

GLOSSARY



Glossary

2-D Seismic Survey: Seismic surveys conducted along single or widely spaced lines. The data can be interpreted as a two-dimensional representation of the geologic formations in the earth under the area where the survey took place. The image is used to identify the limits of potential or known locations of oil and gas resources.

3-D Seismic Survey: Seismic surveys conducted along relatively tightly spaced lines laid out in a grid pattern. Data (returned sound energy) are collected for the same location from different angles due to the tight line spacing. Computer analysis of the data yields a three-dimensional representation of the geologic formations under the area where the survey took place.

12(b) Lands: Lands selected by Native corporations under Section 12(b) of the Alaska Native Claims Settlement Act.

17(b): Section of the Alaska Native Land Claims Settlement Act that provides for the establishment of public easements across lands conveyed to Native corporations to guarantee public access to public lands or waters.

A

Abiotic: The non-living part of the environment; as used in this document it refers to the physical characteristics of the environment like water, soils, and minerals.

Access Road: A (gravel) road that would connect an oil field with the Alaska Highway system facilitating year-round access to the field with vehicles, equipment, and supplies.

Active Layer: The surface soils or sediments above permafrost that thaw each summer and refreeze each winter.

Aerial: Consisting of, moving through, found in, or suspended in the air.

Agreement in Principle: The document (Appendix A) that specifies key elements tentatively agreed upon by the U.S. Fish and Wildlife Service (Service) and Doyon, Limited (Doyon). These key elements would provide the framework for a land exchange.

Alaska Gas Line: Refers to a proposed pipeline that would transport natural gas from the North Slope of Alaska to markets in the U.S. and other countries.

Alaska Heritage Resources Survey (AHRs) Sites: Known cultural resource sites that have been documented and are listed on the Alaska Heritage Resources Survey.

Alluvium / Alluvial: Alluvium consists of sediments (gravel, sand, silt, clay, etc.) that were transported by flowing water and then deposited in and along streams where the water current slowed. Alluvial is an adjective that can refer to the area where the sediments are deposited (e.g., alluvial plain) or the soils derived from the sediments (i.e., alluvial soils).

Alternatives: The different means by which objectives or goals can be attained. One of several policies, plans, or projects proposed for decision making.

Ambient: A term used to describe the environment as it exists at the point of measurement and against which changes (impacts) are measured.

Ambient Air Quality Standard: Air pollutant concentrations of the surrounding outside environment that cannot legally be exceeded during fixed time intervals within a specific geographic area.

Anadromous: A term used to describe fish that mature in the sea and swim up freshwater rivers and streams to spawn. Chinook, chum, and coho salmon are examples of anadromous fish.

Anthropogenic: Of, relating to, or resulting from the influence of human beings on nature.

Anticline: An inverted bowl-shaped geologic structure formed when sedimentary rock layers are folded to produce an arch or elongated dome.

Appraisal: A process that establishes the fair market value of a property. An independent appraisal is conducted for the exchange properties under the Federal government's Uniform Appraisal Standards for Federal Land Acquisitions.

Aquatic: Growing, living in, frequenting, or taking place in water; used to indicate habitat, vegetation, and wildlife in water.

Archaeological Resource: Place where the remnants (e.g., artifacts) of a past culture survive in a physical context that allows for the interpretation of these remains. Archaeological resources can be districts, sites, buildings, structures, or objects and can be prehistoric or historic in nature.

Arctic Haze: Visible layers observed in the atmosphere in arctic Canada and Alaska caused by pollutants that are emitted in northern Europe and Russia and collect in the arctic.

Aromatic Hydrocarbon: A hydrocarbon with a molecular structure involving one or more benzene unsaturated resonant rings of six carbon atoms, and having properties similar to benzene, which is the simplest of the aromatic hydrocarbons.

Aufeis: Thick ice that builds up in streams as a result of repeated overflow of water over existing ice.

B

Barrel: Unit of measurement consisting of 42 gallons of oil or other fluid.

Baseline Data: Data gathered prior to the proposed action to characterize pre-development site conditions.

Basin: A geologic structure covering a broad tract of land under which the rock strata are tilted toward a common center or point.

Beaver Creek Public Use Easement: An easement that would be established on core exchange lands (currently Federal lands) proposed for exchange to Doyon under the action alternatives. The easement, which would include the lands located within about ½ mile of either side of Beaver Creek within the core lands, would protect public use of this area.

Beaver Creek Wild River Corridor: Lands along the 127-mile portion of Beaver Creek that have been designated as a Wild River. The first 111 miles of the Wild River segment are in the White Mountain National Recreation Area and are managed by the Bureau of Land Management. The final 16 miles of the river are in the Refuge and are managed by the Service. The Wild River segment includes the river itself and lands on either side; the width of this corridor varies along the river, but, as specified by the Alaska National Interest Lands Conservation Act (ANILCA), it includes "...an average of not more than six hundred and forty acres per mile on both sides of the river."

Biogenesis: The production of substances by biological organisms, including the production of natural gas in the earth by bacteria that are metabolizing organic materials in sedimentary rocks.

Biological Diversity: The variety of life and its processes, including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur. A measure of the amount of variety.

Biological Integrity: Biotic composition, structure, and functioning at genetic, organism, and community levels comparable with historic conditions, including the natural biological processes that shape genomes, organisms, and communities.

Biotic: The living components of the environment; as used in this document it refers to the biological characteristics of the environment like the numbers and types of plants and animals.

Biotransformation: The alteration of the chemical structure of a chemical compound by metabolic and biochemical processes after it is ingested or absorbed by an organism.

Blowout: The uncontrolled flow of reservoir fluids (crude oil, water, etc.) or gases in a well-bore while drilling.

Brackish: Water that is intermediate between salt and fresh water; often occurs at the mouths of rivers, where fresh water mixes with salt water.

Braided Stream: A stream that is separated into multiple separate channels.

Brood: A group of young birds being cared for by an adult bird; generally the surviving hatchlings from one or more clutches of eggs.

Bureau of Land Management (BLM): An agency of the United States government, under the Department of the Interior, responsible for administering certain public lands of the United States.

C

Calving Area: A large area where large mammals, particularly ungulates such as caribou, congregate to give birth to their young.

Capital Expenses: The money spent to purchase or upgrade physical assets, such as buildings or machinery.

Casinghead Gas: Gas produced with oil from an oil well.

Cfs: Cubic feet per second; 1 cfs equals 448.33 gallons per minute.

Code of Federal Regulations (CFR): A codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal government.

Confluence: The location where two streams converge or meet and their waters mix.

Conifer / Coniferous: Conifers are a group (Order Coniferales) of tree and shrub species with needle-like leaves and cones, most of which are evergreen. Common conifers in the Refuge include white and black spruce. Coniferous can refer to the trees or forests composed primarily of coniferous trees.

Consolidation Lands: Lands proposed for exchange between Doyon and the Service for the expressed purpose of consolidating land ownership on the Refuge. Native and Federally owned (Refuge lands) parcels are currently in a checkerboard pattern. The exchange of townships would group the Native and Federal landholdings.

Consultation: Exchange of information and interactive discussion; when the “C” in consultation is capitalized it refers to consultation mandated by statute or regulation that has prescribed parties, procedures, and timelines (e.g. Consultation under the National Environmental Policy Act [NEPA] or Section 7 of the Endangered Species Act).

Conveyed Lands: Legally-owned lands. Under criteria established by the Alaska Native Claims Settlement Act (ANCSA; Public Law [PL] 92-203) in 1971, Native corporations were able to obtain legal title to certain public lands by first selecting them.

Core Lands: The lands that Doyon would receive from the Service in the initial exchange (not including consolidation exchanges) in Phase I of the proposed land exchange under the action alternatives.

Council on Environmental Quality (CEQ): An advisory council to the President of the United States; 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.

Criteria: Data and information that are used to examine or establish the relative degrees of desirability of alternatives or the degree to which a course of action meets an intended objective.

Cultural Resources: The remains of sites, structures, or objects used by humans in the past, historic or prehistoric. More recently referred to as heritage resources.

D

Deciduous: Trees or shrubs such as white birch, balsam poplar, or willow that lose their leaves seasonally. Also refers to forests composed primarily of deciduous trees.

Density: The number of individuals per a given unit of area.

Deposit: A natural accumulation, as of precious metals, minerals, coal, gas, or oil.

Development: The phase of petroleum operations that occurs after exploration has proven successful, and before full-scale production. Development includes both the drilling of development wells and construction of facilities and infrastructure.

Dilution: The act of mixing or thinning, and therefore decreasing a certain strength or concentration.

Dispersion: The act of distributing or separating into lower concentrations or less dense units.

Diversity: An expression of plant and animal community structure; high if there are many equally abundant species and low if there are only a few equally abundant species. The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan.

Drill Cuttings: The rock, sand, and other material removed from the geological formation by the drill bit and transported to the surface with drilling fluids during the drilling of oil and gas exploration, delineation, and production wells.

Drilling, Delineation: Drilling that is conducted after initial discovery of oil or gas resources in order to define the limits of the oil and/or gas reservoir and assist in development of the resources.

Drilling, Exploratory: Drilling that is conducted in the search for oil or gas resources.

Drilling Fluid (mud): A preparation of water, clay, and chemicals circulated in a well during drilling to lubricate and cool the drill bit, flush rock cuttings to the surface, prevent sloughing of the sides of the hole, and prevent the flow of formation fluids into the bore-hole or to the surface.

Drilling Pad: A temporary drilling site, usually constructed of local materials such as ice or gravel.

Ducks, Dabbling: A group of duck species (family Anatidae, subfamily Anatinae, tribe Anatini) so named because its members feed mainly on vegetable matter by upending (tipping) on the water surface, or grazing, and only rarely diving. Common dabbling duck species include mallard, northern pintail, gadwall, American wigeon, and green-winged teal.

Ducks, Diving: A group of duck species (family Anatidae, subfamily Aythyinae) so named because its members feed mainly by diving (in deeper water than the dabbling ducks). Diving ducks do not walk as well on land as the dabbling ducks; their legs tend to be placed further back on their bodies to help propel them when underwater. Common diving duck species include the canvasback and lesser scaup and sea ducks such as the white-winged scoter.

E

Economically Recoverable: See commercially recoverable.

Ecoregion: A geographic area that is delineated and defined by similar climatic conditions, geomorphology, and soils. Ecoregions cover relatively large areas of land or water, and contain a characteristic and geographically distinct assemblage of natural communities and species.

Effect: Environmental change resulting from an action. Direct effects are caused by the action and occur at the same time and place, while indirect effects are caused by the action but are later in time or further removed in distance, although still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effect and impact are synonymous as used in this document.

Effect, Cumulative / Cumulative Impacts: The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

Effect, Direct / Direct Impact: Those effects that occur at the same time and in the same general location as the activity causing the effects.

Effect, Indirect / Indirect Impact: Those effects that occur at a different time or in a different location than the activity to which the effects are related.

Emergent Wetland: Wetlands dominated by erect, rooted, herbaceous (forbs, grasses, sedges, and rushes, not woody plants such as trees and shrubs) plant species. Emergent wetlands include marshes and bogs.

Employment: Labor input into a production process, measured in the number of person-years or jobs; the number of jobs required to produce the output of each sector. A person-year is approximately 2,000 working hours by one person working the whole year or by several persons working seasonally.

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

Environment: The physical conditions that exist within an area (e.g., the area that will be affected by a proposed action), including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The sum of all external conditions that affect an organism or community to influence its development or existence.

Environmental Health: The composition, structure, and functioning of soil, water, air, and other abiotic features comparable with historic conditions, including the natural abiotic processes, that shape the environment.

Environmental Impact Statement (EIS): An analytical document prepared under NEPA that portrays the potential impacts to the environment of an action. An EIS is developed for use by decision-makers to weigh the environmental consequences of a potential action.

Environmental Justice: The fair treatment and meaningful involvement of all people, regardless of natural origin or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socio-economic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, State, local, and Tribal programs and policies. Executive Order 12898 directs Federal agencies to achieve environmental justice as part of their missions by identifying and addressing disproportionately high adverse effects of agency programs, policies, and activities, on minority and low-income populations.

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

Essential Fish Habitat (EFH): The Magnuson-Stevens Fisheries Conservation and Management Act requires local management councils (e.g., North Pacific Management Council in Alaska) to develop fisheries management plans that identify habitat that is essential to their managed fish species. EFH can consist of both the water column and the underlying surface (e.g., seafloor) of a particular area. Areas designated as EFH contain habitat essential to the long-term survival and health of our nation's fisheries. EFH includes those habitats that support the different life stages of each managed species.

Ethnographic: Of or pertaining to the descriptive and analytical study of the culture of particular self-defined groups or communities.

Eutrophic: Referring to water bodies with high primary productivity, the result of high nutrient content.

Evapotranspiration: The sum total of movement of water from the land surface or soils to the atmosphere by evaporation and plant transpiration. Evaporation is the movement of water to the air from sources such as soils and waterbodies. Transpiration is the movement of water within a plant and the subsequent loss of water as vapor through its leaves.

Evergreen: An evergreen plant is one that retains its leaves year round, with each leaf persisting for more than 12 months. This contrasts with deciduous plants, which completely lose all their foliage for part of the year, becoming bare and leafless. Common evergreen trees include black and white spruce.

Exchange Lands: The lands the U.S. Government would receive from Doyon in exchange for the core lands in Phase I of the action alternatives.

Exotic Species: An exotic or introduced species is an organism that is not indigenous or native to a given place or area and instead has been accidentally or deliberately transported to this new location by human activity. Introduced species can often be damaging to the ecosystem to which they are introduced.

Exploration: Activities that are undertaken in the search for previously undiscovered oil and gas or other natural resources. These activities include such activities as seismic surveys and exploratory drilling.

F

°F: Degrees Fahrenheit.

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

Final Environmental Impact Statement (Final EIS): A revision of the Draft Environmental Impact Statement that includes public and agency comments on the draft.

Fire Cycle: The average number of years between fires at a given location. The fire cycle averages about 109 years over much of the Refuge, but ranges from 70 to 200 years depending on the location.

Fishery: The act, process, occupation, or season of taking an aquatic species; the species themselves.

Floodplain: The lowland and relatively flat area adjoining inland waters, including, at a minimum, that area subject to a 1% or greater chance of flooding in any given year.

Floodplain, Active: The flat area along a water body (most commonly a stream) where sediments are deposited by seasonal or annual flooding; generally demarcated by a visible high water mark.

Flow Reservation: A type of water right to a waterbody that is issued by the Alaska Department of Natural Resources. If issued, other water users can not withdraw water from the same water body that would lower the overall water flow or level below that declared in the reservation.

Fluvial: Of or relating to a stream or river.

Fossil Fuel: Petroleum, natural gas, and coal; fuel derived from biologic material that was deposited into sedimentary rocks.

Frequency: The number of samples in which a plant or animal species occurs divided by the total number of samples.

Fugitive Dust: Dust particles suspended in the air, usually from road travel, exposure of unvegetated soils or earthen materials to the wind, excavation, and/or rock loading operations.

G

Game Management Unit (GMU): A geographic division made by the Alaska Department of Fish and Game for the management of fish and wildlife in the State. Different GMUs have different hunting and fishing seasons, harvest limits, and other harvest rules.

Global Warming: An increase over time of the average temperature of the earth's atmosphere and oceans. It is generally used to describe the temperature rise over the past century or so, and the effects of humans on the temperature.

Graminoid: Grasses and grasslike plants, such as sedges.

Greenhouse Gas: Greenhouse gases are components of the atmosphere that contribute to the greenhouse effect. Some greenhouse gases occur naturally in the atmosphere, while others result from human activities such as burning of fossil fuels such as coal. Greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

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

Groundwater Recharge: The physical process in the overall water cycle in which precipitation or surface water enters into groundwater aquifers replacing water that has been lost by groundwater discharge.

H

Habitat: The natural environment of a plant or animal, including all biotic, climatic, and soil conditions, or other environmental influences affecting living conditions. The place where an organism lives.

Halo Lands: Lands involved in the land exchange where Doyon would receive only subsurface oil and gas interests; surface ownership would be retained by the Service. No surface occupancy by Doyon would be allowed on these lands. Resources on these lands or resources would be explored or extracted via directional drilling from adjacent Doyon-owned lands.

Hazardous Waste: As defined by the Environmental Protection Agency, a waste that exhibits one or more of the following characteristics: ignitability, corrosivity, reactivity, and/or toxicity. Hazardous wastes are listed in 40 Code of Federal Regulations (CFR) § 261.3 and 40 CFR § 171.8.

Headwaters: The upper reaches of a stream where the stream forms.

Herb / Herbaceous: An herb is a flowering plant, such as grasses, sedges, rushes, and forbs, with no significant woody tissue above the ground. Herbaceous refers to the plant itself or to plant communities and wetlands in which the most abundant plants are herbs.

Hydrocarbon: A naturally occurring organic compound comprised of hydrogen and carbon. Hydrocarbons can occur in molecules as simple as methane (one carbon atom with four hydrogen atoms), but also as highly complex molecules, and can occur as gases, liquids, or solids. The molecules can have the shape of chains, branching chains, rings, or other structures. Petroleum is a complex mixture of hydrocarbons. The most common hydrocarbons are natural gas, oil, and coal.

Hydrophytes: Plants that are strongly associated with, and primarily found in, wetlands and water bodies; also referred to as aquatic plants or wetland plants.

I

Impact: Synonymous with effect; see Effect; Effect, Cumulative; Effect, Direct; and Effect, Indirect.

Impermeable: Not permitting passage of fluids through its mass.

Impoundment: The collection and confinement, usually of water (in the case of mining, tailings materials), in a reservoir or other storage area.

Increment: An amount of change from an existing concentration or amount, such as air pollutant concentrations.

Indigenous: Having originated in and being produced, growing, living, or occurring naturally in a particular region or environment.

Infrastructure: The underlying foundation or basic framework; physical substructure of a community (i.e., schools, police, fire services, hospitals, water, roads, and sewer systems).

Injection: Placing solids, fluids, or gases down a wellbore and under pressure into the geologic formations below the surface of the earth. Drilling or production wastes or often injected for final disposal. Produced water or gases are sometimes injected into the formation to maintain reservoir pressure and enhance the recovery of oil.

Interdisciplinary Team: A group of professionals from various disciplines responsible for preparation of the EIS as indicated in the list of preparers in Chapter 5. This team has undertaken the review of a subject from various angles and methods, eventually cutting across disciplines and forming a new method for understanding of the subject.

Invasive Species: An alien (non-native) species whose introduction does or is likely to cause economic or environmental harm or harm to human health. For example, a non-native species that has the capacity to grow and spread rapidly, establish over large areas, and become dominant over native species would be considered invasive.

Irretrievable: A term that applies to losses of production, harvest, or commitment of renewable natural resources. For example, some or all of the wildlife forage production from an area is irretrievably lost during the time an area is used as an oil or gas development site. If the use changes, forage production can be resumed. The production lost is irretrievable, but the act is not irreversible.

Irretrievable Commitments: Those commitments that are lost for a period of time.

Irreversible: A term that 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. Irreversible also includes loss of future options.

Irreversible Commitments: Those commitments that cannot be reversed, except perhaps in the extreme long term.

J

K

L

Lacustrine: Refers to the environment, sediments, or organisms within or associated with a lake.

Landform: Any physical, recognizable form, or feature on the earth's surface having a characteristic shape, that is produced by natural causes. Landforms provide an empirical description of similar portions of the earth's surface.

Land Management: The intentional process of planning, organizing, programming, coordinating, directing, and controlling land use actions.

Landscape: The sum total of the characteristics that distinguish a certain area on the earth's surface from other areas; these characteristics are a result not only of natural forces, but also of human occupancy and use of the land. An area composed of interacting and interconnected patterns of habitats (ecosystems), which are repeated because of geology, landforms, soils, climate, biota, and human influences throughout the area.

Land Status: The ownership status of lands.

Laterally Discontinuous: Not continuous in the horizontal plane. For example, in an area with laterally discontinuous permafrost, the permafrost is not uniformly found across the entire area without interruption.

Long-term Impacts: Impacts that normally result in permanent changes to the environment. An example is the loss of habitat due to development of a gravel pit. For each resource, the definition of long-term may vary.

Low-Pressure Vehicles: Various sizes and types of trucks and other vehicles that exerts low pressure on the ground, and are designed to travel across sensitive areas, such as tundra, with minimal disturbance.

M

Management Action: A human activity imposed on a landscape for the purpose of harvesting, traversing, transporting, quantifying, or replenishing natural resources.

Mean: A statistical value calculated by dividing the sum of a set of sample values by the number of samples. Also referred to as the arithmetic mean or average.

Memorandum of Understanding (MOU): A memorandum that documents an agreement reached among agencies.

Metric Ton: A unit of mass equal to 1,000 kilograms or 2,205 pounds.

Migratory: Moving from place to place, daily or seasonally.

Mineral Licks: A naturally occurring mineral source that supplies animals such as the Dall sheep with critical nutrients.

Mitigation: Steps taken to: (1) avoid an impact altogether by not taking a certain action or parts of an action; (2) minimize an impact by limiting the degree or magnitude of the action and its implementation; (3) rectify an impact by repairing, rehabilitating, or restoring the affected environment; (4) reduce or eliminate an impact over time by preserving and maintaining operations during the life of the action; and, (5) compensate for an impact by replacing or providing substitute resources or environments (40 CFR Part 1508.20).

Mulcher, Mechanical: Motorized equipment that clears woody vegetation by cutting the entire plant off at the ground surface and grinding it into chips (mulch) that are then spread out over the cleared area.

N

National Environmental Policy Act (NEPA): An act declaring a national policy to encourage productive and enjoyable harmony between humankind and the environment; promote efforts to prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity; enrich the understanding of the ecological systems and natural resources important to the nation; and establish a Council on Environmental Quality.

National Pollutant Discharge Elimination System (NPDES): A program authorized by Sections 318, 402, and 405 of the Clean Water Act, and implemented by regulations 40 CFR § 122. The NPDES program requires permits for the discharge of pollutants from any point source into waters of the United States.

Native Corporation: The term includes: Regional Corporations, Tribal Organizations, and Village Corporations.

Regional Corporation: An Alaska Native Regional Corporation, established under the laws of the State of Alaska in accordance with provisions of ANCSA. The State of Alaska has been divided into 12 Native Regional Corporations with a thirteenth formed for Alaska Natives who live outside of Alaska. Regional Corporations receive all subsurface rights of lands acquired by Village Corporations within their region. They also receive the surface and subsurface rights of lands conveyed to the region.

Tribal Organization: An Alaskan Tribe/Village, Tribal Consortium, or other group formed by Tribes/Villages that have, either by a compact or 638 contract under the Indian Self-Determination and Education Act, assumed the delivery of Bureau of Indian Affairs services to Natives, including Native allotments.

Village Corporation: An Alaskan Native Village Corporation, organized under the laws of the State of Alaska as a business for profit or nonprofit corporation to hold, invest, manage, and/or distribute lands, property, funds and other rights and assets for and on behalf of a Native village in accordance with the terms of ANCSA. Village corporations receive ownership of the surface estate on the land conveyed to them. The Village corporation entitlement varies from three to seven townships, depending on their population as of 1970.

Navigable Waters: Those waters, rivers, or lakes which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways of commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water. Typically, these bodies of water are large enough to accommodate a boat, and include streams, creeks, and wetlands that empty into larger river and lakes. The term does not include or apply to groundwater.

Net Present Value (NPV): The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total discounted costs of managing the planning area.

Non-Development Easement: Legally binding restrictions that landowners voluntarily place on their properties that bind present and future owners; these restrictions limit certain rights of land use such as the development of property for oil and gas exploration and development.

Non-point Source: Pollution discharged over a wide land area, not from one specific location. These are forms of diffuse pollution caused by sediment, nutrients, organic, and toxic substances originating from land-use activities, which are carried to lakes and streams by surface runoff. Non-point source pollution is contamination that occurs when rainwater, snowmelt, or irrigation washes off plowed fields, city streets, or suburban backyards. As this runoff moves across the land surface, it picks up soil particles and pollutants, such as nutrients and pesticides.

No Surface Occupancy: An area that is open for mineral leasing, but in order to protect other resource values, is closed to surface disturbance unless specifically exempted by permit or NEPA analysis. For purposes of this EIS, no surface occupancy restriction would preclude the following: drilling, both exploratory and production, field gathering pipelines, roads, and electric transmission lines. All drilling locations and oil field infrastructure described above would be located on Doyon core lands. The no surface occupancy restriction would provide for the following exceptions: (1) a temporary surface occupancy would be allowed for geophysical exploration, but would be addressed through a permit issued by the Refuge that would address concerns such as timing and method of exploration; and (2) transportation pipeline facilities would be allowed, but would be addressed through an EIS. The Service cannot refuse access to inholdings, including subsurface ownerships, but can require a permit pursuant to ANILCA Title 11 to allow reasonable access to those inholdings.

O

Objective: A concise, often time-specific statement of measurable planned results that respond to pre-established goals. An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used to achieve identified goals.

Oil and Gas Assessment: An appraisal carried out in order to estimate the probability that oil and gas resources exist within an area and the volume that might be recoverable.

Oiled: Having oil on skin, fur, or feathers that has come in contact with oil.

Oil Field: A region with an abundance of oil wells extracting petroleum (oil) from below ground. Because oil reservoirs typically extend over a large area, possibly several hundred miles across, full exploitation entails multiple wells scattered across the area. In addition to these wells, there may be exploratory wells probing the edges of the field, pipelines to transport the oil elsewhere, and support facilities within the oil field.

Organized Borough: A legally established geographic entity in Alaska, which the Census Bureau treats as statistically equivalent to a county in other states.

Over-wintering Habitat: Portions of a non-frozen lake or stream large and sustainable enough to support the survival of fish throughout the winter.

Ozone: Form of oxygen found largely in the stratosphere; a product of the reaction between ultraviolet light and oxygen.

P

Particulates: Small particles suspended in the air and generally considered pollutants.

Passerine: Perching birds or songbirds.

Per Capita: Per person, such as per capita income which is total income divided by the total population.

Permafrost: Perennially frozen ground, or ground in which a temperature below 0 degrees Celsius has existed continuously for 2 or more years. Permafrost is defined exclusively on the basis of temperature and no moisture or ice need be present.

Permafrost, Continuous: Areas where more than 90% of the ground surface is underlain by permafrost.

Permafrost, Discontinuous: Areas where the ground surface is underlain by permafrost in some areas and without permafrost in other areas. It occurs between the continuous permafrost zone and the southern latitudinal limit of permafrost in lowlands.

Perpetual Production Payment: A contractual arrangement providing an interest that gives the owner a right to receive a fraction of production, or of proceeds from the sale of production, in perpetuity or until production ceases.

Persistent, Bioaccumulative, and Toxic (PBT): Persistent, bioaccumulative, and toxic chemicals created by humans in industrial processes, either intentionally or as by-products.

Pipeline, Infield: A pipeline that would be constructed entirely within an oil field or between a satellite field and the main field. These pipelines would transport crude oil or other reservoir fluids and gases from wells to production facilities (using flow lines and gathering lines) and fluids or gases from production facilities to wells for injection.

Pipeline, Sales: A petroleum pipeline that would transport processed crude oil from an oil production facility to a market, such as the Trans-Alaska Pipeline System.

Place Name: Native names for a location; the existence of a known name indicates that the locale may be associated with subsistence camp, cabin, activity area, and other places important to the history and culture of local residents.

Placer: Glacial or alluvial deposits of sand or gravel that contain gold particles or other valuable minerals.

Plant Community: A vegetation complex, unique in its combination of plants, which occurs in particular locations under particular influences. A plant community is a reflection of integrated environmental influences on the site, such as soils, temperature, elevation, solar radiation, slope aspect, and precipitation.

Pleistocene: The Pleistocene epoch on the geological time scale, a scale used by geologists and other scientists to describe the timing and relationships between events that have occurred during the history of Earth, is the period intended to cover the world's recent period of repeated glaciations. Estimates of the Pleistocene indicate that it began about 1,600,000 years ago and ended roughly 10,000 years ago.

Pollution: Human-caused or natural alteration of the physical, biological, and radiological integrity of water, air, or other aspects of the environment that produces undesired effects.

Polychlorinated Biphenyls (PCB): Polychlorinated biphenyls are a class of organic compounds manufactured as cooling and insulating fluids for industrial transformers and capacitors, and banned in the 1970s due to their high toxicity.

Polycyclic Aromatic Hydrocarbons (PAH): Polycyclic aromatic hydrocarbons are chemical compounds and widespread organic pollutants. Some are known or suspected carcinogens, and are linked to other health problems. They are primarily formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, or tobacco.

Polygon: A surface landform resulting from repeated freeze-thaw cycles common in permafrost areas. Polygons are bounded by troughs of ice or water and generally occur in networks that form regular geometric designs with multiple square sides of nearly equal lengths.

Porosity: The ratio of the volume of void space in a material (e.g., sedimentary rock or sediments) to the volume of its mass. A measure of how porous a material (particularly soils and other geological materials, to gases and fluids).

Potable: Suitable, safe, or prepared for drinking, as in potable water.

Pre-scoping: The period in which informal project proposal review and assessment, public meetings, and a public comment period were conducted by the Service. These activities occurred before issuance of the Notice of Intent (NOI) in the Federal Register to prepare an EIS. The activities that followed the NOI are part of the formal NEPA scoping process.

Prevention of Significant Deterioration (PSD): A U.S. Environmental Protection Agency program in which state and/or federal permits are required in order to restrict emissions from new or modified sources in places where air quality already meets or exceeds primary and secondary ambient air quality standards.

Pristine: Pure, original, and uncontaminated.

Production: The phase that occurs after successful exploration and development, during which petroleum hydrocarbons (oil or gas) are produced. Reservoir fluids are extracted from the ground through a well and then piped to a production facility where they are separated into produced water (waste), and liquid hydrocarbons (crude oil or natural gas liquids) or natural gas for sale.

Q

Quiet Title: An action to quiet title is a lawsuit brought in a court having jurisdiction over land disputes, in order to establish a party's title to real property against anyone and everyone, and thus "quiet" any challenges or claims to the title. This legal action is "brought to remove a cloud on the title so that plaintiff may forever be free of claims against the property."

R

Raptor: Bird of prey; includes eagles, hawks, falcons, and owls.

Reallocation of 12(b) Land Selections: Under Section 12(b) of the ANCSA, Doyon, as a Regional Native Corporation, was provided the opportunity to select Federal lands in Alaska for subsequent ownership (conveyance). Reallocation is the process of removing the selection from one parcel of land not yet conveyed and reassigning the selection to a different parcel of land.

Recharge: Absorption and addition of water into the zone of saturation; surface waters entering groundwater.

Recommended-Wilderness Area: Approximately 658,000 acres along the southern boundary of the Yukon Flats National Wildlife Refuge that were recommended by the Service in 1987 for designation as Wilderness under the Wilderness Act. The recommendation has never been formally proposed to Congress or acted on.

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

Recoverable Reserves: Oil and gas reserves that may be recoverable (removed from the ground for sale) by the application of technology, but that are not necessarily commercially recoverable.

Refuge: The Yukon Flats National Wildlife Refuge.

Refuge Lands: Federal lands within the external boundary of the Yukon Flats National Wildlife Refuge that are administered by the U.S. Fish and Wildlife Service.

Reservoir (oil or gas): A subsurface body of rock having sufficient porosity and permeability to store and transmit fluids. Sedimentary rocks are the most common reservoir rocks because they have more porosity than most igneous and metamorphic rocks and form under temperature conditions at which hydrocarbons can be preserved. A reservoir is a critical component of a complete petroleum system.

Resident Species: Species of plants or animals that are found in a particular area all year as opposed to those species that may be found in an area during a specific season.

Revenue Sharing: ANCSA Section 7(i) dictates that the Doyon regional Native corporations share their 70% of their corporation's royalties with the other Alaska Regional Native corporations and that those royalties be distributed to village corporations and shareholders.

Riffles: Stream segments where the water is relatively shallow, current velocity is relatively high, and sediments are coarse; riffles are located in between areas of deeper, slower water (pools).

Riparian: Occurring adjacent to streams and rivers and directly influenced by water. A riparian community is characterized by certain types of vegetation, soils, hydrology, and fauna and requires free or unbound water or conditions more moist than that normally found in the area.

Royalty Payments: Royalties are usage-based payments made by one party (the “licensee”) to another (the licensor”) for ongoing use of an asset. Royalties are usually determined as a percentage of gross or net sales derived from use of the asset or a fixed price per unit sold. A royalty interest is the right to collect a stream of future royalty payments, often used in the oil and gas industry to describe a percentage ownership of future production or revenues from a given leasehold, which may be divested from the original owner of the asset.

S

Satellite Field: A relatively small oil field located near an existing oil development, allowing shared use of the infrastructure.

Scenic River: River designation, under the Federal Wild and Scenic Rivers Program, given on the basis of the undisturbed and scenic character of a river. Scenic rivers are given special management criteria by Federal agencies.

Scoping Process: A part of the NEPA process; early and open activities used to determine the scope and significance of the issues, and the range of actions, alternatives, and impacts to be considered in an EIS (40 CFR § 1501.7).

Scoping, Public: A process whereby the public is given the opportunity to provide oral or written comments about the influence of a project on an individual, the community, and/or the environment.

Seasonal Round: Annual cycle of subsistence activities undertaken by a group of people.

Section: A land measure: one square mile.

Sedge: Plant belonging to a species in the family Cyperaceae, the sedge family, which is a group of flowering plants that superficially resemble grasses or rushes. While sedges may be found growing in all kinds of situations, they tend to be associated with wet places and poor soils. The feature which distinguishes members of the sedge family from grasses or rushes is that members of the sedge family typically have triangular stems.

Sediments: Unweathered geologic materials generally laid down by or within waterbodies; the rocks, sand, mud, silt, and clay at the bottom and along the edge of lakes, streams, and oceans.

Seismic Survey: A geophysical survey in which an energy source is used to estimate the properties of the Earth’s subsurface from reflected seismic waves. Energy sources may include dynamite a specialized air gun, or vibrators, commonly known by their trademark name, Vibroseis.

Selected Lands: Lands chosen, but not yet legally owned, by a Native corporation under ANCSA. Within Refuge boundaries, selected lands are managed as Refuge land until they are legally conveyed out of Federal ownership.

Shareholder: An individual that owns one or more shares of stock in a company. The shareholder may benefit from the company in the form of dividends that are based on the financial performance of the company, and may have the right to vote on company decisions.

Shot Hole: A small (commonly 3-5 inches) diameter hole often 20-60 feet deep, usually drilled with a portable truck-mounted drill, for planting explosive charges used in seismic operations. Also used to describe onshore seismic surveys that use explosives as the energy source.

Significant: The description of an impact that exceeds a certain threshold level. Requires consideration of both context and intensity. The significance of an action must be analyzed in several contexts, such as society as a whole, and the affected region, interests, and locality. Intensity refers to the severity of impacts, which should be weighted along with the likelihood of its occurrence.

Snow Pack: The total snow and ice on the ground, including both new snow and the previous snow and ice which have not melted.

Snow-packed Trails: A form of temporary road constructed by clearing of vegetation (if required) and packing snow using heavy equipment to provide a surface over which vehicles and equipment can be transported while the snow remains.

SO_x: Sulfur oxides, including sulfur dioxide (SO₂). A product of combustion of fossil fuels such as oil found in the tail-pipe or exhaust-pipe emissions.

Sociocultural: Of, relating to, or involving a combination of social and cultural factors.

Socioeconomic: Pertaining to, or signifying the combination or interaction of social and economic factors.

Soil Horizon: A layer of soil material approximately parallel to the land surface that differs from adjacent (above or below) genetically related layers in physical, chemical, and biological properties.

Solid Waste: Garbage, refuse, and/or sludge produced during oil and gas exploration and development activities.

Solutes: Substances that are dissolved in a solution such as rainwater.

Source Rock: The original site of deposition of petroleum, but not always the site of present accumulation.

Spawning: Production, deposition, and fertilization of eggs by fish.

Special Use Permit: A permit issued under established laws and regulations to an individual, organization, or company for occupancy or use of Federal lands for some special purpose.

Spine Road: The existing all-season gravel road on Alaska's North Slope which connects the oil and gas production facilities at Kuparuk (Kuparuk Base Camp) with those at Prudhoe Bay (Prudhoe Bay Operations Center).

Standard: A model, example, or goal established by authority, custom, or general consent as a rule for the measurement of quantity, weight, extent, value, or quality.

Stipulation: A requirement or condition placed by the BLM on the leaseholder for operations the leaseholder might carry out within that lease. The BLM develops standard stipulations that apply to all future leases within its managed lands.

Stratigraphic Borings: A vertical core sample of the subsurface used to determine the geologic formations or mineral resources within the borehole.

Sublethal Effect: A biological effect caused by physical (e.g. seismic vibrations) or chemical (e.g. hazardous materials) exposure at a level or concentration below that which causes death.

Submerged Land: For the purpose of land conveyances, submerged lands are those that lie below the ordinary high water mark of rivers, streams, and, lakes. Submerged lands under navigable waters are owned by the State of Alaska.

Subsistence: Harvesting of plants and wildlife for food, clothing, and shelter. The attainment of most of one's material needs (e.g., food and clothing materials) from wild animals and plants.

Subsistence Easement: An easement is a legal instrument which is attached irrevocably to a property deed which prohibits or allows some use of the property. Under the action alternatives, Doyon would retain a subsistence easement on all surface lands that transfer from Doyon to Service ownership. This subsistence easement would mirror the Federal subsistence regulations by providing a subsistence priority for local rural residents on exchange lands. A draft of the subsistence easement is provided in Appendix E.

Substrate: The sediments (sand, gravel, rocks) or soils beneath waterbodies or vegetation.

Subsurface Oil and Gas Interests: Ownership of oil and gas resources under the earth's surface; subsurface rights do not extend to surface occupancy. Doyon would receive subsurface oil and gas interests under the halo lands in the proposed exchange.

Surface Occupancy: The right to occupy, construct, and conduct activities on the land surface.

T

Taiga: The coniferous forests found around the world just south of the arctic tundra. The most abundant and characteristic plant species are spruce (*Picea* spp.) and fir (*Abies* spp.).

Technically Recoverable: An oil or gas resource in the ground that is recoverable (extractable) by existing technology.

Terrestrial: Of or relating to the earth, soil, or land; inhabiting the earth or land as opposed to marine or aquatic environments.

Thermal Maturity: A measure of the potential for source rock to generate gas or oil. When organic matter is buried during sedimentation, subsequent increases in temperature and pressure may break down the organic material into various hydrocarbons. Certain temperature and pressure combinations, or thermal maturity, will form different hydrocarbons.

Thermokarst: Land-surface configuration that results from the melting of ground ice in a region underlain by permafrost. In areas that have appreciable amounts of ice, small pits, valleys, and hummocks form when the ice melts and the ground settles unevenly.

Threatened Species: A plant or animal species likely to become an endangered species throughout all or a significant portion of its range within the foreseeable future.

Total Petroleum System: The combination of geologic components and processes necessary to generate and store hydrocarbons, including a mature source rock, migration pathway, reservoir rock, trap, and seal. Includes all the petroleum generated by related source rocks and that resides in a volume of mappable rocks. Geologic processes act upon the petroleum system and control the generation, expulsion, migration, entrapment, and preservation of petroleum.

Township: A division of land six miles square that contains 36 one square mile sections.

Traditional Knowledge: An intimate understanding by indigenous peoples of their environment, which is grounded in a long-term relationship with the surrounding land, ocean, rivers, ice, and resources. This understanding includes knowledge of the biology and distribution of resources; animal behavior; seasons, weather, and climate; hydrology, sea ice, and currents; how ecosystems function; and the relationship between the environment and the local culture.

Transfer Payment: Money given by the government to citizens, such as Social Security, welfare, and unemployment compensation.

Trophic System: The process and organisms that move food energy through the ecosystem, often termed a food chain.

Tundra: Level or undulating treeless plain characteristic of northern arctic regions, consisting of black mucky soil with permanently frozen subsoil and a dense growth of mosses, lichens, dwarf herbs, and shrubs. Tundra is also found in alpine (high mountain) areas.

Turbidity: A measure of the amount of suspended sediment in water.

Tussock Tundra: A type of tundra landscape characterized by the dominant vegetation being found in tussocks, or raised mounds, created by the roots and stems of the plants. The more common tussock forming plants include species of cottongrass (*Eriophorum* spp.).

U

Unavoidable Adverse Commitments: Those effects that could occur as a result of implementing any of the action alternatives. Some of these effects would be short term, while others could be long term.

V

Vertical Support Member (VSM): The structures used to support elevated pipelines. VSMs consist of crossbeams installed between vertical supports that are installed in the ground. The above ground pipe is insulated, jacketed with galvanized steel, and mounted on a Teflon-coated shoe that can slide back and forth on the VSM crossbeams.

Vibroseis: Seismic surveys that involve the propagation of energy or sound waves into the earth and then the collection, analysis, and interpretation of the waves that are reflected back to the earth surface. In the vibroseis method, vibrator pads mounted on trucks are used to pound or thump on the surface of the ground to create an energy wave. On a typical survey, usually four to five “thumper” trucks, each equipped with 4-foot square vibrator pads, are used. At a location called the source point, the trucks are spaced at specified intervals and the vibrator pads are simultaneously triggered to vibrate or thump on the ground. The thumping will last for 10 to 30 seconds.

Viscous: Thick or syrupy fluids that are resistant to flow, such as crude oil at low temperatures.

Visual Resource Management: A system used by the BLM to manage public lands in a manner that will protect the quality of the visual (scenic) values in accordance with Section 102(a)(8) of the Federal Land Policy and Management Act of 1976. The visual resource inventory process (in BLM Manual H-8410-1) provides a means of determining visual values. The inventory consists of a scenic quality evaluation, a sensitivity level analysis, and a delineation of distance zones. Based on these factors, BLM-administered lands are placed into one of four VRM classes. Class I, the most highly valued, is assigned to those areas where decisions have been made to maintain a natural landscape. This includes areas such as national wilderness, the wild component of a Wild and Scenic River, scenic Areas of Critical Environmental Concern, and other congressionally and administratively designated areas. Classes II, III, and IV are assigned based on a combination of scenic quality, sensitivity level, and distance.

W

Waterflooding: The injection of water into oil reservoirs in the earth to maintain or increase pressure in the reservoir and thereby assist in the extraction of the oil.

Water Quality: The interaction between various parameters that determines the usability or non-usability of water for on-site and downstream uses. Major parameters that affect water quality include: temperature, turbidity, suspended sediment, conductivity, dissolved oxygen, pH, specific ions, discharge, contaminants, and fecal coliform.

Wetlands: Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstance do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include habitats such as swamps, marshes, and bogs.

Wildcat: An unproven and prospective area of oil and gas potential that is outside of existing oil and gas producing areas or zones.

Wilderness: Land designated by Congress as a component of the National Wilderness Preservation System. For an area to be considered for Wilderness designation it must be roadless and possess the characteristics required by Section 2(c) of the Wilderness Act of 1964. These characteristics are: (1) naturalness - lands that are natural and primarily affected by the forces of nature; (2) roadless and having at least 5,000 acres of contiguous public lands; and (3) outstanding opportunities for solitude or primitive and unconfined types of recreation. In addition, areas may contain "supplemental values," consisting of ecological, geological or other features of scientific, educational, scenic or historical importance.

Wild River: A river or section of a river, and related adjacent land area, designated under the 1980 Wild and Scenic Rivers Act, Public Law 90-542 October 2, 1968 (82 Stat. 906), because the river was free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted, and represents vestiges of primitive America.

X Y Z