The Supreme Court held that the NRC need not consider PANE's contention of psychological distress under NEPA.[154] In reversing, the Court reasoned that the court of appeals failed to consider the relationship between the change in the physical environment caused by the restart of TMI-1 and the psychological effects alleged by PANE.[155] According to the Court, whether an effect is cognizable under NEPA depends upon the existence of a change in the physical environment.[156] Since the psychological distress which PANE alleged resulted from the risk of a nuclear accident, the Court held that NEPA did not recognize PANE's psychological distress. Risk of an accident is not a change in the physical environment.[157] Therefore, the Court held that NEPA did not recognize PANE's psychological distress because it did not stem from a change in the physical environment.[158]

The Supreme Court stated an additional reason for disallowing PANE's psychological distress under NEPA. For an environmental

---

151. *PANE v. NRC*, 678 F.2d at 230. The court of appeals remanded the case to the NRC so that the NRC could determine if a supplement EIS was required for the restart of TMI-1. *Id.* at 235. Since the original EIS prepared when TMI-1 went into operation contained accurate information, the NRC must prepare a supplemental EIS only if the original EIS could be significantly improved with current information. An agency must file a supplement to the original EIS if "the agency makes substantial changes in the proposed action that are relevant to environmental concerns; or if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(c) (1984). While the threshold for a supplemental EIS is different than the threshold for an EIS, this difference is not crucial to determining if and when psychological effects are cognizable under NEPA.

152. *PANE v. NRC*, 678 F.2d at 229-30.

153. *PANE*, 103 S. Ct. at 1563-64.

154. *Id.*

155. *Id.* at 1560.

156. *Id.* at 1561. "To determine whether § 102 requires consideration of a particular effect, we must look at the relationship between that effect and the change in the physical environment caused by the major federal action at issue." *Id.*

157. *Id.* at 1561-62.

158. *Id.* at 1561. The changes in the physical environment from the restart of TMI-1 include releases of low-level radiation, increased fog in the Harrisburg area, and the release of warm water into the Susquehanna River. *Id.*

effect to be cognizable, NEPA requires a "reasonably close causal relationship between a change in the physical environment and the effect at issue."[159] In the chain of causality between the restart of TMI-1 and the health effects of psychological distress, risk of an accident at TMI-1 and people's perception of that risk are necessary middle links.[160] The Supreme Court held "that the element of risk lengthens the causal chain beyond the reach of NEPA."[161] According to the Supreme Court, agencies need not consider the effects of risk *qua* risk under NEPA.[162] Since PANE's contention of psychological distress is an effect of risk of a nuclear accident, it was held to be too remote to fall within NEPA.[163]

In *PANE*, the Supreme Court defined "environmental effect" within the context of NEPA.[164] There are two requirements for an effect to qualify as an environmental effect under NEPA.[165] First, there must be a change in the physical environment which produces the effect in question.[166] Second, there must be a "reasonably close causal relation" between the change in the physical environment and the

---

159. *PANE*, 103 S. Ct. at 1561. "This requirement is like the familiar doctrine of proximate cause from tort law." *Id.*

160. *Id.* at 1562.

161. *Id.* The Court stated that risk is part of the price people pay to live in an advanced society. *Id.*

162. *Id.* at 1563. "If a harm does not have a sufficiently close connection to the physical environment, NEPA does not apply." *Id.*

163. *Id.* The Supreme Court drew a distinction between considering effects that will occur if a risk is realized, which an agency must consider, such as the effects of an actual accident at TMI-1, and effects caused by the risk of an accident which the agency need not consider, such as the psychological effects alleged by PANE. *Id.* at 1561 n.9.

164. *Id.* at 1561. The Court uses general language applying to all effects to define an "environmental effect" under NEPA. Thus, the language of the Court does not restrict the *PANE* standard to psychological health effects. *PANE* is the standard to determine if an effect is an environmental effect, thereby falling under NEPA.

> To detemrine whether § 102 requires consideration of a particular effect, we must look at the relationship between that effect and the change in the physical environment caused by the major federal action at issue . . . .
>
> Our understanding of the Congressional concerns that led to the enactment of NEPA suggests that the terms 'environmental effect' and 'environmental impact' in § 102 be read to include a requirement of a reasonably close causal relationship between a change in the physical environment and the effect at issue.

Id. at 1561. The language of the Court shows that the Court intended to define all environmental effects cognizable under NEPA.

165. *Id.*

166. *Id.*

effect in question.[167] If an effect meets these two requirements of *PANE*, the effect is an environmental effect under NEPA.[168]

The Supreme Court gave several reasons for defining environmental effect under NEPA so as to exclude PANE's psychological distress. First, the Court believed that in NEPA Congress intended to protect the environment by concentrating on the physical environment.[169] Thus, NEPA should not be expanded to include agency action which has no effect on the physical environment.[170] Secondly, the Court was concerned that agencies would not be able to function efficiently

---

167. *Id.*

168. The importance of an effect meeting the *PANE* standard is its being defined as an environmental effect. As an environmental effect, an effect is cognizable under NEPA. Thus, an effect that is defined as environmental has the capability of triggering an EIS. Therefore, the significance of the *PANE* standard is in defining what effects trigger the need for an EIS.

While the main significance of *PANE* is in defining the effects that trigger an EIS, *PANE* will also determine the content of an EIS. An effect which does not meet the *PANE* definition of an environmental effect will not have to be included in an EIS. Suppose the proposed action is building a nuclear reactor. *PANE* stands for not allowing psychological health effects from the fear of risk of an accident to trigger an EIS. *PANE* , 103 S. Ct. at 1563. *See also id.* at 1561 n.9. *PANE* also excludes these psychological health effects from NEPA's definition of environmental effect. *Id.* at 1561-62. Thus, even if an EIS is prepared for the proposed reactor, the content of the EIS need not include psychological health effects from the fear of a risk being realized because these psychological health effects are not environmental effects under NEPA. *PANE* held that the effects of risk need not be addressed. Thus, *PANE* will affect the scope of an EIS as well as the effects that may trigger an EIS.

169. *PANE*, 103 S. Ct. at 1560-61. The Court's intention to protect the environment by emphasizing the physical environment is apparent in the following passage.

> NEPA does not require the agency to assess *every* impact or effect of its proposed action, but only the impact or effect on the environment . . . . But we think the context of the statute shows that Congress was talking about the physical environment—the world around us, so to speak. NEPA was designed to promote human welfare by alerting governmental actors to the effect of their proposed actions on the physical environment . . . .
>
> Thus, although NEPA states its goals in the sweeping terms of human health and welfare, these goals are *ends* that Congress has chosen to pursue by *means* of protecting the physical environment.

Id.

170. *Id.* By expanding NEPA to include agency action that has no effect on the physical environment, NEPA would be expanded to include minimum wage proposals and medicare cutbacks. These are examples of agency actions taken in response to economic pressures. They affect people, but not the physical environment. However, if NEPA did not require that the agency action have some effect on the physical environment, NEPA would require an EIS for all proposed agency action with significant effects including minimum wage proposals and medicare cutbacks. Ridiculous as that may seem, that is the result if NEPA is not limited to agency actions which have some effect on the physcial environment.

if psychological distress caused by risk was cognizable under NEPA.[171] The Court's fear was that agencies would have to develop psychiatric expertise.[172] The necessity for psychiatric expertise might reduce agency resources below the necessary level to adequately protect the physical environment.[173] Finally, the Court believed that opening the door to psychological stress from risk would allow disagreements with the policy behind proposed federal action to enter under the guise of fear.[174] For these reasons, the Supreme Court defined "environmental effect" so that it excluded PANE's psychological distress.

VI. EFFECTS OF *PANE* STANDARD

The *PANE* standard is unsatisfactory for several reasons. First, the *PANE* standard is too restrictive because it excludes from NEPA the psychological distress from the fear of a high-consequence risk occurring.[175] Second, the standard inappropriately distinguishes health effects from environmental effects.[176] Third, the *PANE* standard will lead to an arbitrary determination of which effects from a proposed action fall within NEPA.[177] Finally, the *PANE* standard invokes the theory of proximate cause, which is not suited to the purpose of NEPA.[178] For these reasons, the *PANE* standard is inadequate.

The effect of *PANE* on psychological distress is clear. For psychological distress to be cognizable under NEPA, the psychological distress must be from a proposed federal action which causes a change

171. *Id.* at 1562.
172. *Id.*
173. *Id.*
174. *Id.* at 1563. "It would be extraordinarily difficult for agencies to differentiate between 'genuine' claims of psychological health damage and claims that are grounded solely in disagreement with democratically adopted policy." *Id.* For example, if psychological stress from risk were cognizable under NEPA, psychological stress from fear of risk of increased crime would also be cognizable. *Id.* at 1562. Thus, it would be possible for a plaintiff to claim psychological stress from the fear of increased crime in an attempt to block the construction of a jail in his neighborhood. The Court believed that attempts to frustrate political policy could not be separated from legitimate psychological distress claims. *Id.*

There are three responses to the Court's position. First, courts routinely look behind the intent of the parties to distinguish between legitimate and insincere claims. Second, the agency need not attach any particular weight to the psychological effects. Finally, there will probably be overriding benefits which in fact outweigh the psychological effects, such as the utility of the federal action.

175. *See infra* notes 179-92 and accompanying text.
176. *See infra* notes 193-203 and accompanying text.
177. *See infra* notes 206-07 and accompanying text.
178. *See infra* notes 208-12 and accompanying text.

in the physical environment, and must be proximately related to the change in the physical environment.[179] This is a broad standard in the sense that it may recognize psychological health effects under NEPA. It is narrow, however, in the sense that it is extremely difficult for psychological health effects to meet the requirements of *PANE*. *PANE* excludes from NEPA's purview all psychological distress caused by risk.[180] Thus, *PANE* prevents the recognition, under NEPA, of the psychological distress from the fear of a low-probability event that would cause severe consequences if the event occurred.[181]

An illustration of how *PANE* may exclude from NEPA's cognizability the psychological distress resulting from fear of an event is provided by the Second Circuit Court of Appeals' decision in *City of New York v. United States Department of Transportation*.[182] In that case, the Department of Transportation (Department) attempted to route the shipment of hazardous waste by highway through New York City.[183] The Department's route conflicted with a New York City regulation prohibiting the transportation of large quantities of radioactive material through densely populated areas.[184] The United States District Court for the Southern District of New York held that the Department should have considered the psychological effect on the public of routing large quantities of hazardous waste through the city.[185] The district court reasoned that the transportation of hazardous waste is the type of low-probability, high-consequence[186] event which would arouse public anxiety.[187] The court of appeals reversed the district

179. *PANE*, 103 S. Ct. at 1561. *See supra* notes 147-73 and accompanying text.

180. *PANE*, 103 S. Ct. at 1563. *See supra* notes 159-63 and accompanying text.

181. Events which have a low-probability of occurring but if they occur have severe consequences are referred to as "low-probability, high-consequence" events. Examples of such events are an accident at a nuclear reactor or the transportation of hazardous waste through a city. *See* New York City v. United Dep't of Transp., 539 F. Supp. 1237, 1273-74 (S.D.N.Y. 1982), *rev'd*, 715 F.2d 732 (2d Cir. 1983), *cert. denied*, 104 S. Ct. 1403 (1984).

182. 715 F.2d 732 (2d Cir. 1983), *cert. denied*, 104 S. Ct. 1403 (1984).

183. 715 F.2d at 737.

184. *Id.* The New York City ordinance prohibited the transport of certain radioactive materials and large quantities of all radioactive material through the City. *See* N.Y.C. Health Code § 175.111. The ordinance made an exception for emergency situations which the Commissioner authorized. *Id.* The Department ruled that the City's ordinance was consistent with federal law and the Department's own regulations. 43 Fed. Reg. at 16,954 (1978).

185. City of New York v. United States Dep't of Transp., 539 F. Supp. 1237, 1273-74 (S.D.N.Y. 1982), *rev'd*, 715 F.2d 732 (2d Cir. 1983), *cert. denied*, 104 S. Ct. 1403 (1984).

186. *See supra* note 181 for a definition of low-probability, high-consequence event.

187. City of New York v. United States Dep't of Transp., 539 F. Supp. 1237,

court on this issue, holding that ". . . the Supreme Court has determined that fear is not a cognizable environmental impact under NEPA."[188]

As this case illustrates, *PANE's* effect is to exclude from NEPA's purview all psychological health effects resulting from fear of an event occurring. However, it is the fear of the possible occurrence of a catastrophic event that is most likely to cause psychological distress. By considering psychological distress from the fear of the risk of a disastrous event occurring, the agency could reduce the fear of the public.[189] This consideration would also allow the public to inform the agency of the public's willingness to accept a particular risk.[190] The Supreme Court's refusal to recognize as within NEPA the psychological stress from the fear of risk means that the public must endure the fear associated with the risk of a catastrophic event occurring without the opportunity of informing the agency of their willingness to bear the risk.

By excluding psychological health effects from the fear of risks being realized, the Supreme Court excluded an essential part of what it means to be human from the human environment. The purpose of NEPA is to protect the human environment.[191] Humans are obviously a part of the human environment. Fear which causes psychological stress is a human emotion.[192] Fear is then an essential part of being human. Thus, fear is a part of the human environment. Therefore, when the Supreme Court excluded from NEPA the recognition of psychological stress caused by the fear of a risk being realized, the Court

---

1273-74 (S.D.N.Y. 1982), *rev'd*, 715 F.2d 732 (2d Cir. 1983), *cert. denied*, 104 S. Ct. 1403 (1984).

188. City of New York v. United States Dep't of Transp., 715 F.2d 732, 751 (2d Cir. 1983), *cert. denied*, 104 S. Ct. 1403 (1984). Actually, the Supreme Court held that fear of risk is not cognizable under NEPA. *See supra* notes 159-63 and accompanying text. The fear experienced by people after a risk is realized would fall under NEPA. For example, the fear experienced by the public if an accident at a nuclear reactor occurred would be cognizable under NEPA. Thus, an agency would have to consider the fear that results if a risk is realized. *See supra* note 163.

189. *See* Note, *supra* note 51, at 375 ("Truly unwarranted fears may be alleviated, for example, by involving the public in the decision process.").

190. Kellman, *Anxiety Over the TMI Accident: An Essay on NEPA's Limits of Inquiry*, 51 GEO. WASH. L. REV. 219, 251-52 (1983).

191. One of the primary purposes of NEPA must be to protect the human environment because the threshold for an EIS is only concerned with "effects on the human environment." 42 U.S.C. § 4332(2)(C) (1976). *See supra* note 13.

192. *Flugel*, MAN, MORALS AND SOCIETY: A PSYCHO-ANALYTICAL STUDY 304 (1945).

excluded an essential part of being human from the human environment.

If psychological health effects from the fear of risk may be excluded from cognizability under NEPA, other health effects could also be excluded.[193] *PANE* applies to all environmental effects not just psychological health effects.[194] The *PANE* standard distinguishes between health effects and environmental effects.[195] By emphasizing the requirement of the *PANE* standard that there be a change in the physical environment,[196] health effects could be excluded from cognizability under NEPA.[197]

The following hypothetical illustrates how health effects could be excluded from recognition under NEPA.[198] Suppose the Forest Service intended to spray a particular herbicide in a forest to control vegetation. While the herbicide has caused no adverse health effects to humans in the past, there is conflict in the scientific community as to whether the herbicide will cause adverse health effects to humans who come in contact with it.[199] Use of the herbicide is the proposed action. It produces the physical change of destruction of vegetation.[200]

---

193. *See* Comment, *Metropolitan Edison Co. v. People Against Nuclear Energy and the Cognizability of Psychological Stress Under NEPA: A Stress Test for the United States Supreme Court*, 1983 DET. C. L. REV. 943, 961 (1983).

194. *See supra* note 163.

195. Dougherty, *The Application of NEPA to Agency Actions Affecting Human Health*, 13 ENV'T L. REP. 10,179, 10,185 (1983). This is a curious distinction. Humans are part of the environment. Health effects affect humans. It seems impossible to say health effects are not part of the environment.

196. A court would emphasize the requirement that there be a change in the physical environment by requiring a signficant primary effect on the physical environment before the need for an EIS is triggered. This note refers to this approach as the restrictive alternative. *See infra* notes 226-30 and accompanying text.

197. *See* Comment, *supra* note 193, at 961 (This Comment sets forth a hypothetical of a technology which does not affect the physical environment but is disastrous to human health).

198. This example is modeled after Citizens Against Toxic Sprays v. Bergland, 428 F. Supp. 908 (D. Or. 1977).

199. In the actual case, some of the herbicides to be used contained dioxin which is now known to be very toxic to humans. Citizens Against Toxic Sprays v. Bergland, 428 F. Supp. 908, 914 (D. Or. 1977). The uncertainty as to whether the herbicide produces health effects is important. If the herbicide was known to cause adverse health effects, then most courts would require an EIS. *See supra* note 139.

200. This note assumes that use of the herbicide is the proposed action. It also assumes that destruction of vegetation is the change in the physical environment from use of the herbicide. Finally, the note assumes that the destruction of vegetation is not a significant effect capable of triggering an EIS. This is a crucial assumption. If the destruction of vegetation was significant enough to trigger an EIS, the EIS would have to address the possibility of adverse health effects.

Any adverse health effects would not stem from the change in the physical environment; that is, destruction of vegetation. Instead, any adverse health effect would stem from the use of the herbicide; that is, the proposed action. The health effects are not a change in the physical environment. Therefore, the health effects cannot trigger the need for an EIS because they fail the *PANE* requirement of having some association with a change in the physical environment.[201] Since the destruction of vegetation is not a significant primary effect on the physical environment, it cannot trigger the need for an EIS.[202] Thus, the potential health effects of the herbicide will not be considered because they are not environmental effects under *PANE*. By emphasizing the requirement of a change in the physical environment, health effects could be placed outside of NEPA's reach.[203]

This hypothetical also shows how the proximate cause requirement of *PANE* excludes health effects from cognizability under NEPA. In the hypothetical, the health effects are the effects in issue under *PANE*. The destruction of vegetation is the change in the physical environment.[204] The reasonably close causal relationship between the change in the physical environment and the effect in issue is lacking here. The health effects in the herbicide example fail the proximate cause requirement of *PANE*. Thus, the health effects are not environmental effects.[205]

Some might argue that use of the herbicide will cause the change in the physical environment of an increased amount of the herbicide in the environment. The adverse health effects then seem to stem from a change in the physical environment. The health effects also seem to be proximately related to the change in the physical environment. This note did not follow an approach that identifies the proposed action as a change in the physical environment because the Supreme Court did not follow such an approach in *PANE*. In *PANE*, restart of the nuclear reactor was the proposed action. The changes in the physical environment were increased radiation, release of warm water, and fog. The Supreme Court could have followed the approach of determining whether the proposed action is a change in the physical environment because an operational nuclear reactor is certainly a change in the physical environment from an inoperative one. However, the Supreme Court did not. Had the Court followed the approach that the proposed action is a change in the physical environment, Pane's psychological health effects also seem to stem from and be proximate in relation to a change in the physical environment.

201. The health effects do not stem from a change in the physical environment, nor are the health effects themselves a change in the physical environment. Therefore, the health effects fail *PANE*'s requirement that there be a physical change in the environment.

202. *See supra* note 196 and 201.

203. *See supra* notes 193-202 and accompanying text.

204. *See supra* note 200.

205. *See supra* notes 164-68 and accompanying text for the *PANE* definition of an environmental effect.

This proximate cause requirement of *PANE* will result in arbitrary decisions as to which health effects are environmental effects.[206] The arbitrariness results because one cannot predict when a court will find the requisite proximate cause between a change in the physical environment and the health effect in issue. This arbitrariness is inherent in proximate cause.[207] By incorporating proximate cause into NEPA, the Supreme court incorporated an arbitrary standard that calls into question which effects are cognizable under NEPA.

In addition to the arbitrariness of proximate cause, the purpose of proximate cause does not correspond with the purpose of NEPA. The purpose of proximate cause is to look at a defendant's past acts to determine whether the defendant should reasonably have foreseen the results of his acts to establish his liability.[208] At trial, the fact finder looks at the defendant's past acts to see which risks fall within the ambit of foreseeability.[209] Proximate cause looks at the past events to limit liability to foreseeable effects as a matter of public policy.[210] The purpose of NEPA is to look into the future to inform the public and decision-making agency.[211] NEPA is not concerned with past acts or limiting liability on the basis of public policy.[212] NEPA and proximate cause have divergent purposes, and therefore, they should not be intertwined.

The *PANE* standard is an unsatisfactory standard for several reasons. First, it uses proximate cause analysis which produces arbitrary decisions as to what is an environmental effect.[213] Secondly, the purpose of proximate cause does not coincide with the purpose of NEPA.[214] Moreover, the *PANE* standard draws a distinction between

---

206. Dougherty, *supra* note 195, at 10,185. *See supra* notes 159-63 for a discussion of *PANE*'s distinction between health effects and environmental effects.

207. PROSSER, HANDBOOK OF THE LAW OF TORTS § 42, 249-50 (1971).

208. *Id.* at 250-51. *See* Milwaukee & St. Paul Railway Co. v. Kellogg, 94 U.S. 469, 475 (1876).

209. PROSSER, *supra* note 207, at 267-70.

210. *Id.* at 257.

211. *See supra* note 34 and accompanying text.

212. The Supreme Court seems to acknowledge the divergent purposes of NEPA and proximate cause. "On the contrary, NEPA is not directed at the effects of past accidents and does not create a remedial scheme for past federal actions. It was enacted to require agencies to assess the future effects of future actions." *PANE*, 103 S. Ct. at 1563. The Supreme Court used proximate cause to limit the extension of NEPA, that is to prevent NEPA from being used to delay a proposed federal action on the basis of political disagreement. *See supra* notes 169-73 and accompanying text for the Court's reasons.

213. *See supra* notes 206-07 and accompanying text.

214. *See supra* notes 208-12 and accompanying text.

health effects and environmental effects.[215] Finally, the *PANE* standard excludes psychological distress from fear of a high-consequence risk occurring[216] while there is an alternative standard that does not.

VII. ALTERNATIVES TO THE *PANE* STANDARD

Three alternatives to the *PANE* standard may be advanced that avoid incorporating proximate cause theory[217] in deciding what effects are environmental, thereby triggering preparation of an EIS. The broadest alternative would require any federal action with significant effects upon humans to trigger the need for an EIS.[218] In contrast, the most restrictive alternative would require an EIS only when there is a significant primary impact on the physical environment.[219] Between these two extremes, a moderate approach would trigger preparation of an EIS for any significant effect associated with a direct impact on the physical environment.[220] The moderate alternative best serves NEPA's purpose of protecting the human environment.[221] Thus, the moderate alternative is preferable to the *PANE* standard.[222]

The first alternative is the broadest standard. This alternative would require an EIS for all federal action having significant effects upon the human environment regardless of whether there is any effect on the physical environment. Under this alternative, a federal action with no direct effect on the physical environment but with a significant effect upon the human environment would trigger the need for an EIS.[223] This broad standard would place all federal action with significant effects under NEPA.[224] However, this standard would extend

---

215. *See supra* notes 159-63 and accompanying text.

216. *See supra* notes 180-92 and accompanying text.

217. Proximate cause is not necessary to prevent the expansion of NEPA to all federal actions, with significant effects on humans. *See infra* notes 236-48 and accompanying text.

218. *See infra* notes 223-25 and accompanying text.

219. *See infra* notes 226-30 and accompanying text.

220. *See infra* notes 231-32 and accompanying text.

221. *See infra* notes 233-35 and accompanying text.

222. *See infra* notes 236-42 and accompanying text.

223. The broad standard defines human environment as including humans. Thus, any federal action significantly affecting humans is an environmental effect capable of triggering an EIS under NEPA.

224. Under this broad alternative, federal action with no direct effect on the physical environment triggers the need for an EIS under NEPA if the federal action significantly affects humans. While minimum wage proposals or medicare cutbacks have no direct effect on the physical environment, they affect humans significantly. Thus, minimum wage proposals or medicare cutbacks could trigger an EIS under the broad standard. This is an obvious misapplication of NEPA. *See supra* note 170 and accompanying text.

NEPA beyond its intended reach.[225]

To prevent the expansion of NEPA into unintended areas, the restrictive standard requires that the direct impact on the physical environment be significant to trigger the preparation of an EIS.[226] Indirect impacts which are socio-economic in nature cannot trigger the preparation of an EIS absent a significant direct impact on the physical environment.[227] Under this view, a low-probability event that has severe consequences if it occurs, such as the transportation of hazardous waste, escapes triggering an EIS because there is no significant direct impact on the physical environment.[228] Where the consequences are severe if a risk is realized, the public will have the most interest in expressing a willingness to accept or reject the risk involved.[229] However, the public will not be able to inform the agency of the public's concern about the risk because the restrictive standard does not require an EIS for the low-probability event that has severe consequences if it occurs. The agency is then making a decision on the proposed action without having all the necessary information before it.[230] Thus, the restrictive standard does not serve the informational purpose of NEPA when applied to low-probability events that have severe consequences if realized.

The best approach moderates between the two extreme alternatives. This moderate alternative has any direct change in the physical environment triggering the preparation of an EIS if there is a significant effect, whether direct or indirect, on the human environment.[231] This means that an insignificant direct effect on the physical

225. *See supra* note 224.

226. *See* Dougherty, *supra* note 195, at 10,186.

227. *See supra* notes 136-38 and accompanying text.

228. *See supra* notes 182-88 and accompanying text.

229. *See supra* note 190 and accompanying text.

230. The *New York City v. United States Department of Transportation* case exemplifies this. 539 F. Supp. 1237, (S.D.N.Y. 1982), *rev'd*, 715 F.2d 732 (2d Cir. 1983), *cert. denied*, 104 S. Ct. 1403 (1984). *See supra* notes 181-88 and accompanying text. In that case, the Department of Transportation decided to route hazardous waste by highway through New York City. The alternative method of transport was barging. Barging the nuclear waste cost more than transportation by highway. Barging was also more likely to cause an accident. However, if an accident occured in barging, the consequences to humans would not be as severe as if an accident occurred in highway transport. The public has a grave interest in determining whether the risk of a severe consequence by highway transport should be imposed upon them when the risk could be avoided by barging the hazardous waste instead. The public's sentiment should be a very significant factor in the agency's decision of which form of transport to use. Unfortunately, the public did not get to inform the agency of its preference.

231. *See* Note, *supra* note 51, at 363-77 (that Note incorporates proximate cause

environment from a proposed agency action would trigger the necessity for an EIS if the proposed action would have any significant effect on the human environment. Since the moderate approach does not require a significant direct effect on the physical environment to trigger the preparation of an EIS, the moderate approach requires preparation of an EIS for significant indirect effects which previously did not trigger the preparation of an EIS.[232]

Application of the moderate standard to the *New York City v. Department of Transportation*[233] case illustrates this point. While the change in the physical environment from the routing of hazardous waste through New York City is insignificant,[234] the public's fear of the risk of an accident and the severe consequences therefrom could be very significant. The moderate standard requires the agency to consider the indirect effect of the public's fear of a risk to determine if the indirect effect is significant to trigger the preparation of an EIS. Thus, the moderate standard ensures an informed agency decision by requiring that the agency consider whether the public's fears are significant to trigger an EIS. The moderate standard also allows the public to enter the agency decision-making process of risk

---

into its theory of when an EIS is triggered under NEPA as opposed to the approach taken by this note). This note discusses how the moderate standard relates to triggering the need for an EIS. The moderate standard only controls the content of an EIS to the extent that the moderate standard defines what an environmental effect is differently than other standards do. *See supra* note 51 and accompanying text. For example, the *PANE* standard does not require an EIS to include the psychological stress from the fear of risk. However, the moderate standard would allow psychological stress from the fear of risks to trigger an EIS. Therefore, the moderate standard would also require an EIS to address the significance of psychological stress from the fear of risk if an EIS were prepared. The EIS must address the significance of psychological stress from the fear of risk even if the psychological stress did not trigger the EIS. The content of an EIS must address all the reasonably foreseeable consequences of the reasonable alternative to a federal action. The EIS must address all these reasonably foreseeable consequences explaining why they are or are not significant.

232. For example, socio-economic effects have generally not been allowed to trigger an EIS when not accompanied by significant direct effects on the physical environment. *See supra* notes 136-38 and accompanying text. The moderate standard requires an EIS for significant indirect effects accompanied by a direct change in the physical environment. As an example, a proposed housing complex is a direct change in the physical environment. The moderate standard would require an agency to consider the indirct effects such as increased noise, sewage, traffic congestion, and pollution from the influx of people to see if any of the indirect effects are significant enough to trigger an EIS.

233. 539 F. Supp. 1237 (S.D.N.Y. 1982), rev'd, 715 F.2d 732 (2d Cir. 1983). *See supra* notes 181-88 and accompanying text for a discussion of this case.

234. Changes in the physical environment include increased traffic and air pollution.

allocation.[235] Thus, the moderate standard best serves the informational purpose of NEPA.

In addition to serving the informational purpose of NEPA, the moderate standard prevents NEPA from being expanded to areas NEPA was not intended to cover.[236] The moderate standard does this by requiring some direct effect on the physical environment to trigger an EIS.[237] Hence, proposals for federal action which do not have a direct effect on the physical environment cannot trigger an EIS regardless of the significance of the resulting effects.[238] Since the moderate standard effectively limits the application of NEPA without the use of proximate cause, proximate cause is unnecessary.

In addition to the fact that the moderate standard does not use proximate cause, there are several other reasons why the moderate standard is preferable to the *PANE* standard. First, the moderate standard requires that the agency consider whether low-probability events that cause severe consequences if they occur are significant to trigger the preparation of an EIS.[239] The *PANE* standard does not.[240] Second, the moderate standard does not make health effects distinct from environmental effects as does the *PANE* standard.[241] Finally, the moderate standard serves the informational purpose of NEPA better than the *PANE* standard by ensuring informed agency decision-making.[242] For these reasons, the moderate standard is more appropriate than the *PANE* standard.

---

235. It is significant in the New York City case that an alternative to highway transport was barging. The public could indicate which risk they prefer to accept. Thus, the agency would allow the public into the decision-making process of risk allocation. *See supra* note 230 and accompanying text.

236. Examples of areas NEPA was not intended to cover are minimum wage proposals and medicare cutbacks. *See supra* notes 223-25 and accompanying text.

237. The range of the moderate standard is limited by the definition given to "change in the physical environment." This should be given a broad definition to promote the informational purpose of NEPA, that being informed decision-making. For example, closing a military base has the direct change in the physical environment of a change in land use. Regardless of whether buildings are destroyed, the use of the land is a direct change of the physical environment from the proposed closing. However, the moderate standard does have bounds. *See infra* note 238.

238. An example of a proposal which has no direct effect on the physical environment is a minimum wage proposal. The direct effect of a minimum wage proposal is on the economy not the physical environment. *See supra* notes 223-25 and accompanying text.

239. *See supra* notes 233-35 and accompanying text.

240. *See supra* notes 179-81 and accompanying text.

241. *See supra* notes 233-35 and accompanying text.

242. *See supra* notes 233-35 and accompanying text.

Two objections could be raised to the moderate standard. First, one could argue that the moderate standard broadens NEPA so that it is no longer manageable within the limited agency resources.[243] Second, one could object to the moderate standard on the grounds that NEPA loses its ability to protect the environment because the moderate standard broadens NEPA. The second objection is based on the belief that courts would be reluctant to apply the moderate standard due to its imagined manageability problem. Hence, courts would increase the significance requirement of the threshold determination of when an agency must prepare an EIS. Since the threshold to trigger an EIS would be more difficult to meet, some federal actions which before fell under NEPA would now not do so. Thus, the environment would receive less protection under the moderate standard than it did before.

The answers to both objections are found in the informational purpose of NEPA. NEPA tries to ensure that agencies make informed decisions. In accomplishing this purpose, agencies incur expense and delays. The additional expense and delays are necessary to anticipate potential environmental harm from agency action. The benefits of preventing the harm in the long-run outweigh the costs in the short-run.[244] Thus, agencies must incur the short-term costs to carry out the informational purpose of NEPA. Moreover, it is questionable how much greater the short-term costs would be under the moderate standard. Agencies gain expertise as they deal with difficult effects. Until agencies gain such expertise, they can employ experts to assess difficult effects. Thus, the overburdening of agencies by the moderate standard seems doubtful. There is then no reason for courts to shun the moderate standard by making the EIS threshold determination of significance higher. The moderate standard merely requires agencies to consider all the potential significant effects from a proposed agency action in deciding whether to prepare an EIS.[245] In so doing, the moderate standard serves the informational purpose of NEPA without overburdening agencies.

---

243. The Supreme Court made this objection in *PANE*. "Time and resources are simply too limited for us to believe that Congress intended to extend NEPA as far as the Court of Appeals has taken it . . . . The scope of the agency's inquiries must remain manageable if NEPA's goal of 'ensur[ing] a fully informed and well considered decision,' [cite omitted], is to be accomplished." *PANE*, 103 S. Ct. at 1562.

244. *See* Note, *supra* note 51, at 360 n.149 (citing hazardous waste control and asbestos as examples of inadequate anticipation of environmental harm that now are very expensive problems to solve).

245. The agency need only consider if the effects of a proposed action are significant enough to trigger an EIS. The moderate standard does not require that the agency attach a particular weight to the effects in determining whether to prepare an EIS.

VIII. CONCLUSION

The purpose of NEPA is to protect the human environment. NEPA accomplishes this purpose by requiring agencies to prepare an EIS for major federal action that significantly affects the human environment. The EIS ensures informed agency decision-making and public disclosure of environmental effects. Thus, NEPA protects the human environment by requiring agencies to consider the environmental effects of their proposed actions before impelementing them.

In *PANE*, the United States Supreme Court defined when an effect is an environmental effect such that it is cognizable under NEPA. There are two requirements for an effect to fall within NEPA's purview. First, the effect must stem from some change in the physical environment. Secondly, the effect must be in a reasonably close causal relationship to the change in the physical environment. The Court defined an environmental effect in this manner to prevent the expansion of NEPA beyond its intended purpose and to prevent the overburdening of agencies.

The *PANE* standard is an unsatisfactory standard to determine when an agency must prepare an EIS. First, the *PANE* standard excludes all psychological stress from fear of a high-consequence risk occurring. Secondly, the *PANE* standard draws a distinction between health effects and environmental effects which could lead to the exclusion of health effects from NEPA consideration. Moreover, it uses proximate cause analysis which produces arbitrary decisions as to what is an environmental effect. Finally, the purpose of proximate cause does not reflect the informational purpose of NEPA.

Alternatively, a moderate standard is more appropriate than the *PANE* standard. The moderate standard triggers an agency to prepare an EIS for any significant effect from federal action if there is a direct change in the physical environment. The moderate standard does not use proximate cause. Further, the moderate standard requires that an agency consider whether the fear of a risk is significant enough to necessitate an EIS. Thus, the moderate standard best serves the informational purposes of NEPA. Finally, the moderate standard does not overburden agencies or expand the purpose of NEPA beyond its intended reach. Because the moderate standard serves the informational purposes of NEPA and allows the public a voice in its willingness to accept risk, the moderate standard should replace the *PANE* standard in defining when an effect is cognizable under NEPA.

MICHAEL A. CHRISTOFENO