Draft Report for Comment

Background and Preliminary Assumptions For an Environmental Impact Statement— Long-Term Waste Confidence Update

December 2011

Contents

Executive Summary

The U.S. Nuclear Regulatory Commission (NRC or Commission) has directed agency staff to consider a long-term extension to the Commission's Waste Confidence decision and rule to account for the storage of commercial spent nuclear fuel and high-level waste for more than 60 years after the licensed life for operation of any commercial nuclear power reactor. As part of this review, the Commission directed the staff to develop an environmental impact statement (EIS). The Waste Confidence rule and its basis, the Waste Confidence decision, express the Commission's confidence that spent nuclear fuel can be safely managed until it undergoes final disposition. To respond to the Commission's direction, the staff has developed preliminary information to identify the scope of an EIS that would evaluate the impacts of storing spent nuclear fuel and high-level waste for more than 60 years after a reactor's licensed life for operation. This report presents the staff's preliminary thoughts on the scope of the proposed EIS and has been developed to seek public input on this project. The report includes some clarifying information in response to comments that the NRC received in public meetings that were held in late 2011. This information is included in relevant sections of the report and addresses the NRC's regulatory role and the National Environmental Policy Act (NEPA) process and schedule.

The staff will develop the EIS in accordance with NEPA and the NRC's implementing requirements. The EIS (referred to as the long-term Waste Confidence update EIS or Waste Confidence EIS) will generically evaluate the impacts of extended storage and associated transportation for an analysis period of approximately 200 years, beginning in the middle of this century. The staff is proposing to analyze four scenarios: continued spent fuel storage at reactor sites, storage at regional facilities, storage at one central site, and limited reprocessing with co-located storage of resulting high-level wastes. The staff has also identified preliminary assumptions to further characterize the scenarios. A major assumption is that extended storage would be fully regulated under a regulatory program similar to the current program; there would be no loss of controls over stored waste. The assumptions in the EIS will be based primarily on present-day attributes, current scientific knowledge, and documented trends. To analyze the impacts associated with the scenarios, the staff will develop generic, composite sites for each scenario, and these sites will account for a range of the characteristics of actual reactor and storage sites. The EIS will include analyses of environmental impacts that are directly related to the handling, storage, and transportation of commercial spent nuclear fuel and high-level waste. The staff expects to consider the range of impacts typically addressed in NRC EISs. The generic nature of the EIS and long timeframe will require that the staff use both quantitative and qualitative information to develop the impacts analysis.

The staff is currently working to better define the assumptions and scenarios and to develop an understanding of the related impacts. The final report, to be published in the spring of 2012, will reflect any further developments, including updates based on the staff's consideration of comments received on this draft report. This report is not meant to reflect final NRC regulatory positions on safety or environmental matters associated with specific licensing actions or specific rulemaking activities (current or future).

1 Purpose of This Report

The U.S. Nuclear Regulatory Commission (NRC or Commission) is anticipating that spent nuclear fuel will be stored longer than originally intended because of the uncertainties in the national strategy for disposing of spent nuclear fuel (also referred to as spent fuel). To prepare for this situation, the Commission updated the NRC's Waste Confidence decision and rule in December 2010, stating that commercial spent fuel can be stored safely and without significant environmental impacts for at least 60 years beyond the licensed life of any commercial power reactor. At that time, the Commission also directed the staff to develop a long-term update of the decision and rule that would address impacts of storage beyond a 120-year timeframe (the maximum total storage time contemplated in the 2010 Waste Confidence decision and rule).[1] The update will consist of the development of an EIS, the results of which may result in modification to the Waste Confidence decision (updated findings), and possibly a revised rule. In the coming years, the staff will explore in more depth the potential safety and environmental issues associated with extending spent fuel storage times beyond the timeframes considered in the 2010 Waste Confidence decision and rule.

The staff has developed the report as a means to seek public feedback on the agency's preliminary plans to develop the EIS associated with long-term storage of spent nuclear fuel. The report expands on the preliminary information about the EIS scope described in SECY-11-0029, "Plan for the Long-Term Update to the Waste Confidence Rule and Integration with the Extended Storage and Transportation Initiative," dated February 28, 2011.[2] The EIS (also referred to as the long-term Waste Confidence update EIS or Waste Confidence EIS) is intended to inform an update of certain aspects of the Waste Confidence decision and, possibly, the Waste Confidence rule in Title 10 of the *Code of Federal Regulations* (CFR) section 51.23.[3] The NRC seeks to ensure the preliminary EIS scope described in this document considers the significant factors related to the longer-term storage of spent nuclear fuel and high-level waste.

The NRC has not yet formally announced its intent to develop this proposed EIS under the National Environmental Policy Act (NEPA). Thus, this report is not a formal NEPA document and is not intended to replace the formal NEPA public scoping process for a draft EIS. Section 11 of this report discusses the staff's schedule for developing the EIS in accordance with the requirements of NEPA and NRC regulations.

At public meetings in September and October and a webinar in December 2011, the staff received some comments pertaining to the NRC's regulatory role, the NEPA process and schedule, and aspects of the EIS scope. The report contains discussions or clarifying text that was informed by and developed in response to the comments relevant to Waste Confidence, but each comment is not identified explicitly in the report. Section 11 provides more information about the meetings and describes the types of comments that the NRC received.

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[1] The staff requirements memoranda providing this direction are available in the Agencywide Documents Access and Management System (ADAMS) at the following Accession Numbers:
ML103400287: SRM-COMSECY-10-0007, December 6, 2010
ML102580229: SRM-M100915, September 15, 2010

[2] This SECY paper is available in ADAMS at Accession No. ML110260244. The staff developed the SECY paper in response to staff requirements memoranda for SECY-09-0090, "Final Update of the Commission's Waste Confidence Decision," dated September 15, 2010, and for COMSECY-10-0007, "Project Plan for Regulatory Program Review to Support Extended Storage and Transportation of Spent Nuclear Fuel," dated December 6, 2010 (available in ADAMS at Accession No. ML101390216).

[3] These regulations are titled "Temporary Storage of Spent Fuel after Cessation of Reactor Operation—Generic Determination of No Significant Environmental Impact."

2 National Context

In 2009, the President of the United States announced that the potential repository site at Yucca Mountain, Nevada, was no longer considered a "viable option" for disposal of spent nuclear fuel and high-level waste. He then directed the Secretary of Energy to create a "Blue Ribbon Commission on America's Nuclear Future" to consider alternatives to disposal at Yucca Mountain and to develop recommendations for future U.S. policy. The scope of the Blue Ribbon Commission's mandate includes long-term storage and reprocessing. The Secretary of Energy announced the formation of the Blue Ribbon Commission on January 29, 2010, with a mandate to provide its recommendations within 2 years. The Blue Ribbon Commission published its draft recommendations on July 29, 2011, in a report entitled "Blue Ribbon Commission on America's Nuclear Future Draft Report to the Secretary of Energy."[4] Section 7 of this report discusses the relevance of the Blue Ribbon Commission's report to the Waste Confidence update.

On March 4, 2010, the Department of Energy submitted a request to withdraw the license application for a geologic repository at Yucca Mountain, which the NRC had been reviewing since September 2008.[5] The NRC's Atomic Safety and Licensing Board (Board) for the proposed Yucca Mountain repository proceeding denied the motion to withdraw the application on June 29, 2010.[6] The Department appealed the Board's decision to the Commission. The Commission issued an order on September 9, 2011, stating that it was evenly divided on whether to take the affirmative action of overturning or upholding the Board's decision.[7] In the same Memorandum and Order, the Commission directed the Board and staff to bring all review activities to an orderly closure by the end of September 2011, due to the lack of appropriated funds for such work in the coming fiscal year. Subsequently, the Board suspended the hearing process.

3 Waste Confidence: Background

"Waste Confidence," as generally used at the NRC, refers to two documents: the Waste Confidence "decision" and a corresponding rule.[8] The decision consists of five generic safety and environmental findings. The basis for these findings (i.e., the text of the decision) serves as the environmental assessment under NEPA and the regulatory basis for the rule in 10 CFR 51.23(a). The rule itself is a generic finding by the NRC about the significance of the potential environmental impacts of storing commercial spent nuclear fuel after a nuclear power plant's operating license expires.

The Waste Confidence decision responds to a lawsuit regarding spent nuclear fuel storage and disposition, as decided in 1979 by the U.S. Court of Appeals for the District of Columbia Circuit (in *Minnesota v. NRC).*[9] In that decision, the court directed the NRC to determine whether a disposal solution for spent fuel would be available by the time a reactor's operating license

[4] The report is available at http://www.brc.gov/sites/default/files/documents/brc_draft_report_29jul2011_0.pdf
[5] See Dep't of Energy Motion to Withdraw, *In re U.S. Dep't of Energy (High–Level Waste Repository),* Docket No. 63–001, ASLBP No. 09–892–HLW–CAB04 (United States Nuclear Regulatory Commission) (Mar. 3, 2010), available in ADAMS at Accession No. ML100621397.
[6] HLW License Application Docket No. 63-001, Board Memorandum and Order (LBP-10-11), available in ADAMS at Accession No. ML101800299.
[7] HLW License Application Docket No. 63-001, Commission Memorandum and Order (CLI-11-07), available in ADAMS at Accession No. ML11252A532.
[8] The 2010 Waste Confidence update was published in the *Federal Register* on December 23, 2010 (75 FR 81032 and 81037).
[9] *Minnesota v. NRC*, 602 F.2d 412 (1979).

expires and, if not, to determine whether the spent fuel could be safely stored after that date. In response to the court's ruling, the NRC published the first Waste Confidence decision in August 1984. The 1984 Waste Confidence decision included five findings that addressed technical feasibility of a geologic repository, the degree of assurance that disposal would be available by a certain time, and the degree of assurance that spent fuel and high-level waste could be managed safely beyond the expiration of plants' operating licenses.

What Is "Waste Confidence"?
"Waste Confidence" refers to the decision that the NRC has made to express its level of confidence (or assurance) about managing spent nuclear fuel. Through the decision, the NRC indicates its confidence that disposal is technically feasible and will be made available for U.S. commercial spent nuclear fuel. The decision also conveys the Commission's confidence that, until disposal is available, spent fuel and high-level waste can be managed safely under continued NRC regulatory oversight.

The Waste Confidence decision and rule were also established to fulfill part of the NRC's obligations under NEPA, in that the decision included a generic assessment of the environmental impacts associated with spent fuel storage beyond the term of plants' operating licenses. The NRC determined that storing spent nuclear fuel for a certain period will not result in significant environmental impacts regardless of which reactor site is storing the spent fuel. The NRC also stated in the rule that, as a result, the agency need not assess the site-specific impacts of storing spent fuel in either reactor or storage facility licensing or license renewal EISs or environmental assessments beyond the expiration dates of reactor licenses.

The Commission reviewed the Waste Confidence decision in 1989–1990, modifying the timeframes associated with two of the findings and clarifying the length of time associated with reactor operating licenses. In December 1999, the Commission reviewed and reaffirmed the 1990 Waste Confidence decision and rule. The Commission stated, however, that it would consider reevaluating the findings when development and regulatory activities for a geologic repository at Yucca Mountain were completed, or if "...significant and pertinent unexpected events occurred, raising substantial doubt about the continuing validity of the Waste Confidence findings."[10]

Beginning in about 2006, during preliminary licensing proceedings for new reactor applications, the issue of Waste Confidence was raised, and in 2007 the Commission decided to reevaluate the Waste Confidence decision and rule to consider developments since 1990. The NRC published its latest update of the rule and decision in 2010, revising the timeframes associated with the NRC's confidence in the availability of a disposal site and its confidence in the length of time spent fuel could be stored safely. The current decision serves as the environmental assessment for the rule. The 2010 update was published in the *Federal Register* on December 23, 2010 (75 FR 81032 and 81037).

The findings from the current Waste Confidence decision are listed below, and the current Waste Confidence rule reflects Findings 2 and 4. Based on the findings, the rule also states that the NRC has met its obligations under NEPA concerning the storage of spent fuel after reactor operation.

> Finding 1 (reaffirmed): The Commission finds reasonable assurance that safe disposal of high-level radioactive waste and spent fuel in a mined geologic repository is technically feasible.

[10] Excerpt from "Waste Confidence Decision Review: Status," 64 FR 68005, December 6, 1999.

Finding 2 (updated): The Commission finds 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.

Finding 3 (reaffirmed): The Commission finds reasonable assurance that high-level waste and spent fuel will be managed in a safe manner until sufficient repository capacity is available to assure the safe disposal of all high-level waste and spent fuel.

Finding 4 (updated): The Commission finds reasonable assurance that, if 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 of 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 either onsite or offsite independent spent fuel storage installations.

Finding 5 (reaffirmed): The Commission finds reasonable assurance that safe, independent onsite spent fuel storage or offsite spent fuel storage will be made available if such storage capacity is needed.

In September of 2011, the State of New York and several other petitioners filed a lawsuit challenging the 2010 Waste Confidence rule and its related consideration of environmental impacts. That case (Case No. 11-1045) is currently under consideration before the U.S. Court of Appeals for the District Of Columbia Circuit.

4 The NRC's Regulatory Role and Waste Confidence

The Energy Reorganization Act of 1974 created the NRC as an independent agency to oversee the safe use of radioactive materials for beneficial civilian purposes while ensuring that people and the environment are protected. The NRC regulates commercial nuclear power plants, the management of spent nuclear fuel from these plants, and other uses of nuclear materials through licensing, inspection, and enforcement of its requirements. As part of its regulatory activities, the NRC also conducts research, holds hearings to address the concerns of parties affected by agency decisions, and obtains independent reviews to support its regulatory decisions.

Because it is solely a regulatory agency, the NRC does not propose or promote specific uses or plans for managing nuclear waste. The agency licenses the storage and handling of waste by the waste generators or other parties, but only when the staff has determined through a formal licensing review that those activities can be implemented safely and securely according to NRC requirements. Any specific proposal to manage commercial spent nuclear fuel, including extending storage, will need to be reviewed, licensed, and regulated by the NRC, no matter where that storage occurs. This means that the NRC provides full regulatory oversight of any person, organization, government agency, or other entity that proposes to store or otherwise manage spent nuclear fuel.

The Waste Confidence decision expresses the Commission's confidence in the safe management and ultimate disposal of spent nuclear fuel. Waste Confidence does not license nuclear power plants or the long-term storage of spent fuel. The Waste Confidence rule and its basis, which is the Waste Confidence decision, satisfy the NRC's obligation under NEPA to consider the impacts of storing spent nuclear fuel after the expiration of a power plant's

operating license. The Waste Confidence rule provides a generic finding of no significant environmental impacts for the storage of spent fuel for at least 60 years after the expiration of a power reactor's license. The NEPA analyses for new licenses or renewed licenses, therefore, do not need to assess the environmental impacts of post-licensed life storage. If it is issued as a final EIS, this EIS (to be developed in accordance with the schedule and process discussed in this report) would provide the regulatory basis for a potential update to the Waste Confidence rule.

The current Waste Confidence analysis contributes just a fraction of the comprehensive NEPA analysis that the NRC needs to complete for any licensing review of a new nuclear power plant or independent spent fuel storage facility. The Waste Confidence rule alone is not sufficient to meet the NRC's full obligation under NEPA for issuance of a new power plant or waste storage license. The Waste Confidence decision and rule, therefore, are not licensing decisions and do not authorize the construction or operation of a reactor or a spent fuel storage facility.

As stated in Section 3, the current Waste Confidence decision serves as the environmental assessment for the Waste Confidence rule. The staff did not develop an EIS for the 2010 Waste Confidence update because the Commission concluded that the environmental impacts of storage for at least 60 years beyond licensed life would not be significant. The Commission has not found that the environmental impacts of more than 120 years of storage would be significant, but in accordance with its discretionary authority under 10 CFR 51.20(a)(2), the Commission has directed the staff to prepare a draft EIS as a part of this proposed long-term update of the Waste Confidence rule and decision. The draft EIS will aid the Commission in taking a comprehensive look at the impacts associated with spent fuel and high-level waste storage times beyond the timeframe addressed in the current decision and rule.

5 Purpose of and Need for Proposed Action under the National Environmental Policy Act

NEPA requires all federal agencies to evaluate the impacts of proposed major federal actions on the environment. The NRC implements the requirements of NEPA through its regulations in 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions." A NEPA review at the NRC involving the development of an EIS is usually initiated by an application for a new license, a change to an existing license, or a decommissioning plan submitted to the NRC. However, in some cases, the NRC develops an EIS for significant changes to its regulations. In the case of the NRC's Waste Confidence update, the Commission has determined that an EIS is appropriate to ensure that the agency adequately considers public concerns about the potential impacts of the extended storage of spent nuclear fuel and high-level waste.

The NRC's proposed action under NEPA is a change to the Commission's current Waste Confidence decision and rule. The Commission has decided to develop an EIS to generically assess the environmental impacts of the extended storage and transportation of spent nuclear fuel and high-level waste for more than 60 years after a reactor's licensed life. The purpose of any resulting Waste Confidence update is to ensure that the decision and rule are informed by current circumstances (including national policy) and scientific knowledge, and to ensure the rule reflects the results of the EIS. As discussed previously, the NRC is developing this EIS and potential update to accommodate potential changes in the national program concerning spent fuel management. These changes could involve extending the planned storage time of spent

nuclear fuel at reactor sites or at offsite storage locations. The NRC needs to ensure that it is fully informed about the impacts of extending allowable spent fuel storage times, and that future reactor or storage facility licensing decisions that might approve longer-term storage are informed by an understanding of these impacts.

The EIS and an associated update of the safety aspects of the Waste Confidence decision will inform any determination on whether to update the Waste Confidence decision and rule.

6 Alternatives Under the National Environmental Policy Act

The proposed action is a change to the Commission's current Waste Confidence decision and rule, which requires the Commission to revisit the issue of Waste Confidence every five to ten years. As part of this process, the Commission has revised Waste Confidence twice since 1984, and each time has expanded the temporal scope of its analysis by a few decades. This long-term Waste Confidence update would move away from this small-step approach, and would extend the temporal scope of Waste Confidence by as many as 200 years. The EIS will include an analysis of the impacts of four storage scenarios in order to assess the magnitude and range of impacts and the safety of extended storage. Section 8 of this report discusses these scenarios. As with the current Waste Confidence rule and decision, the Waste Confidence EIS will generically describe the potential impacts of extended storage and will assume that the storage of spent nuclear fuel will continue to be a regulated activity in the future. Unlike the current Waste Confidence rule and decision, this long-term Waste Confidence EIS will not require reconsideration of a possible update to the rule and decision every five to ten years.

The no-action alternative is to continue to review the Waste Confidence decision and rule for updates every 5 to 10 years.

7 General Environmental Impact Statement Methodology and Scope of Impacts

The staff plans to develop the EIS to analyze impacts of storage from approximately the middle of this century for a period of 200 years. The staff selected mid-century as the starting point for the impacts analysis because it represents the time when some spent fuel will begin to reach the minimum storage periods accounted for in the current Waste Confidence rule (60 years after the expiration of licensed life). In other words, the oldest spent fuel will have been stored for about 100 years by the middle of the century. The staff selected a 200-year span for the EIS because that is approximately when this oldest fuel will approach 300 years of storage. The 300-year period is the timeframe being used by NRC and others in technical analyses to identify spent fuel aging issues.

The environmental impact analyses and safety findings developed for the current Waste Confidence decision will be used to help characterize the description of the affected environment in the middle of the century. As with the current Waste Confidence rule and decision, the Waste Confidence EIS for extended spent fuel storage will generically describe the potential impacts of extended storage and will assume that the storage of spent nuclear fuel will continue to be a regulated activity in the future. That is, NRC oversight will continue to ensure

operational safety, consistent with NRC experience with operating facilities and licensing activities, including the inspection and maintenance of storage facilities and containers. The generic nature of the EIS and the long timeframe to be considered in the EIS will both affect the degree to which the impacts can be quantified. The NRC will not be able to estimate specific quantities or assign numbers for all of the different short- and long-term impacts, but will strive to use quantitative information wherever practicable to improve the estimates of impacts. Quantifiable impacts—those areas for which sufficient information is available to develop a quantitative analysis—that are most relevant to long-term storage include the following examples: (1) land use impacts and costs for storage, based on information for current facilities, (2) transportation impacts, based on information in relevant NEPA documents, (3) impacts from normal waste handling and storage operations and from waste handling accidents, determined using information about relevant operating experience, and (4) information about the surrounding environment (such as weather patterns and natural events, like earthquakes), based on information in recent EISs for specific regions of the country.

Some Terms Used in This Report

Generic sites: "Sites" that are not actual sites, but are derived only for analysis purposes. The characteristics of generic sites are based on information about actual sites.

Composite sites: Generic sites that are derived using information about multiple actual sites in such a way that the group of composite sites represents the range of actual site characteristics. A single generic, composite site may be based on information about several actual sites: a generic, composite site on a seacoast may be derived from information about two or three actual coastal sites and, possibly, other sites.

Quantitative analysis: An analysis that is based on sufficiently detailed information such that conclusions can be discussed in terms of specific measures (such as tons or dollars). The impacts can then be described with numerical values. Although given as values, they would still be estimates of future impacts, not absolute predictions, and would have associated uncertainties.

Qualitative analysis: An analysis that is based on information that does not include specific measures and the conclusions of which must be discussed in general or relative terms, such as "large" or "small," without specific numerical values.

Generic impacts: Impacts that can apply to multiple sites, based on an analysis that accounts for the common characteristics of these sites. An analysis of generic impacts would be supplemented by a site-specific analysis for any site-specific licensing action that may occur. For this EIS, the NRC will assume that the impacts identified for the composite sites are applicable to many of the actual sites. This enables the staff to identify impacts at a general level without separately analyzing each site in this EIS.

The staff will extrapolate the data to evaluate impacts, assuming nuclear power continues as a source of energy in the United States. The staff anticipates that the impacts of storage and transportation will increase cumulatively as the overall amount of waste in storage increases. For example, as more waste is accumulated at storage sites over a 300-year period, maintenance costs to store that waste also will likely increase. The staff also assumes that the risk from radiation exposures resulting from severe natural events will increase over time, simply because more and more stored waste is subject to each subsequent event. For example, the potential impacts of a severe natural event at one period of time on a facility with several tons of waste could differ (e.g., be less severe) from the impacts observed in the future if that facility is storing significantly more waste and is subject to a similar event. Other factors that may affect the potential for radiation exposure include the storage locations in different parts of the country, the extent of repackaging of spent fuel that is required over the 300 year analysis period, and the transportation miles involved in moving spent fuel to storage or reprocessing locations and

ultimately to a repository. Section 8 describes the four storage scenarios that the staff selected to help identify and bound these impacts.

NRC experience with storage facilities for spent nuclear fuel is that these facilities are operating safely and radiation exposures in the environment are below safety limits. The EIS will consider the potential impact of radiation released from these storage facilities over hundreds of years. The staff is proposing consideration of both short-term and long-term impacts from potential radiation exposure, and these will include the ingestion and inhalation of radionuclides and direct exposure. Generally, the staff anticipates that potential exposures to workers will be primarily dominated by direct radiation resulting from worker involvement in spent fuel handling operations. Potential exposures to the public could occur as a result of an accident or other situation involving the failure of a container, if radioactive material is dispersed off site. The staff will consider both normal operating conditions and accident conditions (e.g., mishaps during handling operations and disruptive events, such as earthquakes) in identifying impacts from radiation exposure. For the EIS, the staff will consider spent fuel radionuclides that are considered significant dose contributors or contaminants in the short term and long term.

Although the total amount of spent fuel and high-level waste in storage can be extrapolated over a 300-year period, certain types of impacts in an EIS are dependent on the specific characteristics of a site (such as impacts on endangered species, water resources, or socioeconomic conditions). These impacts are not as easily identifiable for the composite or generic types of sites that will be considered in the Waste Confidence EIS. Existing information about actual sites and professional or expert judgment will inform the analyses of impacts that are typically site specific. The goal is to identify impacts that are representative of a range of locations appropriate to current nuclear power plant sites and to potential interim and centralized storage locations. The Waste Confidence EIS will not be a substitute for specific NEPA documents required for site-specific licensing actions (such as the approval of new storage facilities) or major changes to NRC's regulations, although information developed in the course of finalizing the Waste Confidence EIS may be appropriate referenced in some instances in individual licensing proceedings.

In developing its methods, scenarios, and assumptions for the EIS, the staff will consider the analyses and recommendations of the Blue Ribbon Commission draft and final reports. The draft report, issued July 29, 2011, provides seven key recommendations. Of these, Recommendations 4 and 5 have some bearing on the scope of the Waste Confidence EIS:

> Recommendation 4: "Prompt Efforts to Develop a New Permanent Geologic Disposal Facility…The conclusion that disposal is needed and that deep geologic disposal is the scientifically preferred approach has been reached by every expert panel that has looked at the issue and by every other country that is pursuing a nuclear waste management program." [11]
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> Recommendation 5: "Prompt Efforts to Develop One or More Consolidated Interim Storage Facilities…Developing consolidated interim storage capacity would allow the federal government to begin the orderly transfer of spent fuel from reactor sites to safe

[11] Recommendation 4 is excerpted from "Blue Ribbon Commission on America's Nuclear Future Draft Report to the Secretary of Energy," page ix of the Executive Summary. The report is available at http://www.brc.gov/sites/default/files/documents/brc_draft_report_29jul2011_0.pdf

and secure centralized facilities independent of the schedule for operating a permanent repository." [12]

Consistent with Recommendation 4 and the current Waste Confidence decision and rule, the EIS will include geologic disposal as the endpoint for all scenarios evaluated. The Waste Confidence EIS will not include an assessment of the impacts of a disposal facility; these impacts will be assessed in an EIS for licensing a disposal facility. The Waste Confidence EIS will generally assess the differences in transportation impacts for all scenarios. With regard to Recommendation 5, the EIS will include two scenarios involving regional and central consolidated storage, and these are discussed in the next section.

8 Environmental Impact Statement Bounding Assumptions and Scenarios for Analysis

The staff has identified assumptions to define the scope of the EIS and preliminary scenarios for analysis. The staff is currently working to better define these assumptions and scenarios and to understand the potential impacts associated with them. The final report will reflect any further developments in this area, including updates based on public comments on this draft report.

8.1 Preliminary Assumptions

The staff has identified preliminary assumptions to define the scope of the environmental impact analyses within each scenario, as appropriate. In general, the EIS will minimize speculation about future conditions when identifying the long-term characteristics of the affected environment. These assumptions are based on present-day attributes, current scientific knowledge, and documented trends for potential growth in the use of nuclear power and spent fuel generation rates. For example, the EIS will not speculate in detail about what types of new transportation technologies may be developed, but will use available information on current technologies. However, some projection may be needed to fully develop the EIS.

(1) The continued use of nuclear power is assumed in projecting long-term spent nuclear fuel generation rates.

The continued use of nuclear power is expected to increase the amount of waste in storage, thus affecting the environment. To assess the cumulative impacts, the staff will assume "medium" growth of nuclear power as projected by DOE. In this projection, nuclear power continues to supply approximately 20 percent of U.S. electricity production.[13] The staff will assume that waste will continue to be generated at the present rate of about 2,000 metric tons per year, with some increase over time commensurate with overall energy production increases each year in the future. For the EIS, the staff will consider various energy scenarios to determine the significance of this assumption.

[12] Recommendation 5 is excerpted from "Blue Ribbon Commission on America's Nuclear Future Draft Report to the Secretary of Energy," page x of the Executive Summary. The report is available at http://www.brc.gov/sites/default/files/documents/brc_draft_report_29jul2011_0.pdf

[13] This projection is from "Scenarios for Nuclear Energy Growth," a DOE presentation dated March 25, 2010 (available in ADAMS at Accession No. ML110180652).

(2) Current light-water reactor spent nuclear fuel will be used as the baseline in extended storage scenarios.

The scope of the Waste Confidence EIS will include spent fuel generated in any commercial power reactor and non-DOE research and test reactors. Consistent with the basis of the current Waste Confidence rule, the staff assumes that the impacts associated with current light-water reactor fuel management adequately represent the impacts of management of future fuel types under the current generic safety findings. As a baseline, the EIS will consider current light-water reactor fuel in long-term storage scenarios, with potential reprocessing of spent fuel in one scenario. The staff will also assume, as a baseline, that the management processes for future fuel types are analogous to current fuel management processes and that the associated storage and transportation impacts are not significantly different. However, as described in Scenario 4 (Section 8.2), the staff also will consider the impacts of storing high-level wastes created by applying advanced spent fuel management technologies, such as reprocessing (the separation of short-lived radionuclides from spent fuel).

(3) Dry cask storage technologies will be the primary mode of storing spent fuel over extended periods. However, some percentage of the inventory of spent fuel will be stored in pools.

The staff anticipates that dry cask storage will be the primary storage mode, but that some fraction of spent fuel will be stored for extended periods in spent fuel pools at the current licensed capacity of existing pools. Further, spent fuel pools will continue to play an integral role in interim storage and handling of spent fuel at reactors during renewed license terms and decommissioning operations. Spent fuel pools may be in operation for many decades in potential extended reactor operations, though the fraction of fuel that is stored in pools will likely decrease over time. One decommissioned site is planning to continue using pools, not dry casks, for spent fuel storage until 2048. Therefore, the staff assumes that reactor pools will be part of the continued infrastructure for managing spent fuel, both for short-term storage and handling uses and as a long-term storage option in limited cases. To identify appropriate assumptions for the EIS analyses, the staff will evaluate the significance of spent fuel for which pools are the primary storage facility.

(4) Long-term transportation impacts will be based on current package technologies, transportation infrastructures, and regulatory requirements.

Most spent fuel is contained in dual-purpose containers that meet the NRC's requirements both for transportation and for storage. However, the variety of single-purpose cask designs and aging effects on dual purpose casks may limit long-term transportability. As a result, the EIS will consider the impacts of repackaging operations or other actions to ensure transportability after extended storage. In addition, to develop the transportation impacts analyses, the staff will assume that present-day infrastructure and transportation modes (rail, truck, barge) are in place in the future and will use, where appropriate, aspects of transportation impact analyses contained in other recent NEPA documents. The EIS will not speculate about changes in the national transportation infrastructure or transportation modes that may occur decades or centuries from now.

(5) Long-term storage and handling facilities will operate under a framework of aging management that is designed to monitor, detect, and mitigate significant aging impacts.

The NRC's existing regulatory framework for spent fuel storage allows for multiple storage license renewals provided there is a sufficient basis and an adequate aging management plan. The framework includes time-limited aging analyses and a program to monitor, detect, and mitigate the effects of aging. In developing its EIS impact analyses, the staff will consider the possibility that licensees will need to perform significant mitigation actions to address long-term aging effects. These actions could include significant component refurbishment or repackaging of large amounts of spent fuel into new systems. This may include the construction of repackaging facilities at decommissioned reactor sites that no longer have spent fuel pools. The degree of aging management needed is likely to influence the severity of some environmental impacts and other impacts, such as costs.

Some repackaging of waste before disposal is assumed as part of disposal facility operations. Therefore, the EIS will look at impacts associated with maintaining the waste and container in a condition amenable to transport and handling at a potential disposal facility. Presently, the staff is not aware of any significant impacts associated with maintaining the waste and container that are dependent on the type of ultimate disposal. Potential further re-packaging of spent fuel for disposal may also occur, but will not be considered within the Waste Confidence EIS. This EIS will not evaluate the impacts associated with constructing, operating, or closing a disposal facility.

(6) The storage of spent fuel will remain under a regulatory program comparable to the current program. Regulatory oversight and maintenance of storage facilities and activities, such as spent fuel repackaging, will continue, as appropriate. Current and future NRC licensees are responsible for the financial resources to support long-term storage operations. However, in the event licensees cannot fulfill their legal financial obligations, the U.S. Government will provide sufficient resources and protection to ensure continued safe and secure storage.

During the period of extended storage of spent nuclear fuel, the staff assumes that responsible entities (NRC or another governmental entity) will provide oversight for the safe and secure operation of a licensed storage facility, using security, monitoring, inspection, aging management (maintenance and repair), and enforcement programs that are at least as stringent as the current regulatory requirements. Ongoing NRC activities related to oversight (such as the current rulemaking for 10 CFR Part 73, "Physical Protection of Plants and Materials") might be used to adjust the scope of the EIS analyses. The NRC, as part of its regulatory oversight, continually assesses the need for additional safety or security measures. Loss of institutional control and oversight of spent fuel storage facilities is not viewed as a credible scenario during the period to be analyzed in the Waste Confidence EIS.

At a recent public meeting on its Waste Confidence update plans,[14] the NRC received a request that it include in the EIS a scenario that accounts for a collapse of society and loss of government institutions, with a resulting lack of control over, and knowledge about, nuclear plants and radioactive waste. The staff has considered this suggestion and, as explained below, is proposing not to include this as one of the analyzed scenarios.

[14] Meeting in San Luis Obispo, California on October 6, 2011; a summary of the meeting is available in ADAMS at Accession No. ML11300A170.

U.S. society is continuing to become increasingly aware of the effects of human activity on human health and safety and our surrounding environment. As knowledge has increased, so has the level of scrutiny and control over activities that pose a risk to human and environmental well-being. For example, as society has learned more about the nature and risks of radioactive materials and wastes, it has also increased and improved the regulation, management, and tracking of these materials and the facilities where such materials are used or stored. There are no trends or evidence to suggest that society's control of spent fuel and highly radioactive waste will decline in the future or cease to be a government-regulated endeavor.

A NEPA analysis evaluates impacts that are "reasonably foreseeable." For the Waste Confidence EIS, this includes impacts associated with each of the four scenarios proposed in this report. It may also include impacts from reasonably foreseeable scenarios that have not yet been identified. The request to include a societal-collapse scenario would require an analysis of the impacts of storage under a highly speculative scenario in which societal institutions, knowledge, and controls no longer exist. However, as described above, the trend in modern society is toward more awareness and control over issues that pose a risk to humans and their environment. The staff concludes that a loss of societal structures and the associated knowledge base is not reasonably foreseeable and, in fact, is highly unlikely to occur within the 200-year timeframe to be considered in the EIS. The staff's view, therefore, is that any of the impacts associated with this scenario are also not reasonably foreseeable.

The Waste Confidence EIS will also assume that the current structure of financial assurance for spent fuel storage will continue to exist. The responsible entities will provide the necessary financial resources for operating, securing, and maintaining storage facilities for extended periods of time, regardless of cost. The NRC or other governmental agencies will continue to provide regulatory oversight to ensure that sufficient resources are available during extended periods.

(7) The EIS will assess the impacts of storing and transporting reprocessing wastes.

As part of Scenario 4, the EIS will include reprocessing of some commercial spent nuclear fuel as an intermediate step before spent fuel and high-level waste are transported to a disposal facility. The staff intends to consider a low (25 percent) and high (75 percent) option for the amount of the total spent fuel inventory amenable to reprocessing to determine the significance of reprocessing on the environmental impacts of storage and transportation. The staff will use relevant information available about past reprocessing activities in the United States and, as needed, in other countries, to inform its analysis of reprocessing waste storage impacts. The EIS will not assess the detailed impacts associated with constructing, operating, closing, and decommissioning a reprocessing facility. Such impacts would be addressed in detail in an EIS for the licensing of a reprocessing facility. Consideration of reprocessing in the Waste Confidence EIS will also be limited to commercial spent fuel.

8) The EIS will assess impacts from a range of accident scenarios involving storage and transportation, and the accident analysis will be informed by the information available about a range of accidents, including recent events.

The staff will consider reasonable accident scenarios to bound potential radiation exposures. The staff has not yet identified specific accidents for analysis in each of the scenarios. In general, the EIS will assess the impacts from accidents that affect independent dry storage facilities, spent fuel pools, and related handling operations. The EIS will also consider typical transportation accidents previously analyzed in the context of radiation exposure. The EIS will

consider different accident causes, such as human error, mechanical failure, and natural events. The staff will consider the information available about recent natural events with respect to potential impacts on spent fuel storage, such as the earthquake and tsunami that occurred in Japan in March, 2011; the Virginia earthquake on August 23, 2011; hurricanes; and major flood events.

(9) The Waste Confidence EIS will consider the impacts of terrorism.

In 2007, the U.S. Court of Appeals for the Ninth Circuit held that NEPA requires an examination of the environmental impacts resulting from an act of terrorism against a dry cask storage facility.[15] However, outside of the Ninth Circuit, the Commission has adhered to its traditional position that the environmental effects of a terrorist attack do not need to be considered in its NEPA analyses.[16] In 2009, the U.S. Court of Appeals for the Third Circuit upheld the Commission's position that terrorist attacks are too far removed from the natural or expected consequences of agency action to require an environmental impact analysis.[17] Even so, and without a definitive ruling that would resolve the split between the Circuit Courts on this issue, this EIS will include a discussion of terrorism that the NRC believes satisfies the Ninth Circuit's holding in *Mothers for Peace*. The staff plans to consider the environmental impacts of terrorism related to storage and transportation at a generic level. The terrorism consideration will be developed using available information in agency records and other available information for current facilities, package technologies, and transportation infrastructures; current technologies and reasonably foreseeable technologies that are being explored in depth; mitigation measures; and security arrangements that have a bearing on likely environmental consequences. The staff will conduct this evaluation in accordance with the requirements of NEPA and the NRC's regulations for the protection of sensitive unclassified and classified information. Ongoing NRC activities related to the current rulemaking for 10 CFR Part 73, "Physical Protection of Plants and Materials," might be used to adjust the scope of the EIS analyses with respect to impacts of terrorism.

8.2 Preliminary Scenarios for Analysis

The staff has identified four preliminary scenarios for the draft EIS. The scenarios are intended to bound potential impacts associated with extended storage. Factors influencing the development of the scenarios include staff expertise, public input at meetings and through comments on the draft report, and external influences, such as the national policy for the management of spent nuclear fuel.

Each scenario proposed for analysis in the EIS assumes that spent nuclear fuel and high-level waste ultimately will be transported to a geologic repository for disposal and that at least one repository will need to be constructed. The EIS will include analysis of environmental impacts, to the extent practical, directly related to the handling, storage, and transportation of spent fuel. The EIS will not include detailed assessment of impacts that are not directly associated with the storage and transportation of radioactive materials, such as the site-specific impacts of storage facility construction and decommissioning. Impacts associated with facility construction and decommissioning will be addressed, to the extent practical, in a simplified analysis. A detailed assessment of these impacts will be addressed in facility-specific licensing actions and associated NEPA analyses.

[15] See *San Luis Obispo Mothers for Peace v. NRC*, 449 F. 3d 1016 (2006), cert. denied, 549 U.S. 1166 (2007).
[16] See *Amergen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-07-08, 65 NRC 124 (2007). Available in ADAMS at Accession No. ML070710433
[17] See *New Jersey Dept. of Environmental Protection v. U.S. Nuclear Regulatory Commission,* 561 F.3d 132 (2009).

The EIS will evaluate generic impacts associated with generic sites for each scenario. The staff will base the characteristics of these generic sites on composite characteristics of actual and proposed operating and decommissioned nuclear facilities, onsite and offsite storage facilities, and other storage and waste handling facilities. The staff will also consider aspects of the sites where the facilities are located and aspects of the surrounding vicinity that should be accounted for, such as geography, regional climate, or distance to a coast. Although this EIS will not, as a rule, include site-specific analyses, the staff will work to understand the range of site-specific issues and ensure that the EIS captures the types and severity of impacts that could occur at real sites. As the analytical work proceeds, the staff will ensure that the analyses appropriately reflect conditions that may potentially lead to significant impacts. For each scenario, the staff will propose a number of generic sites that it believes are needed to adequately analyze the impacts associated with that scenario. The number of sites may be adjusted if needed to ensure that impacts are captured appropriately. The staff will also consider analyzing impacts for one or more actual sites for comparison with the generic, composite sites.

Although the primary focus of the EIS is on identifying the potential environmental impacts from the use of currently available technologies for spent fuel management and transportation, the staff will consider the potential use of advanced spent fuel management technologies and alternative approaches to disposal. Where appropriate, the assessment for each of the scenarios will address how the scenario could affect the potential use of alternative disposal methods. For example, reprocessing may result in waste products that are readily compatible with current disposal technologies, such as converting waste to a glass form. Other alternative disposal technologies, such as deep borehole disposal, may require extensive fuel handling and repackaging compared to currently considered disposal technologies. To the extent practical, the EIS analyses will draw on existing research and analysis and operating experience (including international experience) related to reprocessing and alternate disposal technologies. However, additional analyses of alternate disposal, reprocessing, and advanced fuel management concepts may be necessary to fully inform the EIS.

Scenario 1—Extended onsite storage at reactor sites and offsite independent spent fuel storage installations

This scenario assumes that spent nuclear fuel is stored for extended periods at reactor sites and away-from-reactor independent spent fuel storage installations for up to 300 years. This scenario is similar to a simple extrapolation of present storage conditions (at reactor sites and at some offsite storage installations). In particular, this scenario assumes that (1) spent fuel storage (both dry cask storage and spent fuel pool storage) will continue where it presently occurs today, and (2) the storage capacity of spent fuel pools will remain the same as presently available. Although no further expansion of spent fuel pool capacity is assumed to occur, this scenario does assume, to bound potential impacts in the EIS, that some facilities at reactor sites will continue to operate in place after reactors are decommissioned and until the spent fuel is transported to a disposal site. This includes operating and maintaining the spent fuel pools presently at the sites, although the staff recognizes that most decommissioned reactor sites have decommissioned spent fuel pools. The staff will assume that spent fuel from any new reactors will be generated and stored at reactor sites, and spent fuel storage demands beyond the capacity of the spent fuel pool will be supplied by dry cask storage. For this scenario, as described earlier, the staff will develop a number of generic sites based on composite characteristics of actual sites. The EIS will assess generic impacts for these generic sites. The staff has not yet determined how many generic sites are appropriate for this scenario, but the number could range from 5 to more than 20. In addition, the staff will evaluate whether the

impacts for one or two actual reactor sites should be analyzed for comparison to the impacts for the generic sites.

Scenario 2—Interim onsite storage and shipment to regional storage facilities

This scenario assumes that spent nuclear fuel is stored as described under Scenario 1 (at reactor and other storage sites) for an interim period, and then a significant amount (greater than 50 percent) of the spent fuel is transported to one or more regional dry cask storage facilities for extended storage. These regional facilities would be regulated by the NRC and operated by a private entity or government agency. The facilities would have the capacity to store spent fuel and the capabilities to repackage spent fuel containers as part of a maintenance program and to prepare them for transport to a disposal site. For this scenario, the staff will develop a few (two to four) generic regional sites using composite characteristics of sites in those regions. The EIS will assess generic impacts for these generic sites.

Scenario 3—Interim onsite storage and shipment to one centralized storage facility

This scenario assumes that spent nuclear fuel is stored for a time as described under Scenario 1 (at reactor and other storage sites), and then a significant population of spent fuel is transported to one NRC-regulated, centralized dry storage facility or a monitored retrievable storage facility that would be operated by DOE or another federal entity. The spent fuel would be stored at this facility until it is transported to a disposal facility. The impacts from this scenario may be similar to the types of impacts from regional storage that will be assessed under Scenario 2. During the formal NEPA scoping process, the staff will determine if these options can be evaluated together as a single scenario, with appropriate consideration of geographic characteristics and a scaling of Scenario 2 impacts to represent a larger centralized storage facility.

Scenario 4—Interim onsite storage and shipment to at least one reprocessing facility

This scenario assumes that spent nuclear fuel is stored for a time as described under scenario 1 (at reactor and other storage sites), and then a significant amount of spent fuel is transported to one or more reprocessing facilities, which are assumed to be co-located at an interim storage facility. The spent fuel would be processed to recover fissionable material for fuel and to remove short-lived radionuclides. As a result of reprocessing, new forms of high-level waste and low-level waste would be generated and stored at the reprocessing facility. These wastes would eventually be transported to a national high-level waste repository or low-level waste disposal facilities, as appropriate. For this scenario, the staff may develop more than one generic regional reprocessing site using composite characteristics from those regions. To inform the EIS's consideration of the characteristics and issues associated with managing reprocessing wastes, the staff will use relevant information available about U.S. reprocessing activities and experience in other countries.

9 Impacts Analysis

The staff expects to consider—as appropriate for each resource area and the generic nature of this EIS—the range of impacts typically addressed in NRC EISs. Impacts typically addressed in NRC EISs include radiological and nonradiological human health impacts, as well as transportation impacts and other nonradiological impacts on land use, soils, water resources, air

quality, vegetation and wildlife, socioeconomics, cultural and historic resources, and scenic resources, among others. In particular, the analysis will seek to provide quantitative information in the following areas:

- potential impacts of storage, such as doses to workers and the public from normal operations (including repackaging), credible accidents, and terrorism; and the costs of long-term storage
- potential impacts of transportation, such as costs and radiation exposure
- potential effects of reprocessing on long-term storage, such as the addition of high-level waste and a decrease in the amount of spent fuel needing long-term storage

Based on the quantitative information, the staff will compare the scenarios—such as centralized storage versus storage at current sites, or storage of spent fuel versus storage of reprocessed waste—as a means to illustrate the bounding nature of the scenarios. As discussed previously, the long analytical timeframe for this EIS, as well as the generic nature of the sites to be considered, will likely warrant a qualitative assessment in certain areas (e.g., socioeconomics, cultural and historic resources, and scenic resources).

10 Potential Benefits of Extended Storage Research

The staff is working to identify areas of technical knowledge related to the behavior of spent fuel and dry storage system materials during extended storage periods that could benefit from additional research. As the NRC explores these areas further in the coming years, in conjunction with efforts by other federal agencies, industry groups, licensees, and other countries, the agency will develop more refined information about these issues that may be useful in considering the impacts of storing aged spent fuel.

In identifying areas for further technical research, the staff is focusing on potential degradation phenomena that can affect the safety functions of dry cask storage and transportation systems. These safety functions include, for example, containment, shielding, and prevention of criticality. Different components of the systems contribute to one or more safety functions. The goal of NRC's directed efforts in this area is an improved understanding of how these safety functions could be affected by age-related degradation over an extended time period. The information from this program will be used to inform the staff's review of the adequacy of NRC storage and transportation requirements to address extended storage issues.

Information from these efforts may also be used to inform the draft EIS or the final EIS, especially if the information helps to illustrate or refine the EIS estimates of radiological impacts. Some of this research may continue after the final EIS is published, and the staff will monitor progress to determine whether the EIS conclusions could be affected by new information. If appropriate, the staff will develop a supplement or addendum to the EIS to reflect new information.

11 Process and Opportunities for Public Input

The staff has developed this report to provide the public with an opportunity to give the staff early feedback on the direction and scope of the EIS. The final report will include a section that describes the public comments received and the staff's responses to those comments. The final report, incorporating public comments, will provide a starting point for the NRC to initiate the formal NEPA process and begin developing the EIS.

The staff will develop the EIS in accordance with the requirements in 10 CFR Part 51 and NRC NEPA guidance documents, as appropriate. The staff will initiate the NEPA process by announcing its intent to develop an EIS in the *Federal Register*, holding public meetings to identify the scope of the EIS, and developing a report that summarizes the input received from the public. At the time the scoping summary report is being developed, the staff will begin working on the analyses needed to support the EIS. The staff will then develop the EIS text and, as the staff completes development of the draft EIS, it will begin developing a draft update of the Waste Confidence decision. This update will most likely be limited to a revision of the basis for Finding 4 in the decision. It is possible, however, that the updated Waste Confidence decision will not contain any substantive changes to Finding 4 but will simply describe the NRC's basis for not revising the findings. The NRC may develop a revision to the Waste Confidence rule, if warranted. After the conclusion of the public comment period, the NRC will develop and publish the final EIS and, if applicable, the final decision and final rule.

A general timeline for the Waste Confidence update is provided below. The staff's schedule for developing the update is subject to the availability of resources in the coming years.

April 2012	Publish final report, "Background and Preliminary Assumptions for an Environmental Impact Statement—Long-Term Waste Confidence Update."
2012-2013	Develop preliminary information to support identification of EIS scope (see discussion in Section 12).
2013	Announce in the *Federal Register* the NRC's intent to develop the EIS.
2013-2016	Hold public scoping under NEPA and develop draft EIS, possible draft decision, and possible proposed rule.
2017-2019	Publish draft EIS and, if necessary, draft Waste Confidence decision and proposed rule for public comment. If necessary, develop and publish final Waste Confidence EIS, decision and rule.

Throughout the EIS development process, the staff will provide opportunities for public input on NRC's activities. The staff will also reach out to State and Tribal governments to ensure the NRC is considering their concerns. Maximizing public participation is an important tenet of NEPA, and the staff intends to engage the public throughout the EIS development process to the fullest extent possible given schedule and financial constraints. The NRC will continue to identify and reach out to the public, offering future opportunities for engagement through meetings, online collaborations, written materials, and other means of outreach and communication. In addition to seeking public input and input from the States, Tribes, and local governments, the staff will consult with the Environmental Protection Agency and other federal agencies as needed concerning the scope and process for developing this EIS.

In order to begin an early public dialog on this project before beginning the formal NEPA process, the staff has held several public meetings. The purpose of these meetings was to inform the public about the staff's preliminary plans and to receive feedback on ways for the public to provide input in the future. The staff held three public meetings in September and October and a webinar in December of 2011. The meetings were held in Rockville, Maryland, at the NRC's Headquarters; in Oakbrook Terrace, Illinois; and in San Luis Obispo, California.[18] The webinar was co hosted by the NRC and the Council of State Governments' Midwestern Office.[19] The staff received a wide range of comments at the meetings and the webinar. These comments pertained to the NRC's general oversight of reactor and spent fuel storage facilities; transportation issues; technical issues related to spent fuel storage in pools and casks; concerns about accidents, terrorism and natural hazards; concerns about NRC's relationship and interaction with the public, Tribes and State and local governments; suggestions about the scope of the EIS; and thoughts on the length of the EIS development process. In this report, the staff has attempted to address those comments that pertain to the NEPA process.

12 Ongoing NRC Staff Activities to Prepare for Development of the Environmental Impact Statement

Since developing its initial plan for the EIS (submitted to the Commission in February 2011), the staff has engaged in technical or other activities to provide information on, and obtain guidance for, developing the EIS. The staff has sought to refine the scope of the EIS by defining plausible assumptions and by characterizing the range and severity of potential impacts that could occur under those assumptions. Historical operational information and regional environmental characteristics associated with operating sites are being collected that can be used to support a methodology for identifying and describing potential generic sites. The staff may use the same information to develop a systems model that can aid in identifying a range of possible impacts at generic sites. The staff is also working to identify methodologies specific to different resource areas (or areas of impacts) to better guide the staff when it begins to write a draft EIS. Given the generic nature of the EIS, as well as the prolonged timeframe to be considered, the staff is also evaluating how to best use available information and address data or information that may be incomplete or unavailable. When the NRC initiates its formal EIS process, the staff will engage the public further on aspects of this work that bear on the scope of the EIS.

[18] Summaries of these meetings are available in ADAMS at the following Accession Numbers:
ML11299A182: September 28, 2011, Rockville, Maryland
ML11300A159: October 4, 2011, Oakbrook Terrace, Illinois
ML11300A170: October 6, 2011, San Luis Obispo, California

[19] A summary of the webinar will be available no later than January 13, 2012 at http://www.nrc.gov/waste/spent-fuel-storage/public-involvement.html.