OBJECTIVES AND ASSOCIATED ATTRIBUTES FOR EVALUATING THE SCC CLARIFICATION ALTERNATIVES

REPORT

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Objectives and Associated Attributes for Evaluating the SCC Clarification Alternatives

Introduction

In FY90, the Center completed a detailed technical feasibility study on the clarification of the current regulation for "substantially complete containment" in 10 CFR 60.113 using quantitative means. The study produced two NUREG reports: the first outlines the technical considerations required to be addressed in developing the basis for designing for containment, and the second presents a methodology for quantitative representation of technical information such that an evaluation criterion for "substantially complete containment" can be developed. The second report also presents state-of-the-art techniques for evaluating uncertainties for the various technical considerations to be used in designing for containment. As part of the technical feasibility study, a feasibility assessment and alternatives report was also prepared. This report concluded that a reasonable quantitative approach can be taken to clarify the "substantially complete containment" requirement. The report identified four alternative ways of introducing a quantitative approach within a regulatory framework. These alternatives were prepared to provide NRC with a broad range of regulatory implementation possibilities.

This letter report presents a systematic description of the basis on which the selection of an alternative can be made from among the ones described in the third (technical feasibility study) report. A hierarchy of goals, objectives, and attributes associated with the decision analysis process is presented in this report.

Purpose and Goals

The purpose of the decision analysis for establishing the direction for the resolution of the uncertainty in the current regulation dealing with "substantially complete containment" is to meet the statutory NWPA requirement that the Commission reach a decision on the construction authorization within 36 months after receipt of the DOE license application. The Commission has testified before Congress that it would support the requirement in the NWPA, provided that DOE submitted a high-quality application.

Based on the purpose of the decision analysis, a high-order set of goals can be described. The goals are:

> GOAL 1. Provide authoritative guidance to DOE sufficient to ensure no misunderstanding of specific NRC regulatory requirements that would otherwise be likely to impair the submission of a high-quality application for a construction authorization.
>
> GOAL 2. Provide authoritative interpretive positions regarding specific NRC regulatory requirements to the NRC technical staff so that associated technical capabilities will be available to review and process a high quality application for a construction authorization promptly without delays associated with regulatory uncertainty.

GOAL 3. Reduce, to the extent practical, opportunities for contentions during the licensing hearing regarding uncertainties about NRC's regulatory requirements so that, together with other measures to streamline the licensing process, a Commission decision on the construction authorization can be made within 36 months after receipt of the application (or as soon thereafter as is reasonably feasible).

Objectives

With respect to the specific uncertainty concerning the meaning of "substantially complete containment" (SCC), the following objectives may be derived from the high-order goals previously stated. All of the goals are addressed by the objectives and each objective is independent.

Objective 1

To ensure compliance with DOE's repository program schedule and to ensure meeting the statutory deadline for license application review.

Note: Ensures that guidance can be made during the time available for guidance development. Timeliness is an important consideration to NRC from two perspectives: (1) the requirement outlined in the NWPAA [Federal Register 10134(e)] that federal agencies must either comply with DOE's repository program schedule or explain the reason for delay to the Secretary and to Congress, and (2) the NWPAA mandates that the Commission "... shall issue a final decision approving or disapproving the issuance of a construction authorization not later than the expiration of 3 years after the date of submission of such application, except that the Commission may extend such deadline by not more than 12 months if, not less than 30 days before such deadline, the Commission complies with the reporting requirements established in subsection (e)(2) ..." [reference Federal Register 10134(d)].

Objective 2

To provide a criterion for the containment requirement that the license applicant can be reasonably expected to comply with and clear enough so that NRC will be able to determine compliance.

Note: This objective is aimed at do-ability of the chosen alternative. The objective is to ensure that the criterion is one which is reasonably possible to comply with. The alternative which is chosen must have a high probability of acceptance by the applicant and must result in required actions which are feasible. In addition, the alternative should result in providing clarity, which speaks to the minimization of any new uncertainties. It should be possible at the time of implementing the alternative to see a "path" toward a known "destination" of compliance.

Objective 3

To minimize the level of effort required for implementing the alternative and for evaluating the license application based on the alternative.

Note: The "level of effort" in this context means the expenditure of NRC resources that would be needed. Such resource expenditure could be for NRC staff or for contractors, and it could be incurred during guidance development before license application or during compliance assessment after a license application has been submitted.

Objective 4

To facilitate public acceptance of and confidence in the safe containment of HLW.

Note: This objective is included to ensure that the design which complies with the SCC requirement will be "good" to a degree sufficient to satisfy all interested parties (State, Indian tribes, individuals, etc.). This objective had been revised to read "To ensure a safe design to protect the public health and safety," but the original language was reinstated for the following reason. If DOE complies with the requirements of NRC, which are conservatively based on EPA requirements, a safe design will be ensured. This objective is not aimed at ensuring that DOE complies with NRC requirements, however; it is instead concerned with public acceptance and confidence in NRC decisions regarding disposal of high-level nuclear waste

Associated with each objective is a set of attributes, which are given below.

Objective 1

To ensure compliance with DOE's repository program schedule and to ensure meeting the statutory deadline for license application review.

Attributes

Prior to Submittal of the License Application:

P1. Prevent Schedule Delays Due to Alternate Interpretation of SCC:

Pursuing the alternative will reduce the uncertainty in the interpretation of SCC so that no delays in the applicant's schedule will occur due to the need for periodic NRC guidance. Pursuing the alternative will ensure that guidance provided by NRC to the applicant concerning the containment requirement is as complete as necessary and contains an adequate level of detail so that no delays in the schedule occur as a result.Pursuing the alternative will not introduce any new regulatory or technical uncertainties, thereby ensuring that the time required for prelicensing guidance will not cause a delay in DOE's schedule.

After Submittal of the License Application:

A1. Prevent Schedule Delays Due to Alternate Interpretation of SCC:

Pursuing the alternative will reduce the uncertainty in the interpretation of SCC so that the requirement on NRC for a construction authorization decision within the three-year allowable time period can be met. Pursuing the alternative will ensure that guidance provided by NRC to the applicant concerning the containment requirement is as complete as necessary and contains an adequate level of detail so that no delays in the schedule occur as a result. Pursuing the alternative will not introduce any new regulatory or technical uncertainties, thereby ensuring that the required schedule for compliance determination activities can be met. Pursuing the alternative will ensure that the applicant's compliance demonstration method is consistent with that expected by NRC so that no delays in the schedule occur as a result.

A2. Ensure Completeness of Information Available to Reviewer and Decision-Maker:

Pursuing the alternative will ensure that the information on the applicant's design for containment, which is available to the Reviewer and Decision-Maker, will be as complete as necessary for timely presentation and license review.

A3. Ensure Ease of Understanding of Information Available to Reviewer and Decision-Maker:

Pursuing the alternative will ensure that the information on the applicant's design for containment, which is available to the Reviewer and Decision-Maker, will be easy to understand, thus ensuring that NRC's review will be completed within the allotted time.

A4. Reduce the Scope for Litigable Issues:

Pursuing the alternative will reduce the scope for litigable issues and, thereby, ensure meeting the statutory deadline required of NRC during the licensing hearing process.

Objective 2

To provide a criterion for the containment requirement that the license applicant can be reasonably expected to comply with and clear enough so that NRC will be able to determine compliance.

Attributes

Prior to Submittal of the License Application:

P1. Ensure the Feasibility of the Design:

Pursuing the alternative will ensure that the applicant has freedom as to how compliance is demonstrated and can submit a feasible design which complies with the NRC requirements/guidance.

After Submittal of the License Application:

A1. Reduce Uncertainty in Determination of Compliance with SCC:

Pursuing the alternative will reduce the uncertainty in the interpretation of SCC, and it will not introduce any new regulatory or technical uncertainties, so that compliance determination is straightforward. As a result, the rule/guidance will be sufficiently clear so that NRC has a firm regulatory basis to determine compliance.

A2. Ensure Completeness of Guidance and Adequate Level of Detail in Guidance:

Pursuing the alternative will ensure that guidance provided by NRC to the applicant concerning the containment requirement is as complete as necessary and contains an adequate level of detail so that compliance determination is feasible.

A3. Ensure Completeness of Information Available to Reviewer and Decision-Maker:

Pursuing the alternative will ensure that the information on the applicant's design for containment, which is available to the Reviewer and Decision-Maker, will be as complete as necessary, thereby providing clarity for compliance determination activities. Pursuing the alternative will portray to NRC the technical uncertainties on predicted containment performance, contributing to the rationale for NRC's decision on compliance determination.

A4. Retain Flexibility for Future Options:

Pursuing the alternative will allow NRC sufficient flexibility for any future options concerning containment which NRC might choose to pursue to make compliance demonstration and/or determination feasible.

Objective 3

To minimize the level of effort required for implementing the alternative and for evaluating the license application based on the alternative.

Attributes

Prior to Submittal of the License Application:

P1. Avoid Introducing New Uncertainties:

Pursuing the alternative will not introduce any new regulatory or technical uncertainties, thereby minimizing the level of effort required by NRC for pre-licensing guidance activities. Guidance provided by NRC to the applicant concerning the containment requirement, as a result of pursuing the alternative, will be unlikely to require re-evaluation which might otherwise affect the level of effort for compliance determination.

After Submittal of the License Application:

A1. Avoid Introducing New Uncertainties:

Pursuing the alternative will not introduce any new regulatory or technical uncertainties, thereby minimizing the level of effort required by NRC for compliance determination activities. Pursuing the alternative will ensure that guidance provided by NRC to the applicant concerning the containment requirement is as complete as necessary and contains an adequate level of detail so that the level of effort for compliance determination is not increased.

A2. Ensure Ease of Understanding of Information Available to Reviewer and Decision-Maker:

Pursuing the alternative will ensure that the information in the applicant's design for containment, which is available to the Reviewer and Decision-Maker, will be easy to understand, thus reducing associated NRC expenditure of resources.

A3. Allow Applicant Freedom of HOW Compliance is Demonstrated:

Pursuing the alternative will allow the applicant freedom of "how" compliance is to be demonstrated, minimizing NRC level of effort required.

A4. Reduce the Scope for Litigable Issues:

Pursuing the alternative will reduce the scope for litigable issues, thereby reducing the level of effort required.

Objective 4

To facilitate public acceptance of and confidence in the safe containment of HLW.

Attributes

1. Prevent Schedule Delays:

   Pursuing the alternative will ensure that no delays in the applicant's repository program schedule will occur due to the need for periodic NRC guidance, thus contributing to public confidence in NRC's regulatory ability and authority.
   Pursuing the alternative will ensure that NRC is able to meet the three-year time period for deciding on issuance of construction authorization, thus contributing to public confidence in NRC's regulatory ability and authority.

2. Assurance of Conservative Design:

   Pursuing the alternative will contribute to assurance that the applicant will produce a conservative design, contributing to public acceptance and confidence for the safe containment of HLW. Aspects of the design which should be retained to ensure conservatism should include the following: (1) the multiple barriers approach; (2) allowance for final finding on SCC at the time of decision on permanent closure; (3) consistency with release limits for the period after containment; and (4) maintaining the relationship to EPA standards. Pursuing the alternative will ensure that NRC and other parties will be aware of uncertainties in performance predictions made by the license applicant, contributing to the rationale for NRC's decision on compliance determination and increasing public confidence in and acceptance of NRC's decision. Pursuing the alternative will ensure that adequate Quality Assurance procedures are adopted and followed by the license applicant, thereby contributing to public acceptance and confidence in NRC's licensing decisions concerning the safe disposal of HLW.