Unless, there is a lack or unavailability of experts and a documented rationale is provided which explains why fewer than five individuals were selected.

(2) At least two-thirds of the experts involved in an elicitation shall consist of individuals who are not employed directly by the Department or by the Department's contractors: Unless, The Department can demonstrate and document that there is a lack or unavailability of qualified independent experts; however, in no case shall more than one-half of the experts involved in an elicitation consist of individuals employed directly by the Department or by the Department's contractors.

(h) Groups and individuals (including those not directly employed by the Department or by the Department's contractors) shall be afforded an opportunity to present their scientific and technical views as input to any

expert elicitation process.

#### §194.27 Peer review.

- (a) Any application for certification of compliance shall include information which demonstrates that peer review has been conducted to evaluate the adequacy of:
- (1) The evaluation, required under this part, of engineered barriers for the disposal system;
- (2) Consideration of processes and events that may affect the disposal system;
- (3) Quality assurance programs and plans;
  - (4) Models and computer codes;
- (5) Data used to support models and computer codes; and
  - (6) Waste characterization.
- (b) Peer review processes used in certifying or determining compliance with the disposal regulations shall be conducted in a manner which is compatible with NUREG-1297 "Peer Review for High-Level Nuclear Waste Repositories."

### **Containment Requirements**

### § 194.31 Application of release limits.

The expected curie activity 100 years after disposal of the waste proposed for disposal in the disposal system shall be used in calculating applicable release limits under Appendix A of 40 CFR part 191, Table 1, Note 1(e).

## § 194.32 Scope of performance assessments.

- (a) Performance assessments shall consider both natural and humaninitiated processes and events that may affect the disposal system.
- (b) Performance assessments need not consider processes, events, or sequences of processes and events that have less

- than one chance in 10,000 of occurring over 10,000 years.
- (c) Any application for certification of compliance shall include information which:
- (1) Identifies potential processes, events or sequences of processes and events that may occur during the regulatory timeframe and may affect the disposal system;
- (2) Identifies the processes, events or sequences of processes and events included in performance assessment results provided in any application for certification of compliance; and
- (3) Documents why any processes, events or sequences of processes and events identified under paragraph (c)(1) of this section were not included in performance assessment results provided in any application for certification of compliance.

# § 194.33 Consideration of human-initiated processes and events.

- (a) A separate examination of each type of human-initiated process and event shall be conducted. Analyses shall be limited to those types of human-initiated processes and events that may potentially affect the disposal system.
- (b) The following process shall be used in assessing the likelihood and consequences of human-initiated processes and events and the results of such process shall be documented in any application for certification of compliance:
- (1) Inadvertent and intermittent drilling for resources (other than those resources provided by the waste in the disposal system or any engineered barriers designed to isolate such waste) is the most severe scenario for human-initiated processes and events.
- (2) Human-initiated processes and events occur at random intervals in time and space throughout the regulatory time frame.
- (3) Two categories of human-initiated processes and events shall be considered:
- (i) Human intrusion, which shall include those drilling events that reach the level of the waste in the disposal system, and
- (ii) Human activity, which shall include those drilling events that may affect the disposal system, but do not necessarily reach the level of the waste in the disposal system.
- (4) The frequency of human intrusion shall be calculated in the following manner:
- (i) Identify each type of human intrusion in the Delaware Basin over the past 50 years.
- (ii) The total rate of human intrusion shall be the sum of the rates of each type

of human intrusion. However, in no event shall the total rate of human intrusion be less than 25/km²/10,000 yrs or more than 62.5/km²/10,000 yrs.

(iii) In lieu of conducting the analysis in paragraphs (b)(4)(i) and (b)(4)(ii) of historical rates, a rate of 62.5 may be

assumed.

- (iv) The rate may then be reduced in accordance with § 194.41 and § 194.43(c).
- (5) The frequency of human activity shall be calculated in the following manner:
- (i) Identify each type of human activity in the Delaware Basin over the past 50 years.
- (ii) The total rate of human activity shall be the sum of the rates of each type of human activity.
- (iii) In considering the historical rate of all human activity, the Department may, if justified, consider only the historical rate of human activity for resources of similar type and quality of resources in the controlled area.
- (iv) The rate may then be reduced in accordance with § 194.41 and § 194.43(c).
- (6) In assessing the consequences of human-initiated processes and events, performance assessments shall assume that the future characteristics of those processes and events including, but not limited to, the types and amounts of drilling fluids, and borehole depths, diameters, and seals will remain consistent with current practice in the Delaware Basin.
- (b) In assessing the consequences of human-initiated processes and events, performance assessments shall assume that:
- (1) Boreholes will be sealed at the rate boreholes have been sealed over the past 50 years in the Delaware Basin; and
- (2) Natural processes will degrade or otherwise affect the permeability of boreholes over the regulatory time frame.

## § 194.34 Results of performance assessments.

- (a)(1) The results of performance assessments shall be assembled into "complementary cumulative distribution functions" (CCDFs) that represent the probability of exceeding various levels of cumulative release caused by all significant processes and events.
- (2) Probability distributions for uncertain disposal system parameter values used in performance 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 in generating CCDFs.