

CHAPTER 8 — GLOSSARY

abandon: To cease producing oil or gas from a well when it becomes unprofitable. Usually, some of the casing is removed and salvaged, and one or more cement plugs placed in the borehole to prevent migration of fluids between formations.

acre-foot or acre-feet (acre-ft): The volume of water that covers an area of one acre to a depth of one foot (43,560 cubic feet or 325,851 gallons).

ad valorem: Levied according to assessed value.

aeolian: The erosive action of the wind and deposits that are transported by the wind.

affected environment: The resource values potentially affected by the Proposed Action and alternatives analyzed in a NEPA document.

aggregate: Composed of a mixture of substances, separable by mechanical means.

agrillic: Soils rich in clay.

air quality: The properties and degree of purity of air to which people and natural and heritage resources are exposed (National Park Service website <<http://www2.nature.nps.gov/air/AQBasics/glossary.htm>>).

algal: Of, pertaining to, or composed of algae.

alkaline: Having the quality of a base (pH of 7.0 or greater).

allotment: An area of land where one or more permittees graze their livestock. Generally consists of public land but may include parcels of private or state lands. The number of livestock and season of use are stipulated for each allotment. An allotment may consist of several pastures or be only one pasture.

alluvium: Clay, silt, sand, and gravel or other rock material transported by flowing water and deposited as sorted or semi-sorted sediments.

ambient air: The portion of the atmosphere, external to buildings, to which the public has general access (40 C.F.R. 50).

ambient concentration: The mass of a pollutant in a given volume of air, typically measured as micrograms of pollutant per cubic meter of air.

ambient standards: The absolute maximum level of a pollutant allowed to protect either public health (primary) or welfare (secondary).

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

American Petroleum Institute (API): API is the governing authority on oil industry standards and practices. “API Gravity” is a reference system for the density of crude oils and constituent hydrocarbons.

ancillary facilities: Facilities often required in an oil and gas field other than the wells and pipelines, such as compressor stations.

animal unit month (AUM): The amount of forage necessary to sustain one cow/calf pair for 1 month.

anticline: A geological formation described usually as a dome or inverted saucer. If covered by an impermeable layer of rock, the anticline is a potential oil or gas reservoir.

Application for Permit to Drill (APD): The Department of Interior application permit form to authorize oil and gas drilling activities on federal land or mineral estate.

aquifer: A water-bearing bed or layer of permeable rock, sand, or gravel capable of yielding water.

aquitard: A bed of low permeability adjacent to an aquifer that may serve as a storage unit for ground water, although it does not readily yield water.

archaeological: The scientific studies of past peoples and cultures by analysis of physical remains (artifacts).

Ardisols: Soils formed in arid climates; they are often dry and have little organic accumulation in the upper layers.

area of critical environmental concern (ACEC): An area on public lands designated for special management to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes or to protect life and safety from natural hazards.

background concentration: The existing levels of air pollutant concentration in a given region. In general, it includes natural and existing emission sources but not future emission sources.

badland: Steep or very steep, commonly non-stony barren land dissected by many intermittent drainage channels. Badland is most common in semi-arid and arid regions where streams are entrenched in soft geologic material. Runoff potential is very high, and geologic erosion is active in such areas.

bedding material: Any material, often sand, used to prevent rocks in the bottom of the reserve pit from puncturing the synthetic pit liner.

berm: A raised area with vertical or sloping sides.

biodiversity: The variety of plant and animal life on a given area.

borehole: The circular hole made by drilling, extending from the surface to the gas resource to be recovered.

calcareous: Containing calcium carbonate.

Cambic: Soils composed of very fine sand, loamy fine sand, or finer materials.

casing: Steel pipe placed in an oil or gas well to prevent the hole from collapsing.

cement: Cement is used to "set" casing in the well bore and to seal off unproductive formations and apertures.

collector roads: BLM roads that provide primary access to large blocks of land and connect with, or are extensions of, a public road system.

colluvium: A general term applied to loose and incoherent deposits, usually at the foot of a slope or cliff and brought there chiefly by gravity.

commercial reserves: Commercial reserves of oil and gas are restricted to volumes recoverable at an acceptable profitability.

commercial well: A well capable of producing profitably.

completion: The activities and methods to prepare a well for production. Includes installation of equipment for production from an oil or gas well.

condensate (gas condensate): Hydrocarbons (oil) contained in the natural gas stream, often removed by condensation.

conditions of approval (COAs): A set of restrictions, or conditions, included in the approval of a federal permit, including NEPA documents.

conglomerate: Rounded water-worn fragments of rock or pebbles cemented together by another mineral substance.

conglomeratic: Sandstone's derivation from rounded water-worn fragments of rocks or pebbles.

contrast: The effect of a notable difference in the form, line, color, or texture of the landscape features within the area being viewed.

corridor: A narrow strip of land.

Council on Environmental Quality (CEQ): An advisory council to the President established by the *National Environmental Policy Act of 1969*. It reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

Cretaceous era: The latest system of rocks or period of the Mesozoic era, between 136 and 65 million years ago.

criteria pollutants: Air pollutants for which the EPA has established state and national ambient air quality standards. These include particulate matter (PM), nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO), and volatile organic compounds (VOCs).

critical elements of the human environment: A list of resource concerns that must be addressed in every NEPA document.

crucial range: Any particular seasonal range or habitat component that has been documented as the determining factor in a population's ability to maintain itself at a certain level over the long-term.

cubic feet per second (cfs): The rate of discharge representing a volume of 1 cubic foot of water passing a given point during 1 second.

cubic foot: The volume of gas contained in one cubic foot of space at a standard pressure base of 14.7 pounds per square inch and a standard temperature base of 60 °F.

cultural resources: The physical remains of human activity (artifacts, ruins, burial mounds, petroglyphs, etc.) and the conceptual content or context (as a setting for legendary, historic, or prehistoric events, such as a sacred area of native peoples, etc.) of an area of prehistoric or historic occupation.

culvert: A drain or conduit often under a road.

cumulative impact: The impact on the environment that 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 taken place over a period of time (40 C.F.R. 1508.7).

cuttings: The material removed from the borehole by the drill bit and lifted to the surface.

decibel: A unit of measurement of noise intensity. The measurements are based on the energy of the sound waves and units are logarithmic. Changes of 5 decibels or more are normally discernible to the human ear.

deciduous: Trees or shrubs that lose their leaves each year during a cold or dry season.

deciview: The unit of measurement of haze developed to uniformly describe levels of monitored and modeled visibility impairment.

delta: An alluvial deposit, usually triangular, at the mouth of a river.

deltaic: Related to or like a delta.

diffusion: A process by which substances are transferred from regions of higher concentrations to regions of lower concentrations (National Park Service website <<http://www2.nature.nps.gov/air/AQBasics/glossary.htm>>).

directional drilling: The intentional deviation of a wellbore from vertical to reach subsurface areas off to one side from the surface drilling site.

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).

dispersion: The spreading out of pollutants. Generally used to show how much an air pollutant will spread from a particular point.

displacement: As applied to wildlife, forced shifts in the patterns of wildlife use, either in location or timing of use.

disposal well: A well into which produced water from other wells is injected into an underground formation for disposal.

dissolved solids: The total amount of dissolved material, organic and inorganic, contained in water or wastes.

diversity: The distribution and abundance of different plant and animal communities and species.

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.

drill rig: The mast, draw works, and attendant surface equipment of a drilling unit.

drilling fluid: Fluid used to lubricate and cool the drill bit, to assist in lifting cuttings from the borehole, and to control pressures in the borehole.

drilling mud: The circulating fluid used to bring cuttings out of the well bore, to cool the drill bit, and to provide hole stability and pressure control. Drilling mud includes a number of additives to maintain the mud at desired viscosities and weights. Some additives that may be used are caustic, toxic, or acidic.

ecosystem: An interacting system of organisms considered together with their environment--for example, marsh, watershed, and stream ecosystems.

effluent: Mixture of oil, gas, water, and sand discharged from a well.

emergent vegetation: Erect, rooted, herbaceous plants that project out of or emerge from the water.

emission factor: An empirically derived mathematical relationship between pollutant emission rate and some characteristic of the source such as volume, area, mass, or process output.

emission: Air pollution discharge into the atmosphere, usually specified by mass per unit time.

endangered species (animal): Any animal species in danger of extinction throughout all or a significant portion of its range. This definition excludes species of insects that the Secretary of the Interior determines to be pests and whose protection under the *Endangered Species Act of 1973* would present an overwhelming and overriding risk to man.

endangered species (plant): Species of plants in danger of extinction throughout all or a significant portion of their ranges. Existence may be endangered because of the destruction, drastic change, or severe curtailment of habitat or because of over exploitation, disease, predation, or even unknown reasons. Plant taxa from limited areas (e.g., the type localities only) or from restricted fragile habitats usually are considered endangered.

Entisols: Recently derived soils that show little profile development; formed from river deposits, sand dunes, or recent glacial deposits.

environment: The aggregate of physical, biological, economic, and social factors affecting organisms in an area.

environmental impact statement (EIS): An analysis of alternative actions and their predictable environmental impacts, including physical, biological, economic, and social consequences and their interactions; short- and long-term impacts; and direct, indirect, and cumulative impacts.

Eocene: 1) The next to the oldest of the five major epochs of the Tertiary period in the Cenozoic era. 2) The series of strata deposited during that epoch.

ephemeral drainage: A drainage area or a stream that has no base flow. Water flows for a short time each year but only in direct response to rainfall or snowmelt events.

epicenter: The portion of the earth's surface directly above the focus of an earthquake.

erosion: The removal, detachment, and entrainment of earth materials by weathering, dissolution, abrasion, and corrosion, later to be transported by moving water, wind, gravity, or glaciers.

evaporitic: Sediments that are deposited from aqueous solution as a result of extensive or total evaporation of the solvent.

exploratory well: A well that is drilled to evaluate the gas or oil resources that may be present.

fault: A fracture in bedrock along which there has been vertical and/or horizontal movement caused by differential forces in the earth's crust.

federal lands: All lands and interests in lands owned by the U.S., which are subject to the mineral leasing laws, including mineral resources or mineral estates reserved to the U.S. in the conveyance of a surface or non-mineral estate.

feral: having reverted to the wild state; not domesticated; as in feral (or wild) horses.

field: 1) A set of rocks containing hydrocarbons. 2) An oil and gas reservoir.

flare: Process that burns and evacuates unused gases.

floodplain: That portion of a river valley, adjacent to the channel, which is built of recently deposited sediments and is covered with water when the river overflows its banks at flood stages.

Fluvaquents: Entisols with aquic moisture regimes that occur on floodplains. Usually very deep, somewhat poorly drained soils that have grass-shrub cover.

fluvial: Of or pertaining to rivers.

forage: Vegetation of all forms available for animal consumption.

forb: A broad-leaved flowering herb other than grass.

formation: A rock/mineral deposit or structure covering an area with the same physical properties.

fracing (fracturing): A method of stimulating well production by increasing the permeability of the producing formation. Under extremely high hydraulic pressure, the fracturing fluid (water, oil, dilute hydrochloric acid, or other fluid) is pumped into the formation that parts or fractures it. Proppants or propping agents such as sand or glass beads are pumped into the formation as part of the fracturing job. The proppants become wedged in the open fractures, leaving channels for oil or gas to flow into the well after the hydraulic fracture pressure is released. This process is often called a “frac job.” When high concentrations of acid are used, it may be called an “acid frac job.”

frigid: Very cold in temperature.

fugitive dust: Airborne particles emitted from any source other than through a controllable stack or vent.

gathering pipelines: Pipelines within a field that transport gas or oil from the well to a central production facility or to the point of sale.

Global Positioning System (GPS): Computer software that records and stores coordinates for positions on earth via satellite.

ground water: Water contained in the pore spaces of consolidated and unconsolidated material.

grus: An accumulation of angular coarse-grained fragments resulting from the granular disintegration of crystalline rocks (especially granite) generally in an arid or semiarid region.

habitat: A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

habitat function: The arrangement of habitat features and capability of those features to sustain species, population, and diversity of wildlife over time.

Haplaquepts: Fine-loamy soils.

Haplargids: Simple clay like soils (Aridosols). Moderately deep with argillic horizons often having grass-shrub cover.

Haplocalcids: Soils that have a lithic (usually limestone) contact within 50 cm of the soil surface.

Haplocambids: Shallow, cambic soils.

Haplosalids: Aridisols that are high in saline content (see playa).

Haplostolls: Coarse, loamy mixed mollisols. Deep dark-colored soils with thick surface layers often having grass-shrub cover.

Holocene: That period of time (epoch) since the last ice age; also the series of strata deposited during that epoch.

human environment: The factors that include but are not limited to biological, physical, social, economic, cultural, and aesthetic factors that interrelate to form the environment.

hydraulic conductivity: The rate of water flow in gallons per day through a cross-section of 1 square foot under a unit hydraulic gradient at the prevailing temperature of 60°F.

hydrocarbon: A compound formed from carbon and hydrogen, for example oil and gas.

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

hydrophytic plants: Those species that either require or tolerate wet or saturated soils and are therefore indicative of these conditions.

hydrostatic testing: Testing of the integrity of a newly placed but uncovered pipeline for leaks. The pipeline is filled with water and pressurized to operating pressures, and the pipeline is visually inspected.

impacts: These include a) direct impacts, which are caused by the action and occur at the same time and place and b) indirect impacts, which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect impacts may include growth-inducing impacts and other impacts related to induced changes in the pattern of land use, population density, or growth rate and related impacts on air and water and other natural systems, including ecosystems. Impacts include 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. Impacts may also include those resulting from actions which may have both beneficial and detrimental impacts, even if on balance the agency believes that the impact will be beneficial (40 C.F.R. 1508.8).

impermeable: Not permitting the passage of a fluid.

impoundment: The accumulation of any form of water in a reservoir or other storage area.

increment: Incremental standards (prevention of significant deterioration [PSD]) are the maximum amounts of pollutants allowed above the baseline in regions of clean air.

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.

injection well: A well that is used to inject water or gas in order to maintain pressure or to bring a field back under pressure.

interdisciplinary team (IDT): A group of Federal and cooperating agencies selected to work within the NEPA process in scoping, analysis, and document preparation. The purpose of the team is to integrate its collective knowledge of the physical, biological, economic, and social sciences and the environmental design arts into the environmental analysis process. Interaction among team members often provides insight that otherwise would not be apparent.

interim reclamation: Reclamation initiated on well pads, roads, and pipelines after drilling activity is completed and wells are in production. Interim reclamation is considered successful when reclamation performance objectives are met.

intermittent stream: A stream or reach of a stream that is below the local water table for at least some part of the year and obtains its flow from both surface runoff and groundwater discharge.

intertonguing: Irregular/overlapping boundaries among rock formations.

irretrievable: A term that 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: A term that describes the loss of future options. Applies primarily to the effects of use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, that are renewable only over long periods of time.

lacustrine: Pertaining to, produced by, or formed in a lake or lakes.

land use: The types of activities allowed (e.g., mining, agriculture, timber production, residential, industrial).

landslide: A perceptible downhill sliding or falling of a mass of soil and rock lubricated by moisture or snow.

leaching: To cause a liquid to percolate through something.

lease: 1) A legal document that conveys to an operator the right to drill for oil and gas. 2) The tract of land on which a lease has been obtained, where producing wells and production equipment are located.

lek: A traditional courtship display attended by male greater sage-grouse in or adjacent to sagebrush-dominated habitat. Leks are categorized as:

Active - Any lek that has been attended by male greater sage-grouse during the strutting season.

Inactive - Leks where it is known that there was no strutting activity through the course of a strutting season.

Unknown - Leks that have not been documented either active or inactive during the course of a strutting season.

Occupied - A lek that has been active during at least one strutting season within the last 10 years.

Unoccupied (formerly termed "historical lek") - There are two types of unoccupied leks: (1) Destroyed - a formerly active lek site and surrounding sagebrush habitat that has been destroyed and is no longer capable of supporting greater sage-grouse breeding activity. (2) Abandoned - a lek in otherwise suitable habitat that has not been active during a consecutive 10-year period.

Undetermined - Any lek that has not been documented as being active in the last 10 years but that does not have sufficient documentation to be designated unoccupied.

life-of-project (LOP): Begins with the first disturbance authorized under the ROD for this project and ends when all wells are plugged and abandoned and all surface disturbance (each disturbed site) meets the reclamation performance objectives.

lithic scatter: A surface scatter of cultural artifacts and debris that consists entirely of lithic (i.e., stone) tools and chipped stone debris. This is a common prehistoric site type that is contrasted to a cultural material scatter (which contains other or additional artifact types such as pottery or bone artifacts), or to a camp (which contains habitation features, such as hearths, storage features, or occupation features), or to other site types that contain different artifacts or features.

lithology: The description of the physical character of a rock as determined by eye or with a low-powered magnifier, based on color, structures, mineralogic components, and grain size.

loam: A mixture of sand, silt, and clay containing between 7% and 27% clay, 28% to 50% silt and less than 50% sand.

local roads: BLM roads that provide primary access to large blocks of land and connect with or are extensions of a public road system.

log: A systematic recording of data, as from the driller's log, mud log, electrical well log, or radioactivity log. Many different logs may be run to obtain various characteristics of downhole formations.

long-term impacts: For the purpose of this NEPA analysis, long-term impacts last for the life of the project or beyond.

migrate: To pass periodically from one region or climate to another.

mineral rights: Reserved mineral rights are the retention of ownership of all or part of the mineral rights by a person or party conveying land to the United States. Conditions for exercising these rights have been defined in the Secretary's *Rules and Regulations to Govern Exercising of Mineral Rights Reserved in Conveyances to the United States* attached to and made a part of deeds reserving mineral rights.

mitigate: To lessen the severity.

mitigation measures: Actions taken to reduce or minimize potential impacts to the environment.

mitigation: Avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree of magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or compensating for the impact by replacing or providing substitute resources or environments.

modeling: A mathematical or physical representation of an observable situation. In air pollution control, models afford the ability to predict pollutant distribution or dispersion from identified sources for specified weather conditions.

Modified Mercalli (MM) Intensity Scale of 1931: A scale designed to describe the effects of an earthquake, at a given place, on natural features, on industrial installations, and on human beings.

Mollisols: Soil order that has a thick (generally 10-inch), very dark brown to black surface horizon that is rich in organic matter (grassland soils common in prairie regions).

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

mud: Mud is drilling fluid that consists mainly of a mixture of water, or oil distillate, and "heavy" minerals such as bentonite or barites.

mud system: A system used to manage suspended mud in the well-drilling process.

National Ambient Air Quality Standards (NAAQS): The allowable concentrations of air pollutants in the air specified by the federal government. The air quality standards are divided into primary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public health) and secondary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public welfare from any unknown or expected adverse effects of air pollutants).

National Environmental Policy Act of 1969 (NEPA): The federal law established in 1969, which went into effect on January 1, 1970, that 1) established a national policy for the environment, 2) requires federal agencies to become aware of the environmental ramifications of their proposed actions, 3) requires full disclosure to the public of proposed federal actions and a mechanism for public input into the federal decision-making process, and 4) requires federal agencies to prepare an environmental impact statement for every major action that would significantly affect the quality of the human environment.

National Register of Historic Places: A list of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture.

native species: Plants or animals that originated in the area in which they are found (i.e., they naturally occur in that area); with respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

Natrargids: Soils with a clay accumulation horizon and alkali (sodium) accumulation.

natural gas: Those hydrocarbons, other than oil and other than natural gas liquids separated from natural gas, that occur naturally in the gaseous phase in the reservoir and are produced and recovered at the wellhead in gaseous form.

No Action Alternative: The management direction, activities, outputs, and effects that are likely to exist in the future if the current plan would continue unchanged.

No Surface Occupancy (NSO): A stipulation in a lease that disallows any surface disturbance in the lease area at any time. Natural gas or oil from an NSO area, for instance, would have to be recovered by directional drilling.

Notice of Intent (NOI): A notice published in the *Federal Register* to announce the intent to prepare an EIS.

noxious weeds: Officially designated (State of Wyoming-designated, Sublette County-declared) undesirable or invading weedy species generally introduced into an area due to human activity.

oil and gas field: A natural accumulation of oil and gas in the subsurface. Oil and gas may be present in two or more reservoirs at different depths.

oil and gas lease: A federal oil and gas lease is a legal document that gives the lease holder the right to explore for and develop any oil and gas that may be present under the area designated in the lease while complying with any surface use conditions which may have been stipulated when the lease was issued.

ozone (O₃): A molecule containing three oxygen atoms produced by passage of an electrical spark through air or oxygen (O₂).

paleontology: The science that deals with the history and evolution of life on earth.

particulate matter: A particle of soil or liquid matter (e.g., soot, dust, aerosols, fumes, and mist).

passerine: Passerines are the perching birds, and most are also songbirds.

paraglacial: Refers to glacier-related processes and phenomena such as soil deposition and lake formation.

perennial stream: A stream or reach of a stream that flows throughout the year.

perforation: Holes punched in the casing of a well at the pay zone to be produced to allow gas or oil to enter the well.

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- permeability:** The extent that a substance is open to passage or penetration, especially by fluids.
- permeable:** The property or capacity of a porous rock, sediment, or soil to transmit a liquid.
- permittee (grazing):** A person who has livestock grazing privileges on an allotment or allotments within the resource area.
- physiographic province:** A region having a pattern of relief features or landforms that differs significantly from adjacent regions.
- physiographic:** Pertaining to the genesis and evolution of landforms.
- playa:** The shallow central basin of a desert plain in which water gathers and is evaporated.
- Pleistocene:** Pertaining to the geologic epoch forming the earlier half of the Quaternary Period, characterized by the advent of modern humans.
- PM₁₀:** Airborne suspended particles with an aerodynamic diameter of 10 microns or less.
- PM_{2.5}:** Airborne suspended particles with an aerodynamic diameter of 2.5 microns or less.
- potentiometric surface:** An imaginary surface that represents the static head of groundwater and is defined by the level to which water will rise.
- preferred alternative:** The alternative identified in the EIS as the action favored by the agency.
- prevention of significant deterioration (PSD):** A classification established to preserve, protect, and enhance the air quality in National Wilderness Preservation System areas in existence prior to August 1977 and other areas of national significance, while ensuring economic growth can occur in a manner consistent with the preservation of existing clean air resources. Specific emission limitations and other measures, by class, are detailed in the *Clean Air Act* (42 U.S.C. 1875 et seq.).
- produced water:** Water brought to the surface through the borehole.
- production casing:** Steel pipe installed in the borehole to isolate formations in the borehole and to eliminate communication among hydrocarbon-bearing zones and/or water aquifers and other mineral resources.
- production:** Phase of commercial operation of an oil field.
- proppants:** Proppants or propping agents are substances such as sand or glass beads that are pumped into the formation as part of the fracturing job. The proppants become wedged in the open fractures, leaving channels for oil to flow into the well after the hydraulic fracture pressure is released. This process is often called a “frac job.” When high concentrations of acid are used, it may be called an “acid frac job” (see also fracing/fracturing).
- PSD increments:** The maximum allowable increase in pollutant concentrations permitted over baseline conditions as specified in the EPA Prevention of Significant Deterioration (PSD) regulations (40 C.F.R. Part 52.21). The regulations apply only to areas currently attaining NAAQS/WAAQS. Most National Parks and Wilderness Areas are Class I areas, where almost no future pollution increase is permitted. Most other areas are Class II areas, where moderate increases in pollution levels are allowed.
- public land:** Lands or interests in lands owned by the United States and in this case administered by the Secretary of Interior through the Bureau of Land Management, without regard to how the United States acquired ownership.
- quaternary:** The latest period of time, from the present to 2 million years ago and represented by local accumulations of glacial and post-glacial deposits.
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range: Land producing native forage for animal consumption and lands that are revegetated naturally or artificially to provide forage cover that is managed like native vegetation, that are amenable to certain range management principles or practices.

raptor: A group of carnivorous birds consisting of hawks, eagles, falcons, kites, vultures, and owls.

recharge: Replenishment of the water supply in an aquifer through the outcrop or along fracture lines.

reclamation: Rehabilitation of a disturbed area to make it acceptable for designated uses. This normally involves regrading, replacement of topsoil, revegetation, and other work necessary to restore it for use.

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

reserve pit: An excavated pit that may be lined with plastic that holds drill cuttings and waste mud.

reserves/recoverable reserves: Areas of mineral-bearing rock from which the mineral can be extracted profitably with existing technology and under present economic conditions.

reservoir: The "pool" of oil or gas that is being tapped.

residuum: Something remaining after removal of a part; a residue.

resource roads: Spur roads that provide point access, as to a well site, and connect to local or collector roads.

revegetation: The re-establishment and development of self-sustaining plant cover. On disturbed sites, human assistance will speed natural processes by seed bed preparation, reseeding, and mulching.

rig: A collective term to describe the permanent equipment needed when drilling a well.

right-of-way (ROW): The legal right for use, occupancy, or access across land or water areas for a specified purpose or purposes.

riparian: Land areas which are directly influenced by water. They usually have visible vegetative or physical characteristics showing this water influence. Streambanks and lake borders are typical riparian areas.

roosting: To rest or sleep in a roost. A bird will typically use the same roost for an extended period of time.

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.

salinity: 1) A measure of the amount of mineral substances dissolved in water; 2) salty.

scatter (archeological): Archeological evidence of prior disturbance that is distributed about an area rather than concentrated in a single location.

scope: Extent or range of view.

scoping: An early and open process for determining the scope of issues to be addressed in an EIS and for identifying the significant issues related to a proposed action. Scoping may involve public meetings, field interviews with representatives of agencies and interest groups, discussions

with resource specialists and managers, and written comments in response to news releases, direct mailings, and articles about the proposed action and scoping meetings.

sediment: Soil or mineral transported by moving water, wind, gravity, or glaciers, and deposited in streams or other bodies of water or on land.

sediment load: The amount of sediment (sand, silt, and fine particles) carried by a stream or river.

seismic: Pertaining to an earthquake or earth vibration, including those that are artificially induced.

shale: A laminated sediment in which the constituent particles are predominantly of the clay grade.

short-term impacts: For the purpose of this analysis, short-term impacts are generally defined as those that would last for 5 years or less.

shrink-swell: Refers to clays or soils that alternately expand and contract in a semiarid climate where drying out is possible.

shut-in: The process of stopping production at an otherwise producing well.

significant impact: A meaningful standard to which an action may impact the environment. The impact may be beneficial, adverse, direct, indirect, or cumulative and may be short-term or long-term.

silt: Any earthy material composed of fine particles, smaller than sand but larger than clay, suspended in or deposited by water.

site-specific environmental assessments: Environmental assessments generally completed for small projects such as individual wells, designed to address issues associated with small projects, and generally under the guidance of a more comprehensive NEPA document.

slope wash: Soil and rock material that is being or has been moved down a slope predominantly by the action of gravity assisted by running water that is not concentrated into channels.

socioeconomics: Study of an impact region on the current and projected population and relative demographic characteristics (housing, economy, government, etc.).

soil productivity: The capacity of a soil to produce a specific crop such as fiber and forage, under defined levels of management. It is generally dependent on available soil moisture, nutrients, and length of growing season.

spacing: The number of acres per given well in the subsurface. For instance, 160-acre spacing means that one well would be drilled in each quarter section (160 acres) or up to four wells per section (640 acres).

special management area: An area to which a given management objective and prescriptions are applied.

species of concern: Species of concern include federally listed threatened or endangered species, species proposed for listing, BLM sensitive species, WGFD priority species, and species considered rare or important by the Wyoming Natural Diversity Database.

stipulation: A legal requirement, specifically a requirement that is part of the terms of a mineral lease. Some stipulations are standard on all federal leases. Other stipulations may be applied to the lease at the discretion of the surface management agency to protect valuable surface

resources. Stipulations are supported by the NEPA process; without NEPA support, a stipulation cannot be added to the lease.

strata: An identifiable layer of bedrock or sediment.

structural basin: A large depression of structural origin.

substrate: Material consisting of silts, sands, gravels, boulders, and/or woody debris found on the bottom of a stream channel.

synclinal axis: The axis of a fold where the youngest rocks are in the interior of the fold.

terrestrial: Consisting of or pertaining to the land.

Tertiary: The older of the two geologic periods comprising the Cenozoic Era; also the system of strata deposited during that period.

threatened species: Any species (plant or animal) that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Threatened species are identified by the Secretary of the Interior in accordance with the 1973 *Endangered Species Act*.

thrust fault: A low angle fault in which the rocks above the fault plane move up relative to the rocks below. The rocks that move up are the thrust sheet.

topographic basin: A large depression of erosional origin.

topography: The features of the earth, including relief, vegetation, and waters.

topsoil: The uppermost layers of naturally occurring soils suitable for use as a plant growth medium.

Torrisspamments: Sandy soils in arid regions, soils associated with sandy uplands. Very deep soils often having a grass-shrub cover.

total dissolved solids (TDS): Total amount of dissolved material, organic or inorganic, contained in a sample of water.

Total Energy Efficiency (TEE): A measurement of energy efficiency that takes into account all energy used or lost in the production, processing, and delivery steps involved in supplying energy to the user, plus the efficiency of the energy-using product itself.

transpiration: The process by which water vapor escapes from a living plant and enters the atmosphere.

tuff(aceous): A rock formed by compacted volcanic fragments, generally smaller than 4 mm in diameter.

turbidity: A measurement of the total suspended solids.

two-track: A road that has not been constructed or maintained but that has been created by repeated use.

typic: Being or serving as an illustration of a type. For soil classification, it is used as a root word meaning typical (see subgroups).

unconformity: A break in the stratigraphic sequence.

understory: A layer of vegetation underlying a layer of taller vegetation, such as brush and grass under trees.

undulate: To move or cause to move with a wavelike motion.

moist: Soils that are moist for more than half a year but have a distinct dry season.

vegetation type: A plant community with visually distinguishable characteristics, named for the apparent dominant species.

viewshed: The areas seen from any given point.

visibility: Refers to the visual quality of the view or scene in day light, with respect to color, rendition, and contrast definition. The ability to perceive form, color, and texture.

visual range: The distance at which a black object just disappears from view.

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.

Visual Resource Management (VRM): A system of visual management used by the BLM. The program has a dual purpose--to manage the quality of the visual environment and to reduce the visual impact of development activities while maintaining effectiveness in all BLM resource programs. VRM also identifies scenic areas that warrant protection through special management attention. The system uses four classes for categorizing visual resources.

Class I - Natural ecological changes and limited management activity are allowed. Any contrasts created within the characteristic landscape must not attract attention. This classification is applied to wilderness areas, wild and scenic rivers, and other similar situations.

Class II - Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. Contrasts are seen but must not attract attention.

Class III - Contrasts to the basic elements caused by a management activity are evident but should remain subordinate to the existing landscape.

Class IV - Any contrast may attract attention and be a dominant feature of the landscape in terms of scale, but it should repeat the form, line, color, and texture of the characteristic landscape.

water bar: A ridge made across an incline to divert water to one side.

water quality: Refers to a set of chemical, physical, or biological characteristics that describe the condition of a river, stream, or lake. The quality of water determines what beneficial uses it can support. Different conditions or levels of water quality are required to support different beneficial uses.

water recharge: The natural process whereby surface water enters a ground water aquifer.

watershed: The total land area that drains to a given watercourse or body of water.

watershed (6th level): The watershed and subwatershed hydrologic unit boundaries provide a uniquely identified and uniform method of subdividing large drainage areas. The smaller-sized level sub-watersheds (up to 250,000 acres) are useful for application programs.

Waters of the U.S.: A jurisdictional term from Section 404 of the *Clean Water Act* referring to water bodies such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds with defined bed and bank, the use, degradation, or destruction of which could affect interstate or foreign commerce.

well or wellbore: The hole drilled from the surface to the gas-bearing formation, several of which may be developed from a single well pad.

well pad: Relatively flat work area (surface location) that is used for drilling a well or wells and producing from the well once it is completed.

wetlands: Areas that are inundated by surface or ground water 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.

wind rose: Any one of a class of diagrams designed to illustrate the distribution of wind direction experienced at a given location over a given period of time. Wind roses may also give information concerning distribution of wind speed, stability, or other meteorological parameters.

winter range: The place where migratory (and sometimes non-migratory) animals congregate during the winter season.

workover: Well maintenance activities that require onsite mobilization of a drill rig to repair the well bore equipment (casing, tubing, rods, or pumps) or the wellhead. In some cases, a workover may involve development activities to improve production from the target formation.

Wyoming Ambient Air Quality Standards (WAAQS): The allowable concentrations of air pollutants in the air specified by the State of Wyoming. The air quality standards are divided into primary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public health) and secondary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public welfare from any unknown or expected adverse effects of air pollutants).

zone: The area between two depths in a well containing reservoir or other characteristic.
