

surrounding strata, or any structural collapse—such that a hydraulic interconnection leading to a loss of waste isolation could occur.

(d) *Disqualifying condition.* The site shall be *disqualified* if it is likely that, during the first 10,000 years after closure, active dissolution, as predicted on the basis of the geologic record, would result in a loss of waste isolation.

#### § 960.4-2-7 Tectonics.

(a) *Qualifying condition.* The site shall be located in a geologic setting where future tectonic processes or events will not be likely to lead to radionuclide releases greater than those allowable under the requirements specified in § 960.4-1. In predicting the likelihood of potentially disruptive tectonic processes or events, the DOE will consider the structural, stratigraphic, geophysical, and seismic evidence for the nature and rates of tectonic processes and events in the geologic setting during the Quaternary Period.

(b) *Favorable condition.* The nature and rates of igneous activity and tectonic processes (such as uplift, subsidence, faulting, or folding), if any, operating within the geologic setting during the Quaternary Period would, if continued into the future, have less than one chance in 10,000 over the first 10,000 years after closure of leading to releases of radionuclides to the accessible environment.

(c) *Potentially adverse conditions.* (1) Evidence of active folding, faulting, diapirism, uplift, subsidence, or other tectonic processes or igneous activity within the geologic setting during the Quaternary Period.

(2) Historical earthquakes within the geologic setting of such magnitude and intensity that, if they recurred, could affect waste containment or isolation.

(3) Indications, based on correlations of earthquakes with tectonic processes and features, that either the frequency of occurrence or the magnitude of earthquakes within the geologic setting may increase.

(4) More-frequent occurrences of earthquakes or earthquakes of higher magnitude than are representative of the region in which the geologic setting is located.

(5) Potential for natural phenomena such as landslides, subsidence, or volcanic activity of such magnitudes that they could create large-scale surface-water impoundments that could change the regional ground-water flow system.

(6) Potential for tectonic deformations—such as uplift, subsidence, folding, or faulting—that could adversely affect the regional ground-water flow system.

(d) *Disqualifying condition.* A site shall be disqualified if, based on the geologic record during the Quaternary Period, the nature and rates of fault movement or other ground motion are expected to be such that a loss of waste isolation is likely to occur.

#### § 960.4-2-8 Human interference.

The site shall be located such that activities by future generations at or near the site will not be likely to affect waste containment and isolation. In assessing the likelihood of such activities, the DOE will consider the estimated effectiveness of the permanent markers and records required by 10 CFR part 60, taking into account site-specific factors, as stated in §§ 960.4-2-8-1 and 960.4-2-8-2, that could compromise their continued effectiveness.

#### § 960.4-2-8-1 Natural resources.

(a) *Qualifying condition.* This site shall be located such that—considering permanent markers and records and reasonable projections of value, scarcity, and technology—the natural resources, including ground water suitable for crop irrigation or human consumption without treatment, present at or near the site will not be likely to give rise to interference activities that would lead to radionuclide releases greater than those allowable under the requirements specified in § 960.4-1.

(b) *Favorable conditions.* (1) No known natural resources that have or are projected to have in the foreseeable future a value great enough to be considered a commercially extractable resource.

(2) Ground water with 10,000 parts per million or more of total dissolved solids along any path of likely radionuclide travel from the host rock to the accessible environment.

(c) *Potentially adverse conditions.* (1) Indications that the site contains naturally occurring materials, whether or not actually identified in such form that (i) economic extraction is potentially feasible during the foreseeable future or (ii) such materials have a greater gross value, net value, or commercial potential than the average for other areas of similar size that are representative of, and located in, the geologic setting.

(2) Evidence of subsurface mining or extraction for resources within the site if it could affect waste containment or isolation.

(3) Evidence of drilling within the site for any purpose other than repository-site evaluation to a depth sufficient to affect waste containment and isolation.

(4) Evidence of a significant concentration of any naturally occurring material that is not widely available from other sources.

(5) Potential for foreseeable human activities—such as ground-water withdrawal, extensive irrigation, subsurface injection of fluids, underground pumped storage, military activities, or the construction of large-scale surface-water impoundments—that could adversely change portions of the ground-water flow system important to waste isolation.

(d) *Disqualifying conditions.* A site shall be disqualified if—

(1) Previous exploration, mining, or extraction activities for resources of commercial importance at the site have created significant pathways between the projected underground facility and the accessible environment; or

(2) Ongoing or likely future activities to recover presently valuable natural mineral resources outside the controlled area would be expected to lead to an inadvertent loss of waste isolation.

**§ 960.4-2-8-2 Site ownership and control.**

(a) *Qualifying condition.* The site shall be located on land for which the DOE can obtain, in accordance with the requirements of 10 CFR part 60, ownership, surface and subsurface rights, and control of access that are required in order that potential surface and sub-

surface activities as the site will not be likely to lead to radionuclide releases greater than those allowable under the requirements specified in § 960.4-1.

(b) *Favorable condition.* Present ownership and control of land and all surface and subsurface rights by the DOE.

(c) *Potentially adverse condition.* Projected land-ownership conflicts that cannot be successfully resolved through voluntary purchase-sell agreements, nondisputed agency-to-agency transfers of title, or Federal condemnation proceedings.

**Subpart D—Preclosure Guidelines**

**§ 960.5 Preclosure guidelines.**

The guidelines in this subpart specify the factors to be considered in evaluating and comparing sites on the basis of expected repository performance before closure. The preclosure guidelines are separated into three system guidelines and eleven technical guidelines.

**§ 960.5-1 System guidelines.**

(a) *Qualifying conditions—(1) Preclosure radiological safety.* Any projected radiological exposures of the general public and any projected releases of radioactive materials to restricted and unrestricted areas during repository operation and closure shall meet the applicable safety requirements set forth in 10 CFR part 20, 10 CFR part 60, and 40 CFR 191, subpart A (see appendix II of this part).

(2) *Environment, socioeconomics, and transportation.* During repository siting, construction, operation, closure, and decommissioning the public and the environment shall be adequately protected from the hazards posed by the disposal of radioactive waste.

(3) *Ease and cost of siting, construction, operation, and closure.* Repository siting, construction, operation, and closure shall be demonstrated to be technically feasible on the basis of reasonably available technology, and the associated costs shall be demonstrated to be reasonable relative to other available and comparable siting options.