

## **COMPLIANCE DETERMINATION STRATEGY**

### **RRT 3.2.5 ASSESSMENT OF COMPLIANCE WITH CRITERIA FOR INTEGRATED ANALYSES OF FAVORABLE CONDITIONS AND POTENTIALLY ADVERSE CONDITIONS**

#### **APPLICABLE REGULATORY REQUIREMENTS:**

10 CFR 60.122(a)(1)

10 CFR 60.122(a)(2)

#### **TYPES OF REVIEW:**

Acceptance Review (Type 1)

Safety Review (Type 3)

#### **RATIONALE FOR TYPES OF REVIEW:**

##### **Acceptance Review (Type 1) Rationale:**

This regulatory requirement topic is considered to be license application-related because, as specified in the license application content requirements of 10 CFR 60.21(c) and the regulatory guide "Format and Content for the License Application for the High-Level Waste Repository (FCRG)" it must 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 regulatory requirement topic.

##### **Safety Review (Type 3) Rationale:**

This regulatory requirement topic is considered to be related to containment and waste isolation. In NUREG-0804 (NRC, 1983), p. 56, the following statement is made: "The revised language makes it clear that all such conditions (favorable and potentially adverse) relate to isolation of the waste after permanent closure." This regulatory requirement topic focuses on the use of siting criteria in meeting the post-closure performance objectives. While this is clearly a requirement for which compliance is necessary to make a safety determination for construction authorization as defined in 10 CFR 60.31(a) (i.e., regulatory requirements concerning whether the site and design comply with the performance objectives and siting criteria in subpart E of 10 CFR Part 60), all of the information related to demonstrating compliance with this requirement comes from other parts of the license application.

The findings associated with this regulatory requirement topic are different from the findings made for the investigation of the individual siting criteria, and for assessments of compliance with the individual post-closure performance objectives. Assessments of compliance with the individual siting criteria will be considered in Section 3.2 ("Assessment of Compliance with the Siting Criteria") of the license application, while compliance with the individual post-closure performance objectives will be the subject of the staff review in Sections 3.3 ("Assessment of Compliance with the Groundwater Travel Time Performance Objective"), 5.4 ("Assessment of Compliance with the Engineered Barrier System Performance Objectives"), 6.1 ("Assessment of Compliance with the Requirement for Cumulative Releases of Radioactive Materials"), and 6.2 ("Assessment of Compliance with the Individual Protection") of the license application.

This review plan will instead focus on whether DOE has demonstrated that all individual siting criteria and assessments of compliance have been met in the aggregate. To do so, DOE must demonstrate that

it has: (1) treated the favorable conditions and potentially adverse conditions appropriately and differentially, as required by 10 CFR Part 60, and (2) shown that, in demonstrating compliance with all of the post-closure performance objectives, it has appropriately factored in consideration of the favorable conditions and potentially adverse conditions into its evaluations.

To demonstrate compliance with the applicable regulatory requirements, it will be necessary for DOE to demonstrate that:

- (1) the results of the investigations for each individual favorable condition and potentially adverse condition (i.e., whether they are present, absent, or not determined to be absent) have been appropriately and accurately summarized; and
- (2) the results of the compliance demonstrations with the post-closure performance objectives (contained in Chapters 3, 5, and 6 of the license application) have been appropriately and accurately summarized, including:
  - (a) the favorable conditions of 10 CFR 60.122(b) determined to be present have been considered in the compliance demonstrations for the post-closure performance objectives;
  - (b) the potentially adverse conditions of 10 CFR 60.122(c) determined to be present or not absent have been evaluated in the compliance demonstrations for the post-closure performance objectives;
  - (c) all of the post-closure performance objectives have been met.

With respect to Item (2a) above, DOE is not required to include all of the favorable conditions determined to be present in its evaluations for demonstrating compliance with the post-closure performance objectives. DOE may choose not to take credit for certain of these favorable conditions. In contrast, as implied in Item (2b), DOE's evaluations for demonstrating compliance with the post-closure performance objectives must consider all potentially adverse conditions determined to be present or not absent, and in doing so, assumptions should be used that are not likely to underestimate their effects.

In addition, all potentially adverse conditions determined to be present or not absent should be included in the evaluations for demonstrating compliance with the overall system performance objectives of 10 CFR 60.112. Only a fraction, or perhaps none (as may be the case for the subsystem performance objective for the geologic setting, 10 CFR 60.113(a)(2)), may be necessary for consideration in each of the compliance demonstrations for the subsystem performance objectives of 10 CFR 60.113.

For the reasons discussed above, the staff will conduct a Safety Review of the license application to determine compliance with this regulatory requirement topic.

#### **REVIEW STRATEGY:**

##### **Acceptance Review:**

In conducting the *Acceptance Review*, the reviewer should determine if the information presented in the license application, for demonstrating compliance with the applicable regulatory requirements, is complete

in technical breadth and depth as identified in regulatory guide "Format and Content for the License Application for the High-Level Waste Repository (FCRG)." The FCRG provides guidance concerning the preferred format and presentation of the relevant material. The reviewer should determine that the information in this section of the license application is presented in such a manner that the information and data are clear and do not require the reviewer to conduct extensive searches for information contained elsewhere in the license application.

#### **Safety Review:**

The purpose of this section of the license application is to demonstrate, in summary form, that the results of the demonstrations of compliance for the investigations and analyses of favorable conditions and potentially adverse conditions are carried out pursuant to 10 CFR 60.122. These summaries should be derived from the assessments presented and the conclusions reached by the U.S. Department of Energy (DOE) in Chapters 3.2 ("Assessment of Compliance with the Siting Criteria"), 3.3 ("Assessment of Compliance with the Groundwater Travel Time Performance Objective"), 5.4 ("Assessment of Compliance with the Engineered Barrier System Performance Objectives"), 6.1 ("Assessment of Compliance with the Requirement for Cumulative Releases of Radioactive Materials"), and 6.2 ("Assessment of Compliance with the Individual Protection") of the license application. It is not necessary to repeat reviews of investigations and analyses documented in these sections of the license application in order to demonstrate compliance with the applicable regulatory requirements.

The Safety Review will involve reviewing the summary tables/matrices specified in the FCRG. These tables/matrices will:

- (1) Identify the status of each favorable condition and potentially adverse condition enumerated in 10 CFR 60.122. For favorable conditions, status can be present or absent. For potentially adverse conditions, status can be present, absent or not determined to be absent.
- (2) Identify the favorable conditions considered for each of the post-closure performance objectives. Additionally, identify the potentially adverse conditions evaluated for each of the post-closure performance objectives.
- (3) Cross reference where the favorable conditions present and the potentially adverse conditions present or not determined to be absent: (a) have been considered but not evaluated, or (b) have been considered and are evaluated in compliance demonstrations for the post-closure performance objectives.

In conducting the aforementioned evaluations, the reviewer should consider whether information presented, regarding the consideration of the combinations of siting criteria in the demonstrations of post-closure performance, accurately reflects what is stated in the sections of the license application listed above.

Based on the this review, the reviewer should be able to determine whether:

- (1) DOE has summarized the treatment of the favorable conditions and potentially adverse conditions appropriately and differentially, as required by 10 CFR Part 60, and

- (2) DOE has shown that, in demonstrating compliance with all of the post-closure performance objectives, it has appropriately included in its evaluations, consideration of the favorable conditions and potentially adverse conditions.

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**APPLICABLE REGULATORY REQUIREMENTS FOR EACH TYPE OF REVIEW:**

Type 1:

10 CFR 60.122(a)(1)  
10 CFR 60.122(a)(2)

Type 3:

10 CFR 60.122(a)(1)  
10 CFR 60.122(a)(2)

**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 of the FCRG in effect.]

Nuclear Regulatory Commission, "Staff Analysis of Public Comments on Proposed Rule 10 CFR Part 60, 'Disposal of High-Level Radioactive Waste in Geologic Repositories,'" Office of Nuclear Regulatory Research, NUREG-0804, December, 1983.