COMPLIANCE DETERMINATION METHOD FOR REVIEW PLAN NO. 5.1 DESCRIPTION OF ENGINEERED SYSTEMS AND COMPONENTS THAT PROVIDE A BARRIER BETWEEN THE WASTE AND THE GEOLOGIC SETTING

3.0 REVIEW PROCEDURES AND ACCEPTANCE CRITERIA

3.1 Acceptance Review

In conducting the Acceptance Review for docketing, the staff will compare information in the license application (LA) concerning the engineered systems and components that provide a barrier between the waste and the geologic setting with the corresponding section of the FCRG and with the staff's resolution status of objections in the Open Item Tracking System and determine if this information meets the following criteria.

(1) The information presented in the LA is clear, is completely documented consistent with the level of detail presented in the corresponding section of the FCRG, and the references have been provided.

(2) DOE has either resolved, at the staff level, the NRC objections to LA submittal that apply to this regulatory requirement topic or provided all information requested in Section 1.6 of the FCRG for unresolved objections, namely, DOE has:

- Identified all unresolved objections
- Explained the differences between NRC and DOE positions that have precluded resolution of each objection
- Described attempts to achieve resolution
- Explained why resolution has not been achieved
- Described the effects of the different positions on demonstrating compliance with 10 CFR Part 60

(3) In addition, unresolved objections, individually or in combination with others, will not prevent the reviewer from conducting a meaningful Compliance Review and the Commission from making a decision regarding construction authorization within the three-year statutory period.

3.2 Compliance Reviews

The compliance determinations undertaken by NRC staff will consider whether the Acceptance Criteria specified for each of the following Compliance Reviews have been met. The results of the compliance determinations shall be documented in the staff's Safety Evaluation Report (SER) to provide the basis for the actual Evaluation Findings.

3.2.1 Safety Review of 10 CFR 60.21(c)

The staff's Compliance Review will consist of the following two steps. First, the staff will review the descriptive information provided for the engineered systems and components that provide a barrier between the waste and the geologic setting. This will provide an overall understanding of how DOE has presented its information on the many individual aspects of the engineered systems and components that provide a barrier between the waste and the geologic setting and how this information has been integrated. The types of descriptive information to be provided to other review plans are listed in Section 4.2.2.

Second, after the staff has conducted each of the Compliance Reviews for those sections of the LA identified in Section 4.2.2, the individual Evaluation Findings from these reviews will be considered on balance to determine whether the following Acceptance Criterion has been met:

(1) The descriptive information for the engineered systems and components that provide a barrier between the waste and the geologic setting provides an acceptable basis for all of the associated assessments that rely on this information

3.3 Rationale For Review Procedures and Acceptance Criteria

3.3.1 Rationale for Safety Review of 10 CFR 60.21(c)

The information presented in the description of the engineered systems and components that provide a barrier between the waste and the geologic setting must be reviewed in the context of whether it supports the findings that must be made in those review plans which make use of the descriptive information. Therefore, the review procedure requires the reviewer to examine the evaluation findings from those review plans prior to making a conclusion as to the adequacy of the descriptive material.

4.0 IMPLEMENTATION

4.1 Review Responsibilities

The review responsibilities for this review plan are as follows:

Lead:	DWM/ENGB Engineering and Materials Section
Support:	DWM/PAHB Performance Assessment and Health Physics Section DWM/PAHB Performance Assessment and Health Physics Section DWM/PAHB Hydrologic Transport Section

4.2 Interfaces

4.2.1 Input Information

Input Information	*Review Plan No.*
Evaluation Findings	2.5 - Radioactive Material
Evaluation Findings	5.2 - Assessment of Compliance with the Design Criteria for the Waste Package and Its Components
Evaluation Findings	5.3 - Assessment of Compliance with the Design Criteria for the Post-Closure Features of the Underground Facility
Evaluation Findings	5.4 - Assessment of Engineered Barrier System Compliance with the Performance Objectives
Evaluation Findings	8.3 - Performance Confirmation Program for the Engineered Barrier System

4.2.2 Output Information

Output from activities associated with this review plan will provide specific information important for use in other review plans as the following table indicates. For further detail, see FCRG Sections 5.1 through 5.1.5.

Output Information	*Review Plan No.*
A description of the kind, amount, and specifications of the radioactive material proposed to be incorporated into waste packages.	2.5 - Radioactive Material
Description of the waste package design and alternative designs, including the waste form; containers; shielding; packing; absorbent materials immediately surrounding an individual waste container; coatings; liners; structural supports; fillers; materials specifications; and manufacturing methods.	5.2 - Assessment of Compliance with the Design Criteria for the Waste Package and its Components

Output Information	*Review Plan No.*
Description of the design of the underground facility, including (1) the waste emplacement areas, panels, emplacement drifts, and boreholes; (2) backfill materials and their properties; (3) provisions for retrieval; and (4) pre-emplacement site conditions.	5.3 - Assessment of Compliance with the Design Criteria for the Post-Closure Features of the Underground Facility
A description of (1) intended functions, including any assigned performance allocation, of each component of the EBS; (2) performance assessment codes, including assumptions and supporting research, testing, and model development; and (3) comparative evaluation of the alternative waste package designs.	5.4 - Assessment of Engineered Barrier System Compliance with the Performance Objectives
A discussion of the EBS performance confirmation program, including (1) in situ waste package and waste form monitoring; (2) waste package external environment monitoring; (3) laboratory waste package monitoring; and (4) program schedule and duration.	8.3 - Performance Confirmation Program for the Engineered Barrier System

5.0 EXAMPLE EVALUATION FINDINGS

The staff should consider the Example Evaluation Findings presented below together with the Acceptance Criteria set forth in Section 3.0 when making the actual Evaluation Findings resulting from the Acceptance Review for docketing, and the subsequent Compliance Review. The actual Evaluation Findings resulting from the Compliance Reviews, and the supporting basis, should be documented in the staff's SER.

5.1 Finding for Acceptance Review

The NRC staff finds the information presented by DOE, as defined by the applicable 10 CFR Part 60 Regulatory Requirements, is acceptable (not acceptable) for docketing and a subsequent Compliance Review.

5.2 Findings for Compliance Reviews

5.2.1 Finding for 10 CFR 60.21(c)

The NRC staff finds the information for descriptions, assessments, and analyses is (is not) adequate, and there is (is not) reasonable assurance the applicable regulatory requirements of 10 CFR 60.21(c), listed

in Section 1.0 of this Review Plan, will be met for the engineered systems and components that provide a barrier between the waste and the geologic setting.

6.0 REFERENCES

Nuclear Regulatory Commission, "Format and Contents 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.]