

11-1045(L) & 11-1057(CON)
11-1051(CON), 11-1056(CON)

**United States Court of Appeals
for the District of Columbia Circuit**

STATE OF NEW YORK; STATE OF VERMONT; STATE OF CONNECTICUT,
Petitioners,

v.

NUCLEAR REGULATORY COMMISSION; UNITED STATES OF AMERICA,
Respondents,

STATE OF NEW JERSEY,

Intervenor for Petitioner,

NUCLEAR ENERGY INSTITUTE, INC.; ENTERGY NUCLEAR OPERATIONS INC.,

Intervenors for Respondent.

(caption for 11-1057 listed on inside front cover)

On Petition for Review of Final Action of
the United States Nuclear Regulatory Commission

**FINAL BRIEF FOR STATES OF NEW YORK,
VERMONT, CONNECTICUT, AND NEW JERSEY,
AND THE PRAIRIE ISLAND INDIAN COMMUNITY**

ERIC T. SCHNEIDERMAN
*Attorney General of the
State of New York*
Attorney for State of New York
120 Broadway
New York, New York 10271
(212) 416-6351

BARBARA D. UNDERWOOD
Solicitor General
CECELIA C. CHANG
Deputy Solicitor General
BRIAN A. SUTHERLAND
*Assistant Solicitor General
of Counsel*

(counsel listing continued on signature pages)

LEMUEL M. SROLOVIC
Bureau Chief
Environmental Protection Bureau
MONICA WAGNER
Deputy Bureau Chief
JOHN J. SIPOS
JANICE A. DEAN
Assistant Attorneys General

Dated: February 7, 2012

(caption for No. 11-1057)

PRAIRIE ISLAND INDIAN COMMUNITY,

Petitioner,

v.

NUCLEAR REGULATORY COMMISSION; UNITED STATES OF AMERICA,

Respondents.

CERTIFICATE AS TO PARTIES, RULINGS, AND OTHER CASES

Pursuant to the Court's Order of February 17, 2011 and D.C. Circuit Rules 15(c)(3) and 28(a)(1), petitioners New York, Vermont, Connecticut, and New Jersey (intervenor) (collectively, "the States") in Case No. 11-1045(L), and the Prairie Island Indian Community in Case No. 11-1057(L), hereby submit this certificate as to parties, rulings, and other cases.

A. Parties and Amici

Petitioners

The petitioners in No. 11-1045 are the States of New York, Vermont, Connecticut, and New Jersey (intervenor). The petitioner in No. 11-1057 is the Prairie Island Indian Community.

Respondents

The Respondents in this matter are the United States Nuclear Regulatory Commission and the United States of America.

Amici

The Petitioner States and Tribe are not aware of any *amici* in this matter.

B. Rulings

The rulings under review in this proceeding are the United States Nuclear Regulatory Commission's Consideration of Environmental Impacts of Temporary Storage of Spent Fuel After Cessation of Reactor Operation rule ("Temporary-Storage Rule") and affiliated Waste

Confidence Decision Update, both issued December 23, 2010. *See* 75 Fed. Reg. 80132 (Dec. 23, 2010); 75 Fed. Reg. 80137 (Dec. 23, 2010).

C. Related Cases

1. The cases on review have not previously been before this Court or any other court.

2. In addition to the States' and Tribe's petitions, the petitions in the following consolidated cases challenge the same final NRC actions:

- a. Case 11-1051: *Natural Resources Defense Council v. United States Nuclear Regulatory Commission*,
- b. Case 11-1056, *Blue Ridge Environmental Defense League, et al., v. United States Nuclear Regulatory Commission*

Dated: February 7, 2012

Respectfully submitted,

ERIC T. SCHNEIDERMAN
*Attorney General of the
State of New York*

JEFFREY S. CHIESA
*Attorney General of the
State of New Jersey*

By: /s/ Janice A. Dean
Janice A. Dean
Assistant Attorney General
120 Broadway, 26th Floor
New York, New York 10271
(212) 416-8459

By: /s/ Kevin P. Auerbacher
Kevin P. Auerbacher
Assistant Attorney General
R.J. Hughes Justice Complex
25 Market Street
P.O. Box 093
Trenton, New Jersey 08625
(609) 292-6945

WILLIAM H. SORRELL
*Attorney General of the
State of Vermont*

GEORGE JEPSEN
*Attorney General of the
State of Connecticut*

By: /s/ Thea Schwartz
Thea Schwartz
Assistant Attorney General
109 State Street
Montpelier, Vermont 05609
(802) 828-3186

By: /s/ Robert Snook
Robert Snook
Assistant Attorney General
55 Elm Street, P.O. Box 120
Hartford, Connecticut 06106
(860) 808-5020

JACOBSON, BUFFALO,
MAGNUSON
ANDERSON & HOGEN PC
*Special Counsel to the
Prairie Island Indian
Community*

By: /s/ Joseph F. Halloran
Joseph F. Halloran
Kasey W. Kincaid
335 Atrium Office Building
1295 Bandana Boulevard
Saint Paul, Minnesota 55108

Philip R. Mahowald
5636 Sturgeon Lake Road
Welch, Minnesota 55089

*General Counsel to the
Prairie Island Indian
Community*

TABLE OF CONTENTS

	Page
TABLE OF AUTHORITIES	iii
GLOSSARY OF ABBREVIATIONS	vii
PRELIMINARY STATEMENT	1
JURISDICTIONAL STATEMENT	4
ISSUE PRESENTED FOR REVIEW	4
STATEMENT OF THE CASE	5
A. Factual Background	5
1. Spent nuclear fuel	5
2. The health risks of spent nuclear fuel	7
3. The hazards of spent-fuel pools	8
B. Statutory and Regulatory Background	11
1. The generic EIS covering the period of a renewed license	13
2. The temporary-storage rule and waste-confidence decision	14
a. The history of the temporary-storage rule and waste-confidence decision	14
b. The 2010 amendments to the temporary- storage rule and waste-confidence decision	16
STANDARD OF REVIEW	19
SUMMARY OF ARGUMENT	19

TABLE OF CONTENTS (cont'd)

	Page
STANDING	21
ARGUMENT	25
THE FINDING OF NO SIGNIFICANT IMPACT IN THE TEMPORARY-STORAGE RULE IS UNREASONABLE	25
A. The Environmental Impacts of On-Site Storage of Spent Fuel May Not Be Evaluated Generically.	25
1. The risks that spent-fuel pools will leak or catch on fire are affected by site-specific factors.....	26
2. Spent-fuel pools and dry-storage facilities have non-health environmental impacts that require site-specific analysis.	28
3. NEPA requires NRC to analyze the on-site storage of spent fuel in a site-specific EIS or EA.	29
B. It Was Unreasonable for NRC to Issue a Finding of No Significant Impact with Respect to the On-Site Storage of Spent Fuel.	32
1. Spent-fuel pools may have significant environmental impacts as a result of leaks.....	35
2. Spent-fuel pools may have significant environmental impacts as a result of fires.	37
3. The waste-confidence decision fails to analyze other environmental impacts of the on-site storage of spent fuel.....	39
CONCLUSION	40

TABLE OF AUTHORITIES

Cases	Page
<i>Baltimore Gas & Electric Co. v. NRDC</i> , 462 U.S. 87 (1983)	25, 29
<i>Cabinet Mountains Wilderness/Scotchman's Peak Grizzly Bears v. Peterson</i> , 685 F.2d 678 (D.C. Cir. 1982)	35
<i>Carolina Environmental Study Group v. United States</i> , 510 F.2d 796 (D.C. Cir. 1975)	37
<i>City of New York v. U.S. Department of Transportation</i> , 715 F.2d 732 (2d Cir. 1983)	37
<i>Grand Canyon Trust v. FAA</i> , 290 F.3d 339 (D.C. Cir. 2002)	33
<i>Idaho Sporting Congress v. Thomas</i> , 137 F.3d 1146 (9th Cir. 1998), <i>overruled on other grounds</i> , <i>The Lands Council v. McNair</i> , 536 F.3d 981 (9th Cir. 2008)	36
<i>Limerick Ecology Action, Inc. v. NRC</i> , 869 F.2d 719 (3d Cir. 1989)	25, 37
<i>Marsh v. Oregon Natural Resources Council</i> , 490 U.S. 360 (1989)	19
<i>Maryland-National Capital Park & Planning Commission v. U.S. Postal Service</i> , 487 F.2d 1029 (D.C. Cir. 1973)	33
<i>Massachusetts v. EPA</i> , 549 U.S. 497 (2007)	24
<i>Minnesota v. NRC</i> , 602 F.2d 412 (D.C. Cir. 1979)	5, 6, 14, 25

Authorities chiefly relied on are marked with an asterisk (*).

TABLE OF AUTHORITIES (cont'd)

Cases	Page
<i>Nance v. EPA</i> , 645 F.2d 701 (9th Cir. 1981).....	23
<i>National Audubon Society v. Hoffman</i> , 132 F.3d 7 (2d Cir. 1997)	35, 36, 37
<i>New York v. NRC</i> , 589 F.3d 551 (2d Cir. 2009) (per curiam).....	13, 14
<i>NRDC v. NRC</i> , 582 F.2d 166 (2d Cir. 1978)	6
<i>Nuclear Energy Institute v. EPA</i> , 373 F.3d 1251 (D.C. Cir. 2004).....	7, 24, 33
<i>Robertson v. Methow Valley Citizens Council</i> , 490 U.S. 332 (1989).....	12, 29
<i>Seminole Nation v. United States</i> , 316 U.S. 286 (1942).....	23
<i>Sierra Club v. Peterson</i> , 717 F.2d 1409 (D.C. Cir. 1983).....	33
<i>Sierra Club v. U.S. Department of Transportation</i> , 753 F.2d 120 (D.C. Cir. 1985)	33, 35, 36
<i>Theodore Roosevelt Conservation Partnership v. Salazar</i> , 616 F.3d 497 (D.C. Cir. 2010).....	19, 35
<i>Vermont Yankee Nuclear Power Corp. v. NRDC</i> , 435 U.S. 519 (1978).....	25, 33

TABLE OF AUTHORITIES (cont'd)**Federal Administrative Decisions** **Page**

Entergy Nuclear Vermont Yankee, LLC
(Vermont Yankee Nuclear Power Station),
 64 N.R.C. 131 (Sept. 22, 2006) 22

Northern States Power Co. (Prairie Island Nuclear Generating
Plants, Units 1 and 2),
 68 N.R.C. 905 (2008) 24

Federal Statutes

5 U.S.C. § 706(2)(A) 19

25 U.S.C. § 461 *et seq.* 23

28 U.S.C.
 § 2342(4) 4
 § 2344 4

42 U.S.C.
 §§ 2132-2134 11
 § 2133(c) 11
 § 2239 4
 * § 4332(2)(C) 11, 37
 § 10134 6

Federal Administrative Authorities **Page**

10 C.F.R.
 § 51.20(b) 12
 * § 51.23 1, 4, 13, 16, 17
 § 51.23(a) (1985) 15
 § 51.23(a) (1991) 15
 § 51.30(b) 17
 § 51.95(c) 12, 13, 28
 pt. 51, subpt. A, app. B, tbl. B-1 13, 28
 § 54.31(b) 11

TABLE OF AUTHORITIES (cont'd)

Federal Administrative Authorities	Page
40 C.F.R.	
§ 1502.22(b)(4)	37
§ 1508.8(b)	39
§ 1508.9(a)(1)	12
NRC, Notice of Intent to Prepare Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel, 40 Fed. Reg. 42,801 (Sept. 16, 1975) (<i>reproduced at J.A. 1</i>)	6
NRC, Final Waste Confidence Decision, 49 Fed. Reg. 34,658 (Aug. 31, 1984) (<i>reproduced at J.A. 27</i>)	15
NRC, Final Rule: Requirements for Licensee Actions Regarding the Disposition of Spent Fuel upon Expiration of Reactor Operating Licenses, 49 Fed. Reg. 34,688 (Aug. 31, 1984) (<i>reproduced at J.A. 58</i>)	15
NRC, Final Rule: Consideration of Environmental Impacts of Temporary Storage of Spent Fuel after Cessation of Reactor Operation, 55 Fed. Reg. 38,472 (Sept. 18, 1990) (<i>reproduced at J.A. 67</i>)	15
NRC, Review and Final Revision of Waste Confidence Decision, 55 Fed. Reg. 38,474 (Sept. 18, 1990) (<i>reproduced at J.A. 70</i>)	11, 15
NRC, Proposed Rule, Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 74 Fed. Reg. 38,117 (July 31, 2009) (<i>reproduced at J.A. 186</i>)	14
NRC, Final Rule on Consideration of Environmental Impacts of Temporary Storage of Spent Fuel after Cessation of Reaction Operation, 75 Fed. Reg. 81,032 (Dec. 23, 2010) (<i>reproduced at J.A. 242</i>)	16, 18

TABLE OF AUTHORITIES (cont'd)

Federal Administrative Authorities	Page
NRC, Update and Final Revision of Waste Confidence Decision, 75 Fed. Reg. 81,037 (Dec. 23, 2010) (<i>reproduced at J.A. 248</i>).....	6, 11, 16, 29, 30, 31, 32, 35, 36, 38
State Regulations	
6 N.Y.C.R.R. § 701.15	10

GLOSSARY OF ABBREVIATIONS

APA	Administrative Procedures Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
NEPA	National Environmental Policy Act
NRC	Nuclear Regulatory Commission

PRELIMINARY STATEMENT

This case is about whether the Nuclear Regulatory Commission adequately examined the environmental impacts of storing spent fuel at the sites of nuclear reactors. When most of the nuclear power plants in the United States were initially licensed, it was expected that their spent fuel would remain in pools adjacent to each reactor only long enough to cool down and then be moved off-site. But because efforts to establish a permanent spent-fuel repository have not yet proved fruitful, plants have stored dangerously radioactive spent fuel at reactor sites for decades, usually in densely packed pools. Until recently, NRC had estimated that a repository would be available in the early twenty-first century, leading petitioners New York, Connecticut, and Vermont and intervenor New Jersey (“the States”) and petitioner Prairie Island Indian Community (“the Tribe”) to believe that on-site storage was a temporary measure. But NRC recently abandoned any attempt to set a target date for a repository, and at that same time amended its “temporary-storage rule,” 10 C.F.R. § 51.23, to make a generic finding, applicable to all nuclear power plants, that on-site storage of spent fuel for sixty years after the expiration of a reactor’s license will not have

any significant environmental impacts. The States and the Tribe seek the Court's invalidation of that generic finding because it is unauthorized by the National Environmental Policy Act ("NEPA").

When a plant is relicensed, NEPA requires NRC to review the potential environmental impacts of the plant's continued operation, including the impacts of storing spent fuel both during and after the expiration of the license. NRC has analyzed the impacts *during* the period of the renewed license in a generic environmental impact statement ("EIS") that covers all license renewals. But by the temporary-storage rule, it refuses to undertake any analysis of *post-license* impacts either generically or site-by-site.

This approach is legally flawed for two independent reasons. First, it is improper for NRC to address the potential impacts of decades of post-closure on-site spent-fuel storage on a generic basis only, because the impacts are different at different sites. The risk that a spent-fuel pool will release radioactivity is affected by site-specific characteristics of a pool like its racks and air-circulation system and other site-specific variables like the potential for earthquakes. Similarly, the impacts of both pools and on-site dry-storage facilities are

affected by site-specific factors like population density and, in the case of the Tribe, proximity to an ancestral homeland. As a result, NEPA requires NRC to analyze those impacts in a site-specific manner when a plant applies to renew its license, as NRC does for other aspects of a plant.

Second, even if generic analysis were permissible, the temporary-storage rule's generic finding that on-site storage of spent fuel has no significant environmental impacts for sixty years after the expiration of a plant's license is unreasonable and inconsistent with the administrative record. NRC found that leaks from pools would not have a significant impact, but many pools have leaked radioactive water, threatening human health and groundwater resources. NRC decided that the risk of a pool fire—with potentially catastrophic environmental impacts—did not justify an EIS because the risk is relatively low, but NEPA requires an EIS unless a risk is remote and speculative, which fires are not. And NRC did not even assess the non-health environmental impacts of on-site storage, including potential impacts on property values and on areas of unique historical and cultural importance like the Tribe's homeland. Instead, NRC should have

prepared a full EIS, as it has done elsewhere for the impacts of on-site storage during the period of a plant's license.

JURISDICTIONAL STATEMENT

The Hobbs Act, 28 U.S.C. § 2342(4), grants the Court jurisdiction to review “all final orders of [NRC] made reviewable by” 42 U.S.C. § 2239. The Court has jurisdiction to review the temporary-storage rule, 10 C.F.R. § 51.23, because it is a regulation “dealing with the activities of licensees” made reviewable by 42 U.S.C. § 2239. Petitioner States and the Tribe filed petitions for review on February 15 and 22, 2011, respectively, within sixty days of the issuance of the rule on December 23, 2010, as required by 28 U.S.C. § 2344.

ISSUE PRESENTED FOR REVIEW

Is the temporary-storage rule's generic finding that the storage of spent fuel at reactor sites has no significant environmental impacts unreasonable, given that (1) the impacts are affected by site-specific factors, (2) spent-fuel pools have already leaked radioactive materials and there is a risk of spent-fuel-pool fires with catastrophic

consequences, and (3) NRC did not analyze any non-health impacts of on-site storage?

STATEMENT OF THE CASE

A. Factual Background

1. Spent nuclear fuel

A reactor's core contains zirconium-clad rods filled with enriched uranium pellets. Over time, the fuel produces a less efficient nuclear reaction and must be replaced. Because spent-fuel rods "generate enormous heat and contain highly radioactive uranium, actinides and plutonium," the rods are placed on racks in a pool adjacent to the reactor to cool down. *See Minnesota v. NRC*, 602 F.2d 412, 413 (D.C. Cir. 1979).

Most of the nuclear plants currently operating in the United States were designed with limited spent-fuel-pool capacity because it was anticipated that fuel would remain in pools only long enough to cool down. When the plants were initially licensed, the Atomic Energy Commission assured the public that the spent fuel would quickly be

transported to reprocessing facilities,¹ but reprocessing was abandoned when the facilities developed problems. *Id.* at 414; J.A. 1-3. As a result, spent fuel began to accumulate in pools, leading NRC to authorize “dense packing” of pools so that they could hold much larger amounts of fuel than initially contemplated. *See Minnesota*, 602 F.2d at 414.

With reprocessing no longer an option, the federal government decided to establish a permanent common repository, eventually designating Yucca Mountain in Nevada as the proposed site. *See* 42 U.S.C. § 10134. NRC initially predicted that a repository would be operational by 1985, *NRDC v. NRC*, 582 F.2d 166, 173 (2d Cir. 1978), but revised its prediction twice and stated when it amended the temporary-storage rule in 2010 that it had decided to abandon any attempt to establish a target date (J.A. 250-51). In the meantime,

¹ *See, e.g., Vermont Yankee Final EIS*, ML061880207:93-94 (July 1972); *Prairie Island Final EIS*, ML081840311:192 (May 1973); *Indian Point Unit 2 Final EIS* ML072390276:257 (Sept. 1972); *Indian Point Unit 3 Final EIS*, ML072390284:412 (Feb. 1975); *see also Minnesota*, 602 F.2d at 418. NRC identifies documents in its Agency Wide Documents and Access Management System, known as the “ADAMS room,” www.nrc.gov/reading-rm/adams/web-based.html, by “ML” numbers.

reactors continue to generate spent fuel, and most pools already contain more radioactive material than their associated reactors. J.A. 499.

NRC has approved the interim storage of spent fuel in dry-storage facilities after the fuel has cooled in a pool for five years. J.A. 1206-08. As discussed below, moving fuel to dry storage offers safety advantages over allowing it to remain in densely packed pools. But NRC has resisted requiring the transfer of spent fuel to dry casks on the basis of cost. J.A. 614-15.

2. The health risks of spent nuclear fuel

“At massive levels, radiation exposure can cause sudden death.” *Nuclear Energy Inst. v. EPA*, 373 F.3d 1251, 1258 (D.C. Cir. 2004). Even “[a]t lower doses, radiation can have devastating health effects, including increased cancer risks and serious birth defects such as mental retardation, eye malformations, and small brain or head size.” *Id.* Those health effects “persist for time spans seemingly beyond human comprehension.” *Id.*

3. The hazards of spent-fuel pools

Spent-fuel pools may be designed in several different ways. Some are at ground level while others are elevated. The type of liner, placement of racks, air circulation, and amount of heat generated by the fuel also differ from plant to plant. But pools share one common feature: all are located outside the containment shells that surround reactors. Pools are susceptible to radiological release as a result of fires or leaks, and their susceptibility is affected by the differences between pools. J.A. 577, 600, 609-12.

Fires. Because spent fuel is hot and radioactive when placed in pools, the water must be continuously cooled to prevent it from boiling off and to buffer the radiation. As NRC found in a study called NUREG-1738 and other studies have also found, the zirconium cladding that forms the spent-fuel rods may melt or catch on fire if the water boils or drains away, potentially causing a major release of radiation. J.A. 373-76, 449-54, 607-09; *see also* J.A. 502-03, 552-63. NUREG-1738 and other studies also found that a fire could have consequences comparable to those of a major core accident by generating a radioactive plume causing thousands of deaths from cancer. J.A. 409, 499-503, 552-

63. NRC has also observed “that the possibility of a zirconium fire cannot be dismissed even many years after final reactor shutdown.” J.A. 456, 462.

NUREG-1738 found that fires are affected by site-specific factors, including “fuel assembly geometry,” “rack configuration,” access to air cooling, location of the pool within a plant, and the extent to which the fuel had been burned in the reactor. J.A. 366, 373-76, 385, 412-13, 449-454. A National Academies of Science report agreed that the risk of pool fires cannot be determined on a generic basis. J.A. 577, 623; *see also* J.A. 820-21, 852. The Department of Energy has also found that site-specific factors affect the impacts of radioactive waste:

The impacts of the treatment, interim storage, transportation, and final disposal of radioactive wastes on natural ecosystems cannot be satisfactorily dealt with in detail in a generic sense because of the overriding influence of site-specific factors.

J.A. 290.²

² A site's susceptibility to particular kinds of natural disasters such as earthquakes, hurricanes, or tsunamis also varies by geography. *See, e.g.*, J.A. 394 (discussing earthquakes).

Because the risk of pool fires is exacerbated by the dense packing of fuel, two studies have recommended moving spent fuel that has cooled sufficiently to dry-cask storage. J.A. 519; J.A. 684. But, as yet, only twenty-two percent of spent nuclear fuel is stored in dry casks. J.A. 1209.

Leaks. Many pools have leaked. In 2005, the Indian Point Energy Center, a nuclear power plant located just outside New York City, identified leakage from cracks in two pools and subsequently discovered tritium, strontium, and other radionuclides in groundwater underneath the site; it concluded that contaminated groundwater was likely to have reached the Hudson River. J.A. 911. An investigation found that the pools that leaked had different leak-detection systems and liners than did a third pool that had not leaked. J.A. 922. Indian Point groundwater, which under New York law is a potential source of potable water, has had concentrations exceeding national drinking-water standards for tritium and strontium-90, sometimes by five times the standard. J.A. 928; *see also* 6 N.Y.C.R.R. § 701.15.

Radioactive water also leaked from pools at the Hatch nuclear plant in Georgia in 1986, the Turkey Point plant near Miami in 1988,

the Seabrook plant in New Hampshire in 1999, the Watts Bar plant in Tennessee in 2002, and the Palo Verde plant in Arizona in 2005. J.A. 76-77, 730, 739, 749. And the pool at Brookhaven National Laboratories in New York leaked for years in the 1980s and 1990s into the aquifer that provides the sole source of drinking water for nearby Long Island residents; by the time the leak was discovered, the water had concentrations of tritium thirty-two times the allowable federal drinking-water standards. J.A. 350, 353-55.

B. Statutory and Regulatory Background

Under the Atomic Energy Act, nuclear reactors are required to obtain operating licenses issued by NRC. 42 U.S.C. §§ 2132-2134. Licenses are issued for no more than forty years, *id.* § 2133(c), and may be renewed for no more than twenty years, 10 C.F.R. § 54.31(b). Currently, there are 104 operating reactors in the United States. Fourteen reactor licenses will expire between 2012 and 2020 and thirty-six will expire between 2021 and 2030. J.A. 277.

NEPA requires a federal agency to prepare an EIS regarding proposed “major Federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C). An agency may choose to

begin its environmental review with an “environmental assessment” (“EA”)—a preliminary study that either determines that an EIS should be prepared because a proposed action may have a significant impact or makes “a finding of no significant impact,” in which case an EIS is not prepared. 40 C.F.R. § 1508.9(a)(1).

An EIS must discuss, among other things, the environmental impacts of the action and alternatives to the action. *Id.* “[O]ne important ingredient of an EIS is the discussion of steps that can be taken to mitigate adverse environmental consequences.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351 (1989).

NRC has acknowledged that the renewal of a reactor’s operating license is a major federal action requiring environmental review under NEPA. 10 C.F.R. § 51.20(b). NRC analyzes some of the impacts of a license renewal in a generic EIS and other impacts in a site-specific EIS that is prepared when a plant applies to renew its license. *Id.* § 51.95(c). Impacts of on-site storage during the period of a license are addressed in the generic EIS.

But impacts of on-site storage after a license expires are addressed in neither the generic EIS nor the site-specific EIS. Instead,

NRC has issued the temporary-storage rule's generic "determination of no significant impact" with respect to impacts during the sixty years after a license expires. *Id.* § 51.23(b).

NRC recently announced that it intends to prepare a different generic EIS for the on-site storage of spent fuel for a three-hundred-year period starting in 2050. J.A. 1200-01.

1. The generic EIS covering the period of a renewed license

In 1996, NRC issued a generic EIS addressing the impacts of relicensing reactors. The EIS categorizes impacts as either (1) generic, requiring no further environmental review, or (2) site-specific, requiring review in a site-specific EIS when a plant applies to renew its license. *See* 10 C.F.R. § 51.95(c)(2). The impacts of on-site storage of spent fuel during the twenty-year license renewal period are categorized as generic and insignificant. *Id.* pt. 51, subpt. A, app. B, tbl. B-1.

In 2008, NRC rejected petitions by Massachusetts and California to amend the generic EIS to provide that (1) the impacts of pools are significant, and (2) those impacts require site-specific analysis. *See New York v. NRC*, 589 F.3d 551, 554 (2d Cir. 2009) (per curiam). The

Second Circuit upheld NRC's decision, emphasizing the "extremely limited and highly deferential review" accorded an agency's denial of a petition for rulemaking. *Id.* at 554 (quotation marks omitted).

In 2009, however, NRC proposed revising its generic EIS to provide that the impacts of leaks from power plants, including leaks from pools, would be assessed in the site-specific EIS that is prepared when a plant applies for license renewal. J.A. 186, 198, 204. That revision has not been finalized.

2. The temporary-storage rule and waste-confidence decision

a. The history of the temporary-storage rule and waste-confidence decision

NRC first issued the temporary-storage rule in 1984, in response to this Court's ruling in *Minnesota* that NRC's policy declaration that it had "reasonable confidence that [nuclear] wastes can and will in due course be disposed of safely" should have been made through a rulemaking proceeding. 602 F.2d at 417-19. On remand, NRC issued its initial "waste-confidence decision"—including five "waste-confidence findings"—and its temporary-storage rule. The first two waste-confidence findings found "reasonable assurance" that (1) it was

technically feasible to dispose of radioactive waste in a mined geologic repository, and (2) one or more such repositories would be available between 2007 and 2009. The last three findings found that, in the time period before a repository was available, there was reasonable assurance that (3) spent fuel could be managed safely; (4) spent fuel could be stored safely and without environmental impacts in either pools or “independent spent fuel storage installations” (primarily dry-cask storage) for thirty years beyond the expiration of any reactor’s license; and (5) if needed, dry-cask storage would be available. J.A. 28-29. The temporary-storage rule implemented the fourth finding. 10 C.F.R. § 51.23(a) (1985); J.A. 64.

In 1990, in light of the delays in opening a repository, NRC revised the second finding to estimate that a repository would be available in “the first quarter of the twenty-first century.” J.A. 68. And in anticipation that plants would start seeking to renew their licenses, NRC also revised the fourth finding to apply thirty years beyond the expiration of a renewed license as well as an initial license. J.A. 68. NRC amended the temporary-storage rule to reflect those changes. J.A. 70; 10 C.F.R. § 51.23(a) (1991).

b. The 2010 amendments to the temporary-storage rule and waste-confidence decision

In 2010, NRC again revised the waste-confidence decision and the temporary-storage rule, with one very important change: for the first time NRC found that it could not say with confidence when spent fuel could be moved from each reactor site. Instead, it revised its second waste-confidence finding to provide that a common repository will be available “when necessary.” In light of that change, it revised the fourth finding and the temporary-storage rule to provide that spent fuel can be stored on site without environmental impacts for sixty years. The revised rule states:

[I]f necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 60 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor in a combination of storage in its spent fuel storage basin and at either onsite or offsite independent spent fuel storage installations. Further, the Commission believes there is reasonable assurance that sufficient mined geologic repository capacity will be available to dispose of the commercial high-level radioactive waste and spent fuel generated in any reactor when necessary.

10 C.F.R. § 51.23(a); *see also* J.A. 244. Based on those determinations, the rule provides that the site-specific EIS that is prepared when a

plant's license is renewed is not required to discuss the impacts of spent-fuel pools or dry-storage facilities for "the period following the term of the reactor operating license or amendment." 10 C.F.R. § 51.23(b); *see also id.* § 51.30(b).

Petitioner States submitted comments on the proposed waste-confidence decision and rule arguing that the findings and rule were unreasonable because, among other things, (1) numerous pools had leaked and densely packed pools are at risk of catching on fire; (2) those risks are affected by site-specific characteristics; and (3) NRC should consider mitigation measures and alternatives. J.A. 947-53, 1007-25, 1027-33, 1190-91. They also argued that indefinite on-site storage of spent fuel significantly reduces the value of properties near Indian Point. J.A. 1190-91. The Tribe submitted comments arguing that the findings and rule failed to recognize the impacts on the Tribe of on-site storage at the Prairie Island nuclear power plant in Minnesota, particularly the plant's dry-storage facility. J.A. 1035-41.

When NRC issued its final revisions to the waste-confidence decision and temporary-storage rule, it stated that the waste-confidence decision constitutes the environmental assessment or EA that supports

the “finding of no significant impact” in the rule. J.A. 244. It explained in the waste-confidence decision that it was expanding the rule’s time period to sixty years as a result of delays in establishing a common repository, and that it was dropping any estimate of when a repository would be available because it had expanded the rule to sixty years and a common repository would be available by then. J.A. 277-78, 285.

The waste-confidence decision also discussed pool leaks and fires. NRC explained that a task force had concluded that “the near-term public health impacts [of leaks] have been negligible,” but also made recommendations for improvements to NRC’s regulatory program for leaks. J.A. 282. NRC indicated that it “has addressed, or is in the process of addressing,” those recommendations and has developed “draft regulatory guidance.” J.A. 282. NRC also indicated that it was not necessary to analyze the environmental impacts of a fire because the likelihood of a fire is “very low.” J.A. 284.

The waste-confidence decision did not analyze any impacts of on-site storage other than impacts on human health, and provided no explanation for its failure to do so. It also did not consider alternatives

to indefinite on-site storage of spent fuel or continued reliance on densely packed pools.

STANDARD OF REVIEW

The temporary-storage rule is a final agency action subject to review under the Administrative Procedure Act, and may be overturned as “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law,” 5 U.S.C. § 706(2)(A), if it is not “founded on a reasoned evaluation of the relevant factors,” *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 378 (1989) (quotation marks omitted). See *Theodore Roosevelt Conservation P’ship v. Salazar*, 616 F.3d 497, 507 (D.C. Cir. 2010).

SUMMARY OF ARGUMENT

The temporary-storage rule’s generic “finding of no significant impact” with respect to on-site storage of spent fuel during the sixty years after the expiration of a reactor’s license is unreasonable. First, site-specific factors—including the varying characteristics of spent-fuel pools and the communities that live near on-site storage facilities—can

contribute to those impacts, making generic analysis unreasonable. NRC has acknowledged that site-specific analysis may be appropriate but mistakenly claims that it does not have to initiate that analysis because it may rely on plant operators, interested parties like the States and the Tribe, and an undisclosed investigation by its staff to identify the need for site-specific analysis. NEPA requires *NRC* to conduct that site-specific analysis and publicize its conclusions, as the agency does for other aspects of plants when they apply to renew their operating licenses.

Second, even if generic analysis were reasonable, the conclusion reached in the rule is not, because the risk of a pool leak or fire is a significant impact. Many pools have leaked, leading to radioactivity in groundwater in excess of drinking-water standards. NRC claims that its proposed regulatory guidance will prevent leaks from having significant impacts, but NRC may not rely on that guidance until it is finalized and until NRC has shown that it will be effective. Similarly, pools are at risk of catching on fire, with potentially catastrophic impacts. NRC acknowledges that risk but mistakenly claims that it did not have to consider the impacts of fires because the risk is very low.

NEPA requires an agency to prepare an EIS unless a potential impact is remote and speculative, which the impacts of fires are not.

Third, NRC inexplicably failed to consider any non-health environmental impacts of on-site storage—like the historical, cultural, and social impacts on the Tribe, or impacts on property values—even though NEPA requires it to do so.

STANDING

The States and the Tribe have standing because the temporary-storage rule presents a risk of harm to their interests in protecting their citizens and property from the environmental impacts of on-site spent-fuel storage. J.A. 940, 961-62, 997, 1035-37. The spent-fuel pools serving the two Indian Point reactors are of particular concern to New York, Connecticut, and New Jersey. Seventeen million people live within fifty miles of Indian Point, which is on the Hudson River twenty-four miles north of New York City. J.A. 980. Indian Point's two licenses expire in 2013 and 2015, and the temporary-storage rule prevents consideration in the license renewal proceedings of the environmental impacts of its pools.

The Vermont Yankee reactor is of particular concern to Vermont. J.A. 962. When the reactor was licensed in 1972, the Atomic Energy Commission stated that the reactor's spent fuel would be promptly transported to an out-of-state reprocessing facility. *Vermont Yankee Nuclear Power Station Final EIS*, ML061880207:93-94 (July 1972). But none of the spent fuel has ever been removed from the reactor property and much of it remains in an elevated spent-fuel pool. When Vermont Yankee applied to renew its license in 2006, Vermont claimed that the plant had failed to provide new and significant information regarding how long spent fuel would be stored on site. J.A. 998. The NRC licensing board rejected that claim on the basis of a prior version of the temporary-storage rule. *Entergy Nuclear Vt. Yankee, LLC* (Vermont Yankee Nuclear Power Station), 64 N.R.C. 131, 167-70 (Sept. 22, 2006). In March 2011, NRC renewed Vermont Yankee's license for twenty years. Vermont has filed a petition for review of the renewal in this Court. *See Vt. Dep't of Pub. Serv. v. NRC*, No. 11-1168 (D.C. Cir. filed May 20, 2011).

The spent-fuel pool and dry-storage facility at the Prairie Island nuclear power plant are of particular concern to the Tribe. J.A. 1037.

The Mdewakanton of Prairie Island have resided there for countless generations and, since reorganization pursuant to the Indian Reorganization Act of 1934, 25 U.S.C. § 461 *et seq.*, the federal government has held lands at Prairie Island in trust for the benefit of the Tribe. J.A. 1035. The federal government's role as trustee imposes "moral obligations of the highest responsibility and trust" and should "be judged by the most exacting fiduciary standards." *Seminole Nation v. United States*, 316 U.S. 286, 297 (1942). "It is fairly clear that *any* Federal government action is subject to the United States' fiduciary responsibilities toward the Indian tribes." *Nance v. EPA*, 645 F.2d 701, 711 (9th Cir. 1981).

The Prairie Island plant is located on the Tribe's ancestral homeland immediately adjacent to its Reservation and is less than one mile from the Tribe's primary residential area, community center, elder center, and government offices. J.A. 1037, 1040. When the plant operator initially sought approval for forty-eight dry-storage casks in the 1990s, the Tribe was assured that dry storage was a temporary solution, until a permanent repository was established. J.A. 1037. But no permanent repository has been established and, as a result of the

recent renewal of the reactor's licenses, the plant anticipates that it will need to expand dry storage to ninety-eight casks. J.A. 1037. There was no consideration of the impacts of that expansion on the Tribe during the relicensing proceedings, nor will there be consideration during the future proceedings regarding the expansion of the dry-storage facility, because NRC relies on the temporary-storage rule to preclude any such consideration.

The risk of the release of radioactive materials from spent-fuel pools would be reduced if NRC determines that pools potentially have significant environmental impacts, and identifies alternatives to pools and ways to mitigate their impacts. Similarly, the impacts of dry storage on Prairie Island would be reduced if NRC recognizes the impacts on the Tribe and considers alternatives, including storing the spent fuel elsewhere. These interests are sufficient to confer standing on the States and the Tribe. *See Massachusetts v. EPA*, 549 U.S. 497, 520-25 (2007); *Nuclear Energy Inst.*, 373 F.3d at 1265-66; *N. States Power Co. (Prairie Island Nuclear Generating Plants, Units 1 and 2)*, 68 N.R.C. 905, 912-13 (2008).

ARGUMENT

THE FINDING OF NO SIGNIFICANT IMPACT IN THE TEMPORARY-STORAGE RULE IS UNREASONABLE

A. The Environmental Impacts of On-Site Storage of Spent Fuel May Not Be Evaluated Generically.

When NRC relicenses a reactor, NEPA requires it to consider the environmental impacts of the reactor's spent fuel, which remains dangerous long after the reactor ceases operation, in either an EIS or an EA. *See Balt. Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 90 (1983); *Vt. Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 537 (1978). NRC may analyze those impacts generically for all plants to the extent that the impacts stem from a common repository, because a repository's impacts are not "plant specific." *Balt. Gas & Elec.*, 462 U.S. at 101; *see also Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 738 (3d Cir. 1989) (impacts of a common repository "arise from the situs of the waste, rather than from the particular characteristics of the plants at which the waste was generated"). Impacts may also be analyzed generically so long as they "do not involve particularized situations." *Minnesota*, 602 F.2d at 416.

But NRC has acknowledged that impacts of spent-fuel pools located on the site of each reactor may be affected by site-specific factors, and the Tribe has also identified site-specific impacts of dry-storage facilities. As a result, it was unreasonable for NRC to analyze those impacts during the sixty years after a license expires in a generic EA—*i.e.*, the waste-confidence decision—and issue the temporary-storage rule's generic finding of no significant impact. Instead, the impacts require analysis in the site-specific EIS that NRC prepares when a plant applies to renew its license or, alternatively, a site-specific EA.

1. The risks that spent-fuel pools will leak or catch on fire are affected by site-specific factors.

Spent-fuel pools may expose human beings and the environment to radioactivity if the pools either leak, releasing radioactive water, or catch on fire, releasing radioactive gas. Both risks depend on the characteristics of a spent-fuel pool and its location. As discussed above (p. 9), studies conducted by NRC and others have found that the risks of leaks and fires are affected by, among other things, rack configuration,

type of liner, leak detection system, location within the plant, and extent to which the fuel was burned in a reactor.

NRC has recognized that site-specific factors affect the risk of leaks during the twenty-year period of a license renewal—*i.e.*, the period covered by its generic EIS. As discussed above (p. 18), in 2009 NRC proposed modifying the 1996 generic EIS to require that leaks be addressed in the site-specific EIS that is prepared when a plant applies to renew its license. But inexplicably, it has not reached the same conclusion with respect to leaks during the period covered by the temporary-storage rule's generic finding—*i.e.*, sixty years after a license expires. If site-specific variables affect the potential that a pool will leak during the license renewal period, they necessarily affect the potential that the same pool will leak after a license expires.

NRC has not proposed modifying the generic EIS with respect to fires but, as discussed above (p. 9), both it and the National Academies of Science have issued reports finding that—like the risk of leaks—the risk of fires depends on site-specific factors.

2. Spent-fuel pools and dry-storage facilities have non-health environmental impacts that require site-specific analysis.

Spent-fuel pools and dry-storage facilities also have site-specific impacts other than impacts on human health. For example, the Prairie Island spent-fuel pool and dry-storage facility are on the Tribe's ancestral homeland, adjacent to its Reservation—which the federal government holds in trust for the Tribe—and less than a mile from tribal residences and other facilities. The Indian Point spent-fuel pools are in a densely populated area and may impact property values, as claimed by the States in their comments. Indeed, NRC's generic EIS finds that impacts on off-site land use (which would include impacts on property values) during the period of a license require site-specific analysis, 10 C.F.R. § 51.95(c)(2); *id.* pt. 51, subpt. A, app. B, tbl. B-1, and there is no reason why those impacts should be treated differently for the post-license period covered by the temporary-storage rule.

3. NEPA requires NRC to analyze the on-site storage of spent fuel in a site-specific EIS or EA.

NRC concedes in the waste-confidence decision that “there may be some issues that cannot be addressed through a generic process,” and that “[s]ite-specific circumstances may require a site-specific analysis,” but contends that existing procedures—(1) the right of an interested party to apply for a waiver of the temporary-storage rule; (2) the identification of site-specific factors by an operator; and (3) the unpublicized investigation of site-specific factors by NRC staff—ensure that that site-specific analysis will be conducted when appropriate. J.A. 267-68. None of those procedures, however, is a substitute for NRC’s obligation under NEPA to analyze the environmental impacts of the on-site storage of spent fuel and to “inform the public that it has indeed” done so, *Balt. Gas & Elec.*, 462 U.S. at 97; *see also Robertson*, 490 U.S. at 349. As far as the States and the Tribe are aware, in the twenty-six years since the temporary-storage rule was first promulgated, those procedures have never resulted in a site-specific analysis of the post-license environmental impacts of on-site storage. NRC can meet its obligation to conduct that analysis only by analyzing those impacts in

the site-specific EIS that it prepares when a plant applies to renew its license or a site-specific EA.

NRC claims, first, that “the Commission has provided for [site-specific analysis] through its regulations in 10 C.F.R. 2.335, which allows parties to adjudicatory proceedings to petition for a waiver of or an exception to a rule in a particular proceeding.” J.A. 268. But regardless of whether an interested party like a State or the Tribe seeks a waiver of the temporary-storage rule in a relicensing proceeding so that site-specific analysis can be conducted, NRC itself is required to analyze the environmental impacts of on-site storage, taking into account any site-specific factors that may affect that analysis.

Nor would the waiver process work as a practical matter. NRC routinely denies requests for waivers, and the States and the Tribe could find no occasion on which NRC has ever granted a waiver to a party opposing a license application.³ Moreover, the States, the Tribe, and other interested parties—unlike NRC—have only limited access to

³ A search of NRC’s ADAMS room revealed no instances where the NRC had done so.

information about a plant's on-site storage and thus may not know how particular characteristics bear on the impacts of that storage.

NRC also argues that it does not have to initiate its own site-specific analysis because plant operators are required to identify “new and significant” information that would put the facility outside of the generic assessment.” J.A. 268. But operators have little incentive to offer such information, and NRC does not claim that it has ever considered the site-specific impacts of on-site storage based on information provided by a plant operator, nor are the States or the Tribe aware of any situation where NRC has done so. Indeed, the States and the Tribe are not aware that any operator has ever designated an environmental issue as “new and significant.”⁴ In any event, their obligation to do so cannot substitute for NRC's obligation to determine whether the potential impacts of on-site storage are affected by site-specific factors.

NRC also claims that when a plant applies to renew its license, NRC staff “look[] for new and significant information” showing that a

⁴ A search of NRC's ADAMS room revealed no instances where licensees had done so.

site “might not fall under [its] generic determination” and, if no such information is found, “conclude[] that the issue is generic.” J.A. 268. But NRC does not indicate that its staff has ever found such information and the States and the Tribe are unaware of any instance when NRC has addressed on-site storage in its plant-license-renewal site-specific EIS as a result of a staff investigation. In any event, that investigation does not meet NRC’s obligations under NEPA because it is not disclosed to the public. NRC may meet its NEPA obligations only by doing a site-specific analysis *and* issuing the results in the form of a publicly available EIS or EA.

B. It Was Unreasonable for NRC to Issue a Finding of No Significant Impact with Respect to the On-Site Storage of Spent Fuel.

Even if it were appropriate for NRC to analyze the environmental impacts of on-site storage of spent fuel generically, it would be unreasonable for NRC to make a finding of no significant impact in the temporary-storage rule, relieving it of the obligation to prepare a generic EIS. An agency may issue a finding of no significant impact based on an EA only if the EA (1) “accurately identified the relevant environmental concern”; (2) took “a ‘hard look’ at the problem”; (3) made

“a convincing case for its finding” of no significant impact; and (4) if the EA found a significant impact, it also found “that changes or safeguards in the project sufficiently reduce the impact to a minimum.” *Sierra Club v. U.S. Dep’t of Transp.*, 753 F.2d 120, 127 (D.C. Cir. 1985); *see also Grand Canyon Trust v. FAA*, 290 F.3d 339, 340-41 (D.C. Cir. 2002); *Sierra Club v. Peterson*, 717 F.2d 1409, 1413 (D.C. Cir. 1983). In cases—like this one—involving genuine issues regarding public health, there is a “relatively low threshold for impact statements” and “an agency that relies on an [EA] to dispense with an impact statement may well run risks not warranted by any countervailing benefits.” *Maryland-Nat’l Capital Park & Planning Comm’n v. U.S. Postal Service*, 487 F.2d 1029, 1040 (D.C. Cir. 1973). The waste-confidence decision, which serves as NRC’s EA, does not meet those requirements

Spent fuel remains radioactive and extremely dangerous to human health “for time spans seemingly beyond human comprehension.” *Nuclear Energy Inst.*, 373 F.3d at 1258. As a result, it *will* have significant environmental impacts unless it is stored in facilities that prevent any harmful releases of radioactivity. *See Vt. Yankee Nuclear Power*, 435 U.S. at 539 (recognizing that radioactive

waste has adverse environmental impacts). Spent-fuel pools are susceptible to both leaks and fires, and NRC has not provided a reasoned basis for its determination that there is no potential that they will release radioactivity harmful to human health and the environment. NRC also failed to assess any environmental impacts of on-site storage other than impacts on health, even though NEPA requires it to do so.

NRC's decision to issue an EA is particularly inexplicable, because, as discussed above (pp. 15-16), NRC has prepared a generic EIS for the period of a license renewal and announced that it will prepare another generic EIS for the three-hundred-year period starting in 2050. There is nothing about the impacts of on-site storage of spent fuel during the sixty-year period following the issuance of a license that justifies less environmental review than impacts before and after that period. Indeed, pools are likely to be at their maximum capacity *after* a license expires.

1. Spent-fuel pools may have significant environmental impacts as a result of leaks.

As discussed above (pp. 10-11), many spent-fuel pools have leaked radioactive water. NRC nonetheless claims that pool leaks will not have significant impacts in the future because the leaks that have already occurred had only a “negligible” impact on public health. J.A. 282. But NRC’s own report found that some of those leaks “did, or potentially could, impact ground-water resources relative to established EPA drinking water standards.” J.A. 738. That finding *is* proof of a potentially significant impact and, standing alone, requires an EIS.

NRC also contends that mitigation measures will ensure that leaks will not cause significant impacts in the future. An agency may forgo an EIS based on “specific mitigation measures which completely compensate for any possible adverse environmental impacts,” *Cabinet Mountains Wilderness/Scotchman’s Peak Grizzly Bears v. Peterson*, 685 F.2d 678, 682 (D.C. Cir. 1982); *see also Sierra Club*, 753 F.2d at 127-29, but those measures must be supported by “substantial evidence” showing their adequacy, *Nat’l Audubon Soc’y v. Hoffman*, 132 F.3d 7, 17 (2d Cir. 1997); *see also Theodore Roosevelt Conservation P’ship*, 616 F.3d at 515-17.

“[M]itigation measures have been found to be sufficiently supported when based on studies conducted by the agency or when they are likely to be adequately policed.” *Nat’l Audubon Soc’y*, 132 F.3d at 17 (citations omitted). For example, in *Sierra Club*, 753 F.2d at 129, the Court ruled that airport noise abatement procedures that had been imposed by the FAA *and* proven successful were sufficient to dispense with an EIS. In contrast, the Ninth Circuit ruled in *Idaho Sporting Congress v. Thomas* that, in the absence of data showing that proposed mitigation measures would ensure that a timber sale did not affect the water quality of two creeks, the measures “amount[ed] to [no]thing more than a ‘mere listing’ of good management practices” insufficient to justify a finding of no significant impact. 137 F.3d 1146, 1151 (9th Cir. 1998), *overruled on other grounds*, *The Lands Council v. McNair*, 536 F.3d 981 (9th Cir. 2008).

Here, NRC has explained that it is revising its regulatory guidance pertaining to detecting and evaluating leaks (J.A. 282), but has not yet finalized that guidance or shown that the guidance will ensure that leaks do not have significant impacts. Unless and until the guidance is finalized and shown to be capable of successfully detecting

and ameliorating leaks before they cause significant harm, NRC's claim that it intends to impose good management practices is an insufficient basis for the temporary-storage rule's finding of no significant impact.

2. Spent-fuel pools may have significant environmental impacts as a result of fires.

NEPA requires federal agencies to prepare an EIS when an agency action may have impacts "significantly affecting the quality of the human environment." 42 U.S.C. § 4332(2)(C). That obligation extends to "impacts which have catastrophic consequences, even if their probability of occurrence is low." 40 C.F.R. § 1502.22(b)(4). An agency is excused from considering an impact only if its probability is so low that it is remote and speculative. *Limerick Ecology Action*, 869 F.2d at 739; *see also City of N.Y. v. U.S. Dep't of Transp.*, 715 F.2d 732, 752 (2d Cir. 1983); *Carolina Envtl. Study Group v. United States*, 510 F.2d 796, 799 (D.C. Cir. 1975). "When the determination that a significant impact will or will not result from the proposed action is a close call, an EIS should be prepared." *Nat'l Audubon Soc'y*, 132 F.3d at 13.

As discussed above (p. 8), if the water in a spent-fuel pool boils or drains away, the zirconium cladding that forms the spent-fuel rods may

melt or catch on fire, potentially causing a major release of radiation. NRC does not dispute that a pool fire could have catastrophic impacts. Indeed, it has acknowledged that “a zirconium fire event can have public health and safety consequences similar to a severe core damage accident with a large offsite release.” J.A. 459. It has also acknowledged that “the possibility of a zirconium fire cannot be dismissed even many years after final reactor shutdown.” J.A. 456.

NRC nonetheless issued a finding of no significant impact because the likelihood of a fire is “very low.” J.A. 284. But unless a fire is remote and speculative—which NRC does not claim—NRC is obligated to prepare an EIS analyzing the potential impacts of pool fires and examining alternatives and mitigation measures that would ameliorate those impacts.

In particular, such an EIS would have to consider reducing the dense packing of pools by transferring spent fuel to dry casks. Although the temporary-storage rule treats dry storage as an option, NRC’s finding of no significant impact precludes consideration of whether that less dangerous form of storage should be required.

3. The waste-confidence decision fails to analyze other environmental impacts of the on-site storage of spent fuel.

The finding of no significant impact was also unreasonable because the only impacts of the on-site storage of spent fuel analyzed by the waste-confidence decision were impacts on human health, even though the environmental impacts covered by NEPA include historic, cultural, ecological, and economic impacts, 40 C.F.R. § 1508.8(b). The Tribe raised the potential impacts of on-site storage of spent fuel on its lands, culture, and people, including the risk of complete loss of the Tribe's ancestral homeland and displacement of the Tribe's members in the event of a significant release of radioactivity. The States also raised the potential impact of spent-fuel pools on property values. J.A. 1190-91. The waste-confidence decision fails, without explanation, to discuss those impacts or any other non-health impacts.

CONCLUSION

For the reasons stated above, the amended temporary-storage rule should be vacated and the matter remanded to NRC for site-specific review under NEPA or, alternatively, the preparation of a generic environmental impact statement.

Dated: New York, NY
February 7, 2012

Respectfully submitted,

ERIC T. SCHNEIDERMAN
*Attorney General of the
State of New York*

By: /s/ Janice A. Dean
JANICE A. DEAN
Assistant Attorney General
120 Broadway, 26th Floor
New York, New York 10271
(212) 416-8459

BARBARA D. UNDERWOOD
Solicitor General
CECELIA C. CHANG
Deputy Solicitor General
BRIAN A. SUTHERLAND
*Assistant Solicitor General
of Counsel*

LEMUEL M. SROLOVIC
Bureau Chief
Environmental Protection Bureau
MONICA WAGNER
Deputy Bureau Chief
JOHN J. SIPOS
JANICE A. DEAN
Assistant Attorneys General

(counsel listing continues on next page)

JEFFREY S. CHIESA
*Attorney General of the
State of New Jersey*

GEORGE JEPSEN
*Attorney General of the
State of Connecticut*

By: /s/ Kevin P. Auerbacher
Kevin P. Auerbacher
Assistant Attorney General
Ruth E. Musetto
Deputy Attorney General
R.J. Hughes Justice Complex
25 Market Street
P.O. Box 093
Trenton, New Jersey 08625
(609) 292-6945

By: /s/ Robert Snook
Robert Snook
Assistant Attorney General
55 Elm Street, P.O. Box 120
Hartford, Connecticut 06106
(860) 808-5020

JACOBSON, BUFFALO, MAGNUSON
ANDERSON & HOGEN PC
*Special Counsel to the Prairie
Island Indian Community*

WILLIAM H. SORRELL
*Attorney General of the
State of Vermont*

By: /s/ Joseph F. Halloran
Joseph F. Halloran
Kasey W. Kincaid
335 Atrium Office Building
1295 Bandana Boulevard
Saint Paul, Minnesota 55108

By: /s/ Thea Schwartz
Thea Schwartz
Assistant Attorney General
109 State Street
Montpelier, Vermont 05609
(802) 828-3186

Philip R. Mahowald
5636 Sturgeon Lake Road
Welch, Minnesota 55089

*General Counsel to the Prairie
Island Indian Community*

CERTIFICATE OF COMPLIANCE

Pursuant to Rule 32(a)(7)(C) of the Federal Rules of Appellate Procedure, Janice A. Dean, an attorney in the Office of the Attorney General of the State of New York, hereby certifies that according to the word count feature of the word processing program used to prepare this brief, the brief contains 7,330 words and complies with the type-volume limitations of Rule 32(a)(7)(B).

/s/ Janice A. Dean
Janice A. Dean

ADDENDUM OF STATUTES AND REGULATIONS

42 U.S.C. § 4332.....	1
10 C.F.R. § 2.335.....	3
10 C.F.R. pt. 51, subpt. A, app. B, tbl. B-1	5
10 C.F.R. § 51.20.....	14
10 C.F.R. § 51.95.....	15
10 C.F.R. § 51.97.....	17
40 C.F.R. § 1508.8, -.9.....	18
40 C.F.R. § 1502.22.....	19

scribed aspects of population growth in the United States and its foreseeable social consequences; provided for the appointment of an Executive Director and other personnel and prescribed their compensation; authorized the Commission to enter into contracts with public agencies, private firms, institutions, and individuals for the conduct of research and surveys, the preparation of reports, and other activities necessary to the discharge of its duties, and to request from any Federal department or agency any information and assistance it deems necessary to carry out its functions; required the General Services Administration to provide administrative services for the Commission on a reimbursable basis; required the Commission to submit an interim report to the President and the Congress one year after it was established and to submit its final report two years after Mar. 16, 1970; terminated the Commission sixty days after the date of the submission of its final report; and authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, such amounts as might be necessary to carry out the provisions of Pub. L. 91-213.

EXECUTIVE ORDER No. 11507

Ex. Ord. No. 11507, eff. Feb. 4, 1970, 35 F.R. 2573, which related to prevention, control, and abatement of air and water pollution at federal facilities was superseded by Ex. Ord. No. 11752, eff. Dec. 17, 1973, 38 F.R. 34793, formerly set out below.

EXECUTIVE ORDER No. 11752

Ex. Ord. No. 11752, Dec. 17, 1973, 38 F.R. 34793, which related to the prevention, control, and abatement of environmental pollution at Federal facilities, was revoked by Ex. Ord. No. 12088, Oct. 13, 1978, 43 F.R. 47707, set out as a note under section 4321 of this title.

§ 4332. Cooperation of agencies; reports; availability of information; recommendations; international and national coordination of efforts

The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this chapter, and (2) all agencies of the Federal Government shall—

(A) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment;

(B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by subchapter II of this chapter, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations;

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—

- (i) the environmental impact of the proposed action,
- (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (iii) alternatives to the proposed action,

(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. Copies of such statement and the comments and views of the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public as provided by section 552 of title 5, and shall accompany the proposal through the existing agency review processes;

(D) Any detailed statement required under subparagraph (C) after January 1, 1970, for any major Federal action funded under a program of grants to States shall not be deemed to be legally insufficient solely by reason of having been prepared by a State agency or official, if:

(i) the State agency or official has statewide jurisdiction and has the responsibility for such action,

(ii) the responsible Federal official furnishes guidance and participates in such preparation,

(iii) the responsible Federal official independently evaluates such statement prior to its approval and adoption, and

(iv) after January 1, 1976, the responsible Federal official provides early notification to, and solicits the views of, any other State or any Federal land management entity of any action or any alternative thereto which may have significant impacts upon such State or affected Federal land management entity and, if there is any disagreement on such impacts, prepares a written assessment of such impacts and views for incorporation into such detailed statement.

The procedures in this subparagraph shall not relieve the Federal official of his responsibilities for the scope, objectivity, and content of the entire statement or of any other responsibility under this chapter; and further, this subparagraph does not affect the legal sufficiency of statements prepared by State agencies with less than statewide jurisdiction.¹

(E) study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;

(F) recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anti-

¹ So in original. The period probably should be a semicolon.

pating and preventing a decline in the quality of mankind's world environment;

(G) make available to States, counties, municipalities, institutions, and individuals, advice and information useful in restoring, maintaining, and enhancing the quality of the environment;

(H) initiate and utilize ecological information in the planning and development of resource-oriented projects; and

(I) assist the Council on Environmental Quality established by subchapter II of this chapter.

(Pub. L. 91-190, title I, § 102, Jan. 1, 1970, 83 Stat. 853; Pub. L. 94-83, Aug. 9, 1975, 89 Stat. 424.)

AMENDMENTS

1975—Subpars. (D) to (I). Pub. L. 94-83 added subpar. (D) and redesignated former subpars. (D) to (H) as (E) to (I), respectively.

CERTAIN COMMERCIAL SPACE LAUNCH ACTIVITIES

Pub. L. 104-88, title IV, § 401, Dec. 29, 1995, 109 Stat. 955, provided that: "The licensing of a launch vehicle or launch site operator (including any amendment, extension, or renewal of the license) under chapter 701 of title 49, United States Code, shall not be considered a major Federal action for purposes of section 102(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(C)) if—

"(1) the Department of the Army has issued a permit for the activity; and

"(2) the Army Corps of Engineers has found that the activity has no significant impact."

EX. ORD. NO. 13352. FACILITATION OF COOPERATIVE CONSERVATION

Ex. Ord. No. 13352, Aug. 26, 2004, 69 F.R. 52989, provided:

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

SECTION 1. *Purpose.* The purpose of this order is to ensure that the Departments of the Interior, Agriculture, Commerce, and Defense and the Environmental Protection Agency implement laws relating to the environment and natural resources in a manner that promotes cooperative conservation, with an emphasis on appropriate inclusion of local participation in Federal decisionmaking, in accordance with their respective agency missions, policies, and regulations.

SEC. 2. *Definition.* As used in this order, the term "cooperative conservation" means actions that relate to use, enhancement, and enjoyment of natural resources, protection of the environment, or both, and that involve collaborative activity among Federal, State, local, and tribal governments, private for-profit and nonprofit institutions, other nongovernmental entities and individuals.

SEC. 3. *Federal Activities.* To carry out the purpose of this order, the Secretaries of the Interior, Agriculture, Commerce, and Defense and the Administrator of the Environmental Protection Agency shall, to the extent permitted by law and subject to the availability of appropriations and in coordination with each other as appropriate:

(a) carry out the programs, projects, and activities of the agency that they respectively head that implement laws relating to the environment and natural resources in a manner that:

(i) facilitates cooperative conservation;

(ii) takes appropriate account of and respects the interests of persons with ownership or other legally recognized interests in land and other natural resources;

(iii) properly accommodates local participation in Federal decisionmaking; and

(iv) provides that the programs, projects, and activities are consistent with protecting public health and safety;

(b) report annually to the Chairman of the Council on Environmental Quality on actions taken to implement this order; and

(c) provide funding to the Office of Environmental Quality Management Fund (42 U.S.C. 4375) for the Conference for which section 4 of this order provides.

SEC. 4. *White House Conference on Cooperative Conservation.* The Chairman of the Council on Environmental Quality shall, to the extent permitted by law and subject to the availability of appropriations:

(a) convene not later than 1 year after the date of this order, and thereafter at such times as the Chairman deems appropriate, a White House Conference on Cooperative Conservation (Conference) to facilitate the exchange of information and advice relating to (i) cooperative conservation and (ii) means for achievement of the purpose of this order; and

(b) ensure that the Conference obtains information in a manner that seeks from Conference participants their individual advice and does not involve collective judgment or consensus advice or deliberation.

SEC. 5. *General Provision.* This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, instrumentalities or entities, its officers, employees or agents, or any other person.

GEORGE W. BUSH.

§ 4333. Conformity of administrative procedures to national environmental policy

All agencies of the Federal Government shall review their present statutory authority, administrative regulations, and current policies and procedures for the purpose of determining whether there are any deficiencies or inconsistencies therein which prohibit full compliance with the purposes and provisions of this chapter and shall propose to the President not later than July 1, 1971, such measures as may be necessary to bring their authority and policies into conformity with the intent, purposes, and procedures set forth in this chapter.

(Pub. L. 91-190, title I, § 103, Jan. 1, 1970, 83 Stat. 854.)

§ 4334. Other statutory obligations of agencies

Nothing in section 4332 or 4333 of this title shall in any way affect the specific statutory obligations of any Federal agency (1) to comply with criteria or standards of environmental quality, (2) to coordinate or consult with any other Federal or State agency, or (3) to act, or refrain from acting contingent upon the recommendations or certification of any other Federal or State agency.

(Pub. L. 91-190, title I, § 104, Jan. 1, 1970, 83 Stat. 854.)

§ 4335. Efforts supplemental to existing authorizations

The policies and goals set forth in this chapter are supplementary to those set forth in existing authorizations of Federal agencies.

(Pub. L. 91-190, title I, § 105, Jan. 1, 1970, 83 Stat. 854.)

Nuclear Regulatory Commission**§ 2.335**

the presiding officer assigned to the proceeding shall, based on information and projections provided by the parties and the NRC staff, take appropriate action to maintain the hearing schedule established by the presiding officer in accordance with 10 CFR 2.332(a) of this part for the completion of the evidentiary record and, as appropriate, the issuance of its initial decision.

(b) *Modification of hearing schedule.* A hearing schedule may not be modified except upon a finding of good cause by the presiding officer or the Commission. In making such a good cause determination, the presiding officer or the Commission should take into account the following factors, among other things:

(1) Whether the requesting party has exercised due diligence to adhere to the schedule;

(2) Whether the requested change is the result of unavoidable circumstances; and

(3) Whether the other parties have agreed to the change and the overall effect of the change on the schedule of the case.

(c) The presiding officer shall provide written notification to the Commission any time during the course of the proceeding when it appears that there will be a delay of more than forty-five (45) days in meeting any of the dates for major activities in the hearing schedule established by the presiding officer under 10 CFR 2.332(a), or that the completion of the record or the issuance of the initial decision will be delayed more than sixty (60) days beyond the time specified in the hearing schedule established under 10 CFR 2.332(a). The notification must include an explanation of the reasons for the projected delay and a description of the actions, if any, that the presiding officer or the Board proposes to take to avoid or mitigate the delay.

[70 FR 20461, Apr. 20, 2005]

§ 2.335 Consideration of Commission rules and regulations in adjudicatory proceedings.

(a) Except as provided in paragraphs (b), (c), and (d) of this section, no rule or regulation of the Commission, or any provision thereof, concerning the licensing of production and utilization

facilities, source material, special nuclear material, or byproduct material, is subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding subject to this part.

(b) A party to an adjudicatory proceeding subject to this part may petition that the application of a specified Commission rule or regulation or any provision thereof, of the type described in paragraph (a) of this section, be waived or an exception made for the particular proceeding. The sole ground for petition of waiver or exception is that special circumstances with respect to the subject matter of the particular proceeding are such that the application of the rule or regulation (or a provision of it) would not serve the purposes for which the rule or regulation was adopted. The petition must be accompanied by an affidavit that identifies the specific aspect or aspects of the subject matter of the proceeding as to which the application of the rule or regulation (or provision of it) would not serve the purposes for which the rule or regulation was adopted. The affidavit must state with particularity the special circumstances alleged to justify the waiver or exception requested. Any other party may file a response by counter affidavit or otherwise.

(c) If, on the basis of the petition, affidavit and any response permitted under paragraph (b) of this section, the presiding officer determines that the petitioning party has not made a *prima facie* showing that the application of the specific Commission rule or regulation (or provision thereof) to a particular aspect or aspects of the subject matter of the proceeding would not serve the purposes for which the rule or regulation was adopted and that application of the rule or regulation should be waived or an exception granted, no evidence may be received on that matter and no discovery, cross-examination or argument directed to the matter will be permitted, and the presiding officer may not further consider the matter.

(d) If, on the basis of the petition, affidavit and any response provided for in paragraph (b) of this section, the presiding officer determines that the *prima*

§ 2.336**10 CFR Ch. I (1–1–11 Edition)**

facie showing required by paragraph (b) of this section has been made, the presiding officer shall, before ruling on the petition, certify the matter directly to the Commission (the matter will be certified to the Commission notwithstanding other provisions on certification in this part) for a determination in the matter of whether the application of the Commission rule or regulation or provision thereof to a particular aspect or aspects of the subject matter of the proceeding, in the context of this section, should be waived or an exception made. The Commission may, among other things, on the basis of the petition, affidavits, and any response, determine whether the application of the specified rule or regulation (or provision thereof) should be waived or an exception be made. The Commission may direct further proceedings as it considers appropriate to aid its determination.

(e) Whether or not the procedure in paragraph (b) of this section is available, a party to an initial or renewal licensing proceeding may file a petition for rulemaking under § 2.802.

§ 2.336 General discovery.

(a) Except for proceedings conducted under subparts G and J of this part or as otherwise ordered by the Commission, the presiding officer or the Atomic Safety and Licensing Board assigned to the proceeding, all parties, other than the NRC staff, to any proceeding subject to this part shall, within thirty (30) days of the issuance of the order granting a request for hearing or petition to intervene and without further order or request from any party, disclose and provide:

(1) The name and, if known, the address and telephone number of any person, including any expert, upon whose opinion the party bases its claims and contentions and may rely upon as a witness, and a copy of the analysis or other authority upon which that person bases his or her opinion;

(2)(i) A copy, or a description by category and location, of all documents and data compilations in the possession, custody, or control of the party that are relevant to the contentions, provided that if only a description is provided of a document or data com-

pilation, a party shall have the right to request copies of that document and/or data compilation, and

(ii) A copy (for which there is no claim of privilege or protected status), or a description by category and location, of all tangible things (e.g., books, publications and treatises) in the possession, custody or control of the party that are relevant to the contention.

(iii) When any document, data compilation, or other tangible thing that must be disclosed is publicly available from another source, such as at the NRC Web site, <http://www.nrc.gov>, and/or the NRC Public Document Room, a sufficient disclosure would be the location, the title and a page reference to the relevant document, data compilation, or tangible thing.

(3) A list of documents otherwise required to be disclosed for which a claim of privilege or protected status is being made, together with sufficient information for assessing the claim of privilege or protected status of the documents.

(b) Except for proceedings conducted under subpart J of this part or as otherwise ordered by the Commission, the presiding officer, or the Atomic Safety and Licensing Board assigned to the proceeding, the NRC staff shall, within thirty (30) days of the issuance of the order granting a request for hearing or petition to intervene and without further order or request from any party, disclose and/or provide, to the extent available (but excluding those documents for which there is a claim of privilege or protected status):

(1) The application and/or applicant/licensee requests associated with the application or proposed action that is the subject of the proceeding;

(2) NRC correspondence with the applicant or licensee associated with the application or proposed action that is the subject of the proceeding;

(3) All documents (including documents that provide support for, or opposition to, the application or proposed action) supporting the NRC staff's review of the application or proposed action that is the subject of the proceeding;

(4) Any NRC staff documents (except those documents for which there is a claim of privilege or protected status)

Pt. 51, Subpt. A, App. B**10 CFR Ch. I (1–1–11 Edition)**

summarize the issues discussed in the broader statement and incorporate discussions from the broader statement by reference and shall concentrate on the issues specific to the subsequent action. The subsequent document shall state where the earlier document is available. Tiering may also be appropriate for different stages of actions. (Sec. 1508.28)."

40 CFR 1508.28 states:

"Tiering refers to the coverage of general matters in broader environmental impact statements (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basinwide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared. Tiering is appropriate when the sequence of statements or analyses is:

"(a) From a program, plan, or policy environmental impact statement to a program, plan, or policy statement or analysis of lesser scope or to a site-specific statement or analysis.

"(b) From an environmental impact statement on a specific action at an early stage (such as need and site selection) to a supplement (which is preferred) or a subsequent statement or analysis at a later stage (such as environmental mitigation). Tiering in such cases is appropriate when it helps the lead agency to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe."

Incorporation by reference. 40 CFR 1502.21 states:

"Agencies shall incorporate material into an environmental impact statement by reference when the effect will be to cut down on bulk without impeding agency and public review of the action. The incorporated material shall be cited in the statement and its content briefly described. No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment. Material based on proprietary data which is itself not available for review and comment shall not be incorporated by reference."

2. Adoption.

40 CFR 1506.3 states:

"(a) An agency may adopt a Federal draft or final environmental impact statement or portion thereof provided that the statement

or portion thereof meets the standards for an adequate statement under these regulations.

"(b) If the actions covered by the original environmental impact statement and the proposed action are substantially the same, the agency adopting another agency's statement is not required to recirculate it except as a final statement. Otherwise the adopting agency shall treat the statement as a draft and recirculate it (except as provided in paragraph (c) of this section).

"(c) A cooperating agency may adopt without recirculating the environmental impact statement of a lead agency when, after an independent review of the statement, the cooperating agency concludes that its comments and suggestions have been satisfied.

"(d) When an agency adopts a statement which is not final within the agency that prepared it, or when the action it assesses is the subject of a referral under part 1504, or when the statement's adequacy is the subject of a judicial action which is not final, the agency shall so specify."

[49 FR 9381, Mar. 12, 1984, as amended at 61 FR 28490, June 5, 1996; 61 FR 66546, Dec. 18, 1996]

**APPENDIX B TO SUBPART A OF PART 51—
ENVIRONMENTAL EFFECT OF RENEWING
THE OPERATING LICENSE OF A
NUCLEAR POWER PLANT**

The Commission has assessed the environmental impacts associated with granting a renewed operating license for a nuclear power plant to a licensee who holds either an operating license or construction permit as of June 30, 1995. Table B-1 summarizes the Commission's findings on the scope and magnitude of environmental impacts of renewing the operating license for a nuclear power plant as required by section 102(2) of the National Environmental Policy Act of 1969, as amended. Table B-1, subject to an evaluation of those issues identified in Category 2 as requiring further analysis and possible significant new information, represents the analysis of the environmental impacts associated with renewal of any operating license and is to be used in accordance with §51.95(c). On a 10-year cycle, the Commission intends to review the material in this appendix and update it if necessary. A scoping notice must be published in the FEDERAL REGISTER indicating the results of the NRC's review and inviting public comments and proposals for other areas that should be updated.

Nuclear Regulatory Commission

Pt. 51, Subpt. A, App. B

TABLE B-1—SUMMARY OF FINDINGS ON NEPA ISSUES FOR LICENSE RENEWAL OF NUCLEAR POWER PLANTS¹

Issue	Category ²	Findings ³
Surface Water Quality, Hydrology, and Use (for all plants)		
Impacts of refurbishment on surface water quality.	1	SMALL. Impacts are expected to be negligible during refurbishment because best management practices are expected to be employed to control soil erosion and spills.
Impacts of refurbishment on surface water use.	1	SMALL. Water use during refurbishment will not increase appreciably or will be reduced during plant outage.
Altered current patterns at intake and discharge structures.	1	SMALL. Altered current patterns have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term.
Altered salinity gradients	1	SMALL. Salinity gradients have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term.
Altered thermal stratification of lakes	1	SMALL. Generally, lake stratification has not been found to be a problem at operating nuclear power plants and is not expected to be a problem during the license renewal term.
Temperature effects on sediment transport capacity.	1	SMALL. These effects have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term.
Scouring caused by discharged cooling water.	1	SMALL. Scouring has not been found to be a problem at most operating nuclear power plants and has caused only localized effects at a few plants. It is not expected to be a problem during the license renewal term.
Eutrophication	1	SMALL. Eutrophication has not been found to be a problem at operating nuclear power plants and is not expected to be a problem during the license renewal term.
Discharge of chlorine or other biocides.	1	SMALL. Effects are not a concern among regulatory and resource agencies, and are not expected to be a problem during the license renewal term.
Discharge of sanitary wastes and minor chemical spills.	1	SMALL. Effects are readily controlled through NPDES permit and periodic modifications, if needed, and are not expected to be a problem during the license renewal term.
Discharge of other metals in waste water.	1	SMALL. These discharges have not been found to be a problem at operating nuclear power plants with cooling-tower-based heat dissipation systems and have been satisfactorily mitigated at other plants. They are not expected to be a problem during the license renewal term.
Water use conflicts (plants with once-through cooling systems).	1	SMALL. These conflicts have not been found to be a problem at operating nuclear power plants with once-through heat dissipation systems.
Water use conflicts (plants with cooling ponds or cooling towers using make-up water from a small river with low flow).	2	SMALL OR MODERATE. The issue has been a concern at nuclear power plants with cooling ponds and at plants with cooling towers. Impacts on instream and riparian communities near these plants could be of moderate significance in some situations. See § 51.53(c)(3)(ii)(A).
Aquatic Ecology (for all plants)		
Refurbishment	1	SMALL. During plant shutdown and refurbishment there will be negligible effects on aquatic biota because of a reduction of entrainment and impingement of organisms or a reduced release of chemicals.
Accumulation of contaminants in sediments or biota.	1	SMALL. Accumulation of contaminants has been a concern at a few nuclear power plants but has been satisfactorily mitigated by replacing copper alloy condenser tubes with those of another metal. It is not expected to be a problem during the license renewal term.
Entrainment of phytoplankton and zooplankton.	1	SMALL. Entrainment of phytoplankton and zooplankton has not been found to be a problem at operating nuclear power plants and is not expected to be a problem during the license renewal term.
Cold shock	1	SMALL. Cold shock has been satisfactorily mitigated at operating nuclear power plants with once-through cooling systems, has not endangered fish populations or been found to be a problem at operating nuclear power plants with cooling towers or cooling ponds, and is not expected to be a problem during the license renewal term.
Thermal plume barrier to migrating fish.	1	SMALL. Thermal plumes have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term.
Distribution of aquatic organisms	1	SMALL. Thermal discharge may have localized effects but is not expected to effect the larger geographical distribution of aquatic organisms.
Premature emergence of aquatic insects.	1	SMALL. Premature emergence has been found to be a localized effect at some operating nuclear power plants but has not been a problem and is not expected to be a problem during the license renewal term.

Pt. 51, Subpt. A, App. B

10 CFR Ch. I (1–1–11 Edition)

TABLE B–1—SUMMARY OF FINDINGS ON NEPA ISSUES FOR LICENSE RENEWAL OF NUCLEAR POWER PLANTS¹—Continued

Issue	Category ²	Findings ³
Gas supersaturation (gas bubble disease).	1	SMALL. Gas supersaturation was a concern at a small number of operating nuclear power plants with once-through cooling systems but has been satisfactorily mitigated. It has not been found to be a problem at operating nuclear power plants with cooling towers or cooling ponds and is not expected to be a problem during the license renewal term.
Low dissolved oxygen in the discharge.	1	SMALL. Low dissolved oxygen has been a concern at one nuclear power plant with a once-through cooling system but has been effectively mitigated. It has not been found to be a problem at operating nuclear power plants with cooling towers or cooling ponds and is not expected to be a problem during the license renewal term.
Losses from predation, parasitism, and disease among organisms exposed to sublethal stresses.	1	SMALL. These types of losses have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term.
Stimulation of nuisance organisms (e.g., shipworms).	1	SMALL. Stimulation of nuisance organisms has been satisfactorily mitigated at the single nuclear power plant with a once-through cooling system where previously it was a problem. It has not been found to be a problem at operating nuclear power plants with cooling towers or cooling ponds and is not expected to be a problem during the license renewal term.
Aquatic Ecology (for plants with once-through and cooling pond heat dissipation systems)		
Entrainment of fish and shellfish in early life stages.	2	SMALL, MODERATE, OR LARGE. The impacts of entrainment are small at many plants but may be moderate or even large at a few plants with once-through and cooling-pond cooling systems. Further, ongoing efforts in the vicinity of these plants to restore fish populations may increase the numbers of fish susceptible to intake effects during the license renewal period, such that entrainment studies conducted in support of the original license may no longer be valid. See § 51.53(c)(3)(ii)(B).
Impingement of fish and shellfish	2	SMALL, MODERATE, OR LARGE. The impacts of impingement are small at many plants but may be moderate or even large at a few plants with once-through and cooling-pond cooling systems. See § 51.53(c)(3)(ii)(B).
Heat shock	2	SMALL, MODERATE, OR LARGE. Because of continuing concerns about heat shock and the possible need to modify thermal discharges in response to changing environmental conditions, the impacts may be of moderate or large significance at some plants. See § 51.53(c)(3)(ii)(B).
Aquatic Ecology (for plants with cooling-tower-based heat dissipation systems)		
Entrainment of fish and shellfish in early life stages.	1	SMALL. Entrainment of fish has not been found to be a problem at operating nuclear power plants with this type of cooling system and is not expected to be a problem during the license renewal term.
Impingement of fish and shellfish	1	SMALL. The impingement has not been found to be a problem at operating nuclear power plants with this type of cooling system and is not expected to be a problem during the license renewal term.
Heat shock	1	SMALL. Heat shock has not been found to be a problem at operating nuclear power plants with this type of cooling system and is not expected to be a problem during the license renewal term.
Ground-water Use and Quality		
Impacts of refurbishment on ground-water use and quality.	1	SMALL. Extensive dewatering during the original construction on some sites will not be repeated during refurbishment on any sites. Any plant wastes produced during refurbishment will be handled in the same manner as in current operating practices and are not expected to be a problem during the license renewal term.
Ground-water use conflicts (potable and service water; plants that use <100 gpm).	1	SMALL. Plants using less than 100 gpm are not expected to cause any ground-water use conflicts.
Ground-water use conflicts (potable and service water, and dewatering; plants that use >100 gpm).	2	SMALL, MODERATE, OR LARGE. Plants that use more than 100 gpm may cause ground-water use conflicts with nearby ground-water users. See § 51.53(c)(3)(ii)(C).
Ground-water use conflicts (plants using cooling towers withdrawing make-up water from a small river).	2	SMALL, MODERATE, OR LARGE. Water use conflicts may result from surface water withdrawals from small water bodies during low flow conditions which may affect aquifer recharge, especially if other ground-water or upstream surface water users come on line before the time of license renewal. See § 51.53(c)(3)(ii)(A).

Nuclear Regulatory Commission**Pt. 51, Subpt. A, App. B****TABLE B-1—SUMMARY OF FINDINGS ON NEPA ISSUES FOR LICENSE RENEWAL OF NUCLEAR POWER PLANTS¹—Continued**

Issue	Category ²	Findings ³
Ground-water use conflicts (Ranney wells).	2	SMALL, MODERATE, OR LARGE. Ranney wells can result in potential ground-water depression beyond the site boundary. Impacts of large ground-water withdrawal for cooling tower makeup at nuclear power plants using Ranney wells must be evaluated at the time of application for license renewal. See § 51.53(c)(3)(ii)(C).
Ground-water quality degradation (Ranney wells).	1	SMALL. Ground-water quality at river sites may be degraded by induced infiltration of poor-quality river water into an aquifer that supplies large quantities of reactor cooling water. However, the lower quality infiltrating water would not preclude the current uses of ground water and is not expected to be a problem during the license renewal term.
Ground-water quality degradation (saltwater intrusion).	1	SMALL. Nuclear power plants do not contribute significantly to saltwater intrusion.
Ground-water quality degradation (cooling ponds in salt marshes).	1	SMALL. Sites with closed-cycle cooling ponds may degrade ground-water quality. Because water in salt marshes is brackish, this is not a concern for plants located in salt marshes.
Ground-water quality degradation (cooling ponds at inland sites).	2	SMALL, MODERATE, OR LARGE. Sites with closed-cycle cooling ponds may degrade ground-water quality. For plants located inland, the quality of the ground water in the vicinity of the ponds must be shown to be adequate to allow continuation of current uses. See § 51.53(c)(3)(ii)(D).
Terrestrial Resources		
Refurbishment impacts	2	SMALL, MODERATE, OR LARGE. Refurbishment impacts are insignificant if no loss of important plant and animal habitat occurs. However, it cannot be known whether important plant and animal communities may be affected until the specific proposal is presented with the license renewal application. See § 51.53(c)(3)(ii)(E).
Cooling tower impacts on crops and ornamental vegetation.	1	SMALL. Impacts from salt drift, icing, fogging, or increased humidity associated with cooling tower operation have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term.
Cooling tower impacts on native plants.	1	SMALL. Impacts from salt drift, icing, fogging, or increased humidity associated with cooling tower operation have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term.
Bird collisions with cooling towers	1	SMALL. These collisions have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term.
Cooling pond impacts on terrestrial resources.	1	SMALL. Impacts of cooling ponds on terrestrial ecological resources are considered to be of small significance at all sites.
Power line right-of-way management (cutting and herbicide application).	1	SMALL. The impacts of right-of-way maintenance on wildlife are expected to be of small significance at all sites.
Bird collision with power lines	1	SMALL. Impacts are expected to be of small significance at all sites.
Impacts of electromagnetic fields on flora and fauna (plants, agricultural crops, honeybees, wildlife, livestock).	1	SMALL. No significant impacts of electromagnetic fields on terrestrial flora and fauna have been identified. Such effects are not expected to be a problem during the license renewal term.
Floodplains and wetland on power line right of way.	1	SMALL. Periodic vegetation control is necessary in forested wetlands underneath power lines and can be achieved with minimal damage to the wetland. No significant impact is expected at any nuclear power plant during the license renewal term.
Threatened or Endangered Species (for all plants)		
Threatened or endangered species ..	2	SMALL, MODERATE, OR LARGE. Generally, plant refurbishment and continued operation are not expected to adversely affect threatened or endangered species. However, consultation with appropriate agencies would be needed at the time of license renewal to determine whether threatened or endangered species are present and whether they would be adversely affected. See § 51.53(c)(3)(ii)(E).
Air Quality		
Air quality during refurbishment (non-attainment and maintenance areas).	2	SMALL, MODERATE, OR LARGE. Air quality impacts from plant refurbishment associated with license renewal are expected to be small. However, vehicle exhaust emissions could be cause for concern at locations in or near nonattainment or maintenance areas. The significance of the potential impact cannot be determined without considering the compliance status of each site and the numbers of workers expected to be employed during the outage. See § 51.53(c)(3)(ii)(F).

Pt. 51, Subpt. A, App. B

10 CFR Ch. I (1–11 Edition)

TABLE B–1—SUMMARY OF FINDINGS ON NEPA ISSUES FOR LICENSE RENEWAL OF NUCLEAR POWER PLANTS¹—Continued

Issue	Category ²	Findings ³
Air quality effects of transmission lines.	1	SMALL. Production of ozone and oxides of nitrogen is insignificant and does not contribute measurably to ambient levels of these gases.
Land Use		
Onsite land use	1	SMALL. Projected onsite land use changes required during refurbishment and the renewal period would be a small fraction of any nuclear power plant site and would involve land that is controlled by the applicant.
Power line right of way	1	SMALL. Ongoing use of power line right of ways would continue with no change in restrictions. The effects of these restrictions are of small significance.
Human Health		
Radiation exposures to the public during refurbishment.	1	SMALL. During refurbishment, the gaseous effluents would result in doses that are similar to those from current operation. Applicable regulatory dose limits to the public are not expected to be exceeded.
Occupational radiation exposures during refurbishment.	1	SMALL. Occupational doses from refurbishment are expected to be within the range of annual average collective doses experienced for pressurized-water reactors and boiling-water reactors. Occupational mortality risk from all causes including radiation is in the mid-range for industrial settings.
Microbiological organisms (occupational health).	1	SMALL. Occupational health impacts are expected to be controlled by continued application of accepted industrial hygiene practices to minimize worker exposures.
Microbiological organisms (public health)(plants using lakes or canals, or cooling towers or cooling ponds that discharge to a small river).	2	SMALL, MODERATE, OR LARGE. These organisms are not expected to be a problem at most operating plants except possibly at plants using cooling ponds, lakes, or canals that discharge to small rivers. Without site-specific data, it is not possible to predict the effects generically. See § 51.53(c)(3)(ii)(G).
Noise	1	SMALL. Noise has not been found to be a problem at operating plants and is not expected to be a problem at any plant during the license renewal term.
Electromagnetic fields, acute effects (electric shock).	2	SMALL, MODERATE, OR LARGE. Electrical shock resulting from direct access to energized conductors or from induced charges in metallic structures have not been found to be a problem at most operating plants and generally are not expected to be a problem during the license renewal term. However, site-specific review is required to determine the significance of the electric shock potential at the site. See § 51.53(c)(3)(ii)(H).
Electromagnetic fields, chronic effects ⁵ .	⁴ NA	UNCERTAIN. Biological and physical studies of 60–Hz electromagnetic fields have not found consistent evidence linking harmful effects with field exposures. However, research is continuing in this area and a consensus scientific view has not been reached. ⁵
Radiation exposures to public (license renewal term).	1	SMALL. Radiation doses to the public will continue at current levels associated with normal operations.
Occupational radiation exposures (license renewal term).	1	SMALL. Projected maximum occupational doses during the license renewal term are within the range of doses experienced during normal operations and normal maintenance outages, and would be well below regulatory limits.
Socioeconomics		
Housing impacts	2	SMALL, MODERATE, OR LARGE. Housing impacts are expected to be of small significance at plants located in a medium or high population area and not in an area where growth control measures that limit housing development are in effect. Moderate or large housing impacts of the workforce associated with refurbishment may be associated with plants located in sparsely populated areas or in areas with growth control measures that limit housing development. See § 51.53(c)(3)(ii)(I).
Public services: public safety, social services, and tourism and recreation.	1	SMALL. Impacts to public safety, social services, and tourism and recreation are expected to be of small significance at all sites.
Public services: public utilities	2	SMALL OR MODERATE. An increased problem with water shortages at some sites may lead to impacts of moderate significance on public water supply availability. See § 51.53(c)(3)(ii)(I).
Public services, education (refurbishment).	2	SMALL, MODERATE, OR LARGE. Most sites would experience impacts of small significance but larger impacts are possible depending on site- and project-specific factors. See § 51.53(c)(3)(ii)(I).
Public services, education (license renewal term).	1	SMALL. Only impacts of small significance are expected.

Nuclear Regulatory Commission**Pt. 51, Subpt. A, App. B****TABLE B-1—SUMMARY OF FINDINGS ON NEPA ISSUES FOR LICENSE RENEWAL OF NUCLEAR POWER PLANTS¹—Continued**

Issue	Category ²	Findings ³
Offsite land use (refurbishment)	2	SMALL OR MODERATE. Impacts may be of moderate significance at plants in low population areas. See § 51.53(c)(3)(ii)(I).
Offsite land use (license renewal term).	2	SMALL, MODERATE, OR LARGE. Significant changes in land use may be associated with population and tax revenue changes resulting from license renewal. See § 51.53(c)(3)(ii)(I).
Public services, Transportation	2	SMALL, MODERATE, OR LARGE. Transportation impacts (level of service) of highway traffic generated during plant refurbishment and during the term of the renewed license are generally expected to be of small significance. However, the increase in traffic associated with additional workers and the local road and traffic control conditions may lead to impacts of moderate or large significance at some sites. See § 51.53(c)(3)(ii)(J).
Historic and archaeological resources.	2	SMALL, MODERATE, OR LARGE. Generally, plant refurbishment and continued operation are expected to have no more than small adverse impacts on historic and archaeological resources. However, the National Historic Preservation Act requires the Federal agency to consult with the State Historic Preservation Officer to determine whether there are properties present that require protection. See § 51.53(c)(3)(ii)(K).
Aesthetic impacts (refurbishment)	1	SMALL. No significant impacts are expected during refurbishment.
Aesthetic impacts (license renewal term).	1	SMALL. No significant impacts are expected during the license renewal term.
Aesthetic impacts of transmission lines (license renewal term).	1	SMALL. No significant impacts are expected during the license renewal term.
Postulated Accidents		
Design basis accidents	1	SMALL. The NRC staff has concluded that the environmental impacts of design basis accidents are of small significance for all plants.
Severe accidents	2	SMALL. The probability weighted consequences of atmospheric releases, fallout onto open bodies of water, releases to ground water, and societal and economic impacts from severe accidents are small for all plants. However, alternatives to mitigate severe accidents must be considered for all plants that have not considered such alternatives. See § 51.53(c)(3)(iii)(L).
Uranium Fuel Cycle and Waste Management		
Offsite radiological impacts (individual effects from other than the disposal of spent fuel and high level waste).	1	SMALL. Off-site impacts of the uranium fuel cycle have been considered by the Commission in Table S-3 of this part. Based on information in the GEIS, impacts on individuals from radioactive gaseous and liquid releases including radon-222 and technetium-99 are small.
Offsite radiological impacts (collective effects).	1	The 100 year environmental dose commitment to the U.S. population from the fuel cycle, high level waste and spent fuel disposal excepted, is calculated to be about 14,800 person rem, or 12 cancer fatalities, for each additional 20-year power reactor operating term. Much of this, especially the contribution of radon releases from mines and tailing piles, consists of tiny doses summed over large populations. This same dose calculation can theoretically be extended to include many tiny doses over additional thousands of years as well as doses outside the U. S. The result of such a calculation would be thousands of cancer fatalities from the fuel cycle, but this result assumes that even tiny doses have some statistical adverse health effect which will not ever be mitigated (for example no cancer cure in the next thousand years), and that these doses projected over thousands of years are meaningful. However, these assumptions are questionable. In particular, science cannot rule out the possibility that there will be no cancer fatalities from these tiny doses. For perspective, the doses are very small fractions of regulatory limits, and even smaller fractions of natural background exposure to the same populations. Nevertheless, despite all the uncertainty, some judgement as to the regulatory NEPA implications of these matters should be made and it makes no sense to repeat the same judgement in every case. Even taking the uncertainties into account, the Commission concludes that these impacts are acceptable in that these impacts would not be sufficiently large to require the NEPA conclusion, for any plant, that the option of extended operation under 10 CFR Part 54 should be eliminated. Accordingly, while the Commission has not assigned a single level of significance for the collective effects of the fuel cycle, this issue is considered Category 1.

Pt. 51, Subpt. A, App. B

10 CFR Ch. I (1–1–11 Edition)

TABLE B–1—SUMMARY OF FINDINGS ON NEPA ISSUES FOR LICENSE RENEWAL OF NUCLEAR POWER PLANTS¹—Continued

Issue	Category ²	Findings ³
Offsite radiological impacts (spent fuel and high level waste disposal).	1	<p>For the high level waste and spent fuel disposal component of the fuel cycle, there are no current regulatory limits for offsite releases of radionuclides for the current candidate repository site. However, if we assume that limits are developed along the lines of the 1995 National Academy of Sciences (NAS) report, “Technical Bases for Yucca Mountain Standards,” and that in accordance with the Commission’s Waste Confidence Decision, 10 CFR 51.23, a repository can and likely will be developed at some site which will comply with such limits, peak doses to virtually all individuals will be 100 millirem per year or less. However, while the Commission has reasonable confidence that these assumptions will prove correct, there is considerable uncertainty since the limits are yet to be developed, no repository application has been completed or reviewed, and uncertainty is inherent in the models used to evaluate possible pathways to the human environment. The NAS report indicated that 100 millirem per year should be considered as a starting point for limits for individual doses, but notes that some measure of consensus exists among national and international bodies that the limits should be a fraction of the 100 millirem per year. The lifetime individual risk from 100 millirem annual dose limit is about 3×10^{-3}.</p> <p>Estimating cumulative doses to populations over thousands of years is more problematic. The likelihood and consequences of events that could seriously compromise the integrity of a deep geologic repository were evaluated by the Department of Energy in the “Final Environmental Impact Statement: Management of Commercially Generated Radioactive Waste,” October 1980. The evaluation estimated the 70-year whole-body dose commitment to the maximum individual and to the regional population resulting from several modes of breaching a reference repository in the year of closure, after 1,000 years, after 100,000 years, and after 100,000,000 years. Subsequently, the NRC and other federal agencies have expended considerable effort to develop models for the design and for the licensing of a high level waste repository, especially for the candidate repository at Yucca Mountain. More meaningful estimates of doses to population may be possible in the future as more is understood about the performance of the proposed Yucca Mountain repository. Such estimates would involve very great uncertainty, especially with respect to cumulative population doses over thousands of years. The standard proposed by the NAS is a limit on maximum individual dose. The relationship of potential new regulatory requirements, based on the NAS report, and cumulative population impacts has not been determined, although the report articulates the view that protection of individuals will adequately protect the population for a repository at Yucca Mountain. However, EPA’s generic repository standards in 40 CFR part 191 generally provide an indication of the order of magnitude of cumulative risk to population that could result from the licensing of a Yucca Mountain repository, assuming the ultimate standards will be within the range of standards now under consideration. The standards in 40 CFR part 191 protect the population by imposing “containment requirements” that limit the cumulative amount of radioactive material released over 10,000 years. Reporting performance standards that will be required by EPA are expected to result in releases and associated health consequences in the range between 10 and 100 premature cancer deaths with an upper limit of 1,000 premature cancer deaths worldwide for a 100,000 metric tonne (MTHM) repository.</p> <p>Nevertheless, despite all the uncertainty, some judgement as to the regulatory NEPA implications of these matters should be made and it makes no sense to repeat the same judgement in every case. Even taking the uncertainties into account, the Commission concludes that these impacts are acceptable in that these impacts would not be sufficiently large to require the NEPA conclusion, for any plant, that the option of extended operation under 10 CFR part 54 should be eliminated. Accordingly, while the Commission has not assigned a single level of significance for the impacts of spent fuel and high level waste disposal, this issue is considered Category 1.</p>
Nonradiological impacts of the uranium fuel cycle.	1	SMALL. The nonradiological impacts of the uranium fuel cycle resulting from the renewal of an operating license for any plant are found to be small.

Nuclear Regulatory Commission**Pt. 51, Subpt. A, App. B****TABLE B-1—SUMMARY OF FINDINGS ON NEPA ISSUES FOR LICENSE RENEWAL OF NUCLEAR POWER PLANTS¹—Continued**

Issue	Category ²	Findings ³
Low-level waste storage and disposal.	1	SMALL. The comprehensive regulatory controls that are in place and the low public doses being achieved at reactors ensure that the radiological impacts to the environment will remain small during the term of a renewed license. The maximum additional on-site land that may be required for low-level waste storage during the term of a renewed license and associated impacts will be small. Nonradiological impacts on air and water will be negligible. The radiological and nonradiological environmental impacts of long-term disposal of low-level waste from any individual plant at licensed sites are small. In addition, the Commission concludes that there is reasonable assurance that sufficient low-level waste disposal capacity will be made available when needed for facilities to be decommissioned consistent with NRC decommissioning requirements.
Mixed waste storage and disposal	1	SMALL. The comprehensive regulatory controls and the facilities and procedures that are in place ensure proper handling and storage, as well as negligible doses and exposure to toxic materials for the public and the environment at all plants. License renewal will not increase the small, continuing risk to human health and the environment posed by mixed waste at all plants. The radiological and nonradiological environmental impacts of long-term disposal of mixed waste from any individual plant at licensed sites are small. In addition, the Commission concludes that there is reasonable assurance that sufficient mixed waste disposal capacity will be made available when needed for facilities to be decommissioned consistent with NRC decommissioning requirements.
On-site spent fuel	1	SMALL. The expected increase in the volume of spent fuel from an additional 20 years of operation can be safely accommodated on site with small environmental effects through dry or pool storage at all plants if a permanent repository or monitored retrievable storage is not available.
Nonradiological waste	1	SMALL. No changes to generating systems are anticipated for license renewal. Facilities and procedures are in place to ensure continued proper handling and disposal at all plants.
Transportation	1	SMALL. The impacts of transporting spent fuel enriched up to 5 percent uranium-235 with average burnup for the peak rod to current levels approved by NRC up to 62,000 MWd/MTU and the cumulative impacts of transporting high-level waste to a single repository, such as Yucca Mountain, Nevada are found to be consistent with the impact values contained in 10 CFR 51.52(c), Summary Table S-4—Environmental Impact of Transportation of Fuel and Waste to and from One Light-Water-Cooled Nuclear Power Reactor. If fuel enrichment or burnup conditions are not met, the applicant must submit an assessment of the implications for the environmental impact values reported in § 51.52.
Decommissioning		
Radiation doses	1	SMALL. Doses to the public will be well below applicable regulatory standards regardless of which decommissioning method is used. Occupational doses would increase no more than 1 man-rem caused by buildup of long-lived radionuclides during the license renewal term.
Waste management	1	SMALL. Decommissioning at the end of a 20-year license renewal period would generate no more solid wastes than at the end of the current license term. No increase in the quantities of Class C or greater than Class C wastes would be expected.
Air quality	1	SMALL. Air quality impacts of decommissioning are expected to be negligible either at the end of the current operating term or at the end of the license renewal term.
Water quality	1	SMALL. The potential for significant water quality impacts from erosion or spills is no greater whether decommissioning occurs after a 20-year license renewal period or after the original 40-year operation period, and measures are readily available to avoid such impacts.
Ecological resources	1	SMALL. Decommissioning after either the initial operating period or after a 20-year license renewal period is not expected to have any direct ecological impacts.
Socioeconomic impacts	1	SMALL. Decommissioning would have some short-term socioeconomic impacts. The impacts would not be increased by delaying decommissioning until the end of a 20-year relicensing period, but they might be decreased by population and economic growth.

Pt. 52**10 CFR Ch. I (1–1–11 Edition)****TABLE B–1—SUMMARY OF FINDINGS ON NEPA ISSUES FOR LICENSE RENEWAL OF NUCLEAR POWER PLANTS¹—Continued**

Issue	Category ²	Findings ³
Environmental Justice		
Environmental justice ⁶	⁴ NA	NONE. The need for and the content of an analysis of environmental justice will be addressed in plant-specific reviews. ⁶

¹ Data supporting this table are contained in NUREG–1437, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants” (May 1996) and NUREG–1437, Vol. 1, Addendum 1, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Main Report Section 6.3—‘Transportation,’ Table 9.1 ‘Summary of findings on NEPA issues for license renewal of nuclear power plants,’ Final Report” (August 1999).

² The numerical entries in this column are based on the following category definitions:

Category 1: For the issue, the analysis reported in the Generic Environmental Impact Statement has shown:

(1) The environmental impacts associated with the issue have been determined to apply either to all plants or, for some issues, to plants having a specific type of cooling system or other specified plant or site characteristic;

(2) A single significance level (*i.e.*, small, moderate, or large) has been assigned to the impacts (except for collective off site radiological impacts from the fuel cycle and from high level waste and spent fuel disposal); and

(3) Mitigation of adverse impacts associated with the issue has been considered in the analysis, and it has been determined that additional plant-specific mitigation measures are likely not to be sufficiently beneficial to warrant implementation.

The generic analysis of the issue may be adopted in each plant-specific review.

Category 2: For the issue, the analysis reported in the Generic Environmental Impact Statement has shown that one or more of the criteria of Category 1 cannot be met, and therefore additional plant-specific review is required.

³ The impact findings in this column are based on the definitions of three significance levels. Unless the significance level is identified as beneficial, the impact is adverse, or in the case of “small,” may be negligible. The definitions of significance follow:

SMALL—For the issue, environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource. For the purposes of assessing radiological impacts, the Commission has concluded that those impacts that do not exceed permissible levels in the Commission’s regulations are considered small as the term is used in this table.

MODERATE—For the issue, environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.

LARGE—For the issue, environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

For issues where probability is a key consideration (*i.e.*, accident consequences), probability was a factor in determining significance.

⁴ NA (not applicable). The categorization and impact finding definitions do not apply to these issues.

⁵ If, in the future, the Commission finds that, contrary to current indications, a consensus has been reached by appropriate Federal health agencies that there are adverse health effects from electromagnetic fields, the Commission will require applicants to submit plant-specific reviews of these health effects as part of their license renewal applications. Until such time, applicants for license renewal are not required to submit information on this issue.

⁶ Environmental Justice was not addressed in NUREG–1437, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants,” because guidance for implementing Executive Order 12898 issued on February 11, 1994, was not available prior to completion of NUREG–1437. This issue will be addressed in individual license renewal reviews.

[61 FR 66546, Dec. 18, 1996, as amended at 62 FR 59276, Nov. 3, 1997; 64 FR 48507, Sept. 3, 1999; 66 FR 39278, July 30, 2001]

Subpart B [Reserved]**Subpart A—Early Site Permits****PART 52—LICENSES, CERTIFICATIONS, AND APPROVALS FOR NUCLEAR POWER PLANTS****GENERAL PROVISIONS**

Sec.

52.0 Scope; applicability of 10 CFR Chapter I provisions.

52.1 Definitions.

52.2 Interpretations.

52.3 Written communications.

52.4 Deliberate misconduct.

52.5 Employee protection.

52.6 Completeness and accuracy of information.

52.7 Specific exemptions.

52.8 Combining licenses; elimination of repetition.

52.9 Jurisdictional limits.

52.10 Attacks and destructive acts.

52.11 Information collection requirements: OMB approval.

52.12 Scope of subpart.

52.13 Relationship to other subparts.

52.15 Filing of applications.

52.16 Contents of applications; general information.

52.17 Contents of applications; technical information.

52.18 Standards for review of applications.

52.21 Administrative review of applications; hearings.

52.23 Referral to the Advisory Committee on Reactor Safeguards (ACRS).

52.24 Issuance of early site permit.

52.25 Extent of activities permitted.

52.26 Duration of permit.

52.27 Limited work authorization after issuance of early site permit.

52.28 Transfer of early site permit.

52.29 Application for renewal.

52.31 Criteria for renewal.

52.33 Duration of renewal.

52.35 Use of site for other purposes.

52.39 Finality of early site permit determinations.

§ 51.20

PRELIMINARY PROCEDURES

CLASSIFICATION OF LICENSING AND
REGULATORY ACTIONS**§ 51.20 Criteria for and identification
of licensing and regulatory actions
requiring environmental impact
statements.**

(a) Licensing and regulatory actions requiring an environmental impact statement shall meet at least one of the following criteria:

(1) The proposed action is a major Federal action significantly affecting the quality of the human environment.

(2) The proposed action involves a matter which the Commission, in the exercise of its discretion, has determined should be covered by an environmental impact statement.

(b) The following types of actions require an environmental impact statement or a supplement to an environmental impact statement:

(1) Issuance of a limited work authorization or a permit to construct a nuclear power reactor, testing facility, or fuel reprocessing plant under part 50 of this chapter, or issuance of an early site permit under part 52 of this chapter.

(2) Issuance or renewal of a full power or design capacity license to operate a nuclear power reactor, testing facility, or fuel reprocessing plant under part 50 of this chapter, or a combined license under part 52 of this chapter.

(3) Issuance of a permit to construct or a design capacity license to operate or renewal of a design capacity license to operate an isotopic enrichment plant pursuant to part 50 of this chapter.

(4) Conversion of a provisional operating license for a nuclear power reactor, testing facility or fuel reprocessing plant to a full term or design capacity license pursuant to part 50 of this chapter if a final environmental impact statement covering full term or design capacity operation has not been previously prepared.

(5)–(6) [Reserved]

(7) Issuance of a license to possess and use special nuclear material for processing and fuel fabrication, scrap recovery, or conversion of uranium hexafluoride pursuant to part 70 of this chapter.

10 CFR Ch. I (1–1–11 Edition)

(8) Issuance of a license to possess and use source material for uranium milling or production of uranium hexafluoride pursuant to part 40 of this chapter.

(9) Issuance of a license pursuant to part 72 of this chapter for the storage of spent fuel in an independent spent fuel storage installation (ISFSI) at a site not occupied by a nuclear power reactor, or for the storage of spent fuel or high-level radioactive waste in a monitored retrievable storage installation (MRS).

(10) Issuance of a license for a uranium enrichment facility.

(11) Issuance of renewal of a license authorizing receipt and disposal of radioactive waste from other persons pursuant to part 61 of this chapter.

(12) Issuance of a license amendment pursuant to part 61 of this chapter authorizing (i) closure of a land disposal site, (ii) transfer of the license to the disposal site owner for the purpose of institutional control, or (iii) termination of the license at the end of the institutional control period.

(13) Issuance of a construction authorization and license pursuant to part 60 or part 63 of this chapter.

(14) Any other action which the Commission determines is a major Commission action significantly affecting the quality of the human environment. As provided in § 51.22(b), the Commission may, in special circumstances, prepare an environmental impact statement on an action covered by a categorical exclusion.

[49 FR 9381, Mar. 12, 1984, as amended at 53 FR 31681, Aug. 19, 1988; 53 FR 24052, June 27, 1988; 54 FR 15398, Apr. 18, 1989; 54 FR 27870, July 3, 1989; 57 FR 18392, Apr. 30, 1992; 66 FR 55790, Nov. 2, 2001; 72 FR 49509, Aug. 28, 2007]

**§ 51.21 Criteria for and identification
of licensing and regulatory actions
requiring environmental assess-
ments.**

All licensing and regulatory actions subject to this subpart require an environmental assessment except those identified in § 51.20(b) as requiring an environmental impact statement, those identified in § 51.22(c) as categorical exclusions, and those identified in § 51.22(d) as other actions not requiring environmental review. As provided in

§ 51.93

to a final environmental impact statement will be published in the FEDERAL REGISTER as provided in § 51.118.

[72 FR 49515, Aug. 28, 2007]

§ 51.93 Distribution of final environmental impact statement and supplement to final environmental impact statement; news releases.

(a) A copy of the final environmental impact statement will be distributed to:

(1) The Environmental Protection Agency.

(2) The applicant or petitioner for rulemaking and any other party to the proceeding.

(3) Appropriate State, regional and metropolitan clearinghouses.

(4) Each commenter.

(b) Additional copies will be made available in accordance with § 51.123.

(c) If the final environmental impact statement is unusually long or there are so many comments on a draft environmental impact statement or any supplement to a draft environmental impact statement that distribution of the entire final statement to all commenters is impracticable, a summary of the final statement and the substantive comments will be distributed. When the final environmental impact statement has been prepared by adding errata sheets to the draft environmental impact statement as provided in § 51.91(a)(3), only the comments, the responses to the comments and the changes to the environmental impact statement will be distributed.

(d) A supplement to a final environmental impact statement will be distributed in the same manner as the final environmental impact statement to which it relates.

(e) News releases stating the availability and place for obtaining or inspecting a final environmental impact statement or supplement will be provided to local newspapers and other appropriate media.

(f) A notice of availability will be published in the FEDERAL REGISTER in accordance with § 51.118.

§ 51.94 Requirement to consider final environmental impact statement.

The final environmental impact statement, together with any com-

10 CFR Ch. I (1–1–11 Edition)

ments and any supplement, will accompany the application or petition for rulemaking through, and be considered in, the Commission's decisionmaking process. The final environmental impact statement, together with any comments and any supplement, will be made a part of the record of the appropriate adjudicatory or rulemaking proceeding.

FINAL ENVIRONMENTAL IMPACT STATEMENTS—PRODUCTION AND UTILIZATION FACILITIES

§ 51.95 Postconstruction environmental impact statements.

(a) *General.* Any supplement to a final environmental impact statement or any environmental assessment prepared under the provisions of this section may incorporate by reference any information contained in a final environmental document previously prepared by the NRC staff that relates to the same production or utilization facility. Documents that may be referenced include, but are not limited to, the final environmental impact statement; supplements to the final environmental impact statement, including supplements prepared at the operating license stage; NRC staff-prepared final generic environmental impact statements; environmental assessments and records of decisions prepared in connection with the construction permit, the operating license, the early site permit, or the combined license and any license amendment for that facility. A supplement to a final environmental impact statement will include a request for comments as provided in § 51.73.

(b) *Initial operating license stage.* In connection with the issuance of an operating license for a production or utilization facility, the NRC staff will prepare a supplement to the final environmental impact statement on the construction permit for that facility, which will update the prior environmental review. The supplement will only cover matters that differ from the final environmental impact statement or that reflect significant new information concerning matters discussed in the final environmental impact statement. Unless otherwise determined by

Nuclear Regulatory Commission**§ 51.95**

the Commission, a supplement on the operation of a nuclear power plant will not include a discussion of need for power, or of alternative energy sources, or of alternative sites, or of any aspect of the storage of spent fuel for the nuclear power plant within the scope of the generic determination in § 51.23(a) and in accordance with § 51.23(b), and will only be prepared in connection with the first licensing action authorizing full-power operation.

(c) *Operating license renewal stage.* In connection with the renewal of an operating license or combined license for a nuclear power plant under parts 52 or 54 of this chapter, the Commission shall prepare an environmental impact statement, which is a supplement to the Commission's NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (May 1996), which is available in the NRC Public Document Room, 11555 Rockville Pike, Rockville, Maryland.

(1) The supplemental environmental impact statement for the operating license renewal stage shall address those issues as required by § 51.71. In addition, the NRC staff must comply with 40 CFR 1506.6(b)(3) in conducting the additional scoping process as required by § 51.71(a).

(2) The supplemental environmental impact statement for license renewal is not required to include discussion of need for power or the economic costs and economic benefits of the proposed action or of alternatives to the proposed action except insofar as such benefits and costs are either essential for a determination regarding the inclusion of an alternative in the range of alternatives considered or relevant to mitigation. In addition, the supplemental environmental impact statement prepared at the license renewal stage need not discuss other issues not related to the environmental effects of the proposed action and the alternatives, or any aspect of the storage of spent fuel for the facility within the scope of the generic determination in § 51.23(a) and in accordance with § 51.23(b). The analysis of alternatives in the supplemental environmental impact statement should be limited to the environmental impacts of such al-

ternatives and should otherwise be prepared in accordance with § 51.71 and appendix A to subpart A of this part.

(3) The supplemental environmental impact statement shall be issued as a final impact statement in accordance with §§ 51.91 and 51.93 after considering any significant new information relevant to the proposed action contained in the supplement or incorporated by reference.

(4) The supplemental environmental impact statement must contain the NRC staff's recommendation regarding the environmental acceptability of the license renewal action. In order to make its recommendation and final conclusion on the proposed action, the NRC staff, adjudicatory officers, and Commission shall integrate the conclusions, as amplified by the supporting information in the generic environmental impact statement for issues designated Category 1 (with the exception of offsite radiological impacts for collective effects and the disposal of spent fuel and high level waste) or resolved Category 2, information developed for those open Category 2 issues applicable to the plant in accordance with § 51.53(c)(3)(ii), and any significant new information. Given this information, the NRC staff, adjudicatory officers, and Commission shall determine whether or not the adverse environmental impacts of license renewal are so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable.

(d) *Postoperating license stage.* In connection with the amendment of an operating or combined license authorizing decommissioning activities at a production or utilization facility covered by § 51.20, either for unrestricted use or based on continuing use restrictions applicable to the site, or with the issuance, amendment or renewal of a license to store spent fuel at a nuclear power reactor after expiration of the operating or combined license for the nuclear power reactor, the NRC staff will prepare a supplemental environmental impact statement for the post operating or post combined license stage or an environmental assessment, as appropriate, which will update the prior environmental documentation prepared by the NRC for compliance

§ 51.97

with NEPA under the provisions of this part. The supplement or assessment may incorporate by reference any information contained in the final environmental impact statement—for the operating or combined license stage, as appropriate, or in the records of decision prepared in connection with the early site permit, construction permit, operating license, or combined license for that facility. The supplement will include a request for comments as provided in § 51.73. Unless otherwise required by the Commission in accordance with the generic determination in § 51.23(a) and the provisions of § 51.23(b), a supplemental environmental impact statement for the postoperating or post combined license stage or an environmental assessment, as appropriate, will address the environmental impacts of spent fuel storage only for the term of the license, license amendment or license renewal applied for.

[61 FR 66545, Dec. 18, 1996, as amended at 72 FR 49516, Aug. 28, 2007]

FINAL ENVIRONMENTAL IMPACT
STATEMENTS—MATERIALS LICENSES

§ 51.97 Final environmental impact statement—materials license.

(a) *Independent spent fuel storage installation (ISFSI)*. Unless otherwise determined by the Commission, and in accordance with the generic determination in § 51.23(a) and the provisions of § 51.23(b), a final environmental impact statement on the issuance of an initial license for the storage of spent fuel at an independent spent fuel storage installation (ISFSI) or any amendment thereto, will address environmental impacts of spent fuel storage only for the term of the license or amendment applied for.

(b) *Monitored retrievable storage facility (MRS)*. As provided in sections 141 (c), (d), and (e) and 148 (a) and (c) of the Nuclear Waste Policy Act of 1982, as amended (NWPA) (96 Stat. 2242, 2243, 42 U.S.C. 10161 (c), (d), (e); 101 Stat. 1330–235, 1330–236, 42 U.S.C. 10168 (a), (c)) a final environmental impact statement for the construction of a monitored retrievable storage installation (MRS) will not address the need for the MRS or any alternative to the design criteria for an MRS set forth in section

10 CFR Ch. I (1–1–11 Edition)

141(b)(1) of the NWPA (96 Stat. 2242, 42 U.S.C. 10161(b)(1)) but may consider alternative facility designs which are consistent with these design criteria.

(c) *Uranium enrichment facility*. As provided in section 5(e) of the Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990 (104 Stat. 2834 at 2835, 42 U.S.C. 2243), a final environmental impact statement must be prepared before the hearing on the issuance of a license for a uranium enrichment facility is completed.

[49 FR 34695, Aug. 31, 1984, as amended at 53 FR 31682, Aug. 19, 1988; 57 FR 18392, Apr. 30, 1992]

FINAL ENVIRONMENTAL IMPACT
STATEMENTS—RULEMAKING

§ 51.99 [Reserved]

NEPA PROCEDURE AND ADMINISTRATIVE
ACTION

GENERAL

§ 51.100 Timing of Commission action.

(a)(1) Except as provided in § 51.13 and paragraph (b) of this section, no decision on a proposed action, including the issuance of a permit, license, or other form of permission, or amendment to or renewal of a permit, license, or other form of permission, or the issuance of an effective regulation, for which an environmental impact statement is required, will be made and no record of decision will be issued until the later of the following dates:

(i) Ninety (90) days after publication by the Environmental Protection Agency of a FEDERAL REGISTER notice stating that the draft environmental impact statement has been filed with EPA.

(ii) Thirty (30) days after publication by the Environmental Protection Agency of a FEDERAL REGISTER notice stating that the final environmental impact statement has been filed with EPA.

(2) If a notice of filing of a final environmental impact statement is published by the Environmental Protection Agency within ninety (90) days after a notice of filing of a draft environmental impact statement has been published by EPA, the minimum thirty

§ 1508.6**§ 1508.6 Council.**

Council means the Council on Environmental Quality established by title II of the Act.

§ 1508.7 Cumulative impact.

Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

§ 1508.8 Effects.

Effects include:

(a) Direct effects, which are caused by the action and occur at the same time and place.

(b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

§ 1508.9 Environmental assessment.

Environmental assessment:

(a) Means a concise public document for which a Federal agency is responsible that serves to:

(1) Briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact

40 CFR Ch. V (7-1-11 Edition)

statement or a finding of no significant impact.

(2) Aid an agency's compliance with the Act when no environmental impact statement is necessary.

(3) Facilitate preparation of a statement when one is necessary.

(b) Shall include brief discussions of the need for the proposal, of alternatives as required by section 102(2)(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.

§ 1508.10 Environmental document.

Environmental document includes the documents specified in §1508.9 (environmental assessment), §1508.11 (environmental impact statement), §1508.13 (finding of no significant impact), and §1508.22 (notice of intent).

§ 1508.11 Environmental impact statement.

Environmental impact statement means a detailed written statement as required by section 102(2)(C) of the Act.

§ 1508.12 Federal agency.

Federal agency means all agencies of the Federal Government. It does not mean the Congress, the Judiciary, or the President, including the performance of staff functions for the President in his Executive Office. It also includes for purposes of these regulations States and units of general local government and Indian tribes assuming NEPA responsibilities under section 104(h) of the Housing and Community Development Act of 1974.

§ 1508.13 Finding of no significant impact.

Finding of no significant impact means a document by a Federal agency briefly presenting the reasons why an action, not otherwise excluded (§1508.4), will not have a significant effect on the human environment and for which an environmental impact statement therefore will not be prepared. It shall include the environmental assessment or a summary of it and shall note any other environmental documents related to it (§1501.7(a)(5)). If the assessment is included, the finding need not

Council on Environmental Quality**§ 1502.24**

may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment. Material based on proprietary data which is itself not available for review and comment shall not be incorporated by reference.

§ 1502.22 Incomplete or unavailable information.

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

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

(b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:

(1) A statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment; (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment, and (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

(c) The amended regulation will be applicable to all environmental impact statements for which a Notice of Intent (40 CFR 1508.22) is published in the FEDERAL REGISTER on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

[51 FR 15625, Apr. 25, 1986]

§ 1502.23 Cost-benefit analysis.

If a cost-benefit analysis relevant to the choice among environmentally different alternatives is being considered for the proposed action, it shall be incorporated by reference or appended to the statement as an aid in evaluating the environmental consequences. To assess the adequacy of compliance with section 102(2)(B) of the Act the statement shall, when a cost-benefit analysis is prepared, discuss the relationship between that analysis and any analyses of unquantified environmental impacts, values, and amenities. For purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. In any event, an environmental impact statement should at least indicate those considerations, including factors not related to environmental quality, which are likely to be relevant and important to a decision.

§ 1502.24 Methodology and scientific accuracy.

Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement. An agency may place discussion of methodology in an appendix.

CERTIFICATE OF SERVICE

I, Janice A. Dean, hereby certify that on February 7, 2012, I served the Final Brief for States of New York, Vermont, Connecticut, and New Jersey, and The Prairie Island Indian Community via the CM/ECF system upon the following counsel of record:

John Emad Arbab, Esq.
(john.arbab@usdoj.gov)
U.S. Department of Justice
Environmental and Natural
Resources Division
P.O. Box 23795
Washington, D.C. 20026
for Respondent United States

John F. Cordes, Jr., Esq.
(john.cordes@nrc.gov)
Robert Michael Rader, Esq.
(robert.rader@nrc.gov)
11555 Rockville Pike
Rockville, Maryland 20852
for Respondent NRC

Geoffrey H. Fettus, Esq.
(gfettus@nrdc.org)
1152 15th Street, N.W., Suite 300
Washington, D.C. 20005
for Petitioner NRDC

Brad Fagg, Esq.
(bfagg@morganlewis.com)
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
*for Intervenor Entergy Nuclear
Operations Inc.,*

Diane Curran, Esq.
(dcurran@harmoncurran.com)
Harmon, Curran, Spielberg &
Eisenberg, LLP
1726 M Street, N.W., Suite 600
Washington, D.C. 20036
*for Petitioners Blue Ridge
Environmental Defense League,
Inc., Riverkeeper, Inc., and
Southern Alliance for Clean
Energy, Inc.*

David A. Repka, Esq.
(drepka@winston.com)
Winston & Strawn LLP
1700 K Street, N.W.
Washington, D.C. 20006
*for Intervenor Nuclear Energy
Institute, Inc.*

/s/ Janice A. Dean
JANICE A. DEAN
February 7, 2012