

GLOSSARY

abatement

Method for reducing the degree or intensity of an environmental impact; also the use of such a method.

absorbed dose

Energy transferred to matter when ionizing radiation passes through it. Absorbed dose is measured in rads.

absorber

Material, such as concrete and steel shielding, that absorbs and diminishes the intensity of ionizing radiation.

absorption

The process by which the number and energy of particles or photons entering a body of matter are reduced by interaction with the matter.

acclimation

The physiological and behavioral adjustments of an organism to changes in its immediate environment.

acclimatization

The acclimation or adaptation of a particular species over several generations to a marked change in the environment.

activation

The process of making a material radioactive by bombardment with neutrons, protons, or other nuclear particles.

activation products

Nuclei formed by the bombardment of material with neutrons, protons, or other nuclear particles.

activity

A measure of the rate at which a material is emitting nuclear radiation, usually given as the number of nuclear disintegrations per unit of time. A unit of radioactivity is the curie (Ci), which equals 3.7×10^{10} disintegrations per second.

adaptation

A change in structure or habit of an organism that produces better adjustment to the environment.

adsorption

The adhesion of a substance to the surface of a solid or solid particles.

AEC

Atomic Energy Commission. A five-member commission established by the Atomic Energy Act of 1954 to supervise the use of nuclear energy. The AEC was dissolved in 1975 and its functions transferred to the Nuclear Regulatory Commission (NRC) and the Energy Research and Development Administration (ERDA), which became the Department of Energy (DOE).

aerobic

Processes that can occur only in the presence of oxygen.

air quality

A measure of the levels of pollutants in the air.

air quality standards

The prescribed level of pollutants in the outside air that cannot be exceeded legally during a specified time in a specified area.

air sampling

The collection and analysis of air samples for detection or measurement of radioactive substances.

alluvial

Deposited by a stream or running water.

alpha (α) particle

A positively charged particle, consisting of two protons and two neutrons, that is emitted during certain radioactive decay, from the nucleus of certain nuclides. It is the least penetrating of the three common types of radiation (alpha, beta, and gamma).

ambient air

The surrounding atmosphere, usually the outside air, as it exists around people, plants, and structures. (It is not the air in immediate proximity to emission sources.)

anaerobic

Processes that occur in the absence of oxygen.

anion

A negatively charged ion.

aquatic biota

The sum total of living organisms of any designated aquatic area.

aquifer

An underground bed or stratum of earth, gravel, or porous stone that contains water. The water can be pumped to the surface through a well or it might emerge naturally as a spring.

archeological sites (resources)

Areas or objects modified or made by man and the data associated with these features and artifacts.

arcuate

A curved or bent axial trace in a fold. (The fold would be called arcuate.)

arenaceous limestone

Limestone with a texture or appearance of sand.

arkosic

Having wholly or in part the character of arkose, which is a sandstone containing 25 percent or more of feldspars, usually derived from silicic igneous rocks (e.g., granite).

artifact

An object produced or shaped by human workmanship of archeological or historical interest.

ash

Inorganic residue remaining after ignition of combustible substances.

atmosphere

The layer of air surrounding the earth.

backfill

Material used to refill an excavation.

background exposure

See exposure to radiation.

background radiation

Normal radiation present in the lower atmosphere from cosmic rays and earth sources. Background radiation varies considerably with location.

bedrock

Any solid rock exposed at the earth's surface or overlain by unconsolidated surface material such as soil, gravel, or sand.

bedroom community

An area, adjacent to a city, where a large number of individuals who work in the city reside.

benthic region

The bottom of a body of water. This region supports the benthos, a type of life that not only lives upon but contributes to the character of the bottom.

benthos

The plant and animal life whose habitat is the bottom of a sea, lake, or river.

beta particle

An elementary particle emitted from a nucleus during radioactive decay. It is negatively charged, is identical to an electron, and is easily stopped, such as by a thin sheet of metal.

biological dose

The radiation dose, measured in rems, absorbed in biological material.

biological oxygen demand (BOD)

A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water. The greater the amount of organic waste in water, the greater the BOD.

biological shield

A mass of absorbing material placed around a radioactive source to reduce the radiation to a level safe for humans.

biosphere

The portion of the earth and its atmosphere capable of supporting life.

biostratigraphy

The study of stratigraphy via fossilized remains.

biota

The plant and animal life of a region.

BOD

See: Biological oxygen demand.

borosilicate glass

A strong chemically resistant glass made primarily of sand and borax. As a waste form, high-level waste is incorporated into the glass to form a leach-resistant, nondispersible (immobilized) material.

Btu

British Thermal Unit, a unit of heat. The quantity of heat required to raise the temperature of one pound of water by one degree Fahrenheit. One Btu equals 1055 joules (or 252 calories).

building codes

Legislative regulations which prescribe the materials, minimum requirements, and methods used in the construction, rehabilitation, maintenance, and repair of buildings and other structures.

burial ground

A place for burying unwanted radioactive materials in which the earth acts as a shield to prevent escape of radiation. In this EIS, materials are incorporated into concrete to prevent leaching of materials or movement in the underground environment.

°C

Degree Celsius. The Celsius temperature scale is related to the Fahrenheit scale as follows:

$$^{\circ}\text{F} = ^{\circ}\text{C} \times \frac{9}{5} + 32.$$

calcareous cement

Calcium carbonate based cement.

calcine

The process in which the water portion of the slurried waste is driven off by evaporation at high temperature in a spray chamber leaving a residue of dry solid unmelted particles, also referred to as the calcine.

cancer

The name given to a group of diseases that are characterized by uncontrolled cellular growth.

canister

A metal (steel) container into which immobilized radioactive waste is sealed.

canyon building

A heavily shielded building used in the chemical processing of radioactive materials. Operation and maintenance are by remote control.

carbon monoxide

A colorless, odorless gas that is toxic if breathed in high concentration over a certain period of time. It is a normal component of most automotive exhaust systems.

carcinogen

An agent capable of producing or inducing cancer.

carcinogenic

Capable of producing or inducing cancer.

carolina bay

Wetland area found on the Southeastern Atlantic coastal plain. A shallow depression.

cask

A heavily shielded massive container for holding a canister of HLW during shipment of the immobilized radioactive material.

cc

Cubic centimeters, cm^3 or cc (1 cc = 1 milliliter).

CCDF

Complementary cumulative distribution function.

cfm

Cubic feet per minute.

cfs

Cubic feet per second.

C1

See: Curie.

clarifier

A tank or other vessel to accomplish removal of settleable solids (e.g., in this EIS, the liquid waste transfer operations include transfer to a clarifier in which the sludge solids settle and the liquid is clarified).

clastic dike

A sedimentary dike formed by broken rocks from overlying or underlying material.

commercial HLW

High-level radioactivity waste materials produced by commercial operations. Most of such waste is produced by commercial nuclear power plants; it is the spent nuclear fuel from such plants or the product of reprocessing such fuels. Such wastes are distinguished from wastes produced in processing defense materials.

common carriers

The vehicles, such as trucks, trains, barges, and planes that are licensed to transport the wide assortment of goods and materials distributed regularly across the country.

concentration

The quantity of a substance contained in a unit quantity of a sample.

condensate

Liquid water obtained by cooling the steam (overheads) produced in an evaporator system. Also, any liquid obtained by cooling saturated vapor.

CO₂

Carbon dioxide, a colorless, odorless, nonpoisonous gas that is a normal component of the ambient air.

coolant

A substance, usually water, circulated through a processing plant to remove heat.

cooling tower

A structure designed to cool water by evaporation. In this EIS, the water being cooled was heated by absorbing heat in order to condense the steam in the evaporator system.

correlatable

Able to establish a connection between geological formations or events.

cretaceous

End of mesozoic era, between 136 and 65 million years ago.

crystalline metamorphic rock

Rock consisting wholly of crystals.

cuesta

A ridge formed from sedimentary rock, steep on one side, but with a gentle slope on the other.

cumulative effects

Additive environmental, health, and socioeconomic effects that result from a number of similar activities in an area.

curie (Ci)

A unit of radioactivity equal to 3.7×10^{10} (37 billion) disintegrations per second. A curie is also a quantity of any nuclide or mixture of nuclides having one curie of radioactivity.

daughter

A nuclide formed by the radioactive decay of another nuclide, which is called the parent.

decay heat

The heat produced by the decay of radioactive nuclides.

decay, radioactive

The spontaneous transformation of one nuclide into a different nuclide or into a different energy state of the same nuclide. The process results in the emission of nuclear radiation (alpha, beta, or gamma radiation).

decommissioning

Removing facilities such as processing plants, waste tanks, and burial grounds from service and reducing or stabilizing radioactive contamination. Decommissioning concepts include:

- o The decontamination, dismantling, and return of an area to its original condition without restrictions.
- o Partial decontamination, isolation of remaining residues, and continued surveillance and restrictions.

decomposition

The breakdown of a substance into its constituent parts.

decontamination

The removal of radioactive contaminants. This removal can be from surfaces of equipment, as by cleaning or washing with chemicals, or by wet abrasive blasting using glass frit and water (to decontaminate the filled canisters). Also, the removal of high-level radioactivity nuclides from within a material (e.g., from high-level radioactivity liquid defense wastes).

defense waste

Nuclear waste generated from government defense programs as distinguished from waste generated by commercial and medical facilities.

demography

The statistical study of human populations including population size, density, distribution, and vital statistics such as age, sex, and ethnicity.

depositional regimes

A systematic laying or throwing down of material over a substantial area.

detector

Material or device (i.e., instrument) that is sensitive to radiation and can produce a response signal suitable for measurement or analysis.

detritus

Dead organic tissues and organisms in an ecosystem.

diesel generator

A machine powered by diesel fuel that converts mechanical energy into electricity.

diesel oil

An oil fraction produced in processing crude oil, which is used to fuel diesel engines.

dip

The angle that a structural surface (e.g., a bedding or fault plane) makes with the horizontal, measured perpendicular to the strike of the substance.

disposal

Placement of HLW in a repository in such a manner that the materials remain isolated from the environment permanently or until radioactive nuclides have decayed to harmless levels.

distillation

Separation process achieved by creating two or more coexisting zones which differ in temperature, pressure, or composition.

DOE

United States Department of Energy.

dose

The energy imparted to matter by ionizing radiation. The unit of absorbed dose is the rad, equal to 0.01 joules per kilogram of irradiated material in any medium.

dose commitment

The dose which an organ or tissue would receive during a specified period of time (e.g., 50 or 100 years) as a result of intake (as by ingestion or inhalation) of one or more radionuclides from 1-year's release.

dose equivalent

A term used to express the amount of effective radiation when modifying factors have been considered. It is the product of absorbed dose (rads) multiplied by a quality factor and any other modifying factors. It is measured in rems (Roentgen equivalent man).

dose rate

The radiation dose delivered per unit time (e.g., rems per year).

dosimeter

A small device (instrument) that measures radiation dose (e.g., film badge or ionization chamber) and is carried by a radiation worker.

drawdown

The height difference between the water level in a formation and the water level in a well caused by the withdrawal of ground water.

drift

Mist or spray carried out into the atmosphere with the effluent air from cooling towers.

DWPF

Defense Waste Processing Facility, under construction at SRP; it is designed to process defense waste into a suitable form for terminal storage or disposal.

D₂O

Heavy water or deuterium oxide.

ecology

The science dealing with the relationship of all living things with each other and with the environment.

ecosystem

A complex of the community of living things and the environment forming a functioning whole in nature.

EDC

See: Environmental dose commitment.

effluent

A liquid waste, discharged into the environment, usually into surface streams. In this EIS, effluent refers to discharged wastes that in their natural state or as a result of treatment are nonpolluting.

effluent standards

Defined limits of waste discharge in terms of volume, content of contaminants, temperature, etc.

EIS

Environmental impact statement, a document prepared pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969 (NEPA) for a major Federal action significantly affecting the quality of the human environment.

electron

An elementary particle with a unit negative charge and a mass 1/1837 of the proton. Electrons surround the positively charged nucleus and determine the chemical properties of the atom.

element

One of the 105 known chemical substances that cannot be divided into simpler substances by chemical means. All nuclides of an element have the same atomic number.

eluate

The liquid resulting from removing the trapped material from an ion-exchange resin.

emission standards

Legally enforceable limits on the quantities and/or kinds of air contaminants that may be emitted into the atmosphere.

endangered species

Plants and animals in an area that are threatened with either extinction or serious depletion of a species.

energy

The capacity to produce heat or do work. Electrical energy is measured in units of kilowatt-hours.

environment

The sum of all external conditions and influences affecting the life, development, and ultimately, the survival of an organism.

environmental dose commitment (EDC)

A dose representing exposure to and ingestion of environmentally available radionuclides for 100 years following a one-year release of radioactivity.

environmental fate

The result of the physical, biological, and chemical interactions of a substance released to the environment.

environmental transport

The movement through the environment of a substance; it includes the physical, chemical, and biological interactions undergone by the substance.

eocene

Lower tertiary period, after paleocene but before oligocene.

epidemiology

The study of diseases as they affect populations.

epoch

Length of time (geology).

erosion

The process in which uncovered soil and clay are carried away by the action of wind or water.

estuarine

Pertaining to an area where salt and fresh water come together, and are affected by tides.

exchange resin

Polymeric spheres containing bounded groups that carry an ionic charge, either positive or negative, in conjunction with free ions of opposite charge that can be displaced.

exposure to radiation

The incidence of radiation on living or inanimate material by accident or intent. Background exposure is the exposure to natural background ionizing radiation. Occupational exposure is that exposure to ionizing radiation which takes place during a person's working hours. Population exposure is the exposure to a number of persons who inhabit an area.

°F

Degree Fahrenheit. The Fahrenheit temperature scale is related to the Celsius scale as follows:

$$^{\circ}\text{C} = \frac{(^{\circ}\text{F} - 32)}{1.8}.$$

facies

A group of rocks that differ from surrounding rocks.

fall line

Imaginary line marking the point that most rivers drop steeply from the uplands to the lowlands.

fallout

The descent to earth and deposition on the ground of particulate matter (which may be radioactive) from the atmosphere.

fanglomerates

Sedimentary rock of water-worn heterogeneous fragments of every size, settling in an alluvial fan and cementing into rock.

fault

A fracture or a zone of fractures within a rock formation along which vertical, horizontal, or transverse slippage has occurred in the past.

faunal

Animal and plant fossils of a certain rock unit.

feldspar

Most common group of aluminum silicate minerals (containing other metals, such as potassium, sodium, and iron) that form rock.

ferruginous

Containing iron oxide.

fission

The splitting of a heavy atomic nucleus into two approximately equal parts, which are nuclei of lighter elements, accompanied by the release of energy and generally one or more neutrons. Fission can occur spontaneously or can be induced by neutron bombardment.

fission products

Nuclei formed by the fission of heavy elements (primary fission products). Also the nuclei formed by the decay of the primary fission products, many of which are radioactive.

fluvial

Relating to or living in, or near a river.

flux

Rate of flow through a unit area.

food chain

The pathways by which any material entering the environment passes from the first absorbing organism through plants and animals to humans.

fracture porosity

Breaking in a rock resulting in porosity.

fuel

A substance used to produce heat (e.g., from chemical energy by combustion, or from nuclear energy by nuclear fission).

fuller's earth

Fine grained natural earth substance. Has high absorbency. Consists mostly of hydrated aluminum silicates.

gal

Gallons.

gamma rays (γ)

High-energy, short-wavelength electromagnetic radiation accompanying fission and emitted from the nucleus of an atom. Gamma rays are very penetrating and require dense (e.g., lead) or a thick layer of materials for shielding.

gamma spectrometry

Identification and quantification of radioisotopes by measurement of the characteristic gamma rays emitted by elements undergoing radioactive decay.

generator

A machine that converts mechanical energy into electrical energy; a diesel generator is one that utilizes diesel fuel.

genetic effects

Radiation effects that can be transferred from parent to offspring; radiation-induced changes in the genetic material of sex cells.

geologic repository (mined geologic repository)

A facility for the disposal of nuclear waste. The waste is isolated by placing it within a continuous, stable geologic formation at depths greater than 1000 feet.

geology

The science that deals with the earth: the materials, processes, environments and history of the planet especially the lithosphere, including the rocks, their formation and structure.

g/L

Grams per liter.

glass frit

Ground or powdered glass.

glaucouitic

Mineral aggregate containing glauconite, giving it a green color.

gneiss

Rock formed from bands of granular minerals alternating with bands of minerals that are flakey, or have elongate prismatic habits.

gpm

Gallons per minute.

gradient

Slope, particularly of a stream or land surface.

ground water

The supply of water under the earth's surface in an aquifer.

gypsum

Mineral containing hydrous calcium sulfate.

half-life (biological)

The time required for a living organism to eliminate, by natural processes, half the amount of a substance that has entered it.

half-life (effective)

The time required for a radionuclide contained in an organism to reduce its activity by one half as a combined result of radioactive decay and biological elimination.

half-life (radiological)

The time in which half the atoms of a radioactive substance disintegrate to another nuclear form. Half-lives vary from millionths of a second to billions of years.

half-thickness

The thickness of any absorber that will reduce the intensity of a beam of radiation to one half its initial intensity.

halogens

The group of five chemically related nonmetallic elements that include fluorine, chlorine, bromine, iodine, and astatine.

hardwoods

Trees which are an angiosperm and yield wood which has a hard consistency.

health physics

The science concerned with recognition, evaluation, and control of health hazards from ionizing radiation.

heat exchanger

A device that transfers heat from one fluid (liquid or gas) to another or to the environment.

heating value

The heat released by combustion of a unit quantity of a fuel, measured in joules or Btu's.

heavy metals

Metallic elements of high molecular weight, such as mercury, chromium, cadmium, lead, and arsenic, that are toxic to plants and animals at known concentrations.

heavy water

Water in which the molecules contain deuterium, an isotopic form of hydrogen which is heavier than ordinary hydrogen, and oxygen.

hectare

A metric unit of area equal to 2.471 acres.

HEPA

High efficiency particulate air filter. A type of filter designed to remove 99.9% of the particles down to 0.3 mm in diameter from a flowing air stream.

high-level waste

High-level liquid waste or the products from the solidification of high-level liquid waste or irradiated fuel elements if discarded without re-processing. Also see: Commercial HLW; Defense waste.

historic resources

The sites, districts, structures, and objects considered limited and non-renewable because of their association with historic events, persons, or social or historic movements.

HLW

High-level radioactive waste. (Also see: Commercial HLW; Defense waste).

holocene

Epoch of quaternary period from end of pleistocene to present time.

hornblende

Most common mineral of the amphibole group.

HSU

Hydrostratigraphic unit.

hydraulic conductivity

Water flow rate in gallons per day through a one square foot cross section under a unit hydraulic gradient.

hydraulic (water) head

Height of water with a free surface above a subsurface point.

hydrocarbons (HC)

Organic compounds consisting primarily of hydrogen and carbon. Hydrocarbons are emitted in automotive exhaust and from the incomplete combustion of fossil fuels such as coal.

hydrograph

Graph showing water characteristics such as velocity, or flow, in relation to time.

hydrologic regimen

Total quantity and characteristic behavior of water in a drainage basin.

hydrology

The science dealing with the properties, distribution, and circulation of natural water systems.

hydrosphere

The water portion of the surface of the earth as distinguished from the solid portion, the lithosphere.

hydrostratigraphic unit

Rock or soil body extending laterally for a considerable distance. (Sometimes abbreviated HSU.)

immobilization

Conversion of HLW into a form that will be resistant to environmental dispersion.

incorporated places

Political units incorporated or combined as cities, boroughs, towns, and villages.

indigenous labor pool

An area's native labor pool composed of workers normally residing in the area, who do not leave the area upon termination of a construction project.

induced radioactivity

Radioactivity that is created when substances are bombarded with neutrons as in a reactor.

indurated

Soil or rock compacted and hardened by heat, pressure, and cementation.

inert gas

A gas that is totally unreactive.

in-movers

Workers who move into an area during construction and leave when the project is finished. As used in this document, in-movers also include some weekly travelers.

intensity

The energy or the number of photons or particles of radiation incident upon a unit area per unit of time. Intensity of radioactivity is the number of atoms disintegrating per unit of time.

interfluvial

Falling in the area between two streams.

intergranular porosity

Porosity between grains of rock.

interim storage

Temporary storage of sealed canisters containing immobilized HLW in a shielded storage vault until transfer to a Federal repository.

ion

An atom or molecule that has gained or lost one or more electrons and thus has become electrically charged.

ion exchange

Process in which a solution, containing soluble ions to be removed, is passed over a solid ion exchange column, which removes the soluble ions by exchanging them with labile ions from the surface of the column. The process is reversible, so the trapped ions can be eluted from the column and the column regenerated.

ionization

The process whereby ions are created. Nuclear radiation can cause ionization as can high temperatures and electric discharges.

ionizing radiation

Radiation capable of displacing electrons from atoms or molecules thereby producing ions.

irradiation

Exposure to radiation.

isotope

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.

joule

A unit of energy or work which is equivalent to one watt per second or 0.737 foot-pounds or 4.18 calories.

kaolin

Clay mineral group characterized by a silicon oxygen sheet, and an aluminum-hydroxyl sheet alternately linked to form a two-layer crystal lattice.

kilometer

A metric unit of length equal to 0.62137 mile.

leachate

Liquid that has percolated through solid waste or other media and has extracted from the solids dissolved or suspended materials into the liquids.

leaching

The process whereby a soluble component of a solid or mixture of solids is extracted as a result of percolation of water around and through the solid.

leukemia

A form of cancer characterized by extensive proliferation of nonfunctional immature white blood cells (leukocytes).

lignite

A brownish-black coal between stages of peat and subbituminous coal.

limonite

Hydrous ferric oxides occurring naturally, but having unknown origins.

liquid HLW

The aqueous high-level radioactive waste resulting from the production of nuclear materials at SRP.

liters per second

A metric unit of flow rate equal to 15.85 gallons per minute.

lithology

Rock descriptions by color, structure, grain size, etc.

lithosphere

The solid part of the earth composed predominantly of rock.

long-lived nuclides

Radioactive isotopes with half-lives greater than about 30 years.

low-level waste

Radioactive waste not classified as high-level waste. The wastes (mostly salts) remaining after removal of the highly radioactive nuclides from the liquid high-level wastes for immobilization.

man-rem

The radiation dose commitment to a given population; the sum of the individual doses received by a population segment.

marine terrace

Narrow coastal strip altered by marine deposit and erosion.

maximum permissible dose

That dose of ionizing radiation established by competent authorities as an amount below which there is no appreciable risk to human health and which at the same time is below the lowest level at which a definite hazard is believed to exist.

megawatt (MW)

A unit of power equal to 1,000 kilowatts (kW) or one million (10^6) watts.

mg

Milligram (one-thousandth of a gram).

mica

Variously colored, or colorless mineral silicates, crystallizing in monoclinic forms that separate into thin leaves.

micro (μ)

Prefix indicating one millionth. One microgram = 1/1,000,000 of a gram or 10^{-6} gram.

micrometer (μm)

A unit of length equal to one one-millionth (10^{-6}) of a meter.

micron

A micrometer (10^{-6} meters).

migration

The natural travel of a material through the air, soil, or ground water.

ml

Milliliter (one-thousandth of a liter).

mm

Millimeter (one-thousandth of a meter).

mobility

The ability of a chemical element or a pollutant to move into and through the environment.

moderator

A material used to slow down neutrons from fission to thermal energies.

molecule

A group of atoms held together by chemical forces. A molecule is the smallest unit of a compound that can exist by itself and retain all its chemical properties.

monitoring

Process whereby the level and quality of factors that can affect the environment and/or human health are measured periodically in order to regulate and control potential impacts.

monoclinal

Strata varying from the horizontal in one direction only.

mrem

Millirem (1/1,000 of a rem).

mutagen

An agent, physical, chemical, or radiative, capable of inducing mutation (above the spontaneous background level).

mutagenesis

The occurrence or induction of mutation, a genetic change that is passed on from parent to offspring.

mutation

An inheritable change in the genetic material (in a chromosome).

nano

Prefix indicating one thousandth of a micro unit; one trillionth;
1 nanocurie = 10^{-9} curie.

National Register of Historic Places

A list maintained by the National Park Service of architectural, historical, archaeological, and cultural sites of local, state, or national significance.

natural radiation or natural radioactivity

Background radiation.

nCi

Nanocuries, 10^{-9} curies.

NEPA

National Environmental Policy Act of 1969.

neutron

An uncharged elementary particle with a mass slightly greater than that of the proton and found in the nucleus of every atom heavier than hydrogen-1. A free neutron is unstable and decays with a half life of about 13 minutes into an electron and a proton.

neutron flux

Number of neutrons flowing through a specified area per unit time.

NH₃

Ammonia, a pungent reactive colorless gas, which is irritating to the eyes and moist skin in high concentrations.

NO_x

Refers to the oxides of nitrogen, primarily NO and NO₂. These are often produced in the combustion of fossil fuels. In²high concentration they constitute an air pollution problem.

nodes

The intersection of horizontal and vertical grids.

NRC

Nuclear Regulatory Commission.

nuclear energy

The energy liberated by a nuclear reactor (fission or fusion) or by radioactive decay.

nuclear power plant

A facility that converts nuclear energy into electrical power. Heat produced by a reactor is used to make steam to drive a turbine which drives an electric generator.

nuclear reaction

A reaction in which an atomic nucleus is transformed into another element, usually with the liberation of energy as radiation.

nuclear reactor

A device in which a fission chain reaction is maintained and which is used for irradiation of materials or the generation of electricity.

nucleus

The small positively charged core of an atom, which contains nearly all of the mass of the atom.

nuclide

An atomic nucleus specified by its atomic weight, atomic number and energy state. A radionuclide is a radioactive nuclide.

organic degreasers

Cleaning agents having organic chemical structures.

outcrop

Part of a geologic formation above the surface of the earth.

paleocene

Epoch of tertiary period between the gulfian of the cretaceous period and before the eocene.

particulates

Solid particles small enough to become airborne.

pascal

A metric unit of pressure. 101,000 pascals is equal to 14.7 psi (1 atmosphere).

pD

The negative log of the deuterium (heavy hydrogen) ion concentration in solution; analogous to the term pH, which refers to the normal hydrogen ion concentration.

penplain

Almost featureless, plain land surface.

perched

A water-bearing area of small lateral dimensions lying above a more extensive aquifer.

permeability

Ability for water to flow through a porous rock, or soil.

pH

A measure of the hydrogen ion concentration in aqueous solution; specifically, the negative logarithm of the hydrogen ion concentration. Acidic solutions have a pH from 0 to 7, basic solutions have a pH greater than 7.

phosphatic marl

Soft, loose, earthy phosphates that crumble easily.

photon

Electromagnetic radiation; a quantum of electromagnetic energy having properties of both a wave and a particle but without mass or electric charge.

physiography

Description of earth surface features, including air and water as well as land.

piedmont province

Large area forming a plateau at the base of the Appalachian mountains, extending from New Jersey to Alabama.

piezometric maps

Lines of equal groundwater pressure drawn on a map.

piezometric surface

The surface to which water in an aquifer would rise by hydrostatic head.

pisolitic clay

Clay that exhibits an internal structure of pea-sized clay grains.

plant stream

Any natural stream on the SRP site. Surface drainage of the site is via these streams to the Savannah River.

pleistocene

Epoch of the quaternary period, between pliocene and holocene.

pliocene

Epoch of the tertiary period, between miocene and pleistocene.

plume

The visible emission from a flue or chimney.

pollution

The addition of any undesirable agent to an ecosystem in excess of the rate at which they can be degraded, assimilated, or dispersed by natural processes.

ppb

Parts per billion (10^{-9}), one thousandth of a part per million.

ppm

Parts per million. The unit is commonly used to represent the degree of pollutant concentration when the concentration is small. In air, ppm is usually volume pollutant/1,000,000 volumes of air; in water, a weight/1,000,000 weight units.

primary road

Interstate, state, and regional routes including rural arterial routes and their extensions into or through urban areas.

psi

Pounds per square inch, a measure of pressure. Atmospheric pressure is about 15 psi.

pyrite

Isometric mineral: FeS_2 (iron sulfide).

quality factor

The factor by which absorbed dose, in rads, is multiplied to obtain a quantity expressing the irradiation incurred by various biological tissues taking into account the biological effectiveness of the various types of radiation.

quartz

Crystalline silica: SiO_2 .

quartzite

Very hard, metamorphosed sandstone.

quaternary age

The period from the end of the tertiary to present time.

rad

Acronym for radiation absorbed dose; is the basic unit of absorbed dose equal to the absorption of 0.01 joules per kilogram of absorbing material.

radiation

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

radiation detection instrument

Devices that detect and record the characteristics of ionizing radiation.

radiation monitoring

Continuous or periodic determination of the amount of radiation present in a given area.

radiation protection

Legislation, regulations, and measures to protect the public or laboratory of industrial workers from harmful exposure to radiation.

radiation shielding

Reduction of radiation by interposing a shield of absorbing material between a radioactive source and a person, laboratory area, or radiation-sensitive device.

radiation standards

Permissible exposure levels of radiation and regulations governing same.

radioactivity

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

radioisotopes

Nuclides of the same element (same number of protons in their nuclei) which differ in the number of neutrons, and which spontaneously emit particles or electromagnetic radiation.

receiving waters

Rivers, lakes, oceans, or other bodies of water into which treated or untreated waste waters are discharged.

rem

Acronym for roentgen equivalent man; is the unit of dose for biological absorption. It is equal to the product of the absorbed dose in rads and a quality factor and a distribution factor.

repository

A facility for the terminal storage or disposal of spent nuclear fuel or immobilized HLW.

residence time

The period of time during which a substance resides in a designated area.

resin

An organic polymer used as an ion-exchange material.

roentgen (R)

A unit of exposure to ionizing radiation equal to or producing one coulomb of charge per cubic meter of air.

runoff

The portion of rainfall, melted snow, or irrigation water that flows across ground surface and eventually is returned to streams. Runoff can carry pollutants into receiving waters.

saltcake

The crystallized salts (primarily nitrates and nitrites) resulting from the evaporation of liquid HLW.

saltcrete

A mixture of partially decontaminated salts and concrete.

sandstone

Clastic rock containing large individual particles visible to the unaided eye.

sanitary landfilling

An engineered method of solid waste disposal on land in a manner that protects the environment; waste is spread in thin layers, compacted to the smallest practical volume, and covered with soil at the end of each working day.

saprolite

A rock that is earthy, soft, clay-rich, extremely decomposed.

schist

Strongly foliated crystalline rock formed by dynamic metamorphism that can easily be split into thin slabs, or flakes.

screen

Tool used to allow particles of a certain size through while separating out larger particles.

scrubber

An air pollution control device that uses a liquid spray to remove pollutants from a gas stream by absorption or chemical reaction.

secondary road

A rural major collector route.

sedimentation

The settling of excess soil and mineral solids of small particle size contained in water.

seep lines

Small zone where water leachate percolates slowly to the surface; a series of ground water or leachate springs.

seepage basin

An excavation in the ground to receive aqueous streams containing chemical and radioactive wastes. Insoluble materials settle out on the floor of the basin and soluble materials seep with the water through the soil column where they are removed partially by ion exchange with the soil. Construction includes dikes to prevent overflow or surface runoff.

seismic

Pertaining to any earth vibration, especially an earthquake.

seismicity

The tendency for the occurrence of earthquakes.

settling tank

A tank in which settleable solids are removed by gravity.

sewage

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

sewer

Any pipe or conduit used to collect and carry away sewage or stormwater runoff.

sewerage

The entire system of sewage collection, treatment, and disposal.

shield

An engineered body of absorbing material used to protect personnel from radiation.

short-lived nuclides

Radioactive isotopes with half lives no greater than about 30 years (e.g., cesium-137 and strontium-90).

siderite nodule

A small clump or knot of a rhombohedral mineral: FeCO_3 .

siliceous cement

Cement with an abundance of silica.

siltstone

Silt having the texture and composition of shale, but lacking its fine lamination.

sink

An area from which water drains or is removed.

sludge

The precipitated solids (primarily oxides and hydroxides) that settle to the bottom of the storage tanks containing liquid HLW.

slug

Small, isolated body of water.

slurry

A suspension of solid particles (sludge) in water.

socioeconomic baseline characterization

A description and discussion of a study area's social and economic characteristics including a profile of local government, housing supply, land use, and public and private services.

softwoods

Trees, particularly evergreens and shrubs, that produce seeds in a cone.

SO₂

Sulfur dioxide; a heavy pungent colorless gas (formed in the combustion of coal). SO₂ in high concentration is considered a major air pollutant.

SO_x

The oxides of sulfur, primarily SO₂ and SO₃. SO_x is a common air pollutant.

sparger

A discharge nozzle which provides quick dispersion of one fluid (liquid or gas) into another.

spill

The accidental release of radioactive material.

spray irrigation

The practice of dispersing treated aqueous effluents by spraying land in controlled amounts. Treated effluent is rich in nutrients that may be utilized by plants.

SREL

Savannah River Ecological Laboratory, an ecology research institution operated by the University of Georgia under contract from DOE.

SRL

Savannah River Laboratory.

SRP

Savannah River Plant.

stable

Not radioactive.

stack

A vertical pipe or flue designed to exhaust gases and suspended particulate matter.

stack gases

Gases emitted from a stack.

stationary source

A source of emissions into the environment that is fixed rather than moving, as an automobile.

storage

Retention of radioactive waste in man-made containment such as a tank or vault in a manner permitting retrieval as distinguished from disposal which implies no retrieval.

storage coefficient

Volume of water released from storage in a vertical column of 1.0 sq. ft. when the water table declines 1.0 ft.

stratified

Formed or arranged in layers.

stratigraphy

Division of geology dealing with the definition and description of rocks and soil both major and minor natural divisions.

strike

The direction or trend that a structural surface (e.g., a bedding or fault plane) takes as it intersects the horizontal.

study area

A specific geographic area isolated from surrounding areas for the purpose of examining and analyzing specific phenomena and activities.

supernatant, supernate

The liquid portion of the liquid HLW that consists of water and materials in solution in the water.

surface water

All water on the surface, as distinguished from groundwater.

surficial deposit

Most recent geological deposit lying on bedrock or on or near the earth's surface.

surveillance

A monitoring system designed to assure safe and secure containment of HLW at all times and to identify potential sources of escape or release into the environment.

tank farm

An installation of interconnected underground tanks for the storage of high-level radioactive liquid wastes.

tertiary age

First period of cenozoic era, thought to be between 65 and 2 million years ago.

thermal pollution

Degradation of water quality by introduction of a heated effluent.

threshold dose

The minimum dose of a given substance to produce a measurable environmental factor.

tolerance

The relative capability of an organism to endure an unfavorable environmental factor.

topography

The configuration of a surface area including its relief or relative elevations and the position of its natural and man-made features.

toxicity

The quality or degree of being poisonous or harmful to plant or animal life.

tracer injection detection tests

Injection of dye in water to trace water flow.

transmissivity

The rate at which water of prevailing kinematic viscosity is transmitted through a unit width under a unit hydraulic gradient.

transuranic waste

Solid radioactive waste containing primarily alpha emitters.

transuranium elements

Elements above uranium in the periodic table. All 13 known transuranic elements are radioactive and are produced artificially.

triassic period

First period of the mesozoic era. Thought to be between 225 and 190 million years ago.

tritium (³H)

A radioactive isotope of hydrogen, a weak beta emitter with a half-life of 12.5 years.

TSP

Total suspended particulates. Refers to the concentration of particulates in suspension in the air irrespective of the nature, source, or size of the particulates.

turbidity

Measure of sediment or suspended foreign particle concentration in solution.

unconsolidated

Loosely arranged or unstratified sediment.

unincorporated places

Closely settled population centers without corporate limits.

USGS

United States Geological Survey.

vacancy rate

The ratio between the number of vacant housing units and the total number of units in a specified area.

vault

A reinforced concrete structure for storing canisters of immobilized high-level radioactive waste.

venting

Release of gases or vapors under pressure to the atmosphere.

washout

The removal of a pollutant from the atmosphere by precipitation.

waste heat

Heat in materials at temperatures that are close to that of ambient and hence not valuable for production of power. Waste heat must be discharged to the environment.

waste, radioactive

Materials from nuclear operations that are radioactive or are contaminated with radioactive materials and for which there is no practical use or for which recovery is impractical.

water pollution

Presence of one or more contaminants in such degree as to be detrimental to the intended use of the water.

water quality standard and criteria

Levels of pollutants according to the water use classification: drinking water, recreation use, propagation of fish and aquatic life, and agricultural and industrial use.

watershed

The area drained by a given stream.

water table

The upper surface of the groundwater.

weekly travelers

Workers who live near the work site during the week and travel home only on weekends.

zoning ordinances

Local ordinances dividing a city, town, or unincorporated place into zones governing land use and the size, shape, and use of structures within each zone.

zooplankton

Planktonic (floating) animals that supply food for fish.