

CHAPTER 7

GLOSSARY

<i>actinide</i>	The 15 chemical elements with atomic numbers 89 to 103, inclusively. The group consists of actinium, thorium, protactinium, uranium, neptunium, plutonium, americium, curium, berkelium, californium, einsteinium, fermium, mendelevium, nobelium, and lawrencium.
<i>Actinide Source-Term Waste Test Program (STTP)</i>	Program designed to measure time-dependent concentrations of actinide elements from actual, contact-handled transuranic waste immersed in brines that are chemically similar to those found in the underground formations at WIPP. The program evaluated the effects of transuranic waste matrices and brine chemistry on the concentrations and behavior of actinides under WIPP bounding conditions.
<i>aqueous</i>	Related to water.
<i>background radiation</i>	Radiation from: (1) naturally occurring radioactive materials, as they exist in nature prior to removal, transport, or enhancement or processing by man; (2) cosmic and natural terrestrial radiation; (3) global fallout as it exists in the environment; (4) consumer products containing nominal amounts of radioactive material or emitting nominal levels of radiation; and (5) radon and its progeny in concentrations or levels existing in buildings or the environment that have not been elevated as a result of current or past human activities.
<i>block group</i>	Divisions of territory, the size of which varies according to population density, which have approximately 400 households.
<i>brine</i>	Water saturated or strongly impregnated with salt.
<i>caliche</i>	Calcium carbonate (CaCO_3) deposited in the soils of arid or semiarid regions.
<i>chelating agent</i>	A substance with molecules that can form several bonds to a single metal ion.
<i>colloid</i>	Very small, finely divided solids (that do not dissolve) that remain dispersed in a liquid for a long time due to their small size and electrical charge.
<i>complexing agent</i>	A reaction in which a metal ion and one or more anionic ligands chemically bond. Complexes often prevent the precipitation of metals.
<i>concentration</i>	The amount of a substance contained in a unit quantity (mass or volume) of a sample.

<i>conservative</i>	When used with predictions or estimates, leaning on the side of pessimism. A conservative estimate is one in which the uncertain inputs are used in the way that provides an overestimation of an impact.
<i>contact-handled transuranic waste</i>	Transuranic waste that does not require shielding other than that provided by its container to protect those handling it from radiation exposure. The radiation level at the outer surface of the container is specified as no more than 200 millirem per hour.
<i>containment</i>	Retention of a material or substance within prescribed boundaries.
<i>critical habitat</i>	The specific areas within the geographical area occupied by a species at the time it is listed as threatened or endangered in which are found those physical or biological features that are essential to the conservation of the species and that may require special management considerations or protection. It also includes specific areas outside the geographical area occupied by the species at the time it is listed if these areas are determined to be essential for the conservation of the species.
<i>cumulative impacts</i>	Those impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.
<i>curie</i>	A unit of radioactivity equal to 37 billion (3.7×10^{10}) disintegrations per second.
<i>decommissioning</i>	The removal from active service of a facility.
<i>decontamination</i>	The removal of unwanted material (especially radioactive material) from the surface or from within another material.
<i>dosimetry</i>	The measurement of radiation doses. Also known as radiation dosimetry.
<i>Eh</i>	The ability of an environment to give or absorb electrons. A positive Eh favors oxidation, while a negative favors reduction.
<i>environmental impact statement</i>	A document required by the National Environmental Policy Act for proposed major federal actions involving potentially significant environmental impacts.
<i>endangered species</i>	Plants and animals that are threatened with extinction, serious depletion, or destruction of critical habitat. Requirements for declaring a species endangered are contained in the Endangered Species Act.
<i>energy</i>	The capacity for doing work.

<i>environment</i>	The sum of all external conditions and influences affecting the life development and, ultimately, the survival of an organism.
<i>fission products</i>	An element or compound resulting from the splitting of a heavy nucleus into two approximately equal parts (infrequently three parts), which are nuclei of lighter elements accompanied by the release of energy and generally one or more neutrons.
<i>fume hood</i>	A fume-collection device over an enclosed shelf or table, so that experiments involving poisonous or unpleasant fumes or gases may be conducted away from the experimental area.
<i>geologic repository</i>	A system for disposing of radioactive waste in excavated geologic media, including surface and subsurface areas of operation, and the adjacent part of the geologic setting that provides isolation of the radioactive waste in the controlled area.
<i>glove box</i>	A sealed box with gloves attached and pass-through openings into the box, so that workers can handle materials in the box; used to handle certain radioactive and biologically dangerous materials and to prevent contamination of materials and objects.
<i>groundwater</i>	All subsurface water, especially that contained in the saturated zone below the water table.
<i>habitat</i>	The part of the physical environment in which a plant or animal lives.
<i>heavy metal</i>	Metallic elements with high atomic weights; (e.g., mercury, chromium, cadmium, arsenic and lead); can damage living things at low concentrations and tend to accumulate in the food chain.
<i>HEPA filter</i>	A high-efficiency particulate air filter capable of removing at least 99.97 percent of particles 0.3 micrometer (about 0.00001 inch) in diameter. These filters include a pleated fibrous medium (typically fiberglass) capable of capturing very small particles.
<i>hot cell</i>	A heavily shielded enclosure for handling and processing (by remote means or automatically) or storing highly radioactive materials.
<i>isotope</i>	An atom of a chemical element with a specific atomic number and atomic weight. Isotopes of the same element have the same number of protons but different numbers of neutrons. Isotopes are identified by the name of the element and the total number of protons and neutrons in the nucleus. For example, uranium-235 is an isotope of uranium with 92 protons and 143 neutrons and uranium-238 is an isotope of uranium with 92 protons and 146 neutrons.

<i>latent cancer fatality</i>	Death resulting from cancer that has become active after a latent period following radiation exposure. Latent cancer fatalities can be calculated for the public by using the risk conversion factor of 5×10^{-4} deaths per person-rem and for the worker by using the risk conversion factor of 4×10^{-4} deaths per person-rem.
<i>ligand</i>	The molecule, ion, or group bound to the central atom in a chelate or a coordination compound.
<i>low-income population</i>	A population where 25 percent or more of the population is identified as living in poverty.
<i>maximally exposed individual</i>	A hypothetical member of the public who is exposed to a release of radioactive or chemically hazardous material in such a way (by combination of location, dietary habits, etc.) that the individual will likely receive the maximum dose from such a release.
<i>millirem (mrem)</i>	One-thousandth of a rem (0.001 rem); see <i>rem</i> .
<i>minority population</i>	A demographic composition of the populace where either the minority population of the affected area exceeds 50 percent or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population.
<i>National Environmental Policy Act</i>	The act designed to promote inclusion of environmental concerns in federal decision-making.
<i>oxidation</i>	A chemical reaction in which a compound or radical loses electrons, that is in which the positive valence is increased.
<i>person-rem</i>	A measure of the radiation dose to a given population; the sum of the individual radiation doses received by that population.
<i>pH</i>	An expression of the intensity of the basic or acid condition of a liquid; may range from 0 to 14, where 0 is the most acid and 7 is neutral.
<i>radiation</i>	Ionizing radiation; e.g., alpha particles, beta particles, gamma rays, X-rays, neutrons, protons, and other particles capable of producing ion pairs in matter. As used in this document, radiation does not include nonionizing radiation.
<i>radioisotopes</i>	An isotope that undergoes a spontaneous transformation, emitting radiation. In this document, the radioisotopes of concern include plutonium, americium, uranium, thorium, and neptunium.
<i>radiolysis</i>	The dissociation of molecules by radiation; for example, a small amount of water in a reactor core dissociates into hydrogen and oxygen during operation.
<i>radionuclide</i>	A nuclide that emits radiation by spontaneous transformation.

<i>Record of Decision</i>	The document, publicly available, by which a federal department or agency decides on an alternative presented and evaluated through the environmental impact statement process.
<i>redox</i>	Short for oxidation-reduction. A chemical reaction consisting of an oxidation reaction in which a substance loses or donates electrons, and a reduction reaction in which a substance gains or accepts electrons.
<i>reduction</i>	The addition of hydrogen, removal of oxygen, or addition of electrons to an element or compound.
<i>rem</i>	The unit of a dose equivalent from ionizing radiation to the human body; it is used to measure the amount of radiation to which a person has been exposed. Rem means Roentgen Equivalent in Man.
<i>remote-handled transuranic waste</i>	Transuranic waste that requires shielding in addition to that provided by the container to protect people nearby from radiation exposure. By definition, the radiation level at the outer surface of the container is greater than 200 millirems per hour and less than 1,000 rem per hour.
<i>repository</i>	A facility for the disposal of radioactive waste.
<i>resource</i>	Mineralization that is concentrated enough, in a large enough quantity, and in a physical and chemical form such that its extraction may be economical in the future.
<i>seismicity</i>	All of the earthquakes that may occur in a region, regardless of magnitude.
<i>solubility</i>	The degree to which a compound in its pure state will dissolve.
<i>sorption</i>	The binding, on a microscopic scale, of one substance to another.
<i>source material</i>	Material from which fissionable material can be extracted.
<i>special nuclear material</i>	A category of material subject to regulation under the Atomic Energy Act, consisting primarily of fissile materials. It is defined to mean plutonium, uranium-233, uranium enriched in the isotopes uranium-233 or uranium-235, and any other material that the Nuclear Regulatory Commission determines to be special nuclear material; does not include source material.
<i>speciation</i>	As used in this EA, speciation refers to the distribution of different oxidation states.
<i>stable isotopes</i>	Nuclei that do not decay to other isotopes on geologic timescales, but may themselves be produced by the decay of radioactive isotopes.
<i>surface water</i>	A creek, stream, river, pond, lake, bay, sea, or other waterway that is directly exposed to the atmosphere.

<i>threatened species</i>	Any species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Requirements for declaring a species threatened are contained in the Endangered Species Act.
<i>tracer</i>	A foreign substance, usually radioactive, that is mixed with or attached to a given substance so the distribution or location of the given substance can be determined at a later time; used to trace chemical behavior of a natural element in an organism.
<i>transuranic waste</i>	Waste materials (excluding high-level waste and certain other waste types) contaminated with alpha-emitting radionuclides that are heavier than uranium with half-lives greater than 20 years and occur in concentrations greater than 100 nanocuries per gram. Transuranic waste results primarily from plutonium reprocessing and fabrication as well as research activities at U.S. Department of Energy defense installations.
<i>waste characterization</i>	The identification of waste composition and properties by reviewing process knowledge, nondestructive examination, nondestructive assay, or sampling and analysis. Characterization provides the basis for determining appropriate storage, treatment, handling, transportation, and disposal requirements.
<i>Waste Isolation Pilot Plant</i>	The facility near Carlsbad, New Mexico, that is a disposal site for transuranic waste generated as part of the nuclear defense research and production activities of the federal government.
<i>X-ray diffraction analysis</i>	Analysis of the crystal structure of materials by passing X-rays through them and registering the diffraction (scattering) image of the rays.