

## 6.0 References

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## 7.0 Glossary and Index

### Glossary

**Acid Drainage:** Water from pits, underground workings, and waste rock containing free sulfuric acid. The formation of acid drainage is primarily due to the weathering of iron pyrite and other sulfur-containing minerals. Acid drainage can mobilize and transport heavy metals which are often characteristic of metal deposits.

**Acid Rock Drainage (ARD):** Drainage that occurs as a result of natural oxidation of sulfide minerals contained in rock that is exposed to air and water. It is not confined to mining activities, but can occur wherever sulfide-bearing rock is exposed to air and water.

**Acre:** A unit of land measure equal to 43,560 square feet.

**Acre-foot:** The amount of water or sediment volume which covers 1 acre of land to a depth of 1 foot; 1 acre-foot is equal to 325,851 gallons or 43,560 cubic feet.

**Affecting:** Will or may have an effect on.

**Allotment:** A unit of land suitable and available for livestock grazing that is managed as one grazing unit.

**Alluvium:** A general term for clay, silt, sand, gravel, or similar unconsolidated detrital material, deposited during comparatively recent geologic time by a stream or other body of running water.

**Alluvial Fan:** A low, outspread, gently sloping mass of loose rock material, shaped in plain view like an open fan or a segment of a cone; deposited by a stream at the place where it issues from a narrow mountain valley upon a plain or broad valley, or where a tributary stream is near or at its junction with the main stream, or wherever a constriction in a valley abruptly ceases or the gradient of the stream suddenly decreases.

**Animal Unit Month (AUM):** The amount of forage required by one cow and calf, or their equivalent, for one month.

**Aquifer:** A zone, stratum, or group of strata acting as a hydraulic unit that stores or transmits water in sufficient quantities for beneficial use.

**Bedrock:** Solid rock exposed at the surface of the earth or overlain by unconsolidated material, weathered rock, or soil.

**Borehole:** A hole with a drill, auger, or other tools for exploring strata in search of minerals, for water supply, for blasting purposes, for proving the position of old workings and faults, and for releasing accumulations of gas or water.

**Cooperating Agency:** Any federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major federal action significantly affecting the quality of the human environment. The selection and responsibilities of a cooperating agency are described in Section 1501.6. A State or local agency of similar qualifications or, when the effects are on a reservation, an Indian Tribe, may by agreement with the lead agency become a cooperating agency.

**Cultural Resources:** Archaeological sites, architectural structures or features, traditional use areas, and Native American sacred sites or special use areas.

**Cumulative Impact:** The impact on the environment which results 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.

**Deposit:** A natural accumulation, such as precious metals, minerals, coal, gas, oil, etc., that may be pursued for its intrinsic value; gold deposit.

**Designated Basin:** Groundwater basin where permitted ground water rights approach or exceed the estimated average annual recharge and the water resources are being depleted or require additional administration.

**Dewatering:** The lowering of the water level in a well as a result of withdrawal; the reduction in groundwater level at a point caused by the withdrawal of water from an aquifer.

**Doré:** Metal alloy composed of gold, silver, and other precious metals. Bullion containing unseparated metallic gold and silver.

**Downgradient:** In relation to any fixed point with regard to the direction of drainage or flow, downgradient is at a lower point of elevation than the chosen observation point and thus downward in relation to the direction of flow.

**Drawdown:** Vertical distance that a water elevation is lowered or the pressure head is reduced due to the removal of water from the same system.

**Drill Pad:** An earthen platform/bench created to provide stable support for a drill rig during drilling activities.

**Effects** include:

- (a) Direct effects, which are caused by the action and occur at the same time and place.
- (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects also may include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

**Environmental Document:** Includes the documents specified in the national environmental policy act, Section 1508.9 (environmental assessment), Section 1508.11 (environmental impact statement), Section 1508.13 (finding of no significant impact), and Section 1508.22 (notice of intent). "Environmental impact statement" means a detailed written statement as required by Section 102(2)(C) of the Act.

**Ephemeral Drainage:** A channel or drainage that flows only in direct response to precipitation or snow melt. Such flow is usually of short duration.

**Erosion:** The wearing away of the land surface by running water, wind, ice or other geologic agents, including such processes as gravitation creep.

**Exploration:** The search for economic deposits of minerals, ore, gas, oil, or coal through the practices of geology, geochemistry, geophysics, drilling, shaft sinking and/or mapping.

**Extraction:** The process of mining and removal of coal or ore from a mine. Also used in relation to all process of obtaining metals from ores.

**Feasible:** Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

**Federal Agency:** All agencies of the Federal Government. It does not mean the Congress, the Judiciary, or the President, including the performance of staff functions for the President in his Executive Office. For the purposes of regulation it includes States and units of general local government and Indian tribes assuming NEPA responsibilities under section 104(h) of the Housing and Community Development Act of 1974.

**Forage:** All browse and non-woody plants that are available to livestock or game animals for grazing or harvestable for feed.

**Fugitive Dust:** Dust particles suspended randomly in the air from road travel, excavation and rock loading operations.

**Geochemistry:** The study of the distribution and amounts of the chemical elements in minerals, ores, rocks, soils, water, and the atmosphere, and their circulation in nature, on the basis of the properties of their atoms and ions. The geology in chemistry concerned with the chemical composition of, a chemical reactions taking place within, the earth's crust.

**Geotechnical:** A branch of engineering that is essentially concerns with the engineering design aspects of slope stability, settlement, earth pressures, bearing capacity, seepage control, and erosion.

**Groundwater:** Water found beneath the land surface in the zone of saturation below the water table.

**Growth Media:** All materials, including topsoil, specified soil horizons, vegetative debris, and organic matter, which are classified as suitable for stockpiling and/or reclamation.

**Haul Road:** A road used by large (<50-ton capacity) trucks to haul ore and waste rock from an open pit mine to other locations.

**Heap Leaching:** The process of recovering gold and other metals from low-grade ores by leaching ore that has been mined and placed on a specially prepared pad. A chemical solution is applied through low volume emitters, and the metal bearing leachate solution percolates and is collected.

**Heavy Metals:** A group of elements, usually acquired by organisms in trace amounts, that are often toxic in higher concentrations; includes lead, mercury, molybdenum, nickel, copper, cobalt, chromium, iron, silver, etc.

**HDPE (High Density Polyethylene):** A plastic impermeable material used for liners. This material deforms with a low probability of puncturing or splitting. Seams are heat welded instead of glued, thus preventing rupture.

**Human Environment:** Shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment. (See the definition of "effects")

(Section 1508.8.) This means that economic or social effects are not intended by themselves to require preparation of an environmental impact statement. When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment.

**Hydrographic Basin:** An extent or an area of land where surface water from rain and melting snow or ice converges to a single point, in the basin, where the waters join another waterbody, such as a river, lake, reservoir, estuary, wetland, sea, or ocean.

**Hydraulic Conductivity:** The capacity of a rock to transmit water. It is expressed as the volume of water at the existing kinematic viscosity that will move in unit time under a unit hydraulic gradient through a unit area measured at right angles to the direction of flow.

**Irreversible and Irrecoverable Commitments of Resources:** Irreversible commitments of resources occurs when, once committed to the proposed project components, the resource would continue to be committed throughout the life of the proposed project. An irretrievable commitment of the resources refers to those resources that, once used, consumed, destroyed or degraded during construction, operations, or decommissioning of the proposed project components, would cause the resource to be unavailable for use by future generations.

**Key Observation Point (KOP):** A specific place on a travel route or within an existing or potential use area where the view of a management activity or project would be most revealing for purposes of the contrast rating.

**Lead Agency:** The agency or agencies preparing or having taken primary responsibility for preparing the environmental impact statement.

**Leaching:** The process of applying a chemical agent that bonds preferentially and dissolves into solution the target metal (s) in an ore. The metal complexes or binds to the solution, which is then called a “pregnant” solution. The pregnant solution is collected for processing to recover the metals.

**Locatable Minerals:** Generally refers to hardrock minerals on Public Domain lands or National Forest System lands reserved from the Public Domain that are mined and processed to recover metals, such as gold and copper, chemical grade limestone, and asbestos.

**Milling:** The general process of treating or to separate and concentrate the valuable metal(s) or mineral(s) from the rest of the ore material.

**Mine Pit:** Surface area from which ore and waste rock are removed.

**Mineral Entry:** The filing of a mining claim upon Public Domain or related land to obtain the right to any minerals it may contain. Valid mining claims may be purchased in full (patented) under the 1872 mining law, as amended.

**Mining Claim:** A portion of the Public Domain or related lands which a miner, for mining purposes, takes and holds in accordance with mining laws.

**Mitigation** includes:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

**Monitor:** To systematically and repeatably watch, observe, or measure environmental conditions in order to track changes.

**NEPA Process:** All measures necessary for compliance with the requirements of section 2 and Title I of the National Environmental Policy Act (NEPA).

**Notice of Intent:** A notice that an environmental impact statement will be prepared and considered. The notice shall briefly:

- (a) Describe the proposed action and possible alternatives.
- (b) Describe the agency's proposed scoping process including whether, when, and where any scoping meeting will be held.
- (c) State the name and address of a person within the agency who can answer questions about the proposed action and the environmental impact statement.

“Proposal” exists at that stage in the development of an action when an agency subject to the Act has a goal and is actively preparing to make a decision on one or more alternative means of accomplishing that goal and the effects can be meaningfully evaluated. Preparation of an environmental impact statement on a proposal should be timed (Section 1502.5) so that the final statement may be completed in time for the statement to be included in any recommendation or report on the proposal. A proposal may exist in fact as well as by agency declaration that one exists.

**Open Pit Mining:** A type of mining that involves excavation of ore by digging downward from the ground surface, removing the overburden and extracting the ore beneath. The result of the mining operation is an “open pit.”

**Ore:** An earth material containing target metal(s) or mineral(s) in sufficient concentration and quantity which may be mined and processed at an economic profit.

**Patented Claims:** Private land which has been secured from the U.S. Government by compliance with the laws relating to such lands.

**Permeability:** see hydraulic conductivity.

**pH:** Symbol for the negative common logarithm of the hydrogen ion concentration (acidity) of a solution. The pH value of 7 is considered neutral. A pH value below 7 indicates acidity, and a pH value above 7 indicates alkalinity or a base.

**Philopatric:** Tending to return to or remain near a particular site or area.

**Plan of Operations:** A detailed description presenting the methods, timing, and contingencies to be used during the operation of the Project. A document required from any person proposing to conduct mineral related activities which utilize earth moving equipment and which will cause disturbance to surface resources.

**Precious Metal:** Any of the less common and highly valuable metals; gold, silver, platinum.

**Pregnant Solution:** The resulting metal-laden solution collected from the leaching of ore which contains dissolved metal values. The precious metals values are recovered from this pregnant solution,

which then becomes the barren solution that is typically refortified with necessary reagents and reintroduced into the leaching circuit.

**Reclamation:** Returning disturbed land to a form and productivity in conformity with a predetermined land management plan or a government approved plan or permit.

**Record of Decision:** A document separate from but associated with an Environmental Impact Statement which states the decision; identifies all alternatives, specifying which were environmentally preferable; and states whether all practicable means to avoid environmental harm from the alternative have been adopted, and if not, why not (40 CFR 1505.2).

**Relationships Between Short-term Use and Long-term Productivity:** Those relationships which tie short-term use to the long-term condition and viability of a given resource value (an example would be the long-term effects of overgrazing on range productivity and condition).

**Right-of-Way:** Strip of land or corridor over which a power line, pipeline, access road, or maintenance road would pass.

**Riparian:** Pertaining to or situated on the bank of a body of water, especially of a watercourse such as a river.

**Rock Disposal Area (RDA):** also called waste rock disposal facility or stockpile area; an area where waste rock (loose or consolidated rock material that overlies a mineral deposit) is placed during mining either temporarily or permanently.

**Scope:** Consists of the range of actions, alternatives, and impacts to be considered in an environmental impact statement. The scope of an individual statement may depend on its relationships to other statements (Sections 1502.20 and 1508.28). To determine the scope of environmental impact statements, agencies shall consider three types of actions, three types of alternatives, and three types of impacts. They include:

- (a) Actions (other than unconnected single actions) which may be:

Connected actions, which means that they are closely related and therefore should be discussed in the same impact statement. Actions are connected if they:

- (i) Automatically trigger other actions which may require environmental impact statements.
- (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.
- (ii) Are interdependent parts of a larger action and depend on the larger action for their Justification.

Cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.

Similar actions, which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. An agency may wish to analyze these actions in the same impact statement. It should do so when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.

- (b) Alternatives, which include: No Action Alternative.

Other reasonable courses of actions.

Mitigation measures (not in the Proposed Action).

- (c) Impacts, which may be: 1) direct; 2) indirect; 3) cumulative.

**Significantly:** As used in NEPA requires considerations of both context and intensity:

- (a) Context. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.
- (b) Intensity. This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:
  - 1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.
  - 2) The degree to which the proposed action affects public health or safety.
  - 3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
  - 4) The degree to which the effects on the quality of the human environment are likely to be controversial.
  - 5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
  - 6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
  - 7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
  - 8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
  - 9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.
  - 10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

**Stockpile:** An accumulation of ore, stone, or other mined or quarried material.

**Surface Water:** Water found in ponds, lakes, inland seas, streams, and rivers or above the ground surface.

**Third-party Contractor:** An independent firm contracted by a government agency to perform work related to a proposed action or another organization; due to the financial and contractual arrangements governing such relationships, the third-party contractor has no financial or other interest in the decision to be reached on the project.

**Transmissivity:** The rate at which water of the prevailing kinematic viscosity is transmitted through a unit width of an aquifer under a unit hydraulic gradient. It equals the hydraulic conductivity multiplied by the aquifer thickness.

**Undesignated Basin:** Groundwater basin where permitted groundwater rights are less than the estimated average annual recharge.

**Upgradient:** In relation to any fixed point with regard to the direction of drainage or flow, upgradient is at a higher point of elevation than the chosen observation point and thus upward in relation to the direction of flow.

**Waste Rock:** A non-ore rock that is removed to access the ore zone. It contains target metal(s) or mineral(s) below the economic cutoff level, and must be removed to gain access to the ore zone.

**Watershed:** The entire land area that contributes water to a particular drainage system or stream.

**Wilderness Areas:** Wilderness areas are designated by Congress under the authority of the Wilderness Act of 1964 and comprise the National Wilderness Preservation System.

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