GLOSSARY

abandon: To cease producing oil or gas from a well when it becomes unprofitable. A wildcat (exploration) well may be abandoned after it has been proven nonproductive. 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: A volume of water that covers an area of one acre to a depth of one foot (43,560 cubic feet or 325,851 gallons).

acquired minerals: Mineral rights that were patented into nonfederal ownership and were later re-acquired by the United States.

aerie: The nest of an eagle or other predatory bird; usually built on a crag or other high place.

affected environment: The biological, physical, and socioeconomic environment that will or may be changed by actions proposed and the relationship of people to that environment.

airshed: A geographic area that shares the same air because of topography, meteorology, and climate.

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.

alternative: A combination of management prescriptions applied in specific amounts and locations to achieve a desired management emphasis or expressed in goals and objectives. One of several policies, plans, or projects proposed for decision making.

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

annulus: The space around a pipe in a wellbore, the outer wall of which may be the wall of either the borehole or the casing.

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

aquatic bed: Wetland and deepwater habitats dominated by plants that primarily grow on or below the surface of the water. For comparison, see Emergent Vegetation.

aquifer: A water-bearing bed or layer of permeable rock, sand, or gravel capable of yielding water, or the part of a water-drive reservoir that contains the aquifer.

archaeological resources: All prehistoric and historic physical evidence of past human activity which can be used to reconstruct lifeways and cultural history of past peoples. These resources include sites, artifacts, environmental data, and all other relevant information and the contexts in which they occur.

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.

big game: Those species of large mammals normally managed as a sport hunting resource.

blowout: An uncontrolled expulsion of gas, oil, or other fluids from a drilling well. A blowout or "gusher," occurs when formation pressure exceeds the pressure applied to it by the column of drilling fluid and when blowout prevention equipment is absent or fails.

borehole: A circular hole made by boring; especially a deep hole of small diameter, such as an oil well or a water well.

Bureau of Land Management (BLM): The Department of Interior agency responsible for managing most Federal Government subsurface minerals. It has surface management responsibility for Federal lands designated under the Federal Land Policy and Management Act of 1976.

candidate species: Species that are presently being considered to be added to the list as either threatened or endangered. Results depend on further studies.

carrying capacity: The ability of an area of land to sustain a species [generally livestock] over time without permanently degrading the land resources.

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

closed mud system: A drill mud system that reuses or reclaims all the drilling fluid used Oil-base mud systems are often closed mud systems.

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

Council on Environmental Quality: 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.

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.

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.

cumulative action: Actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement. (40 CFR 1508.25).

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 taken place over a period of time. (40 CFR 1508.7).

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.

deepen: To increase the depth of a well. Deepening is generally a workover operation to produce from a deeper formation or to control excessive gas found in the upper levels of a reservoir.

detrivores: Refers to organisms which feed on fragmented particulate organic matter.

development well: A well drilled in proven territory (usually within 1 mile of an existing well).

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

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.

drill pad: Relatively flat work area that contains equipment and facilities used for well drilling and well completion.

drill pipe: The heavy seamless tubing used to rotate the drill bit and circulate the drilling fluid. The standard drill pipe section is 30 feet long (a joint).

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

dry hole: Any well incapable of producing oil or gas in commercial quantities. A dry hole may produce water, gas or even oil, but not enough to justify production.

effects: These 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 may also 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 (40 CFR 1508.8).

emergent vegetation: Erect, rooted, herbaceous plants that project out of the water, or "emerge." For comparison, see aquatic bed.

endangered animal species: 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 plant species: 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 very limited areas (e.g. the type localities only), or from restricted fragile habitats usually are considered endangered.

environmental assessment (EA): An investigation of a proposed action and alternatives to that action and their direct, indirect, and cumulative environmental impacts; the process which provides the necessary information for reaching an informed decision and the information needed for determining whether a proposed action may have significant environmental effects and determining the type environmental documents required.

environmentally conservative: Assumes an environmental outcome usually greater in impacts than the real outcome of an action; a method used or conclusion reached where the assessed impact is of a greater magnitude than that expected to occur as a result of the implemented action.

ephemeral stream: A stream that flows only in direct response to precipitation in the immediate watershed or in response to the melting of a cover of snow and ice and which has a channel bottom that is always above the local water table.

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.

exploration well: A well drilled in an area where there is no oil or gas production. Same as a "wildcat" well (see wildcat well).

federal lands: All lands and interests in lands owned by the U.S. that 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.

forage: Vegetation of all forms available for animal consumption.

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

fracturing (fracing): 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 which 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 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."

functional value: A term that refers to the various functions performed by wetlands and the values people place on those functions. Functions are the chemical, physical, and biological processes or attributes of a wetland without regard to their importance to society. They include groundwater recharge and discharge, sediment trapping, nutrient/pollutant retention and removal, shoreline anchoring and dissipation of erosive forces, food chain support, wildlife and fish habitat, and heritage value (including active and passive recreation, uniqueness, etc.).

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.

halophyte: A plant adapted for growing in salty soil.

historic resources: All evidences of human activity that date from historic (recorded history) periods.

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.

hydric soils: A soil that is saturated, flooded, or ponded with water long enough during the growing season (i.e., soil temperature of 41°F at 20 inches depth) to develop anaerobic soil conditions (i.e., reduced oxygen levels). These soils develop characteristics that are indicative of the wet and anaerobic conditions. Such characteristics may include an undecomposed organic surface layer (histic epipedon), surface horizons with low chromas (i.e., very dark brown to black), organic staining and streaking, grey-colored layers of horizons, iron concretions, and/or light grey- or rust-colored mottles or specks of highly contrasting color. These characteristics must generally occur within 50 percent of the root zone.

hydrophytic plants: Those species which either require or tolerate wet or saturated soils and are therefore indicative of these conditions. Vegetation is a good indicator of the physical conditions on a given site. Such conditions include soil moisture.

impact: The results of an action on the environment; the impact may be primary (direct) or secondary (indirect); the term impact is synonymous with effect according to 40 CFR 1508.8.

indicator wildlife species: Indicator wildlife species are defined in two general categories: (1) those that are hunted and utilize diverse habitat conditions, and (2) those that utilize restricted habitat niches, are resident species, have wide distributions over an area and/or are easily monitored.

infill: The process of drilling and completing more production wells in a specific area.

injection well: A well used to inject fluids into an underground formation to increase reservoir pressure.

interdisciplinary team IDT): A group 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.

intermittent stream: A stream or reach of a stream that drains a watershed of at least one square mile; or 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.

interstitial: Said of a mineral deposit in which the mineral fills the pores of the host rock.

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.

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.

jurisdictional wetlands: "Those wetlands which are within the extent of COE regulatory overview" (33 CFR 328.1 and (2). For an area to be identified as a jurisdictional wetland, the area must exhibit positive indicators of wetland hydrology, hydrophytic vegetation, and hydric soils. Those areas that do not meet the three parameters are uplands or non-jurisdictional wetlands. The Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) describes technical criteria for determining hydrophytic vegetation, hydric soils, and wetland hydrology, and therefore the occurrence of jurisdictional wetlands.

lead agency: The agency or agencies preparing or having taken primary responsibility for preparing the environmental impact statement (40 CFR 1508.16).

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: An assembly area for communal courtship display, usually in reference to sage grouse or other grouse.

marginal properties: Fee and/or federal lease holdings with natural gas/oil reserves that are approaching depletion to the extent that any profit from continued production is doubtful. An oil/gas holding becomes a marginal property when the cost to drill, complete, and equip the well exceeds the ability to recover these costs during its lifetime.

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.

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.

mud system: A system used to manage suspended mud in the well-drilling process (see also closed mud system).

National Environmental Policy Act (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 pubic 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.

new field discovery: A well, usually a wildcat well, that discovers a previously unknown oil and gas field.

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.

nongame species: Wildlife which is not hunted for recreational purposes.

Notice of Staking: Prior to filing a complete Application for Permit to Drill (APD) an Operator may wish to file a Notice of Staking (NOS). Under this procedure, the site is surveyed and staked, and the onsite inspection is used to provide information to the Operator prior to the Operator committing time and money in preparing an APD which might not reflect agency concerns.

noxious weeds: Officially designated undesirable or invading weedy species generally introduced into an area due to human activity.

permeability: Extent that a substance is open to passage or penetration, especially by fluids.

permittee (grazing): A person who has livestock grazing privileges on an allotment or allotments within the resource area.

play: An area of anticipated or known oil and gas reserves.

playa: The shallow central basin of a desert plain, in which water gathers after a rain and is evaporated.

preferred alternative: The alternative identified in the EIS as the action favored by the agency.

prevention of significant deterioration of air quality (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 15q.).

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 fracturing/fracing).

public domain minerals: Mineral rights that have always been the property of the United States.

public land: Lands or interests in lands owned by the United States and administered by the Secretary of Interior through the Bureau of Land Management, without regard to how the United States acquired ownership.

range allotment: A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under a range Allotment Management Plan. It is the basic land unit used to facilitate management of the range resource on National Forest System and associated lands administered by the Forest Service.

raptor: Living on prey; a group of carnivorous birds consisting of hawks, eagles, falcons, kites, vultures, and owls.

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.

reserve pit: (1) Usually an excavated pit that may be lined with plastic, that holds drill cuttings and waste mud. (2) Term for the pit which holds the drilling mud.

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.

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. Streamsides, lake borders, or marshes are typical of riparian areas.

rip rap: A foundation or erosion control device consisting of rocks thrown together without order.

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.

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

seismic exploration: Seismic exploration is used to map underground geological features to obtain information on the earth's subsurface and to locate areas where accumulations of oil and gas might occur.

Seismic waves, generated at or near the surface, penetrate the earth's crust and reflect from subsurface rock layers back to the surface. The geophysicist receives a printed record or seismograph from which is measured the depth to various strata and from which subsurface structures with a potential for oil and gas accumulation can be determined such as faults, anticlines, and folds.

Portable - Where access limitations, topography, or other restraints prevent use of trucks, portable operations can be performed. Two portable techniques exist for collecting data. These include:

(1) Surface charge programs involving the detonation of a series of as much as ten, five pound charges of 25-50 pounds of explosives at shot points located at intervals along the seismic line. Surface charges can be placed directly on the ground, on snow, or on a variety of stakes or platforms. All necessary equipment to conduct the operation is transported by helicopter and then conveyed by foot travel.

(2) Various kinds of portable drills can be backpacked or delivered by helicopter to the area. A shallow subsurface portable program would involve drilling a pattern of approximately 16 holes, per mile of line, about 4 inches in diameter and up to 50 feet deep. At this depth, a 10 to 40 pound charge of explosive is placed and detonated. Recording cables and geophones are laid out by foot travel.

With both of these portable techniques, shock waves generated by detonation are received and transmitted via geophones and cable to a recording device. Portable methods are generally used on rough terrain.

Conventional - The conventional method of collecting seismic data includes the use of truckmounted drills and vehicle-supported crews and generally involves off-road travel. This technique involves drilling 5 to 18, 5-inch diameter holes per mile

to a depth of 180 to 200 feet. At this depth, a 10 to 50 pound explosive charge is placed and detonated. Shock waves are received and transmitted via geophones and cable to a truckmounted recording device.

Vibroseis - The vibroseis technique involves using truck-mounted hydraulic pads which generate energy waves through vibration rather than explosives. The vibrator method typically consists of four large trucks each equipped with a vibrator (a steel slab weighing about three tons mounted between the front and back wheels of a large truck). The vibrator pads (about 4 feet square) are lowered to the ground and the vibrators on the truck are triggered electronically from the recorder truck.

Energy waves are received and transmitted via cable and geophones to a recorder truck. After the information is recorded the trucks move forward a short distance and the process is repeated. The vibroseis operation is usually limited to roads and gentle terrain.

seismic operations: Use of explosive or mechanical thumpers to generate shock waves that can be read by special equipment to indicate subsurface conditions.

sensitive: Species not yet officially listed under the Endangered Species Act but which are undergoing a status review or are proposed for listing according to Federal Register notices published by the Secretary of the Interior or the Secretary of Commerce or according to comparable state documents published by state officials.

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 have short-term or long-term effects.

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

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.

soil stockpile: Piles of surface soil and rocks stored for use in site restoration.

sour well: A condition caused by the presence of hydrogen sulfur compound in an oil or gas well.

species: (1) The classification level of biological nomenclature which categorized each group of related organisms potentially capable of interbreeding; (2) the accepted level of classification to differentiate one specific type of organism from another.

species of concern: Species of concern include federally listed threatened or endangered species, Candidate 1 species, BLM sensitive species, and species considered rare or important by the Wyoming Natural Diversity Database (WYNDD).

spp.: An abbreviation for the plural of species.

standard lease terms: The basic BLM oil and gas leasing legal document that contains all the basic terms and conditions of the lease and identifies/defines BLM and surface management agency authorities, legal requirements, and general resource protection and mitigation requirements.

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.

surface lands: Lands consisting of the outside part of the solid earth or ocean as contrasted with subsurface or below surface land use(s) such as drilling and mixing.

sweet well: An oil or gas well lacking sulfur and any significant amount of hydrogen sulfide or mercaptans.

tank battery: A group of production tanks that store crude oil in the field.

threatened and endangered species: Any species, plant or animal, which 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.

threatened animal species: Any animal species likely to become endangered within the foreseeable future throughout all or a significant part of its range.

tongue: A minor lithostratigraphic unit of limited extent, especially a member that extends outward beyond the main body of a formation and disappears laterally, usually by facies change.

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.

vibrator: A steel slab weighing about three tons mounted between the front and back wheels of a large truck. The vibrator pads (about 4 feet square) are lowered to the ground and the vibrators on the truck are triggered electronically from a recorder truck (see also seismic exploration [vibroseis]).

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 Bureau resource programs. VRM also identifies scenic areas that warrant protection through special management attention. The system uses five classes for categorizing visual resources.

> **Class 1** - Natural ecological changes and very 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 2** - 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 3** - Contrasts to the basic elements caused by a management activity are evident, but should remain subordinate to the existing landscape.
>
> **Class 4** - Any contrast attracts attention and is a dominant feature of the landscape in terms of scale, but it should repeat the form, line, color and texture of the characteristic landscape.
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> **Class 5** - The classification is applied to areas where the natural character of the landscape has been disturbed to a point where rehabilitation is needed to bring it up to one of the four other classifications. The classification also applies to areas where unacceptable cultural modification has lowered scenic quality; it is often used as an interim classification until objectives of another class can be reached.

wellbore: The diameter of the hole to be drilled.

well pad: Relatively flat work area that contains equipment and facilities used for oil/gas production.

wildcat well: An exploratory well drilled in an area where there is no oil or gas production (see exploration well).