

configurations of waste placements in the disposal system, and alternative disposal system dimensions. The results of this evaluation shall be included in any application for certification of compliance and shall be used to justify the selection and rejection of each engineered barrier evaluated.

(c) (1) In conducting the evaluation of engineered barrier alternatives, the following shall be considered:

(i) The ability of the engineered barrier to prevent or substantially delay the movement of water or waste toward the accessible environment;

(ii) The impact on worker exposure to radiation both during and after incorporation of engineered barriers;

(iii) The increased ease or difficulty of removing the waste from the disposal system;

(iv) The increased or reduced risk of transporting the waste to the disposal system;

(v) The increased or reduced uncertainty in compliance assessment;

(vi) The increased or reduced public confidence in the performance of the disposal system;

(vii) The increased or reduced total system costs;

(viii) The impact, if any, on other waste disposal programs from the incorporation of engineered barriers (e.g., the extent to which the incorporation of engineered barriers affects the volume of waste);

(ix) The effects on mitigating the consequences of human-initiated processes and events.

(2) If, after consideration of one or more of the factors in paragraph (c)(1) of this section, the Department concludes that an engineered barrier should be rejected without evaluating the remaining factors in paragraph (c)(1) of this section, then any application for certification of compliance shall provide a justification for this rejection explaining why the evaluation of the remaining factors would not alter the conclusion.

(d) In considering the benefit and detriment of incorporation of engineered barriers, the benefit and detriment of engineered barriers for existing waste already packaged, existing waste not yet packaged, existing waste in need of re-packaging, and to-be-generated waste shall be considered separately and described.

(e) The evaluation shall consider engineered barriers alone and in combination.

#### **§ 194.45 Consideration of the presence of resources.**

Any application for certification of compliance shall include information

that demonstrates that the favorable characteristics of the disposal system compensate for the presence of resources in the vicinity of the disposal system and the likelihood of future human-initiated processes and events as a result of the presence of those resources.

#### **§ 194.46 Removal of waste.**

Any application for certification of compliance shall include a plan for removal of waste from the disposal system. The plan shall incorporate the best technology available, at the time of application, for removing such waste.

#### **Individual and Ground-Water Protection Requirements**

##### **§ 194.51 Consideration of protected individual.**

Certifications or determinations of compliance with section 15 and subpart C of 40 CFR part 191 shall assume that an individual resides at the location in the accessible environment where that individual would be expected to receive the highest exposure from radionuclide releases from the disposal system.

##### **§ 194.52 Consideration of exposure pathways.**

In certifying or determining compliance with section 15 and subpart C of 40 CFR part 191, all potential exposure pathways, associated with undisturbed performance, from the disposal system to individuals shall be considered. Certifications or determinations of compliance with section 15 and subpart C of 40 CFR part 191 shall assume that individuals consume 2 liters per day of drinking water from any underground source of drinking water in the accessible environment.

##### **§ 194.53 Consideration of underground sources of drinking water.**

In certifying or determining compliance with subpart C of 40 CFR part 191, all underground sources of drinking water in the accessible environment likely to be affected by the disposal system over the regulatory time frame shall be considered. In determining whether underground sources of drinking water are likely to be affected by the disposal system, interconnections between bodies of surface water, ground water, and underground sources of drinking water shall be considered.

##### **§ 194.54 Scope of compliance assessments.**

Any application for certification of compliance shall include information which:

(a) Identifies potential processes, events or sequences of processes and events that may occur over the regulatory time frame;

(b) Identifies the processes, events or sequences of processes and events included in compliance assessment results provided in any application for certification of compliance; and

(c) Documents why any processes, events or sequences of processes and events identified under paragraph (a) of this section were not included in compliance assessment results provided in any application for certification of compliance.

##### **§ 194.55 Results of compliance assessments.**

(a)(1) Compliance assessments shall consider uncertainty in the undisturbed performance of a disposal system.

(2) Probability distributions for uncertain disposal system parameter values used in compliance assessments shall be developed.

(3) Computational techniques which draw random samples from across all of the probability distributions developed under paragraph (a)(2) of this section shall be used to generate a range of:

(i) Estimated radiation doses; and

(ii) Estimated radionuclide concentrations.

(b) Each of the ranges generated under paragraph (a)(3) of this section must be large enough such that the maximum estimate generated exceeds the 99th percentile of the population of estimates with at least a 0.95 probability.

(c) Any application for certification of compliance shall display:

(1) The full range of estimated radiation doses; and

(2) The full range of estimated radionuclide concentrations.

(d) Any application for certification of compliance shall provide information which demonstrates that there is at least a 95% level of statistical confidence that the mean and the median of the range of estimated radiation doses and the range of estimated radionuclide concentrations meet the requirements of sections 15 and 16 of 40 CFR part 191.

#### **Subpart D—Public Participation**

##### **§ 194.61 Advance notice of proposed rulemaking.**

(a) Upon receipt of an application for certification of compliance, the Agency will publish in the **Federal Register** an Advance Notice of Proposed Rulemaking announcing that an application for certification of compliance has been received, soliciting comment on such application, and announcing the Agency's intent to