

COMPLIANCE DETERMINATION STRATEGY
RRT 4.1.5 INTERFACES AMONG STRUCTURES, SYSTEMS, AND COMPONENTS

APPLICABLE REGULATORY REQUIREMENTS:

None.

TYPES OF REVIEW:

Acceptance Review (Type 1)
General Information Review (Type 2)

RATIONALE FOR TYPES OF REVIEW:

Acceptance Review (Type 1) Rationale:

This review plan topic is considered to be license application-related because, as specified in regulatory guide, "Format and Content for the License Application for the High-Level Waste Repository (FCRG)," it is expected to be addressed by the U.S. Department of Energy (DOE) in its license application. Therefore, the staff will conduct an Acceptance Review of the license application for this topic.

General Information Review (Type 2) Rationale:

This review plan is related to radiological safety, including safety during any waste retrieval operations that might be necessary. It is not based on a specific regulatory requirement in 10 CFR Part 60 but it does support the staff's reviews and overall finding with respect to safety, as stated in 10 CFR 60.31(a). It concerns how DOE's design for the geologic repository operations area (GROA) will provide for the necessary interfaces among the structures, systems, and components (elements) of the GROA. This information should enable the reviewer to obtain a basic understanding of how all elements of the GROA relate and thus lead to a determination as to whether high-level radioactive waste can be received, handled, and stored in a manner that assures public health and safety. Therefore, the staff will conduct a General Information Review of this review plan topic.

REVIEW STRATEGY:

Acceptance Review:

In conducting the Acceptance Review of the U.S. Department of Energy's (DOE's) identification and descriptions of the interfaces among the elements of the geologic repository operations area (GROA), the reviewer should determine if the information present in the license application for demonstrating compliance with the information request made in regulatory guide, "Format and Content for the License Application for the High-Level Waste Repository (FCRG)" is complete in breadth and depth as identified in the FCRG.

The descriptions provided in other sections of the license application, as appropriate, will support the General Information Review of the information contained in Section 4.1.5 of the license application. These other sections of the license application are listed in Table 4.1.5-1. The descriptions of the interfaces among the elements identified in this section of the license application should be consistent with

DOE's designs described in other sections of the license application. Thus, the review of the information contained in Section 4.1.5 will be performed in parallel with the review of the information contained elsewhere in the license application. Therefore, during the Acceptance Review of Section 4.1.5, the reviewer should determine whether all appropriate descriptive information necessary for the staff to conduct a General Information Review of GROA design interfaces and whether the information is both internally consistent, and consistent from section-to-section.

The reviewer should determine whether the information presented in the license application is presented in such a way that the assumptions, data, and logic lead to a demonstration of compliance with the FCRG are clear and do not require the reviewer to conduct extensive analyses or literature searches.

Finally, the reviewer should determine if DOE has either resolved all the NRC staff objections related to the general information request, or provided all the information requested in Section 1.6.2 of the FCRG for unresolved objections. The reviewer should evaluate the effects of any unresolved objections, both individually and in combination with others, on: (1) the reviewer's ability to conduct a meaningful and timely review; and (2) the Commission's ability to make a decision regarding construction authorization within the three-year statutory period.

General Information Review:

This review plan topic is limited to the identification and descriptions of the interfaces among structures, systems, and components of the GROA, including those that are important to safety and waste retrievability. It is not concerned with the assessment of compliance with the design criteria for those elements of the GROA. The review of these other GROA elements will be treated in Sections 4.2 ("Assessment Compliance with Design Criteria for Surface Facilities"), 4.3 ("Assessment Compliance with Design Criteria for Shafts and Ramps"), and 4.4 ("Assessment of Compliance with Design Criteria for the Underground Facility"). Finally, the assessment of the GROA design from the perspective of radiation protection and waste retrievability will be evaluated in Sections 4.5.1 ("Assessment of Integrated GROA Compliance with the Performance Objectives: Protection Against Radiation Exposures and Releases of Radioactive Material to Individual Members of the Public ") and 4.5.2 ("Assessment of Integrated GROA Compliance with the Performance Objectives: Retrievability of Waste") of the license application.

In conducting the General Information Review, the reviewer should determine if the information presented in the license application and its references is an acceptable demonstration of compliance with the information request. At a minimum, the reviewer should assess the adequacy of the data and information presented in the license application. The specific aspects of the license application on which the reviewer will focus are discussed below, and the Acceptance Criteria are identified in Section 3.0 of this Review Plan.

The staff's evaluation of DOE's identification and descriptions of the interfaces among structures, systems, and components of the GROA is expected to consist of the following steps, paralleling the steps in the Safety Review of DOE's GROA design. They are:

- (1) DOE's identification of structures, systems, and components of the GROA for which an interface is required. These should include those structures, systems, and components identified from Sections 4.2, 4.3, 4.4, 4.5.1, and 4.5.2 of the license application;

- (2) description of the interfaces among the structures, systems, and components of the GROA identified in Step (1), above;
- (3) repeat Steps (1) and (2) for those items important to safety; and
- (4) provide a description of how those structures, systems, and components of the GROA, identified in Step (1), will interface with those structures, systems, and components of the GROA that are important to safety identified in Step (3).

In reviewing DOE's identification and descriptions of the interfaces among the elements of the GROA, the reviewer should determine whether these descriptions include any possible inter-relationships among such items, both individually or in combination with others, which would impact public health and safety. For example, DOE should address interfaces among ventilation, hoist, communication, instrumentation and control, utility, operational support, and emergency systems. The reviewer should also assure that the proper interfaces among GROA operations and the GROA elements are identified and described.

In order to conduct an effective review, the reviewer will rely on staff expertise and independently acquired knowledge, information, and data. For example, the reviewer should have knowledge and experience in the design of other types of nuclear facilities. The reviewer should also be able to identify those variables that may significantly affect the interfaces among structures, systems, and components of the GROA and thus the design. The reviewer should focus on additional data that can refine knowledge of the facility operations. The reviewer should perform, as necessary, any reviews needed to confirm the adequacy of the methodologies proposed to ensure that DOE's design will assure public health and safety. Also, the reviewer should use specific documents (design drawings, reports, planning documents, and procedures) bearing on this topic, that were prepared by NRC, DOE, and others. These documents should be available to the reviewers in anticipation of the license application submittal and review.

Finally, as noted above, the information in this section of the license application will support the Safety Review of the information contained elsewhere in the license application. This other section of the license application should be consulted as part of the General Information Review.

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APPLICABLE REGULATORY REQUIREMENTS FOR EACH TYPE OF REVIEW:

Type 1:

None

Type 2:

None

REFERENCES:

Nuclear Regulatory Commission, "Format and Content For the License Application for the High-Level Waste Repository," Office of Nuclear Regulatory Research. [Refer to the "Products List" for the Division of High-Level Waste Management to identify the most current edition in effect.]

TABLE 4.1.5-1. Sections of the License Application Which May Support the General Information Review of the "Interfaces Between Structures, Systems, and Components" Section of the License Application.

License Application Chapter/Section	Chapter/Section Title
Section 3.2.6	Assessment of Compliance with Design Criteria for the Controlled-Use Area
Section 4.1	Description of the GROA Structures, Systems, and Components: 4.1.1 Surface Facilities 4.1.2 Shafts and Ramps 4.1.3 Underground Facilities 4.1.4 Radiation Protection Systems
Section 4.2	Assessment of Compliance with Design Criteria For Surface Facility
Section 4.3	Assessment of Compliance with Design Criteria For Shafts and Ramps
Section 4.4	Assessment of Compliance with Design Criteria For Underground Facility
Section 4.5.1	Assessment of Integrated GROA Compliance with the Performance Objectives: Protection Against Radiation Exposures and Releases of Radioactive Material to Individual Members of the Public
Section 4.5.2	Assessment of Integrated GROA Compliance with the Performance Objectives: Retrievability of Waste
Section 7.1	Plans for the Conduct of Normal Activities
Chapter 11.0	Emergency Planning