

CHAPTER 7 - REFERENCES, GLOSSARY, AND INDEX

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7.1 REFERENCES

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7.2 GLOSSARY

Acid Rock Drainage - Drainage with a pH of 2.0 to 4.5 from mines and mine wastes that is the result of oxidation of sulfides exposed during mining.

Acre-feet - The volume of liquid or solid required to cover one acre to a depth of one foot, or 43,560 cubic feet; measure for volumes of water, reservoir rock, etc.

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

Alluvium - Unconsolidated or poorly consolidated gravel sands and clays, deposited by streams and rivers on riverbeds, floodplains, and alluvial fans.

Ambient - The environment as it exists at the point of measurement and against which changes or impacts are measured.

Animal Month - For a cow/calf operations, it is the amount of forage consumed by a 1,000 pound cow and calf (less than 6 months of age) over a one month period. It is approximately 1,050 pounds of forage.

Animal Unit Months (AUMs) - For the BLM allotments, it is the amount of forage consumed by a 1,000 pound cow over a one month period, approximately 800 pounds of forage. An animal unit month is then multiplied by 1.32 for a cow/calf operation such as the Mahala Creek allotment, and is equivalent to an animal month for purposes of this document.

Anomaly - A geological feature, especially in the subsurface, distinguished by geological, geophysical, or geochemical means, which is different from the general surroundings.

Anticline – A fold in rock, where the interior of the fold is comprised of rocks that are older in age than the rocks on the exterior of the fold.

Aquatic Resources - Biological resources (plants, animals, and other life forms) present in or dependent on streams, lakes, and other surface water.

Aquifer - A body of rock that is sufficiently permeable to conduct groundwater and to yield economically significant quantities of water to wells and springs.

Aspect - The direction toward which a slope faces with respect to the compass or the sun.

Assemblage - A group of rocks grouped together by age or similar origin.

Attenuation - The process of becoming thinner, or diminished, in dimension, concentration or density.

Background - The viewing area of a distance zone that lies beyond the foreground-midground. Usually from a minimum of 3 to 5 miles to a maximum of about 15 miles from a travel route, use area, or other observer position. Atmospheric conditions in some areas may limit the maximum to about 8 miles or increase it beyond 15 miles.

Baseline Study - A study conducted to gather data prior to mining for the purpose of outlining conditions existing on an undisturbed site. Impacts are evaluated against the baseline data and reclamation success is measured against baseline data.

Bioaccumulation - A process by which chemicals are taken up by organisms from water or sediment directly or through consumption of food containing the chemicals.

Biodiversity - The diversity of species, ecosystems, and natural processes in an area.

Broadcast seeding - Distribution of seed by a fan spreader or by hand spreading.

Cation Exchange Capacity (CEC) – The number of sites on a solid surface where reversible cation adsorption and desorption can occur.

CFR - Code of Federal Regulations, the compilation of federal regulations adopted by federal agencies through a rule-making process.

Characteristic Landscape - The established landscape within an area being viewed. The term does not necessarily mean a naturalistic character, but may refer to features of the cultural landscape, such as a farming community, an urban landscape, or other landscape that has an identifiable character.

Chert - A hard, dense microcrystalline sedimentary rock, consisting chiefly of interlocking crystals of quartz less than about 30 micrometers in diameter; it may contain amorphous silica (opal). It has conchoidal fracture, and it may be white or variously colored. Chert occurs primarily as nodular or concretionary segregations, or nodules in limestone or dolomite, and less commonly as layered deposits, or bedded chert.

Colluvium - General term applied to loose and incoherent deposits, usually at the foot of a slope of cliff and brought there chiefly by gravity; such as talus and cliff debris.

Column Test - A leaching laboratory test where water or other leaching solution is percolated through a vertical column of earth material and the resulting leachate is collected and analyzed for dissolved parameters.

Community Types (vegetation) - A group of plants living in a specific region under relatively similar conditions.

Contrast - The effect of a striking difference in the form, line, color, or texture of the landscape features within the area being viewed.

Critical (Crucial) Habitat - Habitat that is present in minimum amounts and is a determining factor for population maintenance and growth.

Cultural Resources - The archaeological and historical remains of human occupation or use. Includes any manufactured objects, such as tools or buildings. May also include objects, sites, or geological/geographical locations significant to Native Americans.

Cumulative Effects -As defined by 40 CFR 1508.7, cumulative effects are the impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

dBA - The sound pressure levels in decibels measured with a frequency weighing network corresponding to the A-scale on a standard sound level meter. The A-scale tends to suppress lower frequencies, e.g., below 1,000 Hz.

Debitage - Chipped stone flaking debris resulting from stone tool making.

Decibel (dB) - A unit used in expressing ratios of electric or acoustic power. The relative loudness of sound.

Direct Effects - As defined by 40 CFR 1508.9, these are effects which are caused by the action and occur at the same time and place as the action. Synonymous with direct impacts.

Discharge - The volume of water flowing past a point per unit time, commonly expressed as cubic feet per second (cfs), gallons per minute (gpm), or million gallons per day (mgd).

Disturbed Area - Area where natural vegetation and soils have been removed or disrupted.

Drainage - Natural channel through which water flows some time of the year. Natural and artificial means for effecting discharge of water as by a system of surface and subsurface passages.

Drawdown - The lowering of the water level in a well as a result of withdrawal.

Earthquake - Sudden movement of the earth's crust resulting from faulting, volcanism, or other mechanisms.

Endangered Species - Any species in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as endangered in accordance with the 1973 Endangered Species Act.

Ephemeral Stream - A stream or portion of a stream that flows briefly in direct response to precipitation in the immediate vicinity, and whose channel is at all times above the water table.

Erosion - The wearing away of soil and rock by weathering, mass wasting, and the action of streams, glaciers, waves, wind, and underground water.

Evapotranspiration - The portion of precipitation returned to the air through evaporation and plant transpiration.

Exploration - The search for economic deposits of minerals, ore, and other materials through practices of geology, geochemistry, geophysics, drilling, and/or mapping.

Fate And Transport - Description of the movement of a contaminant through a groundwater system which may include the effects of dilution, dispersion, attenuation, and various chemical reactions.

Fault - Surface of rock rupture along which has been differential movement.

Fisheries - Streams and lakes used for fishing.

Floodplain - That portion of a river valley, adjacent to the channel, which is built of sediments deposited during the present regimen of the stream and is covered with water when the river overflows its banks at flood stages.

Footprint - The actual surface area physically disturbed by mining operations and ancillary facilities.

Forage - Vegetation used for food by wildlife, particularly big game wildlife and domestic livestock.

Forb - Any herbaceous plant other than a grass.

Foreground-Middleground - The area visible from a travel route, use area, or other observer position to a distance of 3 to 5 miles. The outer boundary of this zone is defined as the point where the texture and form of individual plants are no longer apparent in the landscape, and vegetation is apparent only in pattern or outline.

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

Game Species - Animals commonly hunted for food or sport.

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.

Geotechnical - A branch of engineering concerned with the engineering design aspects of slope stability, settlement, earth pressures, bearing capacity, seepage control, and erosion.

Grade - A slope stated in terms of feet per mile or as feet per foot (percent); the content of precious metals per volume of rock (ounces per ton).

Ground Cover - The amount of ground surface covered by vegetation.

Ground Water - All subsurface water, especially that as distinct from surface water portion in the zone of saturation.

Ground Water Table - The surface between the zone of saturation and the zone of aeration; that surface of a body of unconfined ground water at which the pressure is equal to that of the atmosphere.

Habitat - The place or type of site where a plant or animal naturally or normally lives and grows. Includes all biotic, climatic, and soils conditions, or other environmental influences affecting living conditions.

Haul Road - All roads utilized for transport of an extracted mineral, waste, overburden, or other earthen materials.

Head Month – See Animal Month

Heavy Metals - A group of elements that may be acquired by organisms in trace amounts that are toxic in higher concentrations. Includes copper (Cu), lead (Pb), mercury (Hg), molybdenum (Mo), nickel (Ni), cobalt (Co), chromium (Cr), iron (Fe), silver (Ag), etc.

HELP3 Model - A computer model written by Paul Schroeder et al. at the U.S. Army Corps of Engineers Waterways Experiment Station and distributed by the USEPA that estimates water balance (water inputs and outputs) of landfills.

Host Rock - A body of rock serving as a host for mineral deposits.

Hydraulic Conductivity (K) - A coefficient of proportionality describing the rate at which water can move through a permeable medium.

Hydraulic Gradient - For groundwater, the rate of change of total head per unit of distance of flow at a given point and in a given direction.

Hydrograph - A graph that shows some property of groundwater or surface water as a function of time.

Hydrology - A science that deals with the properties, distribution, and circulation of surface and subsurface water.

Hydrophytic Vegetation - Plants that grow in and are adapted to an aquatic or very wet environment.

Hydrostatic Head - The height of a vertical column of water, the weight of which, if of unit cross-section, is equal to the hydrostatic pressure at a point.

Hydrostratigraphic Unit - A formation, part of a formation, or group of formations in which there are similar hydrologic characteristics allowing for grouping into aquifers or confining layers.

Igneous - Rock or mineral that solidified from molten or partly molten magma, processes relating to or resulting from the information of such rocks.

Impoundment - The accumulation of any form of water in a reservoir or other storage area, generally resulting from a man-made embankment.

Indirect Effects - As defined by 40 CFR 1508.8, these are effects which are caused by the action but occur later in time or are removed in distance from the action, but are still reasonably foreseeable. Synonymous with indirect impacts.

Infiltration - The movement of water or some other liquid into the soil or rock through pores or other openings.

Infrastructure - The basic framework or underlying foundation of a community including road networks, electric and gas distribution, water and sanitation services, and facilities.

Intermittent Stream - 1) A stream that flows only at certain times of the year, as when it receives water from springs or from a surface source; and 2) a stream that does not flow continuously, as when water losses from evaporation or seepage exceed the available stream flow.

Irretrievable - Applies to the loss of production, harvest, or use of natural resources. For example, some or all of the timber production from an area is lost irretrievably while an area is serving as a winter sports site. The production lost is irretrievable, but the action is not irreversible. If the use changes, it is possible to resume timber production.

Irreversible - Applies primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors that are renewable only over long time spans, such as soil productivity and aspen regeneration. Irreversible also includes loss of future options.

Isopleth - A line, on a map or chart, drawn through points of equal size or abundance.

Jurisdictional Wetland - A wetland area identified and delineated by specific technical criteria, field indicators, and other information for purposes of public agency jurisdiction. The public agencies which administer jurisdictional wetlands are the US Army Corps of Engineers, US Environmental Protection Agency, US Fish and Wildlife Service, and USDA-Soil Conservation Service.

K-Hydraulic Conductivity - A coefficient of proportionality describing the rate at which water can move through a permeable medium.

K-Soil Erosion Factor - A ranking of susceptibility of soils to erosion by water. Factors below 0.25 = low susceptibility, 0.25 to 0.4 = moderately susceptible, and 0.4 and above = highly susceptible.

Land Use - Land uses determined for a given area that establish the types of activities allowed (e.g., mining, agriculture, timber production, residences, industry) and the size of buildings and structures permitted.

Landform - Any physical, recognizable form or feature of the Earth's surface, having a characteristic shape and produced by natural causes. Includes major features such as plains, plateaus, and mountains, and minor features, such as hills, valleys, slopes, canyons, arroyos, and alluvial fans.

Landscape Character - The arrangement of a particular landscape as formed by the variety and intensity of the landscape features as defined as the four basic elements (form, line, color, and texture). These factors give the area a distinctive quality that distinguishes it from its immediate surroundings.

Lifts - Construction of waste rock dumps in a series of layers.

Limestone - A sedimentary rock consisting chiefly of the mineral calcite (calcium carbonate, CaCO₃), with or without magnesium carbonate. Common impurities include chert and clay. It is the consolidated equivalent of limy mud, calcareous sand, and/or shell fragments.

Lithology - The description of rocks in terms of the physical character of a rock, mineral composition, grain size, color and other physical characteristics.

Long-Term Effects - Long-term effects are effects that would remain following completion of the project. As an example, the loss of vegetation from the development of an open pit would be a long-term effect if the pit were not reclaimed and vegetation not re-established at the end of the project. Other long-term effects, as defined in the Cumulative Effects Analysis (CEA), are coarse and durable angle of repose waste rock dump slopes and haul roads.

Maximum Credible Earthquake - The largest conceivable earthquake that could occur in an area.

Maximum Modification - A visual quality objective that allows activities that alter the vegetation and landform to dominate the original characteristic landscape with some limitations.

Mesic - Moist habitats associated with springs, seeps and riparian areas.

Milling - The general process of separating the economic constituents (metals) from the undesired or un-economic constituents of ore material (tailings).

Mineralization - The process by which a valuable mineral or minerals are introduced into a rock.

Mitigate, Mitigation - To cause to become less severe or harmful to reduce impacts. Actions to avoid, minimize, rectify, reduce or eliminate, and compensate for impacts to environmental resources.

Modification - A visual quality objective in which man's activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.

Monitor - To systematically and repeatedly watch, observe or measure environmental conditions in order to track changes.

National Register of Historic Places - A list, maintained by the National Park Service, of areas which have been designated as being of historical significance.

Native Species - Plants that originated in the area in which they are found, i.e., they naturally occur in that area.

NEPA - The National Environmental Policy Act of 1969. It is the national charter for protection of the environment. NEPA establishes policy, sets goals, and provides means for carrying out the policy. Regulations at 40 CFR 1500-1508 implement the act.

Net Proceeds Tax - This is a form of income tax assessed as a property tax intended to assess the value of the minerals which are being extracted.

Noxious Weeds - An alien, introduced or exotic species that is adventive, aggressive, or overly-competitive with more desirable species.

Nutrients - Essential chemicals needed by plants or animals for growth and health. If other physical and chemical conditions are optimal, excessive amounts of nutrients can lead to degradation of water quality by promoting excessive growth, accumulation and subsequent decay of plants, especially algae. Some nutrients can be toxic to animals in high concentrations.

One-hundred year, twenty four-hour storm event (100-year, 24-hour) - the maximum precipitation predicted to occur within any 24-hour period over a period of 100 years.

Ordinary high water mark (OHWM) - line on the shore of a water body or stream established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas

Ore - A deposit of rock from which a valuable mineral or minerals can be economically extracted.

Overburden - Material (sub-economic, non-ore) which overlies a deposit of valuable material.

Pit Backfill - Placing waste rock in a mined-out pit.

Partial Retention - A visual quality objective in man's activities may be evident, but must remain subordinate to the characteristic landscape.

Perched Water - Unconfined groundwater separated from the underlying main body of groundwater by unsaturated rock.

Perennial Stream - A stream or reach of a stream that flows throughout the year.

Periphyton - Organisms, both plant and animal, attached or clinging to stems and leaves of rooted plants or other surfaces projecting above the bottom of a water body.

Permeable - The property or capacity of a porous rock, sediment, or soil to transmit a liquid.

pH - The negative log₁₀ of the hydrogen ion activity in solution; a measure of acidity or basicity of a solution. pH 1 is highly acidic and pH 14 is strongly basic.

PM₁₀ - Particulate matter less than 10 microns in aerodynamic diameter.

Plan of Operations - As required by 43 CFR 3809, the operator submits a Plan of Operations (POO) to the BLM that includes: the name and address of the operator, location of the proposed area of operations, information sufficient to describe the type of operations proposed, and measures to be taken to meet the requirements for environmental protection.

Peak Flow - The greatest flow attained during melting of winter snowpack or during a large precipitation event.

Preservation - A visual quality objective that provides for ecological change only.

Probable Maximum Precipitation (PMP) - The greatest depth of precipitation for a given duration that is physically possible over a given storm area at a particular location at a certain time of year.

Productivity - In reference to vegetation, productivity is the measure of live and dead accumulated plant materials.

Project Alternatives - Alternatives to the proposed Project developed through the NEPA process.

Protohistoric - Time period when native culture is in contact with outside culture before written record.

Public Scoping – See Scoping.

Q-saturated - Saturated flow rate: The volume of water flowing through a saturated aquifer past a specific point in a given period of time.

Raptor - A bird of prey (e.g., eagles, hawks, falcons, and owls).

Recontouring - Restoration of the natural topographic contours by reclamation measures, particularly in reference to roads.

Record of Decision (ROD) - A decision document for an Environmental Impact Statement or Supplemental EIS that publicly and officially discloses the responsible official's decision regarding the actions proposed in the Environmental Impact Statement and their implementation.

Q-Saturated - Saturated flow rate; The volume of water flowing through a saturated aquifer past a specific point in a given period of time.

Reserves - Identified resources of mineral-bearing rock from which the mineral can be extracted profitably with existing technology and under present economic conditions.

Resources (geologic) - Reserves plus all other mineral deposits that may eventually become available - either known deposits that are not recoverable at present, or unknown deposits, that may be inferred to exist but have not yet been discovered.

Retention - A visual quality objective which, generally means man's activities should not be evident to the casual forest visitor.

Riparian - Situated on or pertaining to the bank of a river, stream, or other body of water. Riparian is normally used to refer to plants of all types that grow along streams, rivers, or at spring and seep sites.

Runoff - That part of precipitation that appears in surface streams; Precipitation that is not retained on the site where it falls and is not absorbed by the soil.

Run-of-Mine Overburden - Sub-economic rock mined from the ore body which is placed in surface dumps or as pit backfill.

Scoping - Procedures by which agencies determine the extent of analysis necessary for a proposed action, (i.e., the range of actions, alternatives, and impacts to be addressed; identification of significant issues related to a proposed action; and the depth of environmental analysis, data, and task assignments needed). (40 CFR 1501.7)

Sediment Load - The amount of sediment (sand, silt, and fine particles) carried by a stream or river.

Sediment - Material suspended in or settling to the bottom of a liquid. Sediment input comes from natural sources, such as soil erosion, rock weathering, agricultural practices, or construction activities.

Seismicity - The likelihood of an area being subject to earthquakes; the phenomenon of earth movements.

Shale - A fine-grained detrital sedimentary rock formed by the compaction of clay, silt or mud. It has a finely laminated structure which gives it a fissility along which the rock splits readily, especially on weathered surfaces. It may be red, brown, black or gray.

Short-Term Effects - Short term effects are defined under the Independence Range Cumulative Effects Analysis (CEA) process as those effects that would not last longer than the life of the project. As an example, the loss of vegetation from the construction of a drill road would be a short-term effect because the road would be reclaimed and vegetation re-established following completion of the project. Other short-term effects, as defined in the CEA, are revegetated areas such as waste rock dump slopes, facility areas and pit backfills.

Significant - As used in NEPA determination of significance requires consideration of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole, and the affected region, interests, and locality. Intensity refers to the severity of impacts (40 CFR 1508.27).

Sodium Adsorption Ration (SAR) - The ratio of dissolved sodium to calcium+magnesium in water; it provides a prediction of cation exchange reaction potential.

Soil - Loose, unconsolidated surface material including the A and E horizon (topsoil) and B horizon (subsoil).

Specific Yield - See Storativity.

Storage Coefficient (S) - Volume of water that an aquifer absorbs or releases from storage per unit surface area of aquifer per unit decline in the component of hydraulic head normal to the surface; S is dimensionless.

Storativity - The volume of water an aquifer releases from, or takes into storage per unit surface area of the aquifer per unit change in head. In an unconfirmed aquifer, the storativity is equivalent to the specific yield.

Syncline - A folded rock sequence where the interior of the fold is younger than the rock on the exterior.

Ten-Year 24-hour Storm Event - The maximum precipitation predicted to occur within any 24-hour period with a return interval of 10 years.

Threatened Species - Any species of plant or animal which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Total Dissolved Solids (TDS) - Total amount of dissolved material, organic or inorganic, contained in a sample of water.

Total Suspended Particulates (TSP) - Particulates less than 100 microns in diameter suspended in a liquid sample.

Total Suspended Solids (TSS) - Amount of undissolved particles suspended in liquid.

Transmissivity (T) - The rate at which water will flow through a vertical strip of aquifer of one unit width and extending through the full saturated thickness, under a hydraulic gradient of 1.0.

Visual Quality Objective (VQO) - A desired level of excellence based on physical and sociological characteristics of an area. Refers to degree of acceptable alteration of the characteristic landscape.

Visual Resource - The composite of basic terrain, geologic features, water features, vegetation patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for viewers.

Waste Dump - Location and/or destination of waste, spoil, or overburden material removed during the mining operation to expose the orebody, but not including the marketable mineral, subsoil and topsoil.

Waste Rock - Non-ore rock that is extracted to gain access to ore. It contains no ore metals or ore metals at levels below the economic cutoff value, and must be removed to recover the ore.

Waters of the United States - A jurisdictional term from Section 404 of the Clean Water Act referring to waterbodies such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce.

Watershed - The geographic region from which water drains into a particular stream, river or body of water. A watershed includes hills, lowlands, and the body of water into which the land drains. Watershed boundaries are defined by the ridges or divides separating watersheds.

Wind Erodability Group (WEG) - A ranking of how susceptible soils are to erosion by wind. 1 and 2 = extremely severe, 3 and 4 = highly to moderately erodible, 4L = erodible, 5 and 6 = slightly erodible, 7 and 8 = very slightly erodible or not subject to erosion.

Wetlands - Areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

Wilderness - Land designated by Congress as a component of the National Wilderness Preservation System.

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