Chapter 6
Glossary

acute Extremely severe or intense for a limited time.

air pollutant Any substance borne through the air that can, in high enough concentrations, harm man, other animals, vegetation, or material.

Air Quality Control Region An area designated by a State or the U.S. Environmental Protection Agency for the attainment and maintenance of National Ambient Air Quality Standards.

ALARA See *as low as is reasonably achievable.*

alternative With reference to surplus plutonium disposition, a discrete sequence of disposition actions carried out in a dedicated group of facilities.

ambient air The atmosphere around people, plants, and structures.

Ambient Air Quality Standards Regulations prescribing the levels of airborne pollutants that may not be exceeded during a specified time in a defined area.

American Indian Religious Freedom Act of 1978 An act that protects and preserves for Native Americans their traditional religious rights, including the rights of access to religious sites, use and possession of sacred objects, and worship through traditional ceremonies and rites.

anadromous Migrating from salt water to fresh water to spawn.

Anadromous Fish Conservation Act An act seeking to enhance conservation and development of the anadromous fishery resources of the United States that are subject to depletion from water resources development.

aqueous process An operation involving chemicals dissolved in water.

aquifer A saturated geologic unit through which significant quantities of water can migrate under natural hydraulic gradients.

aquitard A less-permeable geologic unit in a stratigraphic sequence. Aquitards separate aquifers.

Archaeological Resources Protection Act of 1979 An act protecting cultural resources on federally owned lands. This act requires a permit for archaeological excavations or the removal of any archaeological resources on public or Native American lands. It also prohibits interstate or foreign trafficking in cultural resources taken in violation of State or local laws, and requires Federal agencies to develop plans for surveying lands under their control.

archaeological site Any location where humans have altered the terrain or discarded artifacts during prehistoric or historic times.

artifact An object produced or shaped by human beings and of archaeological or historical interest.

as low as is reasonably achievable An approach to radiation management and control by which exposures (individual and collective) of the workforce and the general public and releases of radioactive material to the environment are kept at levels as low as reasonable, taking into account social, technical, economic, practical, and public policy considerations.

Atomic Energy Act of 1954 An act setting up ". . . a program for Government control of the possession, use, and production of atomic energy and special nuclear material whether owned by the Government or others, so directed as to make the maximum contribution to the common defense and security and the national welfare, and to provide continued assurance of the Government's ability to enter into and enforce agreements with nations or groups of nations for the control of special nuclear materials and atomic weapons. . . ." (Section 3(c)).

attainment area An area considered to have air quality as good as or better than the National Ambient Air Quality Standards for a given pollutant. An area may be in attainment for one pollutant and nonattaining for others. See also *nonattainment area.*

background radiation Ionizing radiation present in the environment emanating from cosmic rays and natural sources in the Earth. Such radiation varies considerably with location.

badged (worker) A worker susceptible to exposure to radiation and thus equipped with an individual dosimeter.

Bald and Golden Eagle Protection Act An act making it unlawful to take, pursue, molest, or disturb the American bald eagle and golden eagle, their nests, or their eggs, anywhere in the United States.

basalt The most common volcanic rock, dark-gray to black in color, high in iron and magnesium, and low in silica. It is typically found in lava flows.

baseline A quantitative expression of conditions, costs, schedule, or technical progress that constitutes the standard against which to measure the performance of an effort.

basin Geologically, a circular or elliptical downwarp in whose center younger beds occur; topographically, a depression into which water from the surrounding area drains.

BEIR V A designation for the fifth in a series of committee reports from the National Research Council's Committee on the Biological Effects of Ionizing Radiation.

benthic Dwelling at the bottom of oceans, lakes, rivers, and other surface waters.

beyond-design-basis accident An accident generally with more severe impacts on onsite personnel and the public than a design basis accident, and an estimated probability of occurrence of less than 10^{-6} per year. This accident is used for estimating the impacts of a facility or process. See also *design basis accident.*

boiling water reactor A type of nuclear reactor in which fission heat is used to generate steam in the reactor to drive turbines and generate electricity.

calcareous Containing calcium carbonate (as, for example, calcite or limestone).

cancer The name given to a group of diseases characterized by uncontrolled cellular growth, with the cells having invasive characteristics such that the disease can be transferred from one organ to another.

Canadian Deuterium Uranium Reactor A Canadian nuclear reactor in which circulating heavy water (deuterium-rich water) is used to cool the reactor core and to moderate (reduce the energy of) the neutrons created in the core by the fission reactions.

can-in-canister An approach to plutonium immobilization wherein cans of either ceramic or glass forms containing plutonium are encapsulated within canisters of high-level-waste glass.

canyon A remotely operated, heavily shielded plutonium- or uranium-processing facility. A deep, steep-sided valley.

capable fault As defined in 10 CFR 100, Appendix A, III (g), "a fault which has exhibited one or more of the following characteristics: (1) movement at or near the ground surface at least once within the past 35,000 years or movement of a recurring nature within the past 500,000 years; (2) macro-seismicity instrumentally determined with records of sufficient precision to demonstrate a direct relationship with the fault; and (3) a structural relationship to a capable fault according to characteristics (1) or (2) . . . such that movement on one could be reasonably expected to be accompanied by movement on the other. Notwithstanding the foregoing . . . , structural association of a fault with geologic structural features which are geologically old (at least pre-Quarternary) . . . shall, in the absence of conflicting evidence, demonstrate that the fault is not a capable fault."

carbon dioxide A colorless, odorless, nonpoisonous gas that is a normal component of the ambient air and an expiration product of normal animal life.

carbon monoxide A colorless, odorless gas that is toxic if breathed in high concentrations over an extended period.

cask (for radioactive materials) A container that meets all applicable regulatory requirements for shipping spent nuclear fuel or high-level waste.

Cenozoic A geologic era dating from 65 million years ago to the present and characterized by the dominance of advanced mollusks and mammals.

ceramic Surplus plutonium and other materials mixed to form a porcelain end product.

cesium A silver-white alkali metal. A radioactive isotope of cesium, cesium 137, is a common fission product.

chronic Lasting for a long period or marked by frequent recurrence.

chronic exposure Low-level radiation exposure incurred over a long period due to residual contamination.

cladding An external layer of material applied directly to nuclear fuel or other material to provide protection from a chemically reactive environment, containment of radioactive products produced during irradiation of the composite, or structural support.

Clean Air Act An act mandating and providing for the enforcement of regulations to control air pollution from various sources.

Code of Federal Regulations A publication in codified form of all Federal regulations in force.

coliform bacteria The normally harmless bacteria that reside in the intestinal tract of human beings and other animals whose presence in water is an indicator that the water may be contaminated with untreated human and animal waste.

committed effective dose equivalent The predicted total effective dose equivalent to a tissue or organ over a 50-year period after the intake of a radionuclide into the body, exclusive of external dose contributions. The committed effective dose equivalent is the sum of the committed dose equivalents to the various tissues of the body, each multiplied by the appropriate weighting factor. It is expressed in units of rem or sievert.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund) An act providing the regulatory framework for the remediation of past contamination from hazardous waste. If a site meets the act's requirements for designation, it is ranked along with other Superfund sites on the National Priorities List. This ranking is the U.S. Environmental Protection Agency's way of determining the priority of sites for cleanup.

conceptual design Efforts to develop a project scope that will meet stipulated program needs; ensure project feasibility and attainable performance goals; develop project criteria and design parameters for all concerned engineering disciplines; and identify applicable codes and standards, quality assurance requirements, environmental studies, construction materials, space allowances, energy conservation features, health and safety safeguards, security requirements, and any essential features of the project.

confined aquifer A permeable geologic unit bounded above and below by aquitards and containing water at a pressure higher than atmospheric pressure.

conformity As defined in the Clean Air Act, "the nation's compliance with an implementation plan's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards and achieving expeditious attainment of such standards. Activities in conformity will not (1) cause or contribute to any new violation of any standard in any area, (2) increase the frequency or severity of any existing violation of any standard in any area, or (3) delay timely attainment of any standard or any required interim emission reduction or other milestones in any area."

container The primary containment designed to meet the requirements of 10 CFR 60.

conversion An operation for changing material from one form, use, or purpose to another.

cosmic radiation Streams of highly penetrating, charged particles composed of protons, alpha particles, and a few heavier nuclei that bombard the earth from outer space.

credible accident An accident that has a probability of occurrence greater than or equal to one in a million years.

Cretaceous The geologic period making up the end of the Mesozoic era, dating from approximately 144 million to 66 million years ago.

criteria pollutants Common, widespread pollutants for which air quality standards have been established in accordance with the Clean Air Act. The U.S. Environmental Protection Agency developed these standards on the basis of its research into scientific knowledge about their health effects. Today, standards are in effect for six criteria pollutants: sulfur dioxide, carbon monoxide, particulate matter with aerodynamic diameters of less than or equal to 10 microns and less than or equal to 2.5 microns, nitrogen dioxide, ozone, and lead.

critical habitat As defined in the Endangered Species Act of 1973, "specific areas within the geographical area occupied by [an endangered or threatened] species . . . , essential to the conservation of the species and which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species . . . that are essential for the conservation of the species."

criticality A state in which a self-sustaining nuclear chain reaction is achieved.

cultural resources Archaeological sites, architectural features, traditional-use areas, and Native American sacred sites.

cumulative impacts The incremental impact on the environment of an action in combination with other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal), private industry, or individual undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7.)

curie A unit of radioactivity equal to 37 billion disintegrations per second; also a quantity of any nuclide or mixture of nuclides having 1 curie of radioactivity.

deactivation A process for removing hazardous and radioactive materials and placing a facility in a safe and stable condition.

decay (radioactive) The decrease in the amount of any radioactive material with the passage of time, due to the spontaneous transformation of an unstable nuclide into a different nuclide or into a different energy state of the same nuclide. The emission of nuclear radiation (alpha, beta, or gamma) is part of the process.

day-night average sound level The 24-hour, A-weighted equivalent sound level expressed in decibels. A 10-decibel penalty is added to sound levels between 10:00 p.m. and 7:00 a.m. to account for increased annoyance due to noise during night hours.

decibel A logarithmic unit of sound measurement that describes the magnitude or particular quantity of sound pressure or power with respect to a standard reference value. In general, a sound doubles in loudness with every increase of 10 decibels.

decibel, A-weighted A unit of sound measurement that incorporates a metering characteristic and the "A" weighting specified by the the American National Standards Institute in S1.4–1983(R1994) to account for the frequency response of the human ear.

decommissioning Actions taken at the end of life of facility to make it suitable for reuse, including surveillance, maintenance, decontamination, and/or dismantlement.

decontamination The removal of radioactive or chemical contamination from facilities, equipment, or soils by washing, heating, chemical or electrochemical action, mechanical cleaning, or other techniques.

depleted uranium Uranium whose content of the isotope uranium 235 is less than 0.7 percent, which is the uranium 235 content of naturally occurring uranium.

deposition In geology, the laying down of potential rock-forming materials—that is, sedimentation; in atmospheric transport, the settling out on ground and building surfaces of atmospheric aerosols and particles ("dry deposition") or their removal from the air to the ground by precipitation ("wet deposition" or "rainout").

derived concentration guide The concentration of a radionuclide in air or water which, under conditions of continuous exposure by one exposure mode (that is, ingestion of water or submersion in or inhalation of air) for 1 year, could cause a "reference man" to receive the more restrictive of two doses of that radionuclide: (1) an effective dose equivalent of 100 mrem, or (2) a dose equivalent of 5 rem to any tissues, including skin and the lens of the eye.

design basis For nuclear facilities, information that identifies the specific functions to be performed by a structure, system, or component and the specific values (or ranges of values) chosen as reference bounds for design. These values may reflect: (1) restraints derived from generally accepted, state-of-the-art practices for achieving functional goals; (2) requirements derived from analysis (calculation or experiment) of the effects of a postulated accident for which a structure, system, or component must meet its functional goals; or (3) requirements derived from Federal safety objectives, principles, goals, or requirements.

design basis accident For nuclear facilities, a postulated abnormal event used to establish the performance requirements of structures, systems, and components that are necessary to keep the facility in a safe shutdown condition indefinitely, or to prevent or mitigate the consequences of such an event, so as to ensure that the public and operating staff are not exposed to radiation in excess of appropriate guideline values. See also *beyond-design-basis accident.*

dewatering The removal of water. Saturated soils are "dewatered" to make construction of building foundations easier.

direct jobs The number of workers required at a site to implement an alternative.

dismantlement The process of taking apart a nuclear warhead and removing the subassemblies, components, and individual parts.

disposal The process of placing waste in a final repository.

disposition A process of use or disposal of materials that results in the remaining material being converted to a form that is substantially and inherently more proliferation resistant than the original form.

dissolution The chemical dispersal (dissolving) of a solid throughout a liquid medium.

dolomite A mineral composed of calcium magnesium carbonate; the chief constituent of the rock commonly called dolomite and of some kinds of marble.

dose The energy imparted to matter by ionizing radiation. The term encompasses absorbed dose, measurable in units of rem or gray, as well as dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, and total dose equivalent, all measurable in rem or sievert (1 rem = 0.01 sievert).

dose commitment The dose an organ or tissue would receive during a specified period of time (for example, 50 to 100 years) as a result of intake (by ingestion or inhalation) of one or more radionuclides from a defined release, frequently over a year's time.

dose equivalent The product of the absorbed dose in rad or gray, the effect of this type of radiation on tissue, and a quality factor. Dose equivalent is expressed in units of rem or sievert, where 1 rem equals 0.01 sievert. The dose equivalent delivered to an organ, tissue, or the whole body will be the dose received from direct

exposure plus the 50-year committed dose equivalent received from the radionuclides taken into the body during a year.

drainage basin

Quaternary The second geologic period of the Cenozoic era, lasting from approximately 2 million years ago to the present and characterized by the appearance of human beings.

rad See *radiation absorbed dose.*

radiation The emitted particles or photons from the nuclei of radioactive atoms. Some elements are naturally radioactive; others are induced to become radioactive by bombardment in a reactor. Naturally occurring radiation is indistinguishable from induced radiation.

radiation absorbed dose The basic unit of absorbed radiation, equivalent to 0.01 joule per kilogram of absorbing material.

radioactive accident risk As described in the *Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes* (NUREG–0170), the probability of an accident in which the release of radioactive material is likely to occur, and its consequences. The consequences are expressed in terms of the potential effects of the release of a specified quantity of dispersible radioactive material to the environment or the exposure resulting from damaged package shielding. The risk calculations incorporate accident rates and package release fraction estimates, both of which are functions of accident severity. Radiological accident risks are expressed in terms of the probabilities of early cancer fatalities and annual latent cancer fatalities.

radioactive waste Materials that are radioactive or are contaminated with radioactive materials, and for which use, reuse, or recovery are impractical.

radioactivity The spontaneous decay or disintegration of unstable atomic nuclei, accompanied by the emission of radiation.

radioisotopes Radioactive nuclides of the same element (that is, having the same number of protons in their nuclei) that differ in the number of neutrons.

radionuclide A radioactive element characterized according to its atomic mass and atomic number. Radionuclides can be man-made or naturally occurring, can have a long life, and have potentially mutagenic or carcinogenic effects on the human body.

radon A gaseous radioactive element resulting from the radioactive decay of radium. Radon (atomic number 86) occurs naturally in the environment and can collect in enclosed, unventilated areas such as basements. Large concentrations of radon can cause lung cancer in humans.

Record of Decision A document providing a concise public record of DOE's decision on a proposed action for which an environmental impact statement was prepared. Prepared in accordance with 40 CFR 1505.2, the Record of Decision identifies the alternatives considered in reaching the decision, the environmentally preferable alternative, factors balanced by DOE in making the decision, whether all practicable means to avoid or minimize environmental harm have been adopted, and if not, why they have not.

region of influence A site-specific geographic area that includes the counties where approximately 90 percent of the site's current DOE and contractor employees reside.

regional economic area A geographic area consisting of an economic node and the surrounding, economically related counties, including the places of work and residences of the labor force. Regional economic areas are defined by the Bureau of Economic Analysis.

rem See *roentgen equivalent man.*

reprocessing The chemical separation of spent reactor fuel into uranium, transuranic elements, and fission products.

Resource Conservation and Recovery Act, as amended The Act that establishes a "cradle-to-grave" regulatory program for hazardous waste, including a system for managing such waste from its generation until its ultimate disposal.

rhyolite A volcanic rock rich in silica; the volcanic equivalent of granite.

Richter scale A logarithmic scale used to express the total amount of energy released by an earthquake. The scale has 10 divisions, from 1 (not felt by humans) to 10 (nearly total destruction).

riparian On or around rivers or streams.

risk A quantitative or qualitative expression of possible loss that takes into account both the probability that an event will cause harm and the consequences of that event.

risk assessment (chemical or radiological) The qualitative and quantitative evaluation performed to define the risk posed to human health or the environment by the presence, potential presence, or use of specific chemicals or radionuclides.

roentgen A unit of exposure to ionizing X- or gamma radiation equal to or producing 1 electrostatic unit of charge per cubic centimeter of air. It is approximately equal to 1 rad. See also *radiation absorbed dose.*

roentgen equivalent man The unit of biologically absorbed radiation, equal to the product of the absorbed dose, in rads, and a quality factor that accounts for the variation in biological effectiveness of different types of radiation.

runoff The portion of rainfall, melted snow, or irrigation water that flows across the ground surface and eventually enters streams.

Safe Drinking Water Act, as amended An act protecting the quality of public water supplies, water supply and distribution systems, and all sources of drinking water.

safe, secure trailer A specially designed semitrailer, pulled by a specially designed tractor, that is used for the safe, secure transportation of cargo containing nuclear weapons or special nuclear material.

safety analysis report A safety document providing a complete description and safety evaluation of a site; a design; normal and emergency facility operations; and potential accidents, predicted consequences of such accidents, and the means proposed to prevent such accidents or mitigate their consequences. A Safety Analysis Report is designated as final when it is based on final design information; otherwise, as preliminary.

safety document A document prepared specifically to ensure that the safety aspects of part or all of the activities conducted are formally and thoroughly analyzed, evaluated, and recorded. Examples include Technical Specifications, Safety Analysis Reports and addenda, and documented reports of special safety reviews and studies.

saltstone Concrete block formed by mixing the low-radioactivity fraction of high-level waste from the in-tank precipitation process with cement, ash, and slag.

sandstone A sedimentary rock composed mostly of sand-size particles cemented usually by calcite, silica, or iron oxide.

sanitary wastes Nonhazardous, nonradioactive liquid and solid wastes generated by normal housekeeping activities.

scintillation Minute flash of light caused when alpha, beta, or gamma rays strike certain phosphors.

scoping The solicitation of comments from interested persons, groups, and agencies at public meetings, in public workshops, in writing, electronically, or via fax to assist DOE in defining a proposed action, identifying alternatives, and developing preliminary issues to be addressed in an environmental impact statement.

security Controls instituted or actions taken to minimize the likelihood of unauthorized access to, or loss of custody of, a nuclear weapon or weapon system, and to ensure that the weapon can be recovered should unauthorized access or loss of custody occur.

seismic Pertaining to any earth vibration, especially that of an earthquake.

seismic zone An area defined by the Uniform Building Code (1991) on the basis of its susceptibility to damage as the result of earthquakes. The United States is divided into six zones distinguished as to the level of damage that can be expected: (1) Zone 0, no damage; (2) Zone 1, minor damage, corresponding to intensities V and VI of the Modified Mercalli Intensity scale; (3) Zone 2A, moderate damage, corresponding to intensity VII of the Mercalli scale (Eastern United States); (4) Zone 2B, slightly more damage than 2A (Western United States); (5) Zone 3, major damage, corresponding to intensity VII and higher of the Mercalli scale; and (6) Zone 4, areas within Zone 3 nearer certain major fault systems.

seismicity The frequency and distribution of earthquakes.

sensitivity level A basis for the characterization of a landscape that takes into account the visibility of specific features, the potential number of viewers, viewer interest in and concern for the landscape, and viewer attitudes toward proposed landscape changes.

severe accident An accident that would have more severe consequences than a design basis accident in terms of damage to a facility, offsite consequences, or both; an accident with a frequency rate of less than 10^{-6} per year.

sewage The total nonhazardous organic waste and wastewater generated by an industrial establishment or a community.

shale A type of easily split rock composed of layers of claylike, fine-grained sediments.

shielding Any material of obstruction (bulkheads, walls, or other structures) that absorbs radiation in order to protect personnel or equipment.

shutdown That condition in which a DOE reactor has ceased operation and DOE has declared officially that it does not intend to operate it further.

silt A sedimentary material consisting of fine mineral particles intermediate in size between sand and clay.

siltstone A fine-grained, elastic (fragmented) sedimentary rock whose particles range from 1/6 to 1/256 millimeter in diameter.

sinter To form a homogenous mass by heating without melting.

sitewide environmental impact statement A legal document prepared in accordance with the requirements of Section 102(2)(C) of the National Environmental Policy Act that reflects an evaluation of the environmental impacts of proposed Government actions at a large, multiple-facility site.

solid waste Discarded solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Solid waste does not include solid or dissolved materials in domestic sewage; industrial discharges subject to permit under the Clean Water Act; or source, special nuclear, or byproduct material as defined by the Atomic Energy Act.

source term The estimated quantities of radionuclides or chemical pollutants released to the environment.

special nuclear materials As defined in Section 11 of the Atomic Energy Act, "(1) plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the NRC determines to be special nuclear material, or (2) any material artificially enriched by any of the foregoing."

Spent Fuel Standard A term, coined by the National Academy of Sciences and modified by DOE, denoting the main objective of alternatives for the disposition of surplus weapons-usable plutonium: that such plutonium be made roughly as inaccessible and unattractive for weapons use as the much larger and growing stock of plutonium in civilian spent nuclear fuel.

spent nuclear fuel Fuel that has been withdrawn from a nuclear reactor following irradiation, and whose constituents have not been separated.

stabilization Treatment, packaging, and removal of hazardous and radioactive materials in such a manner as to ensure that a facility is safe and environmentally secure.

stabilize To convert a compound, mixture, or solution to a nonreactive form.

staging An interim storage or gathering of items pending their use, transportation, consumption, or other disposition.

standby That condition in which a reactor facility is neither operable nor declared excess, and as authorized in writing, is being kept in readiness for possible future operation.

State Historic Preservation Officer That State officer charged with the identification and protection of prehistoric and historic resources in accordance with the National Historic Preservation Act.

steppe A semiarid, grass-covered, generally treeless plain.

steppe climate (semiarid climate) The type of climate in which precipitation is very slight but sufficient for the growth of short, sparse grass.

stored weapons standard A storage standard that invokes the high standards of security and accounting for the storage of intact nuclear weapons. Invocation of the standard for weapons-usable fissile materials implies maintenance thereof to the extent practical through the processes of dismantlement, storage, and disposition.

Superfund Amendments and Reauthorization Act of 1986 An environmental act that, in addition to certain freestanding provisions of law, extensively amends the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) and the Safe Drinking Water Act. The act's major goals are a stepped-up pace of cleanup, increased public participation, and more stringent and better-defined cleanup standards, emphasizing remedial actions. See also *Comprehensive Environmental Response, Compensation, and Liability Act of 1980; Safe Drinking Water Act, as amended.*

surface water Water on the Earth's surface, as distinguished from water in the ground (groundwater).

surplus fissile materials Weapons-usable fissile materials that have no identified programmatic use or do not fall into one of the categories of national security reserves.

Tertiary The first geologic period of the Cenozoic era, dating from 66 million to about 3 million years ago. During this period, mammals became the dominant life form.

threatened species As defined in the Endangered Species Act of 1973, "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."

total effective dose equivalent The sum of the internal dose (committed effective dose equivalent) and the external dose (effective dose equivalent).

toxic air pollutants See *hazardous/toxic air pollutants*.

Toxic Substances Control Act of 1976 An act authorizing the U.S. Environmental Protection Agency to secure information on all new and existing chemical substances and to control any of these substances determined to cause an unreasonable risk to public health or the environment. This law requires that the health and environmental effects of all new chemicals be reviewed by the Agency before such chemicals are manufactured for commercial purposes.

transmissivity A measure of a water-bearing unit's capacity to transmit fluid, expressed as the product of the thickness and the average hydraulic conductivity of the unit. Also, the rate at which water is transmitted through a strip of an aquifer of a unit width under a unit hydraulic gradient at a prevailing temperature and pressure.

transuranic Of, relating to, or being any element whose atomic number is higher than that of uranium (that is, 92). All transuranic elements are produced artificially and are radioactive.

transuranic waste Waste containing more than 100 nanocuries per gram of alpha-emitting transuranic isotopes with half-lives greater than 20 years, except for (1) high-level waste; (2) waste that DOE has determined, with the concurrence of the U.S. Environmental Protection Agency, does not need the degree of isolation called for by 40 CFR 191; or (3) waste that the U.S. Nuclear Regulatory Commission has approved for disposal case by case in accordance with 10 CFR 61.

treatment An operation necessary to prepare material for storage, disposal, or transportation.

Triassic The first period of the Mesozoic era, dating from 245 to 208 million years ago.

tritium A radioactive isotope of the element hydrogen having two neutrons and one proton.

tritium recycling The recovery, purification, and reuse of tritium contained in tritium reservoirs within the nuclear weapons stockpile.

unconfined aquifer A permeable geologic unit having the following properties: a water-filled pore space (saturated), the capability to transmit significant quantities of water under ordinary differences in pressure, and an upper water boundary at atmospheric pressure.

uranium A heavy, silvery-white metallic element (atomic number: 92) with many radioactive isotopes. One isotope, uranium 235, is most commonly used as a fuel for nuclear fission; another, uranium 238, is transformed into fissionable plutonium 239 following its capture of a neutron in a nuclear reactor.

vadose zone A region in a porous medium in which the pore space is not filled with water (unsaturatured zone).

viewshed The extent of the area that may be viewed from a particular location. Viewsheds are generally bounded by topographic features such as hills or mountains.

Visual Resource Management A process devised by the Bureau of Land Management to assess analytically the aesthetic quality of a landscape, and consistent with the results of that analysis, to so design proposed activities as to minimize their visual impact on that landscape. The process consists of a rating of site visual quality followed by a measurement of the degree of contrast between proposed development activities and the existing landscape.

Visual Resource Management Class Any of the classifications of visual resources established through application of the Visual Resources Management process of the Bureau of Land Management. Four classifications are employed to describe different degrees of modification to landscape elements: Class I, areas where the natural landscape is preserved, including national wilderness areas and the wild sections of national wild and scenic rivers; Class II, areas with very limited land development activity, resulting in visual contrasts that are seen but do not attract attention; Class III, areas in which development may attract attention, but the natural landscape still dominates; Class IV, areas in which development activities may dominate the view and may be the major focus in the landscape.

visual resources Natural and cultural features by which the appearance of a particular landscape is defined.

vitrification A process by which glass (for example, borosilicate glass) is used to encapsulate or immobilize radioactive wastes.

volatile organic compounds A broad range of organic compounds, often halogenated, that vaporize at rather low ambient temperatures. Examples include certain solvents, paint thinners, degreasers (for example, benzene), chloroform, and methyl alcohol.

waste A discardable residue of a manufacturing or purification process.

Waste Isolation Pilot Plant A facility in southeastern New Mexico that is being developed as the national disposal site for transuranic and mixed transuranic waste.

waste minimization and pollution prevention An action that economically avoids or reduces the generation of waste and pollution by means of source reduction, reduction in the toxicity of hazardous waste and pollution, improvement in energy use, and recycling. These actions are consistent with the general goal of minimizing present and future threats to human health, safety, and the environment.

waste package The waste, waste container, and any absorbent that are intended for disposal as a unit. In the case of surface-contaminated, damaged, leaking, or breached waste packages, any overpack is considered the waste container, and the original container is considered part of the waste.

wastewater Water originating from human sanitary water use (domestic wastewater) and from a variety of industrial processes (industrial wastewater).

water quality standards and criteria Limits on the concentrations of specific constituents or on the characteristics of water, often based on water use classifications (for example, drinking water, recreation, propagation of fish and aquatic life, agricultural and industrial use). Water quality standards are legally enforceable, whereas water quality criteria are nonenforceable recommendations based on biotic impacts.

water table The boundary between the unsaturated zone and the deeper, saturated zone. The upper surface of an unconfined aquifer.

weapons-grade material Plutonium or highly enriched uranium, in metallic form, that was manufactured for weapons application. Weapons-grade plutonium contains less than 7 percent plutonium 240.

weapons-usable material Plutonium or highly enriched uranium in forms (for example, metals, oxides) that can be readily converted for use in nuclear weapons. Weapons-grade, fuel-grade, and power reactor–grade plutonium are all weapons usable.

wetland Land areas exhibiting hydric soil conditions, saturated or inundated soil during some portion of the year, and plant species tolerant of such conditions.

whole-body dose Dose of radiation resulting from the uniform exposure of all organs and tissues in a human body. See also *effective dose equivalent.*

Wild and Scenic Rivers Act The Act that established the National Wild and Scenic Rivers System with a view to preserving and protecting the free-flowing condition of selected rivers having outstanding natural, cultural, or recreational features. For federally owned land within the boundaries of rivers in the system, certain activities that would have a direct and adverse effect on river values may be controlled.

zooplankton A collective term for nonphotosynthetic organisms present in plankton.

6M A container, resembling a 55-gallon stainless steel drum, that is used by the U.S. Department of Energy for the shipment of radioactive material. This container is one unit of a containment package that includes an inner impact absorber material (Type B packaging), which protects another inner container (usually Type 2R) in which the radioactive material is placed.