ABBREVIATIONS AND GLOSSARY

ABBREVIATIONS AND GLOSSARY

ABBREVIATIONS

2D	2-dimensional
3D	3-dimensional
AACL	acceptable ambient concentration levels
AAPG	American Association of Petroleum Geologists
ACEC	area of critical environmental concern
ACEPM	Applicant-committed Environmental Protection Measures
ACHP	Advisory Council on Historic Preservation
ADT	average daily traffic
AMP	allotment management plan
AMS	Analysis of the Management Situation
ANC	acid neutralization capacity
ANS	artificial nesting structures
AO	authorizing officer
APD	Application for Permit to Drill (an oil or gas well)
APE	area of potential effects
AQRV	air quality related values
ARMS	Air Resource Management Strategy
ARPA	Archeological Resource Protection Act (of 1979)
AUM	Animal Unit Month
BA	biological assessment
BACT	best air quality control technology
BCC	Birds of Conservation Concern
BCF	billion cubic feet (a measure of quantity of natural gas)
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	best management practice
BO	biological opinion
BOP	blowout preventer

BTEX	benzene, toluene, ethylbenzene, isomers of xylene
CAA	Clean Air Act (of 1970)
CAM_x	Comprehensive Air Quality Model with Extensions
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (of 1980)
CFR	Code of Federal Regulations
cfs	cubic feet per second (a unit of water flow)
CHL	Combined Hydrocarbon Lease
CIAA	cumulative impacts analysis area
CMAQ	community multiscale air quality
CO	carbon monoxide
COA	condition of approval
CPAA	Colorado Plateau Archaeological Alliance
CRMP	cultural resource management plan
CSU	controlled surface use
CWA	Clean Water Act
DAP	di-ammonium phosphate
DbA	decibels
DFC	desired future condition
DMRA	Diamond Mountain Resource Area
DOE	Department of Energy
DOGM	Division of Oil, Gas and Mining
DOI	Department of the Interior
dV	deciview
DWQ	Division of Water Quality
DWSPZ	Drinking Water Source Protection Zone
EA	environmental assessment
EIS	environmental impact statement
EPA	Environmental Protection Agency
EPCA	Energy Policy and Conservation Act (of 1975)

EPCRA	Emergency Planning and Community Right-to-know Act (SARA Title III)
EPM	environmental protection measures
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act (of 1973)
ESR	Emergency Stabilization and Rehabilitation
EUR	estimated ultimate recovery
FEIS	final environmental impact statement
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FLAG	Federal Land Managers' Air Quality Related Values Workgroup
FLM	Federal Land Manager
FLPMA	Federal Land Policy and Management Act (of 1976)
FO	field office
FR	*Federal Register*
FRM	federal reference monitors
GAP	geographical analysis program
GIS	geographic information system
H_2S	hydrogen sulfide
HAP	hazardous air pollutant
hp	horsepower (33,000 lb.ft./minute or 745.7 watts)
IPAMS	Independent Petroleum Association of Mountain States
IPCC	Intergovernmental Panel on Climate Change
IRIS	Integrated Risk Information System
KOP	key observation point
KOSLA	Known Oil Shale Leasing Area
kW	kilowatt
LAC	limits of acceptable change
Ldn	day-night sound level
LEPCs	local emergency planning committees
Leq	equivalent sound level
LOP	life of project

MACT	maximum achievable control technology
MBTA	Migratory Bird Treaty Act (of 1918)
Mcf	thousand cubic feet
MEI	maximally exposed individual
MFO	Moab Field Office
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
MLA	Mineral Leasing Act (of 1920)
MLE	most likely exposure
MMCF	million cubic feet
MSA	management of the situation analysis
MSDS	Material Safety Data Sheet
MSO	Mexican Spotted Owl
MW	megawatts
N	nitrogen
NAAQS	National Ambient Air Quality Standards
NaCl	sodium chloride
NAGPRA	Native American Graves Protection and Repatriation Act (of 1990)
NCDC	National Climate Data Center
NEPA	National Environmental Policy Act (of 1969)
NESHAP	National Emission Standard for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NMCC	Nine Mile Canyon Coalition
NO_2	nitrogen dioxide
NOA	Notice of Availability (published in the *Federal Register*)
NOI	Notice of Intent (published in the *Federal Register*)
NOS	Notice of Staking
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRA	National Recreation Area

NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRS	natural resource specialist
NSO	No Surface Occupancy (a stipulation on an oil and gas lease)
NSPS	new source performance standards
NSR	New Source Review
NSTC	National Science and Technology (Air Quality)
NTHP	National Trust for Historic Preservation
NTL	Notice to Lessees
NWSRS	National Wild and Scenic River System
O_3	ozone
OHV	off-highway vehicle
OSHA	Occupational Safety and Health Administration
P&A	plugged and abandoned
PA	Programmatic Agreement
Pb	lead
PDSI	Palmer Drought Severity Index
PET	petroleum engineering technician
PFC	Proper Functioning Condition (of riparian/wetland areas)
PIF	Partners in Flight
PM	particulate matter
PM_{10}	particulate matter (less than 10 microns in diameter)
$PM_{2.5}$	particulate matter (less than 2.5 microns in diameter)
ppm	parts per million
PSD	prevention of significant deterioration
PUP	Pesticide Use Proposal
QAPP	quality assurance project plan
RCRA	Resource Conservation and Recovery Act (of 1976)
REL	reference exposure level
RfC	reference concentration
RFD	reasonably foreseeable development

RFFA	reasonably foreseeable future actions
RHS	Rangeland Health Standards
RMP	resource management plan (BLM land use plan under FLPMA)
ROD	record of decision
ROS	recreation opportunity spectrum
ROW	right-of-way
S	sulfur
SAP	sampling analysis plan
SARA	Superfund Amendments and Reauthorization Act
SDEIS	supplement to the draft environmental impact statement
SERC	State Emergency Response Commission
SERMA	Special Recreation Management Area
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SITLA	(Utah) School and Institutional Trust Lands Administration
SO_2	sulfur dioxide
SO_x	sulfur oxides
SPCC	spill prevention control and countermeasures
SRMA	special recreation management area
SSA	sole source aquifer
SSURGO	Soil Survey Geographic Database
STSA	Special Tar Sand Area
SUPO	surface use plan of operations
SUWA	Southern Utah Wilderness Alliance
Sw	water saturation
SWReGAP	Southwest Regional Geographical Analysis Program
T&E	Threatened and/or Endangered (species as per ESA of 1973)
Tcf	Trillion cubic feet
TCP	traditional cultural property
TD	total depth
TDS	total dissolved solids

TES	Threatened and Endangered Species
TSS	total suspended solids
UAAQS	Utah Ambient Air Quality Standards
UBAQS	Uinta Basin Air Quality Study
UCRB	Upper Colorado River Basin
UDAQ	Utah Department of Air Quality
UDEQ	Utah Department of Environmental Quality
UDOGM	Utah Division of Oil, Gas, and Mining
UDOT	Utah Department of Transportation
UDWaR	Utah Division of Water Resources
UDWQ	Utah Division of Water Quality
UDWR	Utah Division of Wildlife Resources
UDWS	Utah Division of Workforce Services
UEO	Utah Energy Office
μeq	equivalent per liter
UGS	Utah Geological Survey
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USDOI	United States Department of the Interior
USDOT	U.S. Department of Transportation
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Research Program
USGS	U.S. Geological Survey
UTAG	Utah Air Resource Technical Advisory Group
UTAGRC	Utah Automated Geographic Reference Center
UWC	Utah Wilderness Coalition
VOC	volatile organic compound
VRM	Visual Resource Management

WEF	water evaporation facility
WGFD	Wyoming Game and Fish Department
WIA	Wilderness Inventory Area
WRAP	Western Regional Air Partnership
WRCC	Western Regional Climate Center
WSA	Wilderness Study Area
WSR	Wild and Scenic River(s) (Act of 1973)
φ	porosity
μg/L	micrograms per liter

GLOSSARY

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.

Active raptor nest: A nest documented as occupied by a raptor within the 3-year period preceding proposed construction.

Affected environment: The natural, physical, and human-related environment that is sensitive to changes due to proposed actions; the environment under the administration of a land management agency.

Air dispersion modeling: A complex computer model that calculates ambient concentrations of air pollutants.

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

Alluvial: Deposited by a stream.

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

Ambient concentration: The mass of a pollutant in a given volume of air. It is typically measured as micrograms of pollutant per cubic meter of air.

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

Amine unit: A facility in which "sour" natural gas is contacted with amine solutions to remove hydrogen sulfide and carbon dioxide (thus "sweetening"). The amine solutions react with the unwanted gas constituents to form other compounds that can then be removed.

Ancillary facility: Additional support structures required to develop the mineral resource, including gas compressor facilities, disposal wells, roads, collection pipelines, and electric transmission lines.

Animal Unit Month (AUM): A standardized measurement of the amount of forage necessary for the sustenance of one cow unit or its equivalent for 1 month. Approximately 800 pounds of forage.

Annulus: The space between the well casing and the boundary of the hole.

Antiquities: A general term for archaeological or paleontological resources that are at least 100 years of age and that tangibly represent or have the potential to yield information on historical or prehistoric cultures, or extinct plants and animals.

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

Area of critical environmental concern (ACEC): Areas within the public lands where special management attention is required to: (1) protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or (2) protect life and safety from natural hazards.

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

Authorizing officer (AO): Person designated by the Agency as being in the position to speak for and commit the agency to action.

Avoidance area: An environmentally sensitive area designated by the Agency. Authorizations would be granted only in cases where there is a prevailing need and no practical alternative exists, and then only with provisions to protect the sensitive resources.

Background (bg): Area located from 3 to 5 miles to infinity from viewer.

Background: The viewing area of a distance zone that lies beyond the foreground-middleground. 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.

Best management practices (BMPs): A practice or combination of practices determined by the state to be the most effective and practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution.

Big game: Large species of wildlife that are hunted, such as elk, deer, bighorn sheep, and pronghorn antelope.

Biotic: Pertaining to life and living organisms.

Blow out prevention equipment: A series of valves on the drill rig which can close down the well in the event that the drill bit penetrates extreme pressure zones.

Bond: Financial guarantee to ensure compliance with the Mineral Leasing Act, including complete and timely plugging of wells, reclamation of lands or adversely affected surface waters, payment of royalties, assessments or penalties.

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

Browse: To browse (verb) is to graze; also, browse (noun) is the tender shoots, twigs, and leaves and shrubs often used as food by livestock and wildlife.

Buffer: A protective area adjacent to an area of concern requiring special attention or protection. In contrast to riparian zones, which are ecological units, buffers can be designed to meet varying management concerns.

Candidate Species: Any species included in the Federal Register notice of review that are being considered for listing as threatened or endangered by the U.S. Fish and Wildlife Service.

Carbon dioxide (CO_2): A non-hydrocarbon, corrosive gas that occurs naturally in the gaseous phase in the natural gas reservoir, or is injected into the reservoir in connection with pressure maintenance, gas cycling, or other secondary or enhanced recovery projects.

Casing: A steel pipe which maintains the opening of a drill hole; The act of installing pipe within a well.

Catalyst: A substance that enables a chemical reaction to proceed at a usually faster rate or under different conditions than otherwise possible.

Cement bond log: A geophysical log which confirms the continuous placement of cement within the annulus of the well, to isolate the formation of interest and to prevent commingling of different aquifers around the casing.

Central processing unit: A centralized site where gas compression occurs prior to transport in gas delivery lines.

Central production facility: All storage, separation, treating, dehydration, power supply, compression, pumping, metering, monitoring, flowline, and other equipment directly associated with gas wells.

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.

Clean Air Act: Public Law 84-159, established July 14, 1955, and amended numerous times since. The Clean Air Act: establishes Federal standards for air pollutants emitted from stationary and mobile sources; authorizes states, tribes and local agencies to regulate polluting emissions; requires those agencies to improve air quality in areas of the country which do not meet Federal standards; and to prevent significant deterioration in areas where air quality is cleaner than those standards. The Act also requires that all Federal activities (either direct or authorized) comply with applicable local, state, tribal and Federal air quality laws, statutes, regulations, standards and implementation plans. In addition, before these activities can take place in non-attainment or maintenance areas, the Federal agencies must conduct a Conformity Analysis (and possible Determination) demonstrating the proposed activity will comply with all applicable air quality requirements.

Closed: Generally denotes that an area is not available for a particular use or uses; refer to specific definitions found in law, regulations, or policy guidance for application to individual programs.

Code of Federal Regulations (CFR): The official, legal tabulation or regulations directing federal government activities.

Colluvial: Consisting of a mixture of soil and angular fragments of rock which have accumulated at the foot and on slopes of mountainsides under the influence of gravity.

Colluvium: A mixture of soil and angular fragments of rock which have accumulated at the foot and on slopes of mountainsides under the influence of gravity.

Community (plant community): An assembly of plants living together, reflecting no particular ecological status.

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

Compressor: Equipment (electrically or diesel-driven) used to increase the pressure on the produced gas to move it into transmission lines or into storage.

Conditions of Approval: Conditions or provisions (requirements) under which an Application for a Permit to Drill or a Sundry Notice is approved.

Conglomerate: A sedimentary rock comprised of an unstratified mixture or stratified layers of cobbles, gravel, and sand.

Coniferous: Referring to a cone-bearing, usually evergreen, tree.

Core conservation area: The habitat area that would be necessary for recovery of a particular species. Some species have existing designated core conservation areas, whereas for other species, core conservation areas may be under development or proposed.

Criteria pollutants: Air pollutants for which the EPA has established State and National Ambient Air Quality Standards. These include particulate matter (PM10), nitrogen oxides (NO_x), sulfur dioxide (SO_2), carbon monoxide (CO), and volatile organic compounds (VOC).

Critical habitats: Habitats that have been deemed essential for the conservation of a threatened, endangered, or candidate species, and that may require species management and protection under Section 4 of the ESA.

Crucial Habitat: Lands on which wildlife or plant species not federally listed as threatened or endangered depend for survival. No alternative suitable habitat is available because of some site limiting factor(s).

Crucial Winter Habitat (Range): Parts of the habitat necessary to sustain a wildlife population during the winter season.

Cryptobiotic (cryptogrammic) crusts: Biological communities that form a surface layer or crust on some soils. These communities consist of cyanobacteria (blue-green bacteria), micro fungi, mosses, lichens, and green algae and perform many important functions, including fixing nitrogen and carbon, maintaining soil surface stability, and preventing erosion. Cryptobiotic crusts also influence the nutrient levels of soils and the status and germination of plants in the desert. These crusts are slow to recover after severe disturbance, requiring 40 years of more to recolonize even small areas.

Cubic foot: The volume of gas contained in one cubic foot of space at a standard pressure base of 14.7 psi and a standard temperature base of 60 degrees Fahrenheit.

Cultural resources: Nonrenewable elements of the physical and human environment including archeological remains (evidence of prehistoric or historic human activities) and sociocultural values traditionally held by ethnic groups (sacred places, traditionally utilized raw materials, etc.).

Cultural site: Any location that includes prehistoric and/or historic evidence of human use or that has important sociocultural value.

Cumulative effects (ESA): As defined by 50 CFR 402.02, those effects of future state or private activities not involving federal activities that are reasonably certain to occur within the area of the federal action subject to consultation. This definition applies only to ESA Section 7 analyses and should not be confused the broader use of this term in NEPA.

Cumulative effects (NEPA): As defined by 40 CFR 1508.7, those 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.

Decibels (dBA): Units for describing amplitude of sound frequencies to which the human ear is sensitive.

Decommissioning: Generally, the removal of a facility or piece of equipment from service, or a change in status from active to inactive.

Demographic: Pertaining to the study of human population characteristics including size, growth rates, density, distribution, migration, birth rates, and mortality rates.

Desorb: To restore an adsorbed substance.

Development well: A well drilled within the known or proven productive area of an oil field with expectation of producing oil or gas from the producing reservoir.

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.

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

Dispersed recreation: A general term referring to recreation use outside the developed recreation sites. This includes activities such as scenic driving, hunting, hiking, OHV use, and biking.

Disposal well: Any well used for the disposal of air, gas, water or other substance into any underground stratum.

Disturbance: An event that changes the local environment by removing organisms or opening up an area, facilitating colonization by new, often different, organisms.

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

Diversity: The distribution and abundance of different plant and animal communities and species within the area.

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

Drill bit: The cutting devise used to drill a well. It is typically made of hardened steel, and may have industrial grade diamond components.

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

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

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

Effects: Environmental consequences as a result of a proposed or alternative action. Included are direct effects, which are caused by the action and occur at the same time and place, and indirect effects, which are caused by the action and are later in time or further removed in distance but which are still reasonably foreseeable. Also referred to as impacts.

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

Endangered species: A plant or animal species whose prospects for survival and reproduction are in immediate jeopardy, as designated by the Secretary of the Interior, and as further defined by the Endangered Species Act.

Endemic: Confined naturally to a particular geographic area.

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

Environmental impact statement (EIS): A detailed written statement required by the National Environmental Policy Act when an agency proposes a major federal action significantly affecting the quality of the human environment.

Environmental justice: Executive Order 12898 (February 11, 1994) mandates Federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

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.

Erosion: Detachment or movement of soil or rock fragments by water, wind, ice, or gravity. Accelerated erosion is much more rapid than normal, natural or geologic erosion, primarily as a result of the influence of activities of man, animals, or natural catastrophes.

Escarpment: An inland cliff or steep slope, formed by the erosion of inclined strata of hard rocks, or possibly as a direct result of a fault.

Evaporation pond: An industrial containment area designed to allow briny water to evaporate by using solar energy.

Exception: A case to which a rule or general principal does not apply; a thing different from or treated differently from others of the same class; omission; exclusion.

Exclusion area: An area where no surface occupancy would be allowed. This stipulation would prevent well pads, roads, and/or ancillary facilities from being constructed in specific areas; where rights-of-way, leases, and easements would not be authorized.

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

Exploratory well: A well drilled in an area where no oil or gas production exists in an effort to discover oil or gas deposits.

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

Fawning habitat: An area where big game animals usually give birth during a specific time of year.

Federal Land Policy and Management Act of 1976 (FLPMA): Public Law 94-579. October 21, 1976, often referred to as the BLM's "Organic Act," which provides the majority of the BLM's legislated authority, direction, policy, and basic management guidance.

***Federal Register*:** A daily publication, which reports Presidential and Federal Agency documents.

Fisheries: Streams and lakes used for fishing.

Fisheries habitat: streams, lakes and reservoirs that support fish.

Flaring: The controlled ignition of natural gas at a well head.

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.

Fluid minerals: Oil and gas resources.

Fluvial: Of, relating to, or living in a stream or river; produced by the action of a stream.

Footprint: The actual surface area physically disturbed by oil and gas operations and ancillary facilities.

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

Forb: A broad-leaved flowering plant.

Foreground: The detailed landscape found within 0 to 0.25-0.50 mile from the viewer.

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.

Fossil: Mineralized or petrified form from a past geologic age, especially from previously living things.

Frac fluids: A mixture of water, guar gel, sand and pH and bacterial control chemicals used in the development of a well for fluid extraction.

Fracturing: A method of stimulating well production by increasing the permeability of the producing formation. Fracture fluids which include propping agents such as sand or glass beads are pumped into the formations under extremely high hydraulic pressure. The propping agents facilitate the formation of channels to release water and gas into the well.

Fugitive dust: Airborne particles emitted from any source other than through a stack.

Game species: Animals commonly hunted for food or sport.

Gas venting: The release of gas into the atmosphere following well development and prior to successful installation of the collection pipeline system.

Geographic information system (GIS): A computer system capable of storing, analyzing, and displaying data and describing places on the earth's surface.

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 feet (percent); the content of precious metals per volume of rock (ounces per ton).

Groundwater: All subsurface water, especially that as distinct from surface water portion in the zone of saturation.

Guidelines: Actions or management practices that may be used to achieve desired outcomes, sometimes expressed as best management practices.

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.

Habitat diversity: The distribution and abundance of different plant and animal communities and species within a specific area.

Habitat fragmentation: The process by which habitats are increasingly subdivided into smaller units, resulting in their increased isolation as well as loss of total habitat area.

Habitat type: A land or aquatic unit consisting of an aggregation of habitats having equivalent structure, function, and responses to disturbance.

Herbaceous: The plant strata which contain soft, not woody, stemmed plants that die to the ground in winter.

Horizontal drilling: The drilling of an oil or natural gas well at a vertical angle, which allows a well to run parallel to a formation containing oil or gas.

Hydrogen sulfide (H_2S): A flammable, poisonous, corrosive gas with an odor suggestive of rotten eggs, which can occur naturally in the gaseous phase in natural gas reservoirs.

Hydrologic subarea: The contributing watershed to a specific reach of a river.

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

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.

Impact: A modification of the existing environment caused by an action. These environmental consequences are the scientific and analytical basis for comparison of alternatives. Effects may be either direct, which are caused by the action and occur at the same time and place, or indirect, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable, or cumulative. A synonym for "effect."

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

Indian tribe: Any Indian group in the conterminous United States that the Secretary of the Interior recognizes as possessing tribal status.

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.

Interdisciplinary team (ID team): A group of individuals with different training, representing the physical sciences, social sciences, and environmental design arts, assembled to solve a problem or perform a task. The members of the team proceed to a solution with frequent interaction so that each discipline may provide insights to any stage of the problem and disciplines may combine to provide new solutions. The number and disciplines of the members vary with circumstances. A member may represent one or more disciplines or BLM program interests.

Intermittent stream: A stream which flows only at certain times of the year when it receives water from alluvial ground water, springs or from some surface source such as melting snow in mountainous areas.

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.

Key observation point (KOP): Critical viewpoints that are usually along commonly traveled routes or at other likely observation points.

Lambing habitat: An area where sheep deliver and nurse young during a specific time of year.

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.

Leasable minerals: Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. They include coal, phosphate, sulphur, potassium, and sodium minerals, and oil, gas, and geothermal.

Lease: A legal document that conveys to an operator the right to drill for oil, gas; the tract of land on which a lease has been obtained.

Lease notice: Provides more detailed information concerning limitations that already exist in law, lease terms, regulations, and operational orders. A Lease Notice also addresses special items the lessee would consider when planning operations, but does not impose new or additional restrictions.

Lease stipulation: A modification of the terms and conditions on a standard lease form at the time of the lease sale.

Lek: An assembly area where birds, especially sage grouse, carry on display and courtship behavior.

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, 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.

Locatable minerals: Minerals subject to exploration, development, and disposal by staking mining claims as authorized by the Mining Law of 1872, as amended. This includes deposits of gold, silver, and other uncommon minerals not subject to lease or sale.

Long-term impacts: For the purpose of this EIS analysis, long-term effects generally last five years or more.

Mesic: A habitat characterized by moderate moisture and temperature conditions and by a profusion of plant life.

Methane (CH_4): The simplest hydrocarbon; natural gas is nearly pure methane.

Middle ground (mg): Area located from 0.25–0.50 to 3–5 miles from the viewer.

Middle ground (mg): Area located from 0.25–0.50 to 3–5 miles from the viewer.

Mil: A unit of length equal to one thousandth (10^{-3}) of an inch (0.0254 mm), used, for example, to specify the thickness of plastic sheeting.

Mineral estate: The ownership of minerals, including rights necessary for access, exploration, development, mining, ore dressing, and transportation operations.

Mineral materials: Materials such as common varieties of sand, stone, building stone, gravel, and clay that are not obtainable under the mining or leasing laws but that can be acquired under the Mineral Materials Act of 1947, as amended. These are also called salable minerals.

Mineral reserves: Known mineral deposits that are recoverable under present conditions but are as yet undeveloped.

Mineral withdrawal: A formal order that withholds federal lands and minerals from entry under the Mining Law of 1872 and closes the area to mineral location (staking mining claims) and development.

Minimize: To reduce the adverse impact of an operation to the lowest practical level.

Mitigate: To lessen the severity.

Mitigation: Actions to avoid, minimize, reduce, eliminate, or rectify the impact of a management practice.

Mitigation measures: Methods or procedures that reduce or lessen the impacts of an action.

Modification: The making of a limited change in something; the result of such a change.

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

National Ambient Air Quality Standards (NAAQS): The allowable concentrations of air pollutants 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): An act that encourages productive and enjoyable harmony between man and his environment and promotes efforts to prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; enriches the understanding or the ecological systems and natural resources important to the Nation, and establishes the Council on Environmental Quality.

National Register of Historic Places (NRHP): 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.

Natural gas: Those hydrocarbons, other than oil and other than natural gas liquids separated from natural gas, which occur naturally in the gaseous phase in the reservoir and are produced and recovered at the wellhead in gaseous from. Natural gas includes coalbed methane gas.

No Surface Occupancy (NSO): A fluid minerals leasing constraint that prohibits occupancy or disturbance on all or part of the lease surface to protect special values or uses. Lessees may exploit the fluid mineral resources under the leases restricted by this constraint through use of directional drilling from sites outside the area.

Non-WSA Lands with Wilderness Characteristics: Lands that (1) generally appear to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) have outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) have at least five thousand acres of land or are of sufficient size as to make

practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological or other features of scientific, educational, scenic, or historical value. Non-WSA lands with wilderness characteristics are addressed in planning.

Noxious weeds: A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or nonnative, new, or not common to the United States.

Occupied habitat: Any area within 300 feet of a listed plant individual.

Off-highway vehicle (OHV): Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: (1) any nonamphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle when used in times of national defense emergencies.

One-hundred-year flood: A hydrologic event with a magnitude that has a recurrence interval of 100 years.

Operator: Any person who has taken formal responsibility for the operations conducted on the leased lands.

Ozone: A molecule containing three oxygen atoms (O_3) produced by passage of an electrical spark through air or oxygen (O_2).

Paleontological resources (fossils): The physical remains of plants and animals preserved in soils and sedimentary rock formations. Paleontological resources are important for understanding past environments, environmental change, and the evolution of life.

Paleontology: A science dealing with the life forms of past geological periods as known from fossil remains.

Perennial stream: A stream or reach of a stream that flows throughout the year. Permeability – The capacity of a soil or groundwater aquifer to transmit water.

Perennial: A plant whose life cycle lasts longer than two years. The tops of herbaceous perennials die down at the end of the growing season, buds, roots, and underground portions persist.

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.

Physiographic: Pertaining to the genesis and evolution of landforms.

Pipe stringing: Linking casing together to form a continuous string to the target formation. Twenty-foot lengths of casing are screwed and/or welded together.

PM_{10}: 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.

Porosity: The voids or openings in geological materials.

Potential habitat: An area that satisfies the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment.

Prevention of Significant Deterioration (PSD): A regulatory program under the Clean Air Act (P.L. 84-159, as amended) to limit air quality degradation in areas currently achieving the National Ambient Air Quality Standards. The PSD program established air quality classes in which differing amounts of additional air pollution are allowed above a legally defined baseline level. Almost any additional air pollution would be considered significant in PSD Class I areas (certain large National Parks and Wilderness Areas in existence on August 7, 1977). PSD Class II areas allow that deterioration associated with moderate, well-controlled growth (most of the country). Although Class III areas would generally allow planned individual growth, no Class III areas have been established.

Produced water: Formation water pumped during the development of a gas well.

Production well: A well drilled in a known field that produces oil or gas.

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

Project area: The area of land upon which an operator conducts mining operations, including the area needed for building or maintaining of roads, transmission lines, pipelines, or other means of access.

Raptor: Bird of prey with sharp talons and strongly curved beaks such as hawks, owls, vultures, and eagles.

Reasonably foreseeable development (RFD): The prediction of the type and amount of oil, gas, and other mineral activity that would occur in a given area and would contribute to significant cumulative effects on the resources of concern. The prediction is based on geologic factors, past history of drilling, projected demand for oil and gas, and industry interest.

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

Reclamation: The process of restoring disturbed areas using any of several methods; recontouring, spreading topsoil or growth medium, seeding, and planting, among others.

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

Record of Decision (ROD): A document signed by a responsible official recording a decision that was preceded by the preparing of an environmental impact statement.

Reserve pit: A pit prepared on a well pad prior to drilling to use for waste water retention, evaporation and disposal. Waste waters will have a fine solids component.

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

Residuum: Unconsolidated material which accumulates by weathering of parent material in place.

Right-of-way (ROW): A ROW grant is an authorization to use a specific piece of public land for a specific project, such as roads, pipelines, transmission lines, and renewable energy and communication sites. The grant authorizes rights and privileges for a specific use of the land for a specific period of time.

Riparian area: A form of wetland transition between permanently saturated wetlands and upland areas. Riparian areas exhibit vegetation or physical characteristics that reflect the influence of permanent surface or subsurface water. Typical riparian areas include lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams and the shores of lakes and reservoirs with stable water levels. Excluded are ephemeral streams or washes that lack vegetation and depend on free water in the soil.

Rock art: Petroglyphs or pictographs.

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

Scoping: The process of identifying the range of issues, management concerns, preliminary alternatives, and other components of an environmental impact statement. It involves both internal and public viewpoints.

Section 106 compliance: The requirement of Section 106 of the National Historic Preservation Act that any project funded, licensed, permitted, or assisted by the Federal Government be reviewed for impacts to significant historic properties and that the State Historic Preservation Officer and the Advisory Council on Historic Preservation be allowed to comment on a project.

Section 7 Consultation: The requirement of Section 7 of the Endangered Species Act that all federal agencies consult with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service if a proposed action might affect a federally listed species or its critical habitat.

Sediment: Soil or rock particles that have been transported to stream channels or other bodies of water. Sediment input can come from natural soil erosion, rock weathering, agricultural practices, or construction activities.

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

Sedimentary: Rock resulting from the consolidation of loose sediment, which may originally consist of minerals, rock debris, or animal or vegetable matter, that has accumulated in layers (e.g. sandstone, siltstone, limestone, and shale).

Seismic: Seismic waves are shock waves or vibrations usually generated by an earthquake. In oil and gas exploration, seismic waves are generated by creating vibrations at the ground surface. These are reflected by the various layers of rock beneath the ground and measured at the surface. Computer analysis enables a cross-section of the rock layers to be constructed thus revealing potential mineral deposits.

Sensitive species: The designation (normally for species other than federally listed, proposed, or candidate species) given to species that occur on BLM-administered lands and that the BLM could significantly affect the conservation status of through management. Sensitive species may include those that 1) could become endangered in or extirpated from a state, or within a significant portion of their distribution; 2) are under status review by the Fish and Wildlife Service and National Marine Fisheries Service; 3) are undergoing significant current or predicted downward trends in habitat capability or population or density; 4) typically have small and widely dispersed populations; 5) inhabit specialized or unique habitats; or 6) are state listed but may be better conserved through the application of BLM sensitive species status (see BLM Manual 6840, Special Status Species Management).

Short-term impacts: For the purpose of this EIS analysis, short-term impacts are generally defined as those that would last fewer than 5 years.

Shut-in: Refers to a well that is completed, is shown to be capable of production in paying quantities, and is not presently being operated.

Slope: The degree of deviation of a surface from the horizontal.

Special Status Species: Species that have been proposed for listing or officially listed as threatened or endangered, and species designated as candidates for listing as threatened or endangered under the ESA; state-listed species; and BLM state director–designated sensitive species (see BLM Manual 6840, Special Status Species Management).

Species of Special Concern: A native species whose population is low and limited in distribution or has suffered reductions because of habitat loss.

Species: Organisms that successfully reproduce among themselves and cannot reproduce successfully with other organisms.

Statistically significant: A difference between samples/responses large enough to be attributed to something other than expected sampling error.

Stipulations: Requirements that are 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 time of issuance at the discretion of the surface management agency to protect valuable surface resources and uses.

Strata: An identifiable layer of bedrock or sediment; does not imply a particular thickness of rock.

Strip topsoil: To salvage a specific depth of topsoil with a scraper, dozer, or grader for use in future revegetation of the site.

Substrate: Material consisting of silts, sands, gravels, boulder and woody debris found on the bottom of a stream channel.

Suitable habitat: Areas that exhibit the specific habitat features necessary for a species' persistence, as determined by field inspection and/or surveys, but that may or may not contain the species.

Surface disturbance: Activities that normally result in more than negligible disturbance to public lands and that accelerate the natural erosive process. These activities normally involve use and/or occupancy of the surface, cause disturbance to soils and vegetation, and are usually caused by motorized or mechanical actions. Surface disturbance may result from activities using earth-moving and drilling equipment; off road vehicle travel; vegetation treatments; the use of pyrotechnics and explosives; and construction of facilities like powerlines, pipelines, oil and gas wells, recreation sites, livestock facilities, or new roads. Surface disturbance is not normally caused by casual use. Activities that are not typically surface disturbing include, but are not limited to, proper livestock grazing, cross-country hiking, minimum impact filming and vehicle travel on designated routes.

Sustainability: The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

Target formation: The geological association of rocks which contain the exploitable mineral reserves.

Threatened Species: Any plant or animal species defined under the Endangered Species Act as likely to become endangered within the foreseeable future throughout all or a significant portion of its range; listings are published in the Federal Register.

Timing Limitation: A constraint that limits or prohibits surface use during specified time periods to protect identified resource values. The constraint does not apply to the operation and maintenance of production facilities unless analysis demonstrates that such constraints are needed and that less stringent, project-specific constraints would be insufficient.

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

Total suspended solids (TSS): Amount of undissolved particles suspended in liquid.

Transmission pipeline: A pipeline larger than gathering or collection pipelines, typically larger than 10 inches diameter, for transporting oil or natural gas over long distances.

Turbidity: A fisheries measurement of the total suspended solids in water expressed as nephelometric turbidity units (NTU).

Two-phase separator: A basin that accommodates the separation of different density fluids, in this case gas and produced water.

Valid existing rights: Valid existing rights are legal rights to use the land that were in existence prior to implementation of new decisions in the area. The most significant types of valid existing rights are oil and gas leases, potash and salt leases, mining claims, and right-of-way authorizations. The oil and gas leasing stipulations specified for specific areas in the RMP would not apply to existing leases. These existing leases would be subject to the specific lease stipulations that were applied under the previous land use plan. An existing right-of-way would only be subject to the specific terms and conditions that were applied when it was authorized even if it is located within a right-of-way exclusion or avoidance area specified under the RMP.

Vegetation: All of the plants growing in and characterizing a specific area or region; the combination of different plant communities found there.

Vegetation type: A plant community with distinguishable characteristics described by the dominant vegetation present.

Visual Resources: The visible physical features of a landscape (topography, water, vegetation, animals, structures, and other features) that constitute the scenery of an area.

Visual Resource Management (VRM) Class: One of the four visual management classes (Class I, Class II, Class III, and Class IV) used by the BLM in the VRM system to manage visual resources within its jurisdiction.

Waiver: Permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

Warranted but precluded: A finding under the ESA after a comprehensive assessment of a species' biological status and threats. This finding means that the timely promulgation of a final regulation concerning the species is precluded by other higher-priority actions. A warranted but precluded finding is automatically recycled back through the listing process indefinitely until a result of either "not warranted" or "warranted" is determined. The status of any warranted but precluded species is monitored.

Water quality: The chemical, physical, and biological characteristics of water with respect to its suitability for a particular use.

Watershed: All lands, which are enclosed by a continuous hydrologic drainage divide, and lay upslope from a specified point on a stream.

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 Study Area (WSA): A road-less area or island that has been inventoried and found to have wilderness characteristics as described in Section 603 of FLPMA and Section 2(c) of the Wilderness Act of 1964. A WSA must be managed to be consistent with the direction provided in Section 603(c) of FLPMA. In general, the wilderness characteristics of each WSA must be maintained until Congress decides whether it should either be designated as wilderness or should be released for other purposes.

Wildland fire: Any nonstructural fire, other than prescribed fire, that occurs in the wild land.

Winter range: The portion of the winter range to which a wildlife species is confined during periods of heaviest snow cover.

Withdrawal: An action that restricts the use of public lands by removing them from the operation of some or all of the public land or mining laws.

Woodland: A forest community occupied primarily by noncommercial species such as juniper, mountain mahogany, or quaking aspen groves; all western juniper forestlands are classified as woodlands, since juniper is classified as a noncommercial species.

Workover: Well maintenance activities which 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.