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Chief, Rules, Announcements, and Directives Branch
Office of Administration
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U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Comments on Scope of Environmental Impact Statement Supporting the Rulemaking to Update the Waste Confidence Decision and Rule (Docket ID: NRC-2012-0246)

Dear Ms. Bladey:

This letter provides the comments of the Nuclear Energy Institute (NEI)¹ on the scope of the Environmental Impact Statement (EIS) for the Commission's updated Waste Confidence Decision (WCD) and rule. The NRC published a request for comments on the notice of intent to prepare an EIS in the *Federal Register* on October 25, 2012, with comments due on January 2, 2013.² NEI provided preliminary comments at the NRC's November 14, 2012, public scoping meeting, and NEI's detailed comments on the scope of the Waste Confidence EIS are included as an attachment to this letter.

As explained in the attachment, NEI supports the schedule established by the Commission in SRM-COMSECY-12-0016 to publish a final WCD and rule by September 6, 2014.³ The schedule allows both a full review of the issues identified by the United States Court of Appeals for the D.C. Circuit⁴ and a timely resolution of the rulemaking process. Maintaining this schedule is an essential objective, since the Commission will not make final licensing decisions

¹ NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members includes all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, nuclear material licensees, and other organizations involved in the nuclear energy industry.

² Consideration of Environmental Impacts of Temporary Storage of Spent Fuel After Cessation of Reactor Operation, 77 *Fed. Reg.* 65,137 (Oct. 25, 2012).

³ Staff Requirements – COMSECY-12-0016 – Approach for Addressing Policy Issues Resulting from Court Decision to Vacate Waste Confidence Decision and Rule (Sept. 6, 2012).

⁴ *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012).

on pending license applications dependent upon the WCD until the remanded issues are resolved.⁵

In the most general terms, the WCD is a generic finding that supports issuance of new and renewed licenses for nuclear power plants (and independent spent fuel storage installations (ISFSIs)⁶). The WCD and related rule do not authorize individual licensing actions, but address specific issues related to temporary interim onsite spent fuel storage in order to satisfy the National Environmental Policy Act (NEPA). NEI concurs with the Commission's decision to proceed with a generic evaluation of the specific spent fuel storage issues addressed in the WCD, and to continue its past practice of adopting the WCD findings by rulemaking. The Court of Appeals specifically recognized that the EIS could be a generic one, and in fact the environmental consequences of the extended, interim storage of spent fuel can be bounded for all reactor sites. As a result, consideration of individual reactor site issues in the EIS is unnecessary.

For the purposes of this EIS, the proposed Federal action is a rulemaking to adopt findings related to the environmental consequences of the storage of spent nuclear fuel after the licensed life of a reactor. The rulemaking will obviate case-by-case review of these issues. The EIS will include the scenario of no high-level waste repository becoming available, as identified by the Court of Appeals. While that scenario is highly unlikely, the NRC's consideration of the consequences of such extreme government inaction will clearly satisfy NEPA. As explained in greater detail in the attached comments, other environmental consequences of, and alternatives to, nuclear plant licensing should not be encompassed by the planned EIS, since those matters are addressed in other NEPA documents specifically supporting licensing actions. The proposed EIS addressing interim onsite storage is not a forum to address the advantages or disadvantages of nuclear power generally, the impacts of nuclear plant operation, site-specific issues, or the merits of any particular licensing action.

As the Commission has already determined, the NRC staff should "use the analyses in the 2010 Waste Confidence Decision to the extent possible and should primarily focus any additional analyses on the three deficiencies identified in the D.C. Circuit's decision."⁷ These issues are: the impacts of failing to establish a permanent repository; the probability and consequences of future spent fuel pool leaks; and the probability and consequences of spent fuel pool fires. Because the Court only invalidated those elements of the 2010 rule and supporting Environmental Assessment, the remainder of the 2010 environmental review need not be revisited. In this regard, NEI strongly agrees with the Commission's statement in SRM-COMSECY-12-0016 that there are "numerous other technical documents and reports on related issues . . . that can, and should, be used to support the necessary analyses."

⁵ *Calvert Cliffs Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), *et al.*, CLI-12-16, (Aug. 7, 2012) (slip. op. at 4).

⁶ The EIS is intended to address spent fuel storage after the licensed life of both commercial reactors and ISFSIs. For simplicity, reference in this letter and the enclosed comments to reactors also includes ISFSIs.

⁷ SRM-COMSECY-12-0016 at 1.

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The Court's decision did not require reopening or otherwise addressing the five WCD findings. However, these findings can be updated in the rulemaking based on the EIS, if warranted. Given the established schedule, it will be important to avoid unnecessarily broadening the scope of the agency's efforts to respond to the Court's remand.

If you have any questions concerning these comments, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Ellen C. Ginsberg". The signature is written in a cursive, flowing style.

Ellen C. Ginsberg

NEI Comments on Scope of Generic Environmental Impact Statement to Support and Update Waste Confidence Decision and Rule

I. Preliminary Matters

Schedule

The two-year schedule established by the Commission for the agency to publish the updated final Waste Confidence Decision (WCD) and rule is sufficient to address the deficiencies identified in the D.C. Circuit's decision in a generic environmental impact statement (EIS), and to allow for meaningful public participation in the review and rulemaking processes. Based on existing information, the agency has a robust basis upon which to build in developing the EIS, and can focus upon the targeted issues identified in the Court's remand. The two-year timeframe will provide the NRC staff with ample opportunity to take the "hard look" at the issues as required by the National Environmental Policy Act (NEPA).

As set forth in the Enclosure to SECY-12-0132, "Implementation of Commission Memorandum and Order CLI-12-16 Regarding Waste Confidence Decision and Rule," multiple licensing actions are impacted by the remand of the WCD and the NRC's generic review. Therefore, meeting the Commission's schedule is necessary to minimize licensing delays.

Starting Point for the EIS

The Commission, in its discretion, has chosen to prepare an EIS. Nonetheless, as the Commission stated in SRM-COMSECY-12-0016, the NRC staff "should build upon the existing Environmental Assessment that the NRC developed in the 2010 Waste Confidence Decision to the extent possible and should primarily focus any additional analyses on the three deficiencies identified in the D.C. Circuit's decision."¹ NEI fully supports the NRC using the substantial record compiled from the prior WCD update in this EIS effort. The NRC staff should also draw upon other existing supporting analyses. There is no need to start from scratch.

The Court's vacatur of the WCD and temporary storage rule focused on three specific issues – the Court did not invalidate other aspects of the WCD. The D.C. Circuit has held in other cases that even upon vacatur, an agency may cure a defect identified by the court and reinstate the original result on remand.² Similarly, the courts "frequently remand matters to agencies while leaving open the possibility that the agencies can reach exactly the same result as long as they ... explain themselves better or develop better evidence for their position."³

There is no basis at the outset for the NRC to revisit the five Waste Confidence findings themselves, and the Commission's direction to the staff does not contemplate such an approach.

¹ Staff Requirements – COMSECY-12-0016 – Approach for Addressing Policy Issues Resulting from Court Decision to Vacate Waste Confidence Decision and Rule at 1 (Sept. 6, 2012).

² *Heartland Regional Medical Center v. Leavitt*, 415 F.3d 24, 29-30 (D.C. Cir. 2005).

³ *NTEU v. FLRA*, 30 F.3d 1510, 1514 (D.C. Cir. 1994).

Therefore, the EIS need not be structured around the WCD findings. Rather, the EIS can be structured to address the environmental consequences of interim spent fuel storage, after the operating life of a nuclear reactor until a repository is established, or the environmental consequences in the unlikely event that no repository is ever established.

II. Defining the Proposed Action

10 C.F.R. § 51.29 states that the NEPA scoping process shall be used to define the proposed action that is to be the subject of an EIS. Accordingly, the present comment opportunity allows for comments on the proposed action and is fully consistent with NEPA.

The D.C. Circuit held that “the WCD is a major federal action because it is used to allow the licensing of nuclear plants.”⁴ However, the WCD and its supporting environmental analysis comprise only one element of the agency’s NEPA analysis for licenses and renewed licenses. The WCD does not authorize individual licenses. Accordingly, for the purposes of the present EIS, the proposed action is a rulemaking to incorporate generic findings related to the onsite storage of spent nuclear fuel after the licensed life of the reactor. The scope of the EIS should be limited to that proposed action.

The WCD and temporary storage rule will be issued through a rulemaking process that will include development of an EIS. Any updates to the WCD findings will be informed by the EIS and can be addressed in that rulemaking process and supporting record.

III. Requirements for the Updated WCD EIS

In accordance with NEPA, an EIS must describe the environmental impacts of the proposed action; the environmental impacts of any reasonable alternatives to the proposed action; and any reasonable alternatives available for reducing or avoiding adverse environmental effects.⁵ The EIS and associated WCD rulemaking will address a narrow aspect of the NRC’s NEPA analysis for its licensing actions – that is, the environmental impacts of storing spent fuel onsite after the licensed life of a reactor. Following the D.C. Circuit’s remand, the generic EIS must specifically examine: the environmental impacts of failing to establish a permanent repository; the risks of future spent fuel pool leaks; and the risks of spent fuel pool fires. The discussion below will focus on the scope of the EIS. Section IV below will describe in detail NEI’s position on how the three areas identified by the Court of Appeals should be addressed.

EIS Scope: Limited by the Scope of the Proposed Action

To address the remand and comply with NEPA, the EIS should assess only the reasonably foreseeable environmental impacts of onsite storage of spent fuel after the licensed life of the reactor, any reasonable alternatives that serve the same purpose and need, and any reasonable

⁴ *New York v. NRC*, 681 F.3d 471, 478 (D.C. Cir. 2012).

⁵ *See, e.g.*, 10 C.F.R. § 51.71(d).

alternatives to mitigate environmental impacts.⁶ The EIS need not assess the environmental impacts of the licensing or renewed licensing of nuclear plants, or alternatives to those actions. Site-specific licensing actions are major Federal actions accompanied by their own generic or site-specific EISs, which assess the environmental impacts related to plant operation, as well as alternatives. Nothing in the Court of Appeals decision affects this aspect of the NRC's traditional scope of review under the WCD.

Site-specific EISs for combined license applications include a detailed assessment of the environmental consequences of plant operation, including spent fuel storage during the license term. Those assessments also include the no-action alternative, which is essentially the "no licensing" alternative.⁷ Additionally, the Generic Environmental Impact Statement and the plant-specific supplements supporting license renewal address the environmental impacts of the no-action alternative, which in that context is the denial of a renewed license.⁸ The WCD EIS will comprise only one aspect of the larger environmental analysis relied upon by NRC in issuing initial or renewing existing reactor licenses. Thus, the "no licensing" alternative is most appropriately considered in the environmental analyses supporting the major federal actions of licensing or relicensing a power reactor. In this way, the environmental impacts of spent fuel storage, both during and after the licensing term, as well as the "no licensing" alternative, will be fully considered before issuing any new or renewed license that will allow creation of additional spent fuel.

The WCD EIS is not the forum to consider the advantages of any particular nuclear plant, site, or licensing action. During the NRC's public scoping meetings, a suggestion was made that the NRC consider a "no licensing" alternative within the present EIS. That suggestion is beyond the scope of the present proposed action, which does not involve the licensing of any plant. It also is not a reasonable alternative to the present proposed action because it would not resolve the question of the generic environmental impacts of storing spent nuclear fuel onsite beyond the licensed life of a reactor for spent fuel presently stored onsite at operating and decommissioned facilities.

Given that the present proposed action is a rulemaking to adopt generic findings related to interim onsite storage of spent fuel after the licensed life of a plant, one alternative to a rulemaking might be to address those issues on a case-by-case basis. However, that alternative would involve unnecessary, duplicative, and inefficient use of NRC and applicant resources.

⁶ *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190 (D.C. Cir. 1991) (holding that a reasonable alternative under NEPA is one that must meet the objective of the Federal action).

⁷ See, e.g., NUREG-1947, "Final Supplemental Environmental Impact Statement for Combined Licenses (COLs) for Vogtle Electric Generating Plant Units 3 and 4," at Section 9.1, No Action Alternative (March 2011).

⁸ See, e.g., NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," at Section 8.2 (April 1996); NUREG-1437, Supp 47, Vol. 1, "Environmental Impact Statement for License Renewal of Nuclear Plants, regarding Columbia Generating Station," at Section 8.5 (April 2012).

Generic EIS

NEI concurs with the NRC's plan to proceed with a generic EIS. It has been the longstanding practice of the NRC, repeatedly upheld on judicial review, to consider and address through rulemaking those environmental issues—including waste confidence issues—that would otherwise be addressed repetitively in individual licensing proceedings.⁹ In *Baltimore Gas*, the Supreme Court stressed the NRC's broad discretion to structure its NEPA inquiries, and found that when there are environmental effects that would be essentially similar for all or a commonly identifiable subcategory of nuclear plants, “[a]dministrative efficiency and consistency of decision are both furthered by a generic determination of these effects without needless repetition of the litigation in individual proceedings, which are subject to review by the Commission in any event.”¹⁰

The D.C. Circuit has specifically endorsed the NRC's generic approach to evaluation of environmental impacts of waste disposal, noting that the NRC “could properly consider the complex issue of nuclear waste disposal in a ‘generic’ proceeding such as rulemaking, and then apply its determinations in subsequent adjudicatory proceedings.”¹¹ Otherwise the agency would be required “continually to relitigate issues that may be established fairly and efficiently in a single rulemaking proceeding.”¹² In the current context, the Court of Appeals remanded the WCD rule for further consideration, but specifically observed that “there is no reason a comprehensive general analysis would be insufficient to examine on-site risks . . . given the Commission's use of conservative bounding assumptions and the opportunity for concerned parties to raise site specific differences at a time of a specific site's licensing.”¹³

Consequences of Temporary Storage: Scenarios to be Assessed

Because the EIS will encompass the environmental consequences of onsite spent fuel storage after the licensed life of a reactor, it necessarily raises the question of the timeframe for which to assess the impacts of spent fuel storage. In the *Federal Register* notice soliciting comments on the scope of the EIS, the NRC staff stated that “[p]ossible scenarios to be analyzed in the EIS include temporary spent fuel storage after cessation of reactor operation until a repository is made available in either the middle of the century or at the end of the century, and storage of

⁹ *Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87 (1983), citing *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 558 (1978); see 40 C.F.R. § 1508.28 (Council on Environmental Quality Regulations addressing the coverage of general matters in broader environmental impact statements such as policy statements, or “tiering” of NEPA documents).

¹⁰ *Id.* at 101 (citations omitted).

¹¹ *Minnesota v. Nuclear Regulatory Comm'n*, 602 F.2d 412, 415-16 (D.C.Cir. 1979) (internal citations omitted).

¹² *Kelley v. Selin*, 42 F.3d 1501, 1511 (6th Cir. 1995) (internal citations omitted).

¹³ *New York v. NRC*, 681 F.3d at 481.

spent fuel if no repository is made available by the end of the century.”¹⁴ NEI suggests that the first two scenarios be presented using timeframes that are more consistent with the current WCD findings, the regulatory framework for spent fuel storage, and the work to date of the Department of Energy (DOE) in connection with the high-level waste repository proposed for the Yucca Mountain site.

Instead of the “mid-century” and “end-of-century” repository scenarios, NEI suggests that the NRC assess the impacts of storage assuming the availability of a repository 60 years after the licensed life of a reactor (including the term of a renewed license), and 100 years after the licensed life of a reactor (including the term of a renewed license). The 60-year period is consistent with the 2010 WCD Finding 4, while the 100-year period is consistent with an assumption in the DOE Yucca Mountain EIS “no action alternative” that spent fuel would remain onsite in perpetuity, but under institutional controls for about 100 years. (That scenario is discussed in more detail below.) Although these scenarios involve timeframes that are substantially similar to those proposed by the NRC staff, we believe that the scenarios will be more clearly understood if they are presented in terms that are consistent with the 2010 WCD and the DOE analysis and are more consistent with the Commission’s direction to utilize the 2010 WCD and other existing assessments in the EIS.¹⁵

NEI agrees with the NRC staff’s intention to assess the impacts of a third, “no repository” scenario, as identified in the Court of Appeals remand. As discussed further below, this can be accomplished by adopting or incorporating by reference DOE’s Yucca Mountain “no action alternative.” Once the NRC addresses the scenario of no repository, it will have bounded the other scenarios and will have adequately supplemented the prior WCD findings. The assessment of the impacts of the 60-year or 100-year scenarios for onsite storage may provide a basis for the NRC to ultimately reconsider the timeframes in Finding 4, and perhaps even Finding 2.¹⁶

In sum, the Commission’s direction to the Staff in SRM-COMSECY-12-0016 does not include any instruction to create new scenarios for examination in the EIS. Therefore, scenarios should be analyzed in the EIS only to the extent that they inform the assessment of the consequences of extended onsite storage or the reasonable alternatives to onsite storage. Further, the scenarios should be framed in terms of other relevant analyses, such as the 2010 WCD and the DOE “no action” alternative.

¹⁴ Consideration of Environmental Impacts of Temporary Storage of Spent Fuel After Cessation of Reactor Operation, 77 *Fed. Reg.* 65,137, 65, 138 (Oct. 25, 2012).

¹⁵ In previous WCD updates, the staff identified Dresden 1, licensed in 1959, as the earliest licensed power reactor. See Waste Confidence Decision Update, 75 *Fed. Reg.* 81,037, 81,061 fn. 20 (Dec. 23, 2010). 60 years beyond the licensed life of Dresden 1 would be 2059 (similar to the staff’s proposed “mid-century” repository scenario), and 100 years beyond the licensed life of Dresden 1 would be 2099 (similar to the staff’s proposed “end-of-century” repository scenario).

¹⁶ The staff has stated that in the revised WCD, “Finding 2 would consider the availability of a repository for geologic disposal in somewhat more specific terms than in the vacated rule, without being explicit as to an expected date.” COMSECY-12-0016, “Approach for Addressing Policy Issues Resulting from Court Decision to Vacate Waste Confidence Decision and Rule,” at 4 fn. 6 (July 9, 2012). NEI presently does not assume that a change to Finding 2 is required. The Court-identified issue focused on the environmental analysis underlying the finding rather than the terms of Finding 2 itself.

Reasonably Foreseeable Spent Fuel Storage Alternatives

As noted above, the updated WCD EIS must assess the environmental impacts of reasonable alternatives to the onsite storage of spent fuel beyond a reactor's licensed life.¹⁷ One hypothetical alternative might be a centralized interim storage facility. However, such a facility is speculative at this point. And a full discussion of the environmental impacts of a centralized interim storage facility would be set forth in an environmental assessment or EIS supporting issuance of a license for such a facility. To the extent that this EIS must provide some assessment of the impacts of a centralized interim storage facility alternative, the NRC may draw upon a substantial body of existing information, such as the Final EIS for the Private Fuel Storage Independent Spent Fuel Storage Installation.¹⁸

Another alternative, that would mitigate any adverse environmental effects associated with onsite storage of spent fuel beyond a reactor's licensed life, would be a waste repository. But the timing of that alternative is presently uncertain given government inaction. And, a repository would only reduce the time period for onsite storage, rather than eliminate the need for temporary storage. In any event, under NEPA, the NRC need not be in a position to compel specific mitigation actions, outcomes, or alternatives. NEPA only requires that the NRC identify environmental consequences and mitigation measures "in sufficient detail to ensure that environmental consequences have been fairly evaluated."¹⁹ Therefore, the EIS need only describe the availability of a permanent repository as a potential mitigating measure.

¹⁷ NEPA does not require agencies to assess the environmental impacts of alternatives that are "remote and speculative." See *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 551 (1978).

¹⁸ NUREG-1714, "Final Environmental Impact Statement for the Construction and Operation of an Independent Spent Fuel Storage Installation on the Reservation of the Skull Valley Band of Goshute Indians and the Related Transportation Facility in Toole, Utah" (Dec. 2011).

¹⁹ *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989); see also *Neighbors of Cuddy Mountain v. United States Forest Serv.*, 137 F.3d 1372, 1380 (9th Cir. 1998). NEPA does not contain a substantive requirement that a mitigation plan be formulated and adopted in an EIS. *Webster v. USDA*, 685 F.3d 411 (4th Cir. 2012); *San Juan Citizens Alliance v. Stiles*, 654 F.3d 1038, 1054 (10th Cir. 2011); *Northern Alaska Environmental Center v. Kempthorne*, 457 F.3d 969 (9th Cir. 2006). Furthermore, an EIS need not present a mitigation plan that is legally enforceable, funded, or even in final form to comply with NEPA's procedural requirements. See *Theodore Roosevelt Conservation Partnership v. Salazar*, 616 F.3d 497 (2010); see also *North Slope Borough v. Minerals Management Service*, 343 Fed. Appx. 272 (9th Cir. 2009). As the Supreme Court has held, "[t]here is a fundamental distinction ... between a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated, on the one hand, and a substantive requirement that a complete mitigation plan be actually formulated and adopted, on the other." *Robertson v. Methow Valley*, 490 U.S. at 352. This is because "it would be inconsistent with NEPA's reliance on procedural mechanisms — as opposed to substantive, result-based standards — to demand the presence of a fully developed plan that will mitigate environmental harm before an agency can act." *Id.*, citing *Baltimore Gas & Electric Co.*, 462 U.S. 87, 100 (1983).

IV. Addressing the Three Deficiencies Identified by the Court of Appeals

Failure to Establish a Permanent Repository

The D.C. Circuit held that “the WCD must be vacated as to its revision to Finding 2 because the WCD fails to properly analyze the environmental effects of its permanent disposal conclusion.”²⁰ It held that the agency should have examined the environmental effects of DOE failing to establish a repository, because the NRC could not (and did not) claim that the non-availability of a repository is “remote and speculative.”²¹

In the EIS and rulemaking the NRC can build a substantial record on which to conclude that a “no repository” scenario is indeed remote and speculative. The scenario is contrary to existing federal law and assumes a complete government failure to fulfill the clear need and obligation to develop a repository. Moreover, in the prior WCD record, the NRC reached sound conclusions with respect to the technical feasibility of a repository, the progress of other nations to site and develop disposal facilities, and the government’s ability to overcome societal barriers to a repository. This record could be enhanced by including in the EIS now being developed the most recent technical studies and international developments. A sound basis exists to find that the “no repository” scenario is highly unlikely and speculative.

Nonetheless, to fully and conservatively address the remand, NEI also supports the Commission’s direction to include this scenario in the EIS. In assessing the environmental impacts of the failure to establish a permanent repository, NEI also supports the Commission’s direction in SRM-COMSECY-12-0016 that the NRC staff “may adopt or incorporate by reference all or part of another agency’s EIS. For example, the ‘no action alternative’ in DOE’s Yucca Mountain EIS, which the [NRC] adopted in 2008 as part of its review of [DOE’s] license application, contains a foundation that the NRC should build upon.”²²

The “no action alternative” in DOE’s Yucca Mountain EIS provides sufficient scope and depth to fully evaluate the possibility that a repository will never be developed. This analysis thoroughly bounded the environmental impacts of this extremely unlikely scenario, by evaluating two scenarios under which spent nuclear fuel would remain onsite. Scenario 1 assumed that spent nuclear fuel would remain at existing commercial sites under institutional controls for at least 10,000 years. Scenario 2 assumed that spent nuclear fuel would remain at existing sites in perpetuity, but under institutional controls for only about 100 years (*i.e.*, it assumed no effective institutional control after 100 years).

In Scenario 1, institutional controls would ensure the protection of workers and the public for the entire 10,000-year period analyzed, and storage facilities would be replaced every 100 years.

²⁰ *New York v. NRC*, 681 F.3d at 478.

²¹ *Id.* at 478-479.

²² SRM-COMSECY-12-0016 at 1 (Sept. 6, 2012).

Releases of contaminants to ground, air, or water would be extremely small under normal conditions. Some worker and public exposure to radiological releases could result.

Scenario 2 is a bounding assessment assuming a 100-year institutional control period. The 100-year institutional control assumption was based on generally applicable requirements for conducting performance assessments, such as the Environmental Protection Agency's 40 C.F.R. Part 191 (environmental radiation protection standards for disposal of spent nuclear fuel) and NRC's 10 C.F.R. Part 61 (disposal of low-level radioactive material). Under Scenario 2, onsite storage facilities would eventually release radioactive materials to the environment, contaminating the atmosphere, soil, surface water, and groundwater for the 10,000-year period analyzed.

The Yucca Mountain EIS "no action alternative" is a highly pessimistic one, presuming the failure of government to act responsibly rather than reflecting any insurmountable technical obstacle to a permanent geologic repository.²³ Scenario 2, additionally assuming the loss of institutional controls at reactor sites, is therefore particularly speculative and, indeed, reflects a "worst case" scenario beyond what is normally required by NEPA.²⁴ In that light, the Yucca Mountain analysis is clearly sufficient to satisfy the Court's remand on this issue.

Risks of Future Spent Fuel Pool Leaks

As described in the 2010 WCD, the agency already has collected a significant amount of data on the effects of spent fuel pool leaks, and concluded that such leaks will not result in significant environmental impacts.²⁵ Nonetheless, the Court was not satisfied with the 2010 WCD's discussion of groundwater monitoring and reporting requirements, and inspection procedures, and found that the agency did not adequately consider the risks of future spent fuel pool leaks.²⁶

As directed by the Commission, the NRC staff should use the existing information to the extent possible and bolster it with new analyses only as necessary. The staff need not utilize "worst case" assumptions in this analysis.²⁷ The augmented discussion should focus on explaining how data on past leaks informs the agency on the likelihood and impacts of future leaks, developing the sort of forward-looking analysis that the Court described as needed. To do so, the NRC

²³ As noted in the 2010 WCD, many countries are considering disposal of spent fuel in deep geologic repositories, and 10 countries have established target dates for the availability of a repository. *See 75 Fed. Reg.* at 81,072. For example, Finland and Sweden have selected sites for their geologic repositories. France has identified a suitable geology and a region in which a repository could be located. Further work with the regional government is underway to reach agreement on a location for the repository in that region.

²⁴ *See Robertson v. Methow Valley*, 490 U.S. at 359 (NEPA does not require a "worst case analysis" of environmental impacts). A failure to establish a repository is contrary to existing law and contrary to the clear and compelling need for the government to meet its obligation. The loss of institutional controls after 100 years adds a further arbitrary assumption contrary to all current expectations.

²⁵ *See, e.g., 75 Fed. Reg.* at 81,070-81,071.

²⁶ *New York v. NRC*, 681 F.3d at 481.

²⁷ *Robertson v. Methow Valley*, 490 U.S. at 359.

should specifically explain how its past experience with spent fuel pool leaks has led to regulatory improvements intended to minimize the occurrence and impacts of future leaks. In addition, the NRC can properly focus on relevant engineered features, as well as monitoring programs and reporting requirements, to develop an environmental analysis that uses past data to inform the likelihood and impacts of potential future leaks. By doing so, the agency can build a record based upon existing information – supplemented with new analysis, as necessary – underlying its assessment of the low risks (probability and consequences) of future spent fuel pool leaks.

It is important also to recognize that the Court of Appeals found no infirmity with NRC’s evaluation of dry cask storage in the 2010 WCD. There the agency concluded that “[s]tudies performed to date have not identified any major issues with long-term use of dry storage.”²⁸ This statement is supported by an impressive safety record that has been achieved in the loading and operation of over 1600 dry cask storage systems over the past quarter century. All of these systems remain in service today, fully protecting public health and safety and the environment. There has been no harmful release of the radioactive content of any of these systems. NRC has specifically recognized the long term integrity of these systems by granting 40 year license extensions to the three oldest at-reactor dry storage installations (commonly referred to as Independent Spent Fuel Storage Installations – or ISFSIs). Based on this experience, NRC subsequently revised its regulations to increase the maximum term of initial licenses and renewals for all ISFSIs from 20 to 40 years, after concluding that “[t]his increase is consistent with the NRC staff’s findings regarding the safety of spent fuel storage as documented in the renewal exemptions issued to the Surry and H.B. Robinson ISFSIs”²⁹

As reflected in the transcripts of the public scoping meetings for the WCD EIS, public participants have made some inaccurate statements pertaining to dry storage cask system designs and the dry storage safety record. To assist the NRC in evaluating these issues in its environmental evaluation, Appendix A to these comments offers NEI’s substantive responses to some of the incorrect statements on the record.³⁰ Appendix A includes and addresses a comment made regarding alleged leaks at the Surry plant.

Consequences of Spent Fuel Pool Fires

The D.C. Circuit acknowledged that the agency had “engaged in a more substantial analysis of fires than it did of leaks,” but still found that the NRC had failed to examine the consequences of spent fuel pool fires “at all.”³¹ The Court of Appeals agreed with the NRC’s general approach to risk – that an overall low risk driven by a low probability could justify a finding under NEPA of “no significant impact.” But because it did not believe that the agency had made the case that

²⁸ 75 Fed. Reg. at 81072.

²⁹ 76 Fed. Reg. at 8874.

³⁰ NEI did not attempt to verify the accuracy of all statements made at the meetings; those addressed in Appendix A are simply the more egregious misstatements.

³¹ *Id.* at 481-482.

the probability was low enough to establish that the events are “remote and speculative,” the Court held that NEPA required the agency to analyze both the probability and consequences of spent fuel pool fires to make a determination on whether the impacts are significant.

To address this issue, the NRC should use existing information to the extent possible.³² Again, the NRC has previously compiled numerous technical studies regarding the risks and environmental impacts of onsite spent fuel storage that it can rely upon in assessing both the probabilities and consequences of spent fuel pool fires.³³

NEI continues to assert that the likelihood of spent fuel pool fires is very low and diminishes to zero as fuel cools, which occurs within the first few years after shutdown. This important fact should be carefully weighed as the risk of spent fuel pool fires is considered.

Emphasizing the work already performed on the consequences of spent fuel pool fires will be particularly valuable, given that the Court of Appeals perceived that the agency did not analyze these consequences at all. In fact, the remand should be satisfied if the EIS more specifically describes the studies already undertaken to assess both the probability and consequences of spent fuel pool fires, ultimately supporting a conclusion that the overall risk (and environmental impact) of these fires is not significant. There is a strong foundation upon which to build, and a clear articulation of both the low likelihood and the consequences of spent fuel pool fires will go far in addressing the remand.

Matters Beyond the Scope of the EIS

In developing the EIS, NEI encourages the NRC staff to maintain its focus on the three issues identified by the Court of Appeals, and on any procedural requirements³⁴ necessary to transform

³² See, e.g., 75 Fed. Reg. at 81,069-81,070. See also, The Attorney General of Commonwealth of Massachusetts, The Attorney General of California; Denial of Petitions for Rulemaking, 73 Fed. Reg. 46,205 (Aug. 8, 2008) (denying petitions for rulemaking regarding the environmental impacts of spent fuel pool storage due to zirconium fires) (upheld on judicial appeal, *New York v. NRC*, 589 F.3d 551 (2d Cir. 2009)).

³³ See, e.g., NUREG-1738, “Technical Study of Spent Fuel Pool Accident Risk and Decommissioning Nuclear Power Plants” (Jan. 2001) and the technical information included in the NRC’s denial of the Massachusetts and California Petitions, 73 Fed. Reg. 46205 (Aug. 8, 2008). See also NUREG-1353, “Regulatory Analysis for the Resolution of Generic Issue 82, Beyond Design Basis Accidents in Spent Fuel Pools” (Apr. 1989)(ML082330232) (citing NUREG/CR-4982, “Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82” (July 1987) and NUREG/CR-5176, “Seismic Failure and Cask Drop Analysis of the Spent Fuel Pools at Two Representative Nuclear Power Plants” (Jan. 1989)); NUREG/CR-5281, “Value/Impact Analysis of Accident Preventive and Mitigative Options for Spent Fuel Pools” (Mar. 1989)(ML071690022); and WASH-1400 (NUREG-75/014), “Reactor Safety Study: An Assessment of Accident Risks in U.S. Commercial Nuclear Power Plants” (Oct. 1975)(ML070610293). The NRC can also draw upon the extensive litigation of the issue in the *Harris* spent fuel pool licensing proceeding, where the NRC’s Atomic Safety and Licensing Board found that a spent fuel pool fire accident was remote and speculative. *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), LBP-01-9, 53 NRC 236 (2001), *aff’d* CLI-01-11 (2001), *aff’d sub nom. Orange County, North Carolina v. NRC*, 47 Fed. App’x 1 (D.C. Cir. 2002); *Florida Power & Light Co.* (Turkey Point Nuclear Generating Station, Units 3 & 4), CLI-01-17, 54 NRC 3, 22 n. 11 (2001).

³⁴ For example, 10 C.F.R. § 51.26 describes the requirement to publish a notice of intent that an EIS will be prepared, and to conduct a scoping process for the EIS.

the existing Environmental Assessment supporting the 2010 WCD into a generic EIS. There are a number of issues that are clearly beyond the scope of this EIS and need not be addressed by the agency. The Commission's schedule for completing the EIS and final Waste Confidence Rule is necessarily constrained, given the impact on pending licensing actions. It follows, then, that the agency's efforts should be specifically tailored to produce an EIS that satisfies the D.C. Circuit's remand and NEPA generally, without venturing into extraneous subjects.

Issues beyond the scope of this EIS include the environmental impacts of the entire nuclear fuel cycle and alternatives to licensing nuclear power plants. Although the Court found that individual licensing decisions are predicated upon the generic WCD, it did not mandate that the EIS supporting the WCD assess the environmental impacts of plant licensing more broadly. As discussed in Section III above, the NRC already assesses the environmental impacts of nuclear plant licenses and renewed licenses, including onsite storage of spent fuel during the operating life of the plant, through site-specific and generic EISs. Further, the environmental impacts of the fuel cycle, including spent fuel disposal, are addressed in Table S-3.³⁵ This WCD and its underlying EIS relate only to the interim period between the end of a reactor's operating license term and removal of the spent fuel for offsite storage or disposal. Therefore, the NRC need not assess the environmental impacts of nuclear plant operation more generally.

Similarly, the WCD issues should not be addressed on a site-specific basis. This argument was raised in the D.C. Circuit litigation, where the Court of Appeals ruled that the NRC was not required to examine each site individually.³⁶ The Court agreed with the NRC that there is "no reason that a comprehensive general analysis would be insufficient to examine on-site risks that are essentially common to all plants. This is particularly true given the Commission's use of conservative bounding assumptions and the opportunity for concerned parties to raise site-specific differences at the time of a specific site's licensing."³⁷ Therefore, there is no reason for the NRC to embark upon site-specific analyses when the Court has already upheld the use of a generic rulemaking. NEI supports the Commission's direction that the agency should nonetheless maintain the option of conducting some environmental analyses of waste confidence issues on a site-specific basis in support of licensing decisions, but only in rare circumstances.³⁸

The 2010 WCD update reiterates the NRC's position that NEPA does not require assessing the environmental impacts of terrorist attacks outside of the Ninth Circuit.³⁹ Nevertheless, the agency discussed terrorism in the context of Finding 4 and spent fuel pool fires in the 2010 WCD update. NEI agrees that the prior discussion of the impacts of terrorist attacks is sufficient to satisfy the Ninth Circuit's *San Luis Obispo Mothers for Peace v. NRC* decision,⁴⁰ and that no

³⁵ 10 C.F.R. § 51.51(b).

³⁶ *New York v. NRC*, 681 F.3d at 483.

³⁷ *Id.* at 480.

³⁸ SRM-COMSECY-12-0016 at 2.

³⁹ 75 *Fed. Reg.* at 81,052.

⁴⁰ *San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016 (9th Cir. 2006), *cert denied*, 127 S. Ct. 1124 (2007).

additional analyses are necessary. The Court of Appeals found no infirmity in this aspect of the WCD.⁴¹

Non-health, environmental effects, such as property values and the risk of harm to the Prairie Island Indian Community homeland, were raised in the litigation in the D.C. Circuit. The Court of Appeals found no deficiency with respect to these issues.⁴² Unless and until the NRC is presented with information that specifically demonstrates how harm to property values might occur, or how that harm is related to a change in the physical environment, there is no reason for the NRC to revisit the issue or reopen its conclusions in this EIS.⁴³

Lastly, the environmental impacts of transportation from a nuclear plant to a permanent repository are also beyond the scope of this EIS. Those impacts are more appropriately addressed in a separate EIS for the repository itself. Here, there is also no need to assess the impacts of transportation to a repository since the EIS will address the *failure* to establish a permanent repository.

⁴¹ Appendix A specifically addresses a comment made that dry cask storage facilities are not designed to withstand a terrorist attack, based on a 1998 U.S. Army experiment. The comment ignores numerous other analyses and tests that confirm the robust design and capabilities of dry cask storage systems.

⁴² *New York v. NRC*, 681 F.3d at 482-483. The Court of Appeals agreed with the Commission that the petitioners did not properly raise non-health environmental issues in the rulemaking. The Court also found no basis in a study of property values referenced by the petitioners on which to conclude that harm to property values would occur.

⁴³ *Id.* at 482.

Appendix A

NEI's Comments on Scope of Generic Environmental Impact Statement to Support and Updated Waste Confidence Decision and Rule

Inaccuracies in Scoping Statements re Dry Cask Storage

Transcript Reference	Inaccurate Statement	Correction
Nov. 14 (day) p. 56, lines 4-6	“[D]ry cask storage itself is not designed to withstand terrorist attack as shown by a 1998 U.S. Army Aberdeen proving ground experiment.”	<p>The Aberdeen test referred to here, which resulted in a small hole in a type of cask not commonly in use in the United States (less than 1% of domestic spent fuel is stored in CASTOR casks) is not a conclusive indicator of the resiliency of dry casks to terrorist attacks. Numerous analyses, including terrorist scenarios, have been conducted on the ruggedness of the various dry storage container designs that are currently used in the United States. One such study, conducted by Sandia National Laboratory, subjected a steel and concrete cask similar in design to the Holtec HI-STORM 100 System, to a device 30 times more powerful than a typical anti-tank weapon. Another study illustrated the effects of a large commercial aircraft traveling low to the ground at 350mph, precisely hitting nuclear plant containment structures, used fuel storage pools and dry cask storage containers of the type chosen for use at the Indian Point plant. In other analyses, hypothetical F-16 strikes were analyzed for the Holtec casks.</p> <p>All of these analyses conclude that the robust system of concentric steel and concrete cylindrical containers will prevent significant amounts of radioactive material from being released to the environment. In fact, for the first two scenarios, there was no release. The NRC staff filed nine reports on the F-16 scenario, concluding that an accidental aircraft or ordnance impact on similar casks at the proposed Private Fuel Storage facility (NRC Docket 72-22-ISFSI) does not pose a credible hazard to public health and safety. Holtec's simulated F-16 strikes showed that the fuel storage canister confinement boundary will be maintained intact.</p>

<p>Nov. 14 (evening) p. 31, lines 11-14</p>	<p>“Specifically, at the Surry Nuclear Power Plant in Virginia there have been leaks from internal seals, so multiple seals have actually failed, fortunately not all the way through to the outside air, but I think, again, that’s a matter of time”</p>	<p>The casks being referred to here have active pressure monitoring between the concentric inner and outer lid seals with a helium overpressure. As was the case in the instances being referred to here, this passive design ensures that any leakage of the inner or outer lid seal results in clean helium from the overpressure tank leaking into the cask or into the environment, respectively. Gas from the cask cavity is prevented by the clean helium overpressure from escaping to the environment. The design also provides an alarm to operators upon detection of a seal leak to ensure timely corrective action. In the instances referred to here there was never any degradation of the inner lid seals. Upon receiving a low pressure alarm, Surry personnel brought the cask back inside the plant, replaced the outer seal, and took appropriate corrective actions to prevent recurrence (including implementing a redesign of the cask weather cover). After these actions were taken, NRC inspectors concluded that the corrective action taken was effective and would “eliminate any potential deterioration of the structural parts of the cask, including the flange, lid and bolts”.</p>
<p>Nov. 14 (evening) p. 31, lines 21-25</p>	<p>“[A] General Accounting Office report from September 2009, which looked at that very question of degradation of dry casks and actually made the assumption that casks would have to be replaced once a generation”</p>	<p>The GAO report being cited here (<i>Nuclear Waste Management, Key Attributes, Challenges, and Costs for the Yucca Mountain Repository and Two Potential Alternatives</i>, GAO-10-48, November 2009) actually assumed that the casks would have to be replaced every 100 years – which, if one assumes a generation is the average length of time between the birth of one generation and the next – amounts to about 4 to 5 generations, given typical birth parent age statistics. It is also important to point out that this was simply a conservative assumption based on widespread expert opinion that the casks would last at least that long, not any analysis of degradation mechanisms that would cause the casks to <i>require</i> replacement at any certain time.</p>

<p>Nov. 14 (evening) p. 32, lines 4-12</p>	<p>“[P]laces like Big Rock Point in Michigan, other permanently shut down and even fully dismantled atomic reactors, there is no pool left now. All that’s left is the dry casks. So where will the transfer take place from the failing dry casks into replacement Dry Casks?...There will have to be either pools built, or else dry cells will have to be built at those facilities.”</p>	<p>While it is true that pools have been removed at many shutdown plants, it is incorrect to say that either a new pool or dry cell would have to be built if a spent fuel storage canister were determined to be degrading and in need of mitigation. The appropriate safety measure to be taken in that case would be to transfer the inner canister directly from the ventilated storage cask to a fully-sealed transportation cask that would then provide protection against any further release of radioactive contents until it could either be shipped to an appropriate offsite facility or additional mitigation capability could be developed onsite. The Big Rock Point Final Safety Analysis Report provides for such direct transfer without need for either a pool or dry cell. The transfer of an inner storage canister from a damaged storage cask to a transportation cask without aid of a pool or dry cell was specifically evaluated in the Environmental Impact Statement for the proposed Private Fuel Storage Facility in Utah and it was determined that this could be accomplished without excessive radiation exposure to workers.</p>
<p>Nov. 14 (evening) p. 34, lines 17-19</p>	<p>“The ventilated storage casks, the VSC-24s, at places like Palisades in Michigan, Point Beach in Wisconsin, Arkansas Nuclear One, have little to no quality assurance upon them”</p>	<p>There are currently 58 VSC-24s in service in the United States. All are routinely inspected and in full compliance with stringent NRC quality assurance requirements. The speaker is making reference to quality assurance problems identified during the loading of these casks in the 1990s. These problems primarily affected loading operations, have since been corrected, and had no effect on the ability of the casks to provide safe storage thereafter. When the problems were identified, NRC reacted swiftly, placing a hold on further loading of the casks in May of 1997. The three utilities at whose sites these casks were being loaded, responded promptly to correct the problems. In August of 1998 NRC released the hold on VSC-24 loadings, concluding that the cask owners had “met all commitments.”</p>

<p>Nov. 14 (evening) p. 35, lines 4-12</p>	<p>“whistleblowers both from industry, namely, Oscar Shirani from Exelon, Commonwealth Edison, and even from NRC, itself, namely, Dr. Ross Landsman, the now-retired dry cask storage inspector for Region III in the Midwest, questioned – seriously questioned the design and manufacture of the Holtecs, which are currently deployed across the United States”</p>	<p>Whenever safety concerns are raised in the nuclear industry, they are taken seriously and thoroughly investigated. In this case NRC’s Office of the Inspector General, in 2004, conducted a Special Inquiry into the concerns being referred to here. This inquiry did not substantiate these concerns and found no violations of NRC regulations or safety significant deficiencies. Furthermore, the investigation also determined that none of the deficiencies pointed out by Mr. Shirani adversely impacted the physical integrity of the Holtec dry cask storage systems.</p>
<p>Nov. 14 (evening) p. 39, lines 6-25</p>	<p>Various statements implied that dry casks would not be able to withstand inundation by flood waters. Similar assertions were made with respect to the affects that floods might have on spent fuel pool safety</p>	<p>Dry cask storage systems are extremely robust structures designed to withstand a full range of natural events, including floods. The storage systems weigh in excess of 100 tons and are designed to withstand both standing and moving floodwater. The inner canisters of dual purpose systems are required by NRC regulations to be able to withstand a transportation accident in which they would be submerged in up to 30 feet of water. At the Fukushima Daichi site, there were nine dry storage systems in service during the March 2011 earthquake and tsunami. All of them were completely overwashed by the tsunami and none suffered any damage or loss of safety function.</p>
<p>Nov. 14 (evening) p. 40, lines 2-6</p>	<p>“[W]e saw in August 2011 significant damage to the dry cask storage at North Anna Nuclear Power Plant just 11 miles from the epicenter of the earthquake. There was concrete damage on the surface to the dry casks.”</p>	<p>No natural event, including the specific earthquake referred to here, has ever caused “significant damage” to any dry storage system. These extremely robust systems are designed to withstand severe earthquakes and other phenomena such as tornado-borne missiles and fires. The North Anna ISFSI contains both vertical cylindrical casks and horizontal storage modules. None of the vertical systems or the concrete pad on which they were stored suffered any observable damage even though the force of</p>

		<p>the earthquake caused some of the 125-ton casks to slide laterally by up to 4 inches. The only observable damage on the horizontal modules was some slight damage around the outlet air vents and surface cracking indications. The interior canisters containing the spent fuel were unaffected and in no case was the safety function of the storage systems compromised.</p>
<p>Nov. 14 (evening) p. 61, lines 15-18</p>	<p>“[T]he health of people is being affected. And it isn’t just cancer, it’s heart disease, A, blood disorders, immune deficiencies. All of these diseases that are on the increase are due to this radiation, these particles that are coming out of this spent fuel.”</p>	<p>All sites at which spent fuel is stored have environmental monitoring equipment that detects even very small amounts of radiation to assure that stringent NRC requirements are met. There has never been an instance where environmental radiation levels due to spent fuel storage have exceeded NRC limits, and no release of particulates originating from stored spent fuel has ever been detected.</p>