

**High-Level Waste Repository Safety
Director's Policy and Procedure Letter 011
Revision 1**

**Adoption Determination Review of the U.S. Department of Energy's
Final Environmental Impact Statement
for the Proposed Geologic Repository at Yucca Mountain
for Issuance of a Construction Authorization**

1.0 Purpose

The purpose of this procedure is to provide guidance to the U.S. Nuclear Regulatory Commission (NRC) staff for its adoption determination review of the U.S. Department of Energy's (DOE's) Final Environmental Impact Statement (FEIS) for a proposed geologic repository at Yucca Mountain, Nevada, for the issuance of a construction authorization. Appendix A contains the procedure's abbreviations.

This procedure also applies to the review of any supplemental environmental impact statement¹ (EIS) or additional DOE environmental analyses (e.g., environmental impact statements or environmental assessments) that address the environmental impacts of constructing, operating, monitoring, and closing the proposed repository. For example, on October 12, 2007, DOE published for public comment a draft supplemental EIS and a draft, combined supplemental rail corridor and rail alignment EIS (see 72 FR 50871, October 12, 2007).

2.0 Key Activities and Processes

Pursuant to 10 CFR § 63.31, if DOE submits a license application, NRC would decide whether to issue a construction authorization. The construction authorization would be issued only if NRC determined that DOE's proposed repository site and design complied with applicable NRC safety and environmental regulations. If construction were authorized and the DOE license application were updated in accordance with 10 CFR § 63.32(d), NRC would subsequently grant or deny a license to receive and possess waste for the purpose of disposal in a geologic repository operations area based on requirements set forth in 10 CFR § 63.41 (i.e., construction is substantially complete and applicable requirements of 10 CFR Part 51 have been satisfied).

In accordance with Part 63, the application must consist of general information, a Safety Analysis Report and be accompanied by DOE's FEIS. The NRC staff would conduct an acceptance review (or docketing review) of the license application while also conducting an adoption determination review of DOE's FEIS. If the NRC staff were to determine that the license application was sufficiently complete in scope and detail to permit the staff to begin its technical review, NRC would publish a notice of docketing. This notice would provide an opportunity for public participation in the adjudicatory proceeding and present the staff's position on whether it is practicable to adopt the FEIS. Within three years² of the notice of docketing, the NRC must review the license application, conduct hearings before an independent Atomic

¹ The term FEIS refers to the 2002 FEIS and any final supplements submitted with the license application. The term EIS is used in the generic sense.

² NRC may extend the deadline for one additional year pending compliance with certain reporting requirements [see Nuclear Waste Policy Act, Section 114 (d)].

Safety and Licensing Board (ASLB), and reach a final decision on whether a construction authorization will be issued [see Section 114(d) of the NWSA].

The adoption determination review may include the following actions:

- Meet with DOE to discuss the content of the license application, FEIS, and any additional environmental analyses.
- Visit the proposed repository and surrounding area to become familiar with the affected environment and potential changes thereto, and gather any additional information needed to make an adoption determination.
- Complete the table in Appendix B before beginning the preparation of a report to support the NRC staff's adoption determination.
- Prepare an Adoption Determination Report (ADR) that documents the staff's review of the FEIS against the adoption criteria in 10 CFR § 51.109(c). The ADR would provide the staff's determination on whether it is practicable to adopt the FEIS, including the basis for the conclusions of the staff's review. The ADR may be organized according to the subject areas in the FEIS and NUREG-1748, Section 5.3, "Description of the Affected Environment." A table with the applicable statutes, regulations, and executive orders could also be included in the ADR.
- Along with the *Federal Register* notice of docketing, publish a statement of whether it is practicable (without further supplementation) to adopt the FEIS (see 10 CFR § 51.26(c)). The notice would include a brief summary of the ADR. It would state where the full ADR and relevant information would be available.
- Participate in an ASLB hearing on the practicability of adopting the FEIS. Support hearing activities, such as contention and interrogatory responses, depositions, and any evidentiary hearing.

3.0 Guidance for Environmental Review

3.1 General Approach

If DOE submits a license application, the NRC staff will review the license application and the accompanying FEIS to determine whether it is practicable to adopt the FEIS. The adoption review would address the adoption criteria identified in 10 CFR § 51.109(c) and include a review, using NRC guidance, of the adequacy of the statement under NRC NEPA regulations. CEQ regulations may also be used for guidance.

The NRC staff's adoption review would require input from a number of technical and social science disciplines, including, but not limited to: environmental engineering, hydrology, geology, ecology, performance assessment, health physics, socioeconomics, historic preservation, air quality, and transportation. Input from these disciplines, as well as input from the general information, and pre-closure and post-closure review teams, would be considered within the context of the statutory and regulatory requirements.

The adoption review would evaluate whether the FEIS is consistent with NRC's NEPA regulations. This review would consider differences between the descriptions of the proposed

action in the license application and the proposed action in the FEIS that significantly affect the quality of the human environment. Additional environmental analysis, new information, or new considerations not included in the FEIS would also be evaluated.

Significance would be judged according to the significance of potential environmental impacts associated with the information under review. A standard of significance for assessing environmental impacts is incorporated in NUREG-1748, Section 4.2.5.3, "Evaluation of Significance." In developing the standard of significance, the NRC staff considered both "context" and "intensity" as defined in the Council on Environmental Quality regulations, because significance and severity of an impact can vary with the physical setting of a proposed action. Each impact (whether beneficial or adverse) is assigned one of three significance levels (small, moderate, or large). In the adoption determination review, the NRC staff would use this measure of significance when assessing potential impacts resulting from new information or new considerations (see Figure 1).

3.2 Procedures for Review

3.2.1 Completeness and Adequacy

A completeness review is normally conducted as part of any environmental review of a license application package.

The NRC staff will review the FEIS (i.e., 2002 FEIS and final supplements) for completeness and adequacy at the time of the license application submittal. If DOE submits additional environmental analyses with its license application, these analyses would also be considered during the completeness and adequacy review. In assessing the FEIS for adequacy, the staff will compare DOE's FEIS with the requirements of 10 CFR § 51.91 and the sections and descriptions of these sections identified in 10 CFR Part 51, Subpart A, Appendix A to determine if the FEIS meets the NRC's regulatory requirements. The staff should also refer to CEQ regulations as guidance during its review. The staff will also review DOE's responses to comments, including responses to NRC comments. The completeness and adequacy reviews would be informed by the guidance provided in NUREG-1748, Chapter 5, "Preparing an Environmental Impact Statement: Format and Technical Content," which addresses the technical content of an EIS.

3.2.2 Similarity of Proposed Actions (§ 51.109(c)(1))

Under 10 CFR § 51.109(c)(1), the NRC staff would determine whether there are any differences between the action proposed to be taken by the Commission and the proposed action described by DOE in its license application. This means the staff should compare the proposed action in DOE's FEIS and the proposed action described in the license application. If there are differences, the NRC staff will assess whether these differences could significantly affect the quality of the human environment.

Significance Levels
Based on the Council on Environmental Quality's regulations, each impact may be assigned one of the following three significance levels:
Small: The environmental effects are not detectable or are so minor that they would neither destabilize nor noticeably alter any important attribute of the resource.
Moderate: The environmental effects are sufficient to noticeably alter but not destabilize important attributes of the resource.
Large: The environmental effects are clearly noticeably and are sufficient to destabilize important attributes of the resource.
Source: NUREG-1748

Figure 1: Determining the Significance of Potential Environmental Impacts

3.2.2.1 Review Methods

Identify differences in descriptions of the proposed action by directly comparing the action proposed in the license application to the proposed action in the FEIS. Review the specific sections of the documents that discuss the proposed action, including:

- Portions of any additional environmental analyses corresponding to Chapter 1 (Sections 1.1, 1.2 and 1.4) and Chapter 2 (Section 2.1) of the 2002 FEIS; and
- Portions of the license application corresponding to Chapter 1 (Section 1.1) and supporting material (such as Section 2.1.1.2) of the Yucca Mountain Review Plan (NUREG-1804).

This comparison is not intended to be a detailed technical review of all of the activities associated with the proposed action. The scope of information that could be included in the comparison is described in NUREG-1748, Section 5.2.2, "Proposed Action." The scope could include, for example: (1) the nature and extent of present and proposed operations at the site; and (2) facilities that could be constructed, modified, or impacted as a result of the proposed action.

If the results of the comparison indicate that there are differences between the descriptions of the proposed action (i.e., differences between the proposed action in the license application and the proposed action in the FEIS), then determine whether those differences could result in significant environmental impacts. This applies to impacts that either were not identified in the FEIS or were identified but their significance has likely changed. Refer to NUREG-1748, Section 4.2.5.3, "Evaluation of Significance" (summarized in Figure 1). Also, consider mitigative actions proposed in the FEIS and evaluate whether they would significantly reduce potential environmental impacts (the scope of mitigative actions includes preventive actions).

3.2.2.2 Acceptance Criteria

Determine whether either of the following conditions has been met:

- The proposed action described in the FEIS is the same as the proposed action described in the license application (e.g., construction, operation and closure of a geologic repository at Yucca Mountain).
- The proposed action descriptions (e.g., a change in the design of the repository operations area that was not discussed in the FEIS) are different in the license application and the FEIS, but the differences do not indicate the potential for significant environmental impacts not already evaluated.

If a comparison of proposed actions shows that either of these conditions has been met, then the NRC staff should conclude that it is practicable to adopt the FEIS based on § 51.109(c)(1). If neither condition has been met, then the NRC staff should conclude that it is not practicable to adopt the FEIS. The NRC staff conclusion regarding whether it is practicable to adopt the FEIS would be documented in the ADR.

3.2.3 Significant and Substantial New Information or Considerations (§ 51.109(c)(2))

Under 10 CFR § 51.109(c)(2), the NRC staff should determine whether significant and substantial new information or considerations have arisen that were not considered in the FEIS.

3.2.3.1 Review Methods

Review areas of the FEIS and other available information corresponding to the staff's areas of expertise. Determine whether new information or considerations are identified (as listed below) and document the substance and source of new information or considerations. Then, evaluate whether the new information or considerations could affect the conclusions and call into question the adequacy of the FEIS.

New information or considerations could relate to several areas, including (but not limited to):

- Socioeconomics of the region, including regional demographics and housing information.
- Water resources.
- Local plans concerning land use and zoning.
- Historic and archaeological resources.
- Endangered, threatened, proposed, and candidate species and species of concern.
- Known and reasonably foreseeable Federal and non-Federal projects and other actions that may contribute to the cumulative environmental impacts.
- Construction and operation issues for all proposed repository facilities.

Considering the areas listed above (and other relevant areas), perform the following reviews:

1. Determine whether DOE explicitly identified new information or new considerations in the license application, FEIS, or additional environmental analyses (such as information associated with repository design changes). To inform your review, become familiar with DOE's methods of identifying new information or considerations (if DOE has provided this information). In addition to information DOE may have identified, the staff should document, where applicable, other new information or new considerations that could be considered significant or substantial. If new information or considerations are identified, answer the following question:
 - Are the analyses and conclusions in the FEIS adequate in light of substantial and significant new information or considerations (e.g., is it reasonable to conclude that the new information or considerations would not have a significant and substantial environmental impact)?

2. Review the direct, indirect, and cumulative impacts addressed in the FEIS and any additional environmental analyses against relevant information in the license application. Answer the following question:
 - Can the staff conclude (without additional analysis or information) that the impacts analyzed in the FEIS encompass actions described in the license application?
3. Identify differences in the methodology and analytical approach of the license application and the FEIS and any additional environmental analyses. Answer the following questions:
 - Are assumptions in the methodological and analytical approaches clearly stated?
 - Are the bases or rationale for approaches adequately documented?
 - Are differences explained? Determine whether any differences would result in a significant and substantial environmental impact.
4. Review public comments on DOE's draft supplemental EISs issued in October 2007. Determine whether the comments identify significant and substantial new information that is neither adequately considered in the FEIS nor addressed in any additional DOE environmental analyses that may be submitted in support of a license application.
5. Identify significant and substantial new information or considerations resulting from civil actions for judicial review under NWPA (see 10 CFR § 51.67).
6. Review for consistency with any relevant DOE records of decision that are not already considered in the FEIS.

3.2.3.2 Acceptance Criteria

Based on the review above:

- If no significant and substantial new information or considerations have been identified, then the NRC staff should conclude that it is practicable to adopt DOE's FEIS based on § 51.109(c)(2).
- If significant and substantial new information or new considerations have been identified that do not render the FEIS inadequate in scope or the consideration of impacts, the NRC staff should conclude that it is practicable to adopt the FEIS.
- If significant and substantial new information or considerations have been identified that render the FEIS inadequate in whole or in part, then the NRC staff should determine whether partial adoption is appropriate and whether supplementation is necessary. The existence of substantial and significant new information or considerations does not necessarily preclude NRC's adoption of the FEIS.

The NRC staff's adoption position, and its rationale for reaching its position, should be documented in the ADR.

3.2.4 Other Federal Statutes, Regulations, and Executive Orders

In the 2002 FEIS and 2007 supplements, DOE identified a number of Federal statutes, regulations, and executive orders that it believes are applicable to the proposed action of constructing, operating, monitoring, and closing the proposed repository. With respect to these statutes, regulations, and executive orders, DOE has taken actions that it considers to be appropriate to meet the relevant requirements.

The NRC staff should confirm that DOE has identified applicable Federal statutes, regulations, and executive orders that address environmental impacts. The NRC staff should pursue any additional consultations or actions needed to fulfill the NRC's responsibilities related to these Federal statutes, regulations, and executive orders prior to any issuance of a construction authorization. When conducting consultations, NRC staff should refer to NUREG-1748, Section 4.2.4.1, "Consultations and Cooperating Agencies." Examples of applicable regulations, statutes, and executive orders include: the Endangered Species Act, the National Historic Preservation Act, Executive Order 12898 on Environmental Justice, and the Native American Graves Protection and Repatriation Act.

Finally, adoption of the FEIS would have no probative weight with respect to any safety finding that the NRC staff must make under 10 CFR Part 63 (53 FR 16131, 16142, May 5, 1988). If the staff determines adoption is practicable and later identifies new information or considerations that render the adopted portion(s) of the EIS inadequate, a supplement could be warranted. Section 4 discusses supplementation.

4.0 Review or Preparation of EIS Supplements

If the NRC staff determines that adoption is not practicable, a supplemental EIS may be required. Although NRC would expect DOE to prepare this supplement, there could be circumstances in which NRC would prepare its own supplement. For any future supplements prepared by DOE, the NRC staff would conduct an adoption determination review as discussed in Section 3, using the criteria under 10 CFR § 51.109(c). The NRC staff would document the results of its review in a supplement to the ADR. If NRC decides to adopt any of these supplements, a notice of this determination will be published in the *Federal Register*. If NRC prepares a supplemental EIS, the NRC staff should follow the procedures in Part 51.

Revision History

<u>Date of Change</u>	<u>Section(s) Changed</u>
March 2008	Substantive or clarifying changes were made to Sections 3.1 and 3.2.1, in addition to a few editorial changes throughout the document.

APPENDIX A ABBREVIATIONS

ADR	Adoption Determination Report
ASLB	Atomic Safety and Licensing Board
DOE	U.S. Department of Energy
EIS	Environmental Impact Statement
FEIS	Final Environmental Impact Statement
NEPA	National Environmental Policy Act
NMSS	Nuclear Material Safety and Safeguards
NRC	U. S. Nuclear Regulatory Commission
NWPA	Nuclear Waste Policy Act

APPENDIX B SUPPORTING DOCUMENTATION FOR ADOPTION DETERMINATION REPORT (ADR)

Section/Topic	Identification of differences between EIS and license application	Could these differences have a significant effect on the quality of the human environment? Provide basis for view.	Do significant or substantial new information or considerations exist? Document substance and source.	Do significant or substantial new information or considerations render the EIS inadequate? Provide basis for view.
INTRODUCTION				
Purpose and need for proposed action				
The proposed action				
No-action alternative				
Other Applicable Regulations				
DESCRIPTION OF THE AFFECTED ENVIRONMENT				
Land Use; Geology and soils; Water Resources; Ecology; Meteorology, climatology, and air quality; Noise; Cultural resources; Visual; scenic resources; Socioeconomics; Demography; Public and occupational health; Waste management; Environmental Justice; Transportation				

Notes:

EIS – Environmental Impact Statement

ADR – Adoption Determination Report

SUPPORTING DOCUMENTATION FOR ADR, Continued

Section/Topic	Identification of differences between EIS and license application	Could these differences have a significant effect on the quality of the human environment? Provide basis for view.	Do significant or substantial new information or considerations exist? Document substance and source.	Do significant or substantial new information or considerations render the EIS inadequate? Provide basis for view.
ENVIRONMENTAL IMPACTS				
Land Use; Geology and soils; Water Resources; Ecology; Meteorology, climatology, and air quality; Noise; Cultural resources; Visual; scenic resources; Socioeconomics; Demography; Public and occupational health; Waste management; Environmental Justice; Transportation				
Cumulative Impacts; Unavoidable adverse environmental impacts, irreversible and irretrievable commitments of resources, and short-term uses of the environment and maintenance and enhancement of long-term productivity				

APPENDIX C

KEY REFERENCES

1. NRC Regulations at 10 CFR Parts 2, 51, and 63
2. National Environmental Policy Act of 1969, as amended. 42 USC 4321 et seq., January 1970.
3. Nuclear Waste Policy Act of 1982, as amended. 42 USC 10101 et seq., January 7, 1983.
4. U.S. Department of Energy. "Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada." August 1999.
5. U.S. Department of Energy. "Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada." June 2002.
6. U.S. Department of Energy. "Draft Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada." October 2007.
7. U.S. Department of Energy. "Draft Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada – Nevada Rail Transportation Corridor, and Draft Environmental Impact Statement for a Rail Alignment for the Construction and Operation of a Railroad in Nevada to a Geologic Repository at Yucca Mountain, Nye County, Nevada." October 2007.
8. U.S. Nuclear Regulatory Commission. "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs," NUREG-1748. Office of Nuclear Material Safety and Safeguards. Washington, DC. August 2003.
9. U. S. Nuclear Regulatory Commission. "Letter to Spencer Abraham re: Comments on the U.S. Dept. of Energy Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, NYE County, Nevada," February 2002. ADAMS: ML020170294.
10. U.S. Nuclear Regulatory Commission. "Yucca Mountain Review Plan: Final Report," Revision 2. NUREG-1804. Office of Nuclear Material Safety and Safeguards. Washington, DC. July 2003.