APPENDIX P

Special Status Species Lists

APPENDIX P: SPECIAL STATUS SPECIES LISTS

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TABLE P-1

Bureau of Land Management (BLM) Sensitive and Watch List Species Associated with the Mainline Facilities

Species [a]	BLM Status	Description	Alaska Region [b]	Habitat
Birds				
Aleutian tern (*Onychoprion aleuticus*)	Sensitive	Medium-sized tern; underparts are white, crown and mantle speckled white, and tail gray with white sides; differentiated from similar species by dark bar on secondaries.	Restricted to coastal areas throughout the Aleutian Islands, north to the southeastern Chukchi Sea and east to the Alaska Peninsula, Yakutat, and Glacier Bay; most of the Alaska population is concentrated in the Gulf of Alaska	Breeding habitat includes vegetated islands, shrub-tundra, grass and sedge meadows, and freshwater marshes; habitat during migration is pelagic
American golden plover (*Pluvialis dominica*)	Watch List	Stocky, medium-sized shorebird with a short bill; breeding males have a white crown stripe extending down the side of the neck, underparts are black, upperparts are mottled gold, white, and black; breeding females look like males, but are paler overall with brown or whitish cheeks	Breeds through north and central Alaska, including Seward Peninsula, then south along Norton Sound to Cape Romanzof. Migrant from southeast Alaska to Cook Inlet Basin Subregion.	Nests on grassy tundra preferring dry upland areas; nest in sparse lower vegetation on higher well-drained rocky slopes; migratory habitat includes tidal flats and tundra
Bar-tailed godwit [c] (*Limosa lapponica*)	Sensitive	Sandpiper family; large, noisy, cinnamon-colored shorebird; longest nonstop migration flight of any shorebird species, covering over 7,000 miles	Beaufort Coastal Plain and Brooks Foothills Subregions	Nests on sedge meadows and coastal tundra. Staging in nearshore estuarine areas and beaches; observed nesting on coastal tundra adjacent to Prudhoe Bay
Bank swallow (*Riparia riparia*)	Watch List	Small songbird with a small head and tiny bill; adults are brown above with a brown breast band and a white swoosh on the neck	Breeds in south-coastal and southeast Alaska primarily within Coast Mountain Boreal Ecoregion	Occupy open habitat; frequently near water; nests in barns or other buildings, under bridges, in caves or cliff crevices
Bering Sea rock sandpiper (*Calidris ptilocnemis tschuktschor*)	Sensitive	Sandpiper family; shorebird speckled and well camouflaged against gray boulders	Cook Inlet Basin Subregion and Bering Sea Islands	Nests on tundra of Bering Sea islands; winters along rocky coasts of Aleutian Islands
Blackpoll warbler (*Setophaga striata*)	Watch List	Wood warbler family; black and white warbler molts into yellow-green plumage and loses black cap	Beringia Boreal and Coast Mountains Boreal Ecoregions	Cool, wet boreal coniferous forest, primarily spruce; along rivers, streams, or bogs near shrub thickets
Buff-breasted sandpiper (*Calidris subruficollis*)	Sensitive	Small sandpiper, short bill and round head similar to plover appearance; lek mating system	Beaufort Coastal Plain and Brooks Foothills Subregions	Nests on tundra; uses tidal marshes during migration
Dunlin *articola* (*Calidris alpina arcticola*)	Sensitive	Small sandpiper, breeding plumage in includes black belly and rufous back; nonbreeding plumage is gray and nondescript	Most common between Point Barrow and Prudhoe Bay; high fall concentration at Colville River Delta and found along Beaufort Sea coast; in the spring, found along Chukchi Sea coast	Moist-wet tundra, in areas with ponds, polygons, and commonly found in recently formed landscapes such as drained thaw lakes and sedge-grass marshes

TABLE P-1 (cont'd)

Bureau of Land Management (BLM) Sensitive and Watch List Species Associated with the Mainline Facilities

Species [a]	BLM Status	Description	Alaska Region [b]	Habitat
Golden eagle [d] (*Aquila chrysaetos*)	Watch List	Large, broad wings with dark brown body that has golden sheen on the back of head and neck; young have white patches at base of tail and in wings	Widespread throughout Alaska except rare in Kodiak and south-coastal and southeast Alaska	Open to semi-open country such as arctic and alpine tundra especially in hilly or mountainous terrain; near and above timberline
Gray-headed chickadee (*Poecile cinctus lathami*)	Sensitive	Small songbird with gray-brown cap, white cheeks, and black bib; upperparts are grayish-brown, breast and belly whitish	Western and central Alaska, east-central Alaska between upper Tanana and Yukon Rivers from the White Mountains to the Canada border	Boreal coniferous forests, primarily spruce; common in stream basins, willow and aspen thickets; nests in cavities of trees
Gyrfalcon (*Falco rusticolus*)	Watch List	Large falcon; adults' underparts generally horizontally barred posteriorly and spotted anteriorly; bare parts yellow; no seasonal variation in plumage	Most common north of the Brooks Range, in parts of the Alaska Range Subregion; distributed throughout tundra locations	Tundra, open coniferous forest, mountainous regions, and rocky seacoasts; generally in coastal areas in winter
Hudsonian godwit (*Limosa haemastica*)	Sensitive	Large shorebird with long, slightly upturned bill with dark tip and reddish base; long legs, white stripe in wings and white rump	Kobuk Ridges and Valleys, Alaska Range, and Cook Inlet Basin Subregions	Marshes, beaches, flooded fields, and tidal mudflats; nests on grassy tundra, near water
Olive-sided flycatcher (*Contopus cooperi*)	Sensitive	Large, stocky flycatcher with large head and short tail; white center of breast in contrast to gray sides	Widespread throughout Alaska except rare in Arctic Tundra Ecoregion	Forest and woodland habitats including taiga, subalpine coniferous forest, edges of forest ponds, lakes, streams; nesting sites contain dead standing trees
Red knot (*Calidris canutus*)	Sensitive	Large, bulky sandpiper with relatively short, straight bill tapering to tip, legs short and thick, head and breast reddish during breeding and gray when non-breeding	Beaufort Coastal Plain, Brooks Foothills, and Cook Inlet Basin Subregions; Seward Peninsula, Kenai Peninsula, and Aleutian Islands	Breed in drier tundra areas such as sparsely vegetated hillsides; non-breeding season can be found in intertidal, marine habitats near coastal inlets, estuaries, bays
Red-throated loon [e] (*Gavia stellate*)	Sensitive	Smallest of the loons with thin bill that turns slightly upward, dark gray with a red throat during breeding, pale gray and white in winter; sits low on water	Beaufort Coastal Plain, Brooks Foothills, Brooks Range, Alaska Range, and Cook Inlet Basin Subregions; western coastal ecoregions	Breeds in tundra wetlands, bogs, and forest ponds; winters in shallow marine habitat
Rusty blackbird (*Euphagus carolinus*)	Sensitive	Medium-sized blackbird with slender bill and medium-length tail; winter plumage males have rusty feather edges, pale yellow eye, females are gray-brown, breeding males are dark glossy black	Widespread throughout Alaska except Beaufort Coastal Plain Subregion and rare in Brooks Foothills Subregion	Wet forests including bogs, fens; winters in swamps, wet woodlands, and pond edges
Short-eared owl (*Asio flammeus*)	Watch List	Black-rimmed yellow eyes and pale facial disk, broad wings with smoothly rounded tips, short tail, brown spotted with buff and white on upperparts	Widespread throughout Alaska	Large, open areas with little vegetation including tundra, marshes, and coastal grasslands

TABLE P-1 (cont'd)

Bureau of Land Management (BLM) Sensitive and Watch List Species Associated with the Mainline Facilities

Species [a]	BLM Status	Description	Alaska Region [b]	Habitat
Short-billed dowitcher (*Limnodromus griseus*)	Watch List	Medium-sized shorebird with a long, football-shaped body and long straight bill; breeding birds have variable amounts of cinnamon coloring on their bodies	Breeds in south-coastal Alaska including Cook Inlet Basin Subregions; Prince William Sound, Yakutat Bay, and Kodiak archipelago; use Gulf of Alaska and Prince William Sound during migration	Nests in grassy or mossy tundra and wet meadows; prefer shallow salt water with soft muddy bottom, but will visit various wetlands during migration
Smith's longspur (*Calcarius pictus*)	Sensitive	Medium-sized songbird; breeding males have buff tan breast, abdomen, chin, and nape; head boldly patterned black and white; white ear patch; breeding females are duller buff with a streaked crown, breast, and sides	Common migrant and breeder in the eastern Brooks Range Subregion and in the northern foothills and uplands of southeastern central Alaska	Forest-tundra transition zone at the northern edge of the boreal tree-line. Breeding habitat includes dry, grassy, and hummocky tundra; damp alpine or arctic tundra or in wet meadows in forested areas, usually inland from the coast
Townsend's warbler (*Setophaga townsendi*)	Watch List	Small songbird, yellow chest and face with black in throat, stripes down sides of chest, two white wing bars	Cook Inlet Basin and Alaska Range Subregions	Coniferous forests
Trumpeter swan (*Cygnus buccinator*)	Watch List	Largest waterfowl with heavy bodies and long necks; white with black bill and legs	Cook Inlet Basin and Alaska Range Subregions, portions of Beringia Boreal Ecoregion and Brooks Range Subregion	Shallow, undisturbed freshwater with abundant aquatic plants; need at least 100 yards (91 meters) of open water for take-off
Whimbrel (*Numenius phaeopus*)	Sensitive	Large shorebird of the curlew species; long, decurved bill; upperparts dark brown marked with pale buff, underparts pale buff; neck and breast streaked with dark brown; no seasonal variation between male and females	Widespread throughout Alaska where it is common in Cook Inlet and Yukon-Kuskokwim delta during migration	Nests in sedge-shrub tundra, sedge-meadow, and bogs; non-breeding habitat includes beaches, tidal mudflats, marshes, estuaries, tidal creeks, sandy or rocky shores, flooded fields, and pastures
Yellow-billed loon [e] (*Gavia adamsii*)	Sensitive	Large, dagger-bill diving bird	Beaufort Coastal Plain, Brooks Foothills, and Brooks Range Subregions	Tundra lakes in summer, feeding on rivers and coastal lagoons; coastal waters in winter
Mammals				
American marten (Kenai subspecies) (*Martes americana kenaiensis*)	Watch List	Smaller than interior Alaska marten, thought to have longer tails and darker pelage	Cook Inlet Basin Subregion; restricted to Kenai Peninsula and adjacent regions	Dense deciduous or mixed coniferous forests; may use rocky alpine areas; large, old trees
Little brown bat (*Myotis lucifugus*)	Watch List	Small, brown bat with cinnamon-buff to dark brown above, buffy to pale gray below; hairs on back have long glossy tips; ear when laid forward reaches approximately the nostril; tragus about half as high as ear; calcar without keel	Widely distributed during summer with northernmost record near Fairbanks; uncommon in interior Alaska	Wide range of habitats including human-made structures for resting and maternity sites; caves and hollow trees in temperate forests

TABLE P-1 (cont'd)

Bureau of Land Management (BLM) Sensitive and Watch List Species Associated with the Mainline Facilities

Species [a]	BLM Status	Description	Alaska Region [b]	Habitat
Northern bog lemming (*Synaptomys borealis*)	Watch List	Small, short-tailed lemming with reddish-brown coat on the back and gray on the belly; coat is long; ears extend beyond the body fur and are sparsely haired on the edge	South of the Brooks Range throughout Alaska except the Aleutian Islands	Bogs, wet meadows, moist mixed boreal forests where it occupies burrow systems up to 1 foot deep; can also be found near rocky cliffs
Arctic ground squirrel [f] (*Urocitellus parryii*)	Watch List	Social, living in groups of 5 to 50; dig extensive burrow system	Widely distributed and common throughout arctic and subarctic northern, eastern, and southwestern Alaska including all designated subspecies	Tundra; subalpine brushy meadows; roadsides; riverbanks; not in permafrost areas
Invertebrates [g]				
Active bumble bee (*Bombus neoboreus*)	Watch List	Strictly arctic bumble bee species	Unknown	Grassland
Alaska sallfly (*Alaskaperla ovibovis*)	Sensitive	Stoneflies (order *Plecoptera*) are a small order of insects with an immature larval stage this is entirely aquatic in North America	Throughout Alaska	Freshwater habitats, typically including flowing waters (e.g., lakes, ponds, wetlands, streams, and rivers)
Ashton cuckoo bumble bee, gypsy cuckoo bumble bee (*Bombus bohemicus*)	Sensitive	Large bumble bee; nest parasite of other bumble bees	Specimen has been recorded in Wasilla, Alaska and farther north in Alaska	Grassland, shrubland, and forests
Brown elfin (*Callophrys augustinus*)	Watch List	Small butterfly (*Lycaenidae*). Caterpillars color varies with geography, adult butterflies are brown to grayish.	Unknown	Mixed conifer forests, barrens, bogs, and sandy coasts
Bumble bee (no common name) (*Bombus kluanensis*)	Sensitive	Newly described species, similar in appearance to *B. neoboreus*.	Alaska Range to western Canada	Unknown
Central bumble bee (*Bombus centralis*)	Watch List	Generalist forager.	Alaska Range	Grassland and shrubland
Confusing bumble bee (*Bombus perplexus*)	Sensitive	Boreal bumble bee species	Central Alaska, between the Brooks and Alaska Ranges	Forests and wetlands
Eskimo Arctic (*Oeneis alpine*)	Watch List	Medium sized brown butterfly (*Nymphalidae*).	Low arctic of northeastern Alaska	Adults associated with bare rock, talus, or scree and tundra. Breed in wet grassy tundra
Hoary elfin (*Callophrys polios*)	Watch List	Medium sized butterfly (*Lycaenidae*).	Eastern Alaska	Hardwood and mixed forests, conifer and mixed woodlands, bogs and fens

TABLE P-1 (cont'd)

Bureau of Land Management (BLM) Sensitive and Watch List Species Associated with the Mainline Facilities

Species [a]	BLM Status	Description	Alaska Region [b]	Habitat
Indiscriminate cuckoo bumble bee (*Bombus insularis*)	Watch List	Nest parasite of other bumble bees; species is not host specific but uses a variety of host plants	Unknown	Forest, grassland, and shrubland
Mayfly (no common name) (*Acentrella feropagus*)	Sensitive	Mayflies (order *Ephemeroptera*) are an order of insects with an immature larval stage that is entirely aquatic	Only in North Slope and Yukon-Koyukuk regions of Alaska	Freshwater habitats, typically including flowing waters (e.g., lakes, ponds, wetlands, streams, and rivers)
Northern yellow bumble bee, great yellow bumble bee (*Bombus distinguendus*)	Sensitive	Only known to occur in Alaska	Widespread northern Palearctic species that is also found in the Aleutian Islands Archipelago	Grassland and shrubland
Sitka bumble bee (*Bombus sitkensis*)	Watch List	Generalist forager	Coastal mountain ranges	Grassland
Suckley's cuckoo bumble bee (*Bombus suckleyi*)	Sensitive	Nest parasite of *Bombus occidentalis* complex bumble bees	Southern Alaska	Forest, grassland, and shrubland
Two form bumble bee (*Bombus bifarius*)	Watch List	Generalist forager	Southeastern Alaska	Forest, grassland, and shrubland
Western bumble bee (*Bombus occidentalis*)	Watch List	Generalist forager. Important pollinator species	Throughout Alaska, except for the northern coasts	Shrubland and grassland
Fish [h]				
Alaskan brook lamprey (*Lethenteron alaskense*)	Sensitive	Nonparasitic; freshwater lamprey grows to be 5 to 7 inches long as adult	Tanana-Kuskokwim Lowlands, Alaska Range, and Cook Inlet Basin Subregions	Creeks with riffles, medium rivers; benthic
Chum salmon (Clear Creek) (*Oncorhynchus keta*)	Watch List	Anadromous fish; ocean-stage adults are metallic bluish-green along the back and above the lateral line with speckles often present; tail is highly forked, more than other species of Pacific salmon; once entering freshwater to spawn, males develop hooked snout lined with large canine teeth	Throughout Alaska; Arctic Tundra Ecoregion including freshwater streams and rivers (e.g., the Sagavanirktok, Susitna, and Kanuti Rivers); marine waters of the Beaufort Sea, Cook Inlet, and Gulf of Alaska within the Cook Inlet Basin Subregion	Freshwater streams and rivers; marine waters

TABLE P-1 (cont'd)

Bureau of Land Management (BLM) Sensitive and Watch List Species Associated with the Mainline Facilities

Species [a]	BLM Status	Description	Alaska Region [b]	Habitat
Chinook salmon (Beaver Creek and Yukon River) (*Oncorhynchus tshawytscha*)	Watch List	Anadromous fish; largest of all Pacific salmon; adults have black irregular spotting on the back and dorsal fins and on both lobes of the tail fin; black pigment along the gum line; ocean-stage adults are bluish-green on the back which fades to a silvery color on the sides and white on the belly	Freshwater streams and rivers (e.g., Yukon and Tanana Rivers); marine waters of Cook Inlet and Gulf of Alaska within the Cook Inlet Basin Subregion	Freshwater streams and rivers; marine waters; juveniles migrate through shallow-water habitats along shorelines
Plants				
Alaskan bluegrass (*Poa hartzii* ssp. *alaskana*)	Sensitive	Perennial grass, loosely tufted	Arctic Tundra Ecoregion, and Beaufort Coastal Plain and Brooks Range Subregions	Rivers bars, floodplains, active sand dunes
Alaska moonwort (*Botrychium alaskense*)	Watch List	Perennial herb from caudex	Beringia Boreal and Coast Mountains Boreal Ecoregions; Kobuk Ridges and Valleys, Alaska Range and Cook Inlet Subregions	Shores, cliff ledges, scree, open gravelly slopes, open fields, meadows, woodlands
American vetch (*Vicia americana*)	Watch List	Perennial herb, single-stem vine from rhizomes	Beringia Boreal and Coast Mountains Boreal Ecoregions; Ray Mountains and Alaska Range Subregions	Open patches in swampy woods, road banks, fencerows, borders, mixed forests, meadows, foothill canyons, clearings
Arctic poppy (*Papaver gorodkovii*)	Sensitive	Perennial herb, tufted	Arctic Tundra Ecoregion; and Beaufort Coastal Plain, Brooks Foothills, and Brooks Range Subregions	River floodplains, gravel bars, rock outcrops, polygon tundra
Artemisia tanacetifolia	Watch List	Perennial herb from thick, branched, or simple caudex and taproot	Beringia Boreal and Coast Mountains Boreal Ecoregions; Yukon-Old Crow Basin, North Ogilvie Mountains, Yukon-Tanana Uplands, Tanana-Kuskokwim Lowlands, and Alaska Range Subregions	Bluff slopes above rivers, mountain slopes, mountain summits, lake shores
Barneby's locoweed (*Oxytropis arctica var. barnebyana*)	Watch List	Perennial herb	Arctic Tundra Ecoregion; Kobuk Ridges and Valleys, Brooks Range, Brooks Foothills and Beaufort Coastal Plain Subregions	Shrubland/chaparral
Bostock's Miner's-lettuce (*Montia vassilievii ssp. vassilievii*)	Sensitive	Perennial herb from rhizomes or stolons, rooting at nodes	Brooks Foothills, Yukon-Tanana Uplands, and Alaska Range Subregions	Alpine slopes, benches, and ridges; lake shores, rock outcrops, and stream banks occurring from 700 m to 1,900 m in Alaska
Cypripedium parviflorum var. *exiliens*	Watch List	Perennial herb from slender rhizomes and coarse, fibrous roots	Arctic Tundra Ecoregion; Brooks Range, Yukon-Old Crow Basin, and North Ogilvie Mountains Subregions	Slopes, rock outcrops, river bluffs

TABLE P-1 (cont'd)

Bureau of Land Management (BLM) Sensitive and Watch List Species Associated with the Mainline Facilities

Species [a]	BLM Status	Description	Alaska Region [b]	Habitat
Drummond's cinquefoil (*Potentilla drummondii*)	Watch List	Perennial herb	Coast Mountains Boreal Ecoregion; Alaska Range and Cook Inlet Basin Subregions	Moist to dry meadows and adjacent slopes, in conifer woodlands, alpine tundra
Dunehead sedge (*Carex phaeocephala*)	Watch List	Perennial grass, densely cespitose	Coast Mountains Boreal Ecoregion; Alaska Range and Cook Inlet Basin Subregions	High-montane to alpine areas
False semaphoregrass (*Pleuropogon sabinei*)	Sensitive	Perennial grass from rhizomes	Arctic Tundra Ecoregion and Beaufort Coastal Plain Subregion	Lakeshores, stream banks, river banks, floodplains, marshes, mud flats
Eurasian junegrass (*Koeleria asiatica*)	Watch List	Perennial grass, tufted, from short to long rhizomes	Arctic Tundra Ecoregion; Beaufort Coastal Plain, Nulato Hills and Brooks Foothills Subregions	River terraces, river bluffs, river banks, river bars, sand dunes, tundra, alpine slopes, lake shores
Field rush (*Juncus tenuis*)	Watch List	Perennial grass from rhizomes, tufted	Beringia Boreal Ecoregion; Ray Mountains Subregion	Disturbed soils, roadsides, meadows, springs and ditches
Fourpart dwarf gentian (*Gentianella propinqua ssp. aleutica*)	Watch List	Annual herb from taproot	Hypermaritime Coastal Ecoregion; Alaska Peninsula, Aleutian Islands, Gulf of Alaska Coast, Chugach-St. Elias Mountains, and Bristol Bay Lowlands Subregions	Well-drained grassy areas, floodplains, dry slopes, open soil
Gentianopsis barbata ssp. barbata	Watch List	Annual or biennial herb	Beringia Boreal and Coast Mountains Boreal Ecoregions; Tanana-Kuskokwim Lowlands, Yukon-Tanana Uplands and Alaska Range Subregions	Streams, meadows, scrub, forests
Glacier buttercup (*Ranunculus camissonis; R. glacialis* var. *camissonis*)	Watch List	Perennial herb from short caudex	Arctic Tundra and Beringia Boreal Ecoregions; Brooks Range, Kotzebue Sound Lowlands, Seward Peninsula, Ray Mountains and Yukon-Tanana Uplands Subregions	Alpine slopes, seepage slopes, rock outcrops, beach ridges, alluvial fans, wet meadows, frost boils
Harold's milkvetch (*Astragalus robbinsii* var. *harringtonii*)	Watch List	Perennial herb with erect or ascending stem from a woody base	Coast Mountains Boreal Ecoregion; Cook Inlet Basin Subregion	Sandy or gravelly sites on ridge crests, floodplains, river terraces and subalpine and alpine meadows, open woodlands
Hairy lousewort (*Pedicularis hirsuta*)	Sensitive	Perennial herb from branched taproot	Arctic Tundra Ecoregion and Beaufort Coastal Plain Subregion	Beach terraces, tundra
Kamchatka buttercup (*Oxygraphis glacialis*)	Watch List	Perennial herb from thick, stout, vertical caudex	Arctic Tundra and Coast Mountains Boreal Ecoregions; Brooks Foothills, Brooks Range, Seward Peninsula, Ahklun Mountains, and Alaska Range Subregions	Rock outcrops, alpine slopes, alpine ridges, seepage slopes, frost boils, stream banks

TABLE P-1 (cont'd)

Bureau of Land Management (BLM) Sensitive and Watch List Species Associated with the Mainline Facilities

Species [a]	BLM Status	Description	Alaska Region [b]	Habitat
Kokrines locoweed (*Oxytropis kokrinensis*)	Sensitive	Perennial herb, tufted, from branched caudex covered	Arctic Tundra, Bering Tundra, Subarctic Tundra, and Beringia Boreal Ecoregions; and Brooks Range, Kobuk Ridges and Valleys, Kotzebue Sound Lowlands, Yukon River Lowlands, Nulato Hills, Ray Mountains Subregions	Alpine ridges, alpine valleys
Largeflower fleabane (*Erigeron porsildii*)	Watch List	Perennial herb from rhizomes resembling taproots	Arctic Tundra, Beringia Boreal and Coast Mountains Boreal Ecoregions; Brooks Foothills, Brooks Range, Yukon-Tanana Uplands, Tanana-Kuskowim Lowlands, and Alaska Range Ecoregions	Cliffs and talus slopes, shale dominant gravel, grassy ravines, dry tundra
Longleaf arnica (*Arnica lonchophylla* ssp. *lonchophylla / A. lonchophylla*)	Sensitive	Perennial herb from slender, branched rhizome	Beringia Boreal Ecoregion; and Ray Mountains, Yukon-Old Crow Basin, and Yukon-Tanana Uplands Subregions	River bars, river banks, mountain slopes, rock ledges
Longstem sandwort (*Arenaria longipedunculata*)	Watch List	Perennial herb, matted	Arctic Tundra and Beringia Boreal Ecoregions, Alaska Range and Cook Inlet Basin Subregions	Gravel, moist places in mountains
Mackenzie's River Douglasia (*Douglasia arctica / Androsace americana*)	Sensitive	Perennial herb from branched caudex, forming loose cushions	Beringia Boreal Ecoregion; and Yukon-Old Crow Basin, Ray Mountains, Tanana-Kuskokwim Lowlands, and Yukon-Tanana Uplands Subregions	Alpine slopes, alpine ridges, subalpine slopes, rock outcrops, bluffs, cliffs
Macoun's draba (*Draba macounii*)	Watch List	Perrenial herb from branches or simple caudex, cespitose	Arctic Tundra and Coast Mountains Boreal Ecoregions; Brooks Range, Brooks Foothills, and Alaska Range Subregions	Rock outcrops, talus, tundra
Muir's fleabane (*Erigeron muirii*)	Sensitive	Perennial herb with thick taproot	Arctic Tundra Ecoregion	Alpine slopes, ridges, rock outcrops, river bluffs, terraces, pingos; scree, gravel rock; dry, snow banks
Mulligan's draba (*Draba mulliganii*)	Watch List	Perennial herb from many-branched caudex with persistent leaf remains	Arctic Tundra, Beringia Boreal and Coast Mountains Boreal Ecoregions; Brooks Range, North Ogilvie Mountains, Ray Mountains, Alaska Range, Kluane Ranges, and Chugach-St. Elias Mountains Subregions	Alpine slopes, alpine ridges, alpine bowls, glacial outwash, rock outcrops, river bluff
Northern sedge (*Carex deflexa* var. *deflexa*)	Watch List	Perennial sedge	Arctic Tundra, Beringia Boreal and Coast Mountains Boreal Ecoregions; Brooks Range, Tanana-Kuskokwim Lowlands, Yukon-Tanana Uplands, Ray Mountains, Chugach-St. Elias Mountains, and Alaska Range Subregions	Mixed and coniferous woodlands, talus slopes, ridges, rock outcrops, burns, clearings, fields, banks, snowbeds

TABLE P-1 (cont'd)

Bureau of Land Management (BLM) Sensitive and Watch List Species Associated with the Mainline Facilities

Species [a]	BLM Status	Description	Alaska Region [b]	Habitat
Pacific buttercup (*Ranunculus pacificus*)	Sensitive	Perennial herb, stems erect or reclining	Subarctic Tundra and Coast Mountains Boreal Ecoregions; and Gulf of Alaska Coast, Chugach-St. Elias Mountains, Cook Inlet Basin, Alaska Range, Bristol Bay Lowlands, and Yukon-Kuskokwim Delta Subregions	Along streams and in meadows
Parry sedge (*Carex parryana*)	Sensitive	Perennial sedge, loosely cespitose	Coast Mountains Boreal Ecoregion; and Alaska Range and Chugach-St. Elias Mountains Subregions	Alkaline meadows, lake margins, roadsides, ditches
Peck's sedge (*Carex peckii*)	Watch List	Perennial sedge, loosely cespitose	Beringia Boreal Ecoregion; Tanana-Kuskokwim Lowlands, Yukon-Tanana Uplands, Ray Mountains and Alaska Range Subregions	Dry to mesic slopes, deciduous or mixed deciduous-coniferous, open woods, bases of slopes, exposed outcrops
Poa sublanata	Sensitive	Perennial grass	Arctic Tundra Ecoregion; and Beaufort Coastal Plain and Brooks Foothills Subregions	Arctic mesic tundra, tops and sides of semi-stable low sand dunes
Porsild's bluegrass (*Poa porsildii*)	Sensitive	Perennial grass, dioecious, densely to loosely tufted, often forming large tussocks	Beringia Boreal Ecoregion; and Davidson Mountains, Yukon-Old Crow Basin, and Yukon-Tanana Uplands Subregions	Alpine slopes, alpine ridges, subalpine slopes, seepage slopes, rock outcrops
Porsild's saxifrage (*Micranthes porsildiana* / *M. nelsoniana* var. *porsildiana*)	Sensitive	Perennial herb from thin rhizome	Beringia Boreal, Coast Mountains Boreal, and Subarctic Tundra Ecoregions; and Yukon-Tanana Uplands, Alaska Range, Tanana-Kuskokwim Lowlands, Wrangell Mountains, Gulf of Alaska Coast, and Ahklun Mountains Subregions	Rock outcrops, alpine slopes, alpine ridges, rocky seeps, stream banks
Puccinellia banksiensis	Sensitive	Perennial grass	Arctic Tundra Ecoregion and Beaufort Coastal Plain Subregion	Frost-heaved turfy tundra
Pygmy aster (*Symphyotrichum pygmaeum*)	Sensitive	Perennial herb from branched caudex and long rhizomes	Arctic Tundra Ecoregion; and Beaufort Coastal Plain and Brooks Range Foothills Subregions	River terraces, river banks, dunes, pingos
Ranunculus turneri ssp. *turneri*	Sensitive	Perennial herb from branching fibrous roots	Arctic Tundra and Beringia Boreal Ecoregions; and Yukon-Old Crow Basin, Yukon-Tanana Uplands, Ray Mountains, and Brooks Foothills Subregions	Stream banks, stream terraces, subalpine slopes, seepage slopes, late-melting snowbeds
Vahl's alkaligrass (*Puccinellia vahliana*)	Watch List	Perennial, tufted grass, not mat-forming, from thick curled roots	Arctic Tundra and Coast Mountains Boreal Ecoregions; Beaufort Coastal Plain, Brooks Range, Kotzebue Sound Lowlands, Alaska Range, and Kluane Ranges Subregions	Alpine slopes, alpine ridges, frost-boils, high-center polygons, pingos, beaches, fens, pond edges, stream banks in dune areas

TABLE P-1 (cont'd)

Bureau of Land Management (BLM) Sensitive and Watch List Species Associated with the Mainline Facilities

Species [a]	BLM Status	Description	Alaska Region [b]	Habitat
Wedgeleaf saxifrage (*Saxifraga adscendens* ssp. *oregonensis*)	Watch List	Perennial herb, solitary or tufted, not stoloniferous, with caudex	Coast Mountains Boreal and Subarctic Tundra Ecoregions; Ahklun Mountains, Alaska Range and Yukon-Tanana Uplands Subregions	Cliff ledges, screes, talus slopes, gravelly stream banks, gravelly alpine meadows
Windmill fringed gentian (*Gentianopsis barbata* ssp. *barbata*)	Watch List	Annual forb/herb	Beringia Boreal Ecoregion	Arctic shrub, non-marine
Wood's rose *(Rosa woodsia ssp. woodsia*)	Watch List	Perennial shrub from rhizome	Beringia Boreal Ecoregion; Yukon-Tanana Uplands, Tanana-Kuskokwim Lowlands, and Alaska Range Subregions	Prairies, plains, riparian and woodland areas
Yenisei River pondweed (*Potamogeton subsibiricus*)	Watch List	Perennial herb	Coast Mountains Boreal Ecoregion	Shallow water of ponds and lakes
Yukon aster (*Symphyotrichum yukonense*)	Sensitive	Perennial herb, tufts or colonies	Brooks Range and Kobuk Ridges and Valleys Subregions	River bars, terraces, floodplains, sand blowouts, dunes; sand, silt gravel

Sources: Alaska Department of Fish and Game (ADF&G), 2015a, 2018h, n.d.(c).; Alaska Center for Conservation Science (ACCS), 2016a,b; Alaska Migratory Bird Co-management Council (AMBCC), 2017; Boggs et al., 2016a; Bureau of Land Management (BLM), 2019; Cornell, 2015; Dokuchaev, 1997; eFloras, n.d.; Lotts and Naberhaus, 2017; National Audubon, 2017b; NatureServe, 2018b; Intermountain Region Herbarium Network (IRHN), n.d.; International Union for Conservation of Nature's Red List (IUCN), 2019; Randolf and McCafferty, 2005; Schumacher et al., 1989; U.S. Department of Agriculture (USDA), 2018, 2019b; Walton et al., 2013; Williams et al., 2016; Xerces Society, 2019

[a] Federally listed species associated with the Project are the Alaska-breeding Steller's eider, spectacled eider, northern sea otter, polar bear, and wood bison. The Eskimo curlew is a federally listed species and a BLM sensitive species, but is presumed extinct. These species are addressed in section 4.8.1. All bird species are also protected under the Migratory Bird Treaty Act.

[b] Ecoregions and subregions are based on the Unified Ecoregions of Alaska classification system delineated by Nowacki et al. (2001b), as described by the ADF&G (2015a) and identified in section 4.0 (see table 4-1 and figure 4-1).

[c] Species is listed as subsistence migratory bird species.

[d] Species is also protected under the Bald and Golden Eagle Protection Act.

[e] Species is listed as previous candidate species under the Endangered Species Act.

[f] The 2010 BLM list had the Osgood's arctic ground squirrel (*Spermophilus parryii osgoodi*) listed as Sensitive. Due to uncertain subspecies taxonomy and range differentiation, the entire species has been moved to the Watch List and will be reviewed as more information is available.

[g] Any of the 374 Alaska endemic invertebrates when found on BLM-managed lands are considered Watch List species (BLM, 2019).

[h] Waterbodies with known populations of Pacific salmonids (e.g., Chinook and chum salmon) are listed in appendix I of the environmental impact statement.

TABLE P-2

Alaska Species of Greatest Conservation Need

Alaska State Species	Ranking [a]	Subregion	Habitat	Project Facility Association	Potential Project Impacts
Birds					
Arctic loon (*Gavia arctica*)	S1	Brooks Foothills; Kobuk Ridges and Valleys	Breeds in small brackish lakes and forages on freshwater lakes adjacent to wet sedge meadows up to 800 meters inland.	Marine vessel routes	Collisions, Spills
Black guillemot (*Cepphus grille*)	S2	Beaufort Coastal Plain	In the western Arctic and adjacent Pacific Oceans, black guillemots breed on coastlines and islands of the eastern Siberian, western Chukchi, and Beaufort Seas. In northern Alaska, they are an uncommon, local breeder from Seahorse Island and Point Barrow east to Igalik Island and a rare breeder farther east to Barter Island. In western Alaska, they are an uncommon breeder at Cape Thompson and a regular summer visitor to St. Lawrence Island. In winter, this species spends most of its time on the open ocean near its breeding areas. However, in areas where open water is limited by sea ice, the birds retreat until reaching ice-free coastal areas or mobile pack ice with open water and accessible foraging habitat. Black guillemots are an ice-dependent (pagophilic) species. Their survival is tied to the Arctic pack ice.	Marine vessel routes	Collisions, Spills
Black oystercatcher (*Haematopus bachmani*)	S2	Cook Inlet Basin	Habitat features include mixed sand/cobble and gravel beaches, exposed rocky headlands, rocky islets, and tidewater glacial moraines. Breeding territories are associated with dense mussel beds. This species avoids brushy and forested habitats. Winter habitat includes protected, ice-free tidal flats with dense mussel beds.	Marine vessel routes	Collisions, Spills
Buff-breasted sandpiper [b] (*Calidris subruficollis*)	S2	Beaufort Coastal Plain; Brooks Range; Brooks Foothills	Inhabits boreal forests, mixed forests, muskeg bogs, birches, and streamside willows, including young and mature spruce and sometimes balsam fir (*Abies balsamea*). In northern Alaska, occurs in a variety of forests, including spruce, mixed spruce, alder, and willow.	Gas Treatment Facilities; Mainline Facilities	Habitat loss and/or alteration; Noise and Lighting
Dovekie (*Alle alle*)	S1	Bering Sea Islands	Nests among talus slopes, scree, and rubble in rock crevice, cliff rubble, or in a burrow at the foot of cliffs or coastal mountains or on rocky outcrops surrounded by glaciers. Prefers areas of early snowmelt, sheltered from high winds. Nests usually on coast but locally inland in some areas.	Marine vessel routes	Collisions, Spills
Hudsonian godwit [b] (*Limosa haemastica*)	S2	Ray Mountains; Kobuk Ridges and Valleys; Cook Inlet Basin	Breeding habitat includes sedge-grass marshes, wet tundra, and taiga bogs. Nesting habitat open sedge meadows intermixed with forest within Alaska. Cook Inlet habitat muskeg with wet bog, shallow pools, spruce islands, and drier upland areas surrounded by conifer forests. Similar in western Alaska where species breeds in spruce or spruce-deciduous forests interspersed with open bogs or wet meadows.	Mainline Facilities; Liquefaction Facilities	Habitat loss and/or alteration; Noise and Lighting

TABLE P-2 (cont'd)

Alaska Species of Greatest Conservation Need

Alaska State Species	Ranking [a]	Subregion	Habitat	Project Facility Association	Potential Project Impacts
Kittlitz's murrelet (*Brachyramphus brevirostris*)	S2	Cook Inlet Basin	Nests on coastal cliffs, and barren ground, rock ledges, and talus above timberline in coastal mountains, generally near glaciers. Nests generally on ground on barren scree slopes, short distance below peak or ridge. Breeding generally occurs in high elevation alpine areas, with little or no vegetative cover.	Marine vessel routes	Collisions, Spills
Peale's peregrine falcon (*Falco peregrinus pealei*)	S2	Cook Inlet Basin	Coastal beaches, tidal flats, reefs, islands, marshes, estuaries, and lagoons. Nests mostly found on ledges of vertical rocky cliffs near seabird colonies; some nests on grassy benches of rocky bluffs.	Mainline Facilities; Liquefaction Facilities	Noise and Lighting
Pink-footed shearwater (*Puffinus creatopus*)	S1/S2N	Alaska Range; Cook Inlet Basin	Rare summer visitor to south-central and southeast Alaska. Prefers marine waters at edge of continental shelf.	Marine vessel routes	Collisions, Spills
Ring-necked duck (*Aythya collaris*)	S2	Tanana-Kuskokwim Lowlands; Alaska Range; Cook Inlet Basin	Breeds in freshwater marshes and bogs across the boreal forest of northern North America. Diving ducks, frequently seen in quite shallow waters where patches of open water are fringed with aquatic or emergent vegetation. On migration, ring-necked ducks stop to rest and feed on shallow lakes and impoundments with dense stands of cattails, bulrushes, and other emergent vegetation. Form very large flocks on some lakes. During the winter, frequent swamps, river floodplains, brackish portions of estuaries, shallow inland lakes, sloughs, marshes, reservoirs, and other managed freshwater impoundments	Mainline Facilities; Liquefaction Facilities	Habitat loss and/or alteration; Noise and Lighting
Sanderling (*Calidris alba*)	S2	Cook Inlet Basin	Nests on dry tundra, in stony locations often devoid of vegetation, but within a few hundred meters of wet tundra. Nonbreeding habitat includes sandy beaches, occasionally mud flats, shores of lakes and rivers, and exposed reefs.	Marine vessel routes	Collisions, Spills
Short-tailed albatross [d] (*Phoebastria albatrus*)	S1	Aleutian Islands	When the short-tailed albatross is not nesting, it is widespread throughout the temperate and subarctic regions of the North Pacific. The population ranges from Japan east to the Bering Sea and Gulf of Alaska and south to California. The birds are typically found near islands and mainland coastlines as opposed to mid-ocean regions. This species spends a vast majority of its time soaring over the ocean, only coming to land to nest.	Marine vessel routes	Collisions, Spills
Slaty-backed gull (*Larus schistisagus*)	S2	Aleutian Islands; Bering Sea Islands	In Alaska, this species is a rare spring migrant and summer and fall visitor along the Bering and Chukchi Seas. The first confirmed breeding record for Alaska and North America was from Aniktun Island, which is a low, sandy, barrier island about 2 miles south-southwest of Cape Romanzof in the Bering Sea. This area is part of the Yukon Delta National Wildlife Refuge.	Marine vessel routes	Collisions, Spills

TABLE P-2 (cont'd)

Alaska Species of Greatest Conservation Need

Alaska State Species	Ranking [a]	Subregion	Habitat	Project Facility Association	Potential Project Impacts
Spectacled eider [c] (*Somateria fischeri*)	S2	Beaufort Coastal Plain; Brooks Range; Brooks Foothills	Breeding range in western Alaska consists of coastal salt marshes that grade into thousands of wetlands and lakes. Nesting habitat includes sedges, grasses with higher areas containing shrubs. Islands in river deltas and wetlands characterize habitat on the North Slope. Molting in near shore waters containing an abundance of mollusks. Winter habitat includes open sea or sea pack ice with polynyas.	Gas Treatment Facilities; Marine vessel routes; Mainline Facilities	Habitat loss and/or alteration; Noise and Lighting; Collisions, Spills, Human disturbance
Steller's eider (Alaska-breeding) [c] (*Polysticta stelleri*)	S1	Beaufort Coastal Plain; Cook Inlet Basin	Nests on grassy edges of tundra lakes and ponds, or within drained lake basins. Occasionally nests on barren rocky tundra, ridges, islands, or peninsulas. Nests in dry moss or in depressions between grassy hummocks. Nonbreeding habitat includes shallow marine waters around bays, reefs, lagoons, and inlets or far offshore.	Gas Treatment Facilities; Mainline Facilities; Liquefaction Facilities	Habitat loss and/or alteration; Noise and Lighting; Collisions, Spills, Human disturbance
Surfbird (*Aphriza vigata*)	S2	Kobuk Ridges and Valleys; Ray Mountains; Kobuk Ridges and Valleys; Yukon-Tanana Uplands; Alaska Range; Cook Inlet Basin	Breeds in alpine tundra along mountain ridges in interior mountains. Nesting habitat includes dry frequently stony alpine tundra with lichens, dwarf shrubs, scree or rock fields. Mostly, occupies habitat on summits and upper slopes of steep ridges. Also, may breed near coastal areas. Nests in rocky areas with clumps of vegetation.	Mainline Facilities; Liquefaction Facilities	Habitat loss and/or alteration; Noise and Lighting; Human disturbance
Swainson's hawk (*Buteo swainsoni*)	S2	Beaufort Coastal Plain; Brooks Range; Brooks Foothills; Ray Mountains; Alaska Range	Forages in open grass dominated habitat, sparse shrublands, and small open woodlands. Has adapted to agricultural areas with crops that do not exceed the height of native vegetation. Nests in scattered trees within foraging areas. In B.C., nests sites are typically in foothill and valley uplands areas, and in the Yukon, sightings have been near riverside cliffs with close access to open tundra.	Mainline Facilities	Habitat loss and/or alteration; Noise and Lighting; Human disturbance
Tule white-fronted goose (*Anser albifrons elgasi*)	S1	Alaska Range; Cook Inlet Basin	In Cook Inlet, nests along sloughs dominated by saline sedge-grass habitat and freshwater marsh/shrub bog.	Mainline Facilities	Habitat loss and/or alteration; Noise and Lighting; Human disturbance
Western screech owl (*Megascops kennicottii*)	S2	Alaska Range; Cook Inlet Basin	Diverse habitat requirements. Associated with riparian habitats and deciduous trees. Pacific Coast, including Alaska, found in mixed forests of bigleaf maple (*Acer macrophyllum)*, Douglas fir (*Pseudotsuga menziesii*), red alder (*Alnus rubra*), western hemlock (*Tsuga heterophylla*), and western red cedar (*Thuja plicata*). Nests in tree cavities excavated by either northern flickers or woodpeckers, natural cavities, or nest boxes. Nests near water. In Yakutat, favors riparian spruce.	Mainline Facilities; Liquefaction Facilities	Habitat loss and/or alteration; Noise and Lighting; Human disturbance

TABLE P-2 (cont'd)

Alaska Species of Greatest Conservation Need

Alaska State Species	Ranking [a]	Subregion	Habitat	Project Facility Association	Potential Project Impacts
Yellow-billed loon [e] (*Gavia adamsii*)	S2	Beaufort Coastal Plain; Brooks Range; Brooks Foothills	Nests in low-lying treeless tundra regions, usually coastal in Alaska, clear, low-rimmed lakes. Breeding sites may also be on inland lakes or large river deltas with untapped lakes. Requires nesting and brood-rearing lakes. Nests placed at the water's edge, typically in a low, gently sloping area. Deep open water with islands is a preferred habitat for nesting relative to its availability. Most nests are placed on the leeward lake or island shore.	Gas Treatment Facilities; Marine vessel routes; Mainline Facilities	Habitat loss and/or alteration; Noise and Lighting; Human disturbance
Mammals					
Beluga whale, Cook Inlet [d, g] (*Delphinapterus leucas)*	S1	N/A	Cook Inlet, inhabits fjords, estuaries, and shallow waters. [f]	Marine vessel routes; Liquefaction Facilities; Mainline Facilities	Collisions; Spills; Habitat loss; Noise
Blue whale [d, g] (*Balaenoptera musculus*)	S2	N/A	Blue whales move poleward in spring to exploit the high seasonal zooplankton production found in high-latitude waters during summer. In the fall, blue whales move toward the subtropics, where warmer waters reduce energy expenditures while fasting, provide favorable conditions for reproduction, and eliminate the risk of ice entrapment. Whales of the Western North Pacific stock feed in the Gulf of Alaska, south of the Aleutians and south of Kamchatka, and winter in the western and central Pacific. [f]	Marine vessel routes	Collisions; Spills
North Pacific right whale [d, g] (*Eubalaena japonica*)	S1	N/A	Northern right whales were distributed throughout the western Pacific, Gulf of Alaska, and southeastern Bering Sea. Current known distribution is limited to a few animals on the Bering Sea shelf and an occasional sighting elsewhere in the North Pacific. Consistent sightings have been in the southeastern Bering Sea during July and August. [f]	Marine vessel routes	Collisions; Spills; Noise
Northern fur seal [g] (*Callorhinus ursinus*)	S2	Aleutian Islands	The only northern fur seal breeding beaches in the United States are on the Bogoslof Island in the Aleutians and in the Pribilof Islands. [f]	Gas Treatment Facilities; Marine vessel routes	Collisions; Spills
Northern sea otter [c, g] Southwest Alaska DPS (*Enhydra lutris kenyoni*)	S2/S3	Aleutian Islands; Cook Inlet	Coastal marine waters	Vessel Traffic (Cook Inlet, Bering Sea, Gulf of Alaska)	Collisions; Spills; Noise
Polar bear [c] (*Ursus maritimus*)	S2	Beaufort Coastal Plain	Coastal (terrestrial), and nearshore marine waters.	Gas Treatment Facilities, Mainline Pipeline, Vessel Traffic (Beaufort Sea)	Habitat loss and/or alteration; Noise; Collisions

TABLE P-2 (cont'd)

Alaska Species of Greatest Conservation Need

Alaska State Species	Ranking [a]	Subregion	Habitat	Project Facility Association	Potential Project Impacts

Sources: Alaska Center for Conservation Science (ACCS), 2016b; Alaska Department of Fish and Game, 2015a; Earnst, 2004; Gotthardt et al., 2012, 2013; NatureServe, 2018b; Nowacki et al., 2001b

N/A = Not applicable

[a] Alaska species occurring within the Project footprint are based on range and habitat information from the Alaska Natural Heritage Program (ACCS, 2017b). NatureServe state rankings include:

S1 = Critically imperiled within the state; at very high risk of extirpation because of very few occurrences; declining populations, or extremely limited range and/or habitat;

S2 = Imperiled within the state: at high risk of extirpation because of few occurrences, declining populations, limited range, and/or habitat; and

S3 = Vulnerable.

[b] Bureau of Land Management special status species

[c] Federally protected (threatened) species

[d] Federally protected (endangered) species

[e] Species is listed as previous candidate species under the Endangered Species Act.

[f] Species description and occurrences in the Project area are discussed in section 4.6.3 of the environmental impact statement.

[g] Protected under the Marine Mammal Protection Act.

APPENDIX Q

Recreation Areas Affected by the Project

APPENDIX Q: RECREATION AREAS AFFECTED BY THE PROJECT

List of Tables

Table Q-1 Recreation Areas Temporarily Affected by Project Construction and/or Operation Q-1
Table Q-2 Recreation Areas Permanently Affected by Project Operation Q-9

TABLE Q-1

Recreation Areas Temporarily Affected by Project Construction and/or Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [b]	Footprint Affected (acres)	Land Name
Barge bridge	N/A	N/A	0	3	North Slope Special Use Area
Berthing basin	N/A	N/A	0	14	North Slope Special Use Area
Mainline ATWS	0.2	182.3	182.0	<1	North Slope Special Use Area
Prudhoe Bay Camp	0.6	0.6	0	35	North Slope Special Use Area
Mainline pipe storage yard	0.7	0.7	0	9	North Slope Special Use Area
Material site	11.4	11.4	0	2	North Slope Special Use Area
Material site	11.4	339.3	327.8	25	Dalton Highway Utility Corridor
Mainline ATWS	14.1	356.2	342.1	<1	Dalton Highway Utility Corridor
Material site	17.8	17.8	0	25	North Slope Special Use Area
Material site	24.3	24.3	0	20	North Slope Special Use Area
Mainline pipe storage yard	24.7	24.7	0	11	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	33.6	33.6	0	25	North Slope Special Use Area
Material site	34.3	34.3	0	26	North Slope Special Use Area
Material site	40.0	40.0	0	22	North Slope Special Use Area
Franklin Bluffs Camp	43.7	43.7	0	35	Dalton Highway Utility Corridor and North Slope Special Use Area
Mainline pipe storage yard	43.8	43.8	0	11	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	46.8	46.8	0	10	North Slope Special Use Area
Material site	56.3	56.3	0	71	North Slope Special Use Area
Material site	66.8	66.8	0	55	North Slope Special Use Area
Mainline pipe storage yard	66.8	66.8	0	9	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	71.4	71.4	0	1	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	75.8	75.8	0	64	North Slope Special Use Area
Material site	75.9	75.9	0	80	North Slope Special Use Area
Sagwon Compressor Station Camp	75.9	75.9	0	3	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	85.2	85.2	0	4	Dalton Highway Utility Corridor
Disposal site	85.2	85.2	0	4	North Slope Special Use Area
Disposal site	85.7	85.7	0	5	Dalton Highway Utility Corridor and North Slope Special Use Area
Happy Valley Camp	85.8	85.8	0	37	Dalton Highway Utility Corridor and North Slope Special Use Area
Mainline pipe storage yard	85.9	85.9	0	10	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	87.4	87.4	0	111	North Slope Special Use Area
Material site	95.8	95.8	0	28	North Slope Special Use Area
Mainline pipe storage yard	96.8	96.8	0	9	Dalton Highway Utility Corridor and North Slope Special Use Area

TABLE Q-1 (cont'd)

Recreation Areas Temporarily Affected by Project Construction and/or Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [b]	Footprint Affected (acres)	Land Name
Material site	98.4	98.4	0	45	North Slope Special Use Area
Material site	110.2	110.2	0	35	North Slope Special Use Area
Disposal site	112.0	112.0	0	1	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	113.7	113.7	0	22	North Slope Special Use Area
Mainline pipe storage yard	114.5	114.5	0	9	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	114.7	114.7	0	1	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	118.2	118.2	0	20	North Slope Special Use Area
Material site	119.1	119.1	0	20	North Slope Special Use Area
Material site	121.7	121.7	0	23	North Slope Special Use Area
Material site	123.4	123.4	0	44	North Slope Special Use Area
Mainline pipe storage yard	129.6	129.6	0	9	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	130.2	130.2	0	46	North Slope Special Use Area
Material site	136.6	136.6	0	45	North Slope Special Use Area
Galbraith Lake Camp	142.5	142.5	0	35	Dalton Highway Utility Corridor and North Slope Special Use Area
Mainline pipe storage yard	142.5	142.5	0	9	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	142.7	142.7	0	53	North Slope Special Use Area
Disposal site	142.9	142.9	0	1	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	143.8	143.8	0	1	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	147.1	147.1	0	1	Dalton Highway Utility Corridor and North Slope Special Use Area
Galbraith Lake Compressor Station Camp	148.4	148.4	0	3	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	148.9	148.9	0	81	North Slope Special Use Area
Disposal site	149.0	149.0	0	2	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	151.3	151.3	0	2	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	151.4	151.4	0	25	North Slope Special Use Area
Disposal site	153.0	153.0	0	2	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	155.4	155.4	0	3	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	156.2	156.2	0	2	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	156.2	156.2	0	2	North Slope Special Use Area

TABLE Q-1 (cont'd)

Recreation Areas Temporarily Affected by Project Construction and/or Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [b]	Footprint Affected (acres)	Land Name
Disposal site	157.1	157.1	0	2	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	160.3	160.3	0	2	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	160.4	160.4	0	25	North Slope Special Use Area
Material site	162.7	162.7	0	97	North Slope Special Use Area
Disposal site	162.8	162.8	0	2	Dalton Highway Utility Corridor and North Slope Special Use Area
Mainline pipe storage yard	166.1	166.1	0	9	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	166.5	166.5	0	3	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	168.6	168.6	0	1	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	169.4	169.4	0	1	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	172.0	172.0	0	3	Dalton Highway Utility Corridor and North Slope Special Use Area
Mainline pipe storage yard	174.6	174.6	0	9	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	174.7	174.7	0	5	Dalton Highway Utility Corridor and North Slope Special Use Area
Material site	175.2	175.2	0	32	North Slope Special Use Area
Material site	180.3	180.3	0	32	North Slope Special Use Area
Disposal site	181.6	181.6	0	1	Dalton Highway Utility Corridor and North Slope Special Use Area
Disposal site	183.6	183.6	0	1	Dalton Highway Utility Corridor
Disposal site	184.6	184.6	0	2	Dalton Highway Utility Corridor
Disposal site	188.5	188.5	0	2	Dalton Highway Utility Corridor
Mainline pipe storage yard	190.9	190.9	0	11	Dalton Highway Utility Corridor
Disposal site	195.3	195.3	0	1	Dalton Highway Utility Corridor
Disposal site	196.7	196.7	0	2	Dalton Highway Utility Corridor
Disposal site	197.6	197.6	0	2	Dalton Highway Utility Corridor
Disposal site	199.8	199.8	0	3	Dalton Highway Utility Corridor
Disposal site	202.4	202.4	0	1	Dalton Highway Utility Corridor
Disposal site	204.7	204.7	0	1	Dalton Highway Utility Corridor
Mainline pipe storage yard	205.0	205.0	0	9	Dalton Highway Utility Corridor
Dietrich Camp	205.9	205.9	0	35	Dalton Highway Utility Corridor
Disposal site	215.9	215.9	0	1	Dalton Highway Utility Corridor
Material site	218.6	218.6	0	8	RST 254
Mainline ATWS	218.6	218.6	0	<1	RST 254
Disposal site	218.8	218.8	0	1	Dalton Highway Utility Corridor

TABLE Q-1 (cont'd)

Recreation Areas Temporarily Affected by Project Construction and/or Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [b]	Footprint Affected (acres)	Land Name
Mainline Pipe Storage Yard	218.8	218.8	0	11	Dalton Highway Utility Corridor
Disposal site	223.4	223.4	0	5	Dalton Highway Utility Corridor
Disposal site	228.3	228.3	0	13	Dalton Highway Utility Corridor
Disposal site	229.4	229.4	0	1	Dalton Highway Utility Corridor
Disposal site	231.1	231.1	0	2	Dalton Highway Utility Corridor
Disposal site	233.4	233.4	0	1	Dalton Highway Utility Corridor
Disposal site	236.7	236.7	0	1	Dalton Highway Utility Corridor
Disposal site	237.8	237.8	0	1	Dalton Highway Utility Corridor
Coldfoot Compressor Station Camp	240.0	240.0	0	3	Dalton Highway Utility Corridor
Coldfoot Camp	241.1	241.1	0	3	RST 262
Coldfoot Camp	241.1	241.1	0	7	RST 9
Coldfoot Camp	241.1	241.1	0	3	RST 591
Coldfoot Camp	241.1	241.1	0	37	Dalton Highway Utility Corridor
Coldfoot Camp	241.1	241.1	0	3	RST 412
Mainline ATWS	241.1	241.2	0	0	RST 9, RST 262, RST 412, and RST 591
Mainline pipe storage yard	241.6	241.6	0	11	Dalton Highway Utility Corridor
Disposal site	247.9	247.9	0	2	Dalton Highway Utility Corridor
Disposal site	249.6	249.6	0	2	Dalton Highway Utility Corridor
Disposal site	251.8	251.8	0	2	Dalton Highway Utility Corridor
Mainline pipe storage yard	255.3	255.3	0	9	Dalton Highway Utility Corridor
Disposal site	259.1	259.1	0	1	Dalton Highway Utility Corridor
Disposal site	260.5	260.5	0	2	Dalton Highway Utility Corridor
Disposal site	262.7	262.7	0	1	Dalton Highway Utility Corridor
Disposal site	263.4	263.4	0	4	Dalton Highway Utility Corridor
Disposal site	264.1	264.1	0	1	Dalton Highway Utility Corridor
Disposal site	271.5	271.5	0	1	Dalton Highway Utility Corridor
Mainline pipe storage yard	278.9	278.9	0	9	Dalton Highway Utility Corridor
Prospect Camp	278.9	278.9	0	35	Dalton Highway Utility Corridor
Disposal site	281.5	281.5	0	1	Dalton Highway Utility Corridor
Disposal site	289.0	289.0	0	1	Dalton Highway Utility Corridor
Disposal site	290.3	290.3	0	1	Dalton Highway Utility Corridor
Mainline pipe storage yard	296.7	296.7	0	9	Dalton Highway Utility Corridor
Disposal site	297.8	297.8	0	1	Dalton Highway Utility Corridor
Disposal site	299.6	299.6	0	2	Dalton Highway Utility Corridor
Mainline ATWS	301.6	301.6	0	0	RST 450
Mainline pipe storage yard	305.5	305.5	0	9	Dalton Highway Utility Corridor
Old Man Camp	305.7	305.7	0	35	Dalton Highway Utility Corridor
Mainline pipe storage yard	324.7	324.7	0	9	Dalton Highway Utility Corridor

TABLE Q-1 (cont'd)

Recreation Areas Temporarily Affected by Project Construction and/or Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [b]	Footprint Affected (acres)	Land Name
Disposal Site	329.1	329.1	0	1	Dalton Highway Utility Corridor
Ray River Compressor Station Camp	332.6	332.6	0	3	Dalton Highway Utility Corridor
Mainline pipe storage yard	336.3	336.3	0	9	Dalton Highway Utility Corridor
Disposal site	336.5	336.5	0	1	Dalton Highway Utility Corridor
Disposal site	340.0	340.0	0	1	Dalton Highway Utility Corridor
Disposal site	341.5	341.5	0	1	Dalton Highway Utility Corridor
Disposal site	344.1	344.1	0	1	Dalton Highway Utility Corridor
Disposal site	352.1	352.1	0	1	Dalton Highway Utility Corridor
Mainline pipe storage yard	353.5	353.5	0	9	Dalton Highway Utility Corridor
Five Mile Camp	353.7	353.7	0	35	Dalton Highway Utility Corridor
Mainline ATWS	400.6	400.6	0	0	RST 468
Livengood Camp	400.7	400.7	0	2	RST 468
Material site	402.1	449.8	47.7	3	RST 66
Material site	406.8	406.8	0	72	Tanana Valley State Forest
Disposal site	408.3	408.3	0	7	Tanana Valley State Forest
Mainline ATWS	408.6	454.4	45.7	<1	Tanana Valley State Forest
Material site	409.9	409.9	0	4	Tanana Valley State Forest
Mainline pipe storage yard	409.9	409.9	0	11	Tanana Valley State Forest
Disposal site	416.2	416.2	0	9	Tanana Valley State Forest
Material site	418.1	418.1	0	104	Tanana Valley State Forest
Minto Compressor Station Camp	421.5	421.5	0	3	Tanana Valley State Forest
Mainline ATWS	431.6	468.6	37	<1	Minto Flats State Game Refuge
Disposal site	434.6	434.6	0	3	Minto Flats State Game Refuge
Mainline ATWS	438.8	454.7	15.9	<1	RST 66
Material site	439.4	439.4	0	16	Minto Flats State Game Refuge
Material site	441.2	441.2	0	48	Tanana Valley State Forest
Material site	443.3	443.3	0	41	Tanana Valley State Forest
Disposal site	447.9	447.9	0	1	Minto Flats State Game Refuge
Disposal site	448.0	448.0	0	6	Tanana Valley State Forest
Material site	449.8	449.8	0	84	Tanana Valley State Forest
Disposal site	455.6	455.6	0	3	Minto Flats State Game Refuge
Railroad Spur	456.0	456.0	0	1	Tanana Basin Area Plan
Mainline pipe storage yard	456.1	456.1	0	12	Tanana Basin Area Plan
Dunbar Camp	456.2	456.2	0	4	Tanana Basin Area Plan
Material site	460.7	460.7	0	47	Tanana Valley State Forest
Material site	464.9	464.9	0	39	Minto Flats State Game Refuge
Material site	466.6	466.6	0	77	Tanana Valley State Forest
Material site	469.0	469.0	0	<1	Tanana Basin Area Plan

TABLE Q-1 (cont'd)

Recreation Areas Temporarily Affected by Project Construction and/or Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [b]	Footprint Affected (acres)	Land Name
Mainline ATWS	471.7	472.6	0.9	0	Tanana Basin Area Plan
Railroad spur	471.9	471.9	0	6	Tanana Basin Area Plan
Disposal site	472.3	472.3	0	3	Tanana Basin Area Plan
Mainline pipe storage yard	473.6	473.6	0	2	RST 346
Mainline pipe storage yard	473.6	473.6	0	11	Tanana Basin Area Plan
Disposal site	473.8	473.8	0	1	RST 346
Mainline ATWS	497.3	497.3	0	0	RST 345
Material site	498.1	498.1	0	2	RST 343 and RST 491
Mainline ATWS	498.1	498.1	0	0	RST 343 and RST 491
Mainline ATWS	523.3	523.3	0	<1	RST 340 and 344
Mainline ATWS	526.9	527	0.1	<1	RST 709
Healy Camp	528.9	528.9	0	0	RST 709
Mainline ATWS	532.4	537.6	5.2	<1	Nenana River Gorge and McKinley SUA
Mainline pipe storage yard	551.2	551.2	0	2	BLM Lands
Mainline ATWS	551.2	794.5	243.3	<1	BLM Lands
Mainline ATWS	556.4	582.1	25.7	0	BLM Lands
Mainline ATWS	566.5	566.5	0	<1	RST 625
Mainline ATWS	570.9	570.9	0	<1	BLM Lands
Mainline ATWS	574.1	574.1	0	<1	Denali National Park and Preserve
Mainline ATWS	609.1	646.9	37.9	0	Denali State Park
Material site	612.3	640.5	28.1	25	Denali State Park
Disposal site	615.1	617.4	2.4	1	Denali State Park
Mainline pipe storage yard	618.4	618.4	0	11	Denali State Park
Mainline ATWS	704.0	707.3	3.3	<1	Lower Deshka Recreation River
Mainline ATWS	720.8	724.3	3.6	1	Iditarod National Historic Trail
Mainline ATWS	721.1	723.6	2.4	<1	RST 198
Mainline ATWS	727.4	728.6	1.2	<1	Alexander Creek Recreation River
Mainline ATWS	737.3	752.3	15	<1	Susitna Flats State Game Refuge
Material site	739.8	739.8	0	50	Susitna Flats State Game Refuge
Disposal site	744.2	744.2	0	1	Susitna Flats State Game Refuge
Mainline pipe storage yard	744.9	744.9	0	16	Susitna Flats State Game Refuge
Sleeping Lady Camp	744.9	744.9	0	37	Susitna Flats State Game Refuge
Disposal site	746.9	746.9	0	1	Susitna Flats State Game Refuge
Theodore River Heater Station Camp	749.1	749.1	0	<1	Susitna Flats State Game Refuge
Disposal site	749.3	749.3	0	1	Susitna Flats State Game Refuge
Material site	750.8	750.8	0	19	Susitna Flats State Game Refuge
Mainline ATWS	751.5	751.5	0	<1	RST 1862
Mainline ATWS	766.2	766.2	0	<1	RST 200

TABLE Q-1 (cont'd)

Recreation Areas Temporarily Affected by Project Construction and/or Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [b]	Footprint Affected (acres)	Land Name
Mainline ATWS	796.8	801.6	4.8	<1	BLM Lands
PTTL Badami Camp	18.9	18.9	0	29	North Slope Special Use Area
PTTL pipe storage yard	18.9	18.9	0	14	North Slope Special Use Area
PTTL ATWS	25.5	25.5	0	2	North Slope Special Use Area
PTTL ATWS	25.7	25.7	0	1	North Slope Special Use Area
PTTL ATWS	35.1	35.1	0	1	North Slope Special Use Area
PTTL ATWS	35.3	35.3	0	2	North Slope Special Use Area
PTTL ATWS	44.0	44.0	0	2	North Slope Special Use Area
PTTL ATWS	44.9	44.9	0	5	North Slope Special Use Area
PTTL ATWS	45.2	45.2	0	1	North Slope Special Use Area
PTTL Sag Delta Camp	49.2	49.2	0	30	North Slope Special Use Area
PTTL ATWS	49.7	49.7	0	2	North Slope Special Use Area
PTTL ATWS	51.7	51.7	0	<1	North Slope Special Use Area
PTTL ATWS	51.8	51.8	0	<1	North Slope Special Use Area
PTTL ATWS	52.1	52.1	0	<1	North Slope Special Use Area
PTTL ATWS	53.4	53.4	0	<1	Dalton Highway Utility Corridor and North Slope Special Use Area
PTTL ATWS	53.5	53.5	0	1	Dalton Highway Utility Corridor and North Slope Special Use Area
PTTL ATWS	53.5	53.5	0	1	Dalton Highway Utility Corridor and North Slope Special Use Area
PTTL ATWS	53.7	53.7	0	<1	Dalton Highway Utility Corridor and North Slope Special Use Area
PTTL pipe storage yard	53.7	53.7	0	14	Dalton Highway Utility Corridor and North Slope Special Use Area
PTTL Prudhoe Bay Camp	53.7	53.7	0	38	Dalton Highway Utility Corridor and North Slope Special Use Area
PTTL ATWS	54.1	54.1	0	<1	Dalton Highway Utility Corridor and North Slope Special Use Area
PTTL ATWS	54.3	54.3	0	<1	Dalton Highway Utility Corridor and North Slope Special Use Area
PTTL ATWS	54.6	54.6	0	<1	North Slope Special Use Area
PTTL ATWS	54.7	54.7	0	<1	Dalton Highway Utility Corridor and North Slope Special Use Area
PTTL ATWS	54.9	54.9	0	<1	North Slope Special Use Area
PTTL ATWS	54.9	54.9	0	<1	North Slope Special Use Area
PTTL ATWS	55.0	55.0	0	<1	North Slope Special Use Area
PTTL ATWS	58.0	58.0	0	<1	North Slope Special Use Area
PTTL ATWS	58.3	58.3	0	<1	North Slope Special Use Area
PTTL ATWS	58.5	58.5	0	<1	North Slope Special Use Area
PTTL ATWS	59.0	59.0	0	<1	North Slope Special Use Area
PTTL ATWS	59.1	59.1	0	<1	North Slope Special Use Area

TABLE Q-1 (cont'd)

Recreation Areas Temporarily Affected by Project Construction and/or Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [b]	Footprint Affected (acres)	Land Name
PTTL ATWS	60.4	60.4	0	<1	North Slope Special Use Area
PTTL ATWS	62.2	62.2	0	<1	North Slope Special Use Area

ATWS = additional temporary work spaces; BLM = Bureau of Land Management; N/A = not applicable; PTTL = Point Thomson Unit Gas Transmission Line; RST = Revised Statute Trail

[a] Mileposts numbers are for the Mainline Pipeline except for PTTL entries, which use PTTL milepost numbers.

[b] Length is based on the Mainline Pipeline centerline and may not exactly match estimated milepost numbers; the straight-line distance between consecutive mileposts may be greater than or less than 5,280 feet due to changes in elevation and adoption of route alternatives and variations. The mileposts should be considered reference points only.

TABLE Q-2

Recreation Areas Permanently Affected by Project Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [a]	Footprint Affected (acres)	Land Name
Mainline right-of-way	0	14.3	14.3	251	North Slope Special Use Area
CGF Road	0.1	N/A	0	4	North Slope Special Use Area
Ice road	0.3	N/A	0	1	North Slope Special Use Area
Ice road - pipeline right-of-way	0.3	N/A	0	60	North Slope Special Use Area
Access road	1.7	N/A	0	17	North Slope Special Use Area
Mine road	2.7	N/A	0	32	North Slope Special Use Area
Reservoir	2.9	N/A	0	35	North Slope Special Use Area
Mine road	3.3	N/A	0	141	North Slope Special Use Area
Ice road	3.3	N/A	0	49	North Slope Special Use Area
Mainline right-of-way	14.3	62.8	48.5	849	Dalton Highway Utility Corridor and North Slope Special Use Area
Mainline Access Road-MLBV-CS-E-749.4	36.7	36.7	0	69	Susitna Flats State Game Refuge
Mainline Access Road-MLBV-CS-E-749.4	36.7	36.7	0	<1	RST 200
Mainline right-of-way	62.8	62.8	0	<1	RST 450
Mainline right-of-way	62.8	62.8	0	<1	Dalton Highway Utility Corridor and North Slope Special Use Area
Mainline right-of-way	62.8	182.4	119.6	1,865	Dalton Highway Utility Corridor and North Slope Special Use Area
Mainline Access Road-MLBV-CS-E-749.4	75.8	75.8	0	<1	Susitna Flats State Game Refuge
Mainline Access Road-MLBV-CS-HT-N-332.6	75.8	75.8	0	<1	Dalton Highway Utility Corridor
Sagwon Compressor Station	75.8	76.1	0	27	Dalton Highway Utility Corridor and North Slope Special Use Area
Mainline Access Road-MLBV-CS-N-240	76	76	0	1	Dalton Highway Utility Corridor
Mainline Access Road-MLBV-CS-N-75.8	76	76	0	1	Dalton Highway Utility Corridor
Mainline Access Road-MLBV-CS-N-75.8	76.1	76.1	0	1	North Slope Special Use Area
Mainline Access Road-MLBV-CS-N-76.1	76.1	76.1	0	1	North Slope Special Use Area
Mainline Access Road-MLBV-CS-N-76.1	112	112	0	1	Dalton Highway Utility Corridor
Mainline Access Road-MS-N-442.9	112	112	0	125	Tanana Valley State Forest
Mainline right-of-way	112.1	148.4	36.3	0	Arctic National Wildlife Refuge
Mainline Access Road-N-147.0	147.1	147.1	0	2	Dalton Highway Utility Corridor and North Slope Special Use Area
Galbraith Lake Compressor Station	148.4	148.7	0	26	Dalton Highway Utility Corridor and North Slope Special Use Area
Mainline Access Road-TL-MLBV-CS-HT-N-409.8	148.5	148.5	0	5	Tanana Valley State Forest
Mainline right-of-way	182.4	182.4	0	0	Dalton Highway Utility Corridor and North Slope Special Use Area
Mainline right-of-way	182.4	218.6	36.2	578	Dalton Highway Utility Corridor
Mainline right-of-way	218.6	218.7	0	<1	RST 254 and Dalton Highway Utility Corridor
Mainline right-of-way	218.7	241.1	22.5	351	Dalton Highway Utility Corridor

TABLE Q-2 (cont'd)

Recreation Areas Permanently Affected by Project Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [a]	Footprint Affected (acres)	Land Name
Coldfoot Compressor Station	240.0	240.3	0	26	Dalton Highway Utility Corridor
Mainline Access Road-CS-N-240.2	240.2	240.2	0	1	Dalton Highway Utility Corridor
Mainline right-of-way	241.1	241.1	0	0	RST 412, RST 591, and Dalton Highway Utility Corridor
Mainline right-of-way	241.1	241.2	0	<1	RST 9, RST 262, RST 591, RST 412, and Dalton Highway Utility Corridor
Mainline right-of-way	241.2	241.2	0	0	RST 9, RST 262, and Dalton Highway Utility Corridor
Mainline right-of-way	241.2	241.2	0	<1	RST 9 and Dalton Highway Utility Corridor
Mainline right-of-way	241.2	255.5	14.4	219	Dalton Highway Utility Corridor
Mainline right-of-way	255.5	255.6	0	1	RST 412 and Dalton Highway Utility Corridor
Mainline right-of-way	255.6	301.6	46	719	Dalton Highway Utility Corridor
Mainline right-of-way	301.6	301.6	0	<1	RST 450 and Dalton Highway Utility Corridor
Mainline right-of-way	301.6	356.3	54.7	820	Dalton Highway Utility Corridor
Ray River Compressor Station	332.5	332.8	0	26	Dalton Highway Utility Corridor
Mainline right-of-way	400.6	400.7	0	<1	RST 468
Mainline right-of-way	401.8	401.8	0	<1	RST 66
Mainline right-of-way	407.7	421.9	14.1	255	Tanana Valley State Forest
Minto Compressor Station	421.4	421.7	0	27	Tanana Valley State Forest
Mainline right-of-way	421.7	444.9	23.2	0	Minto Flats State Game Refuge
Mainline right-of-way	421.9	424.3	2.4	43	Tanana Valley State Forest
Mainline right-of-way	424.3	430.9	6.6	116	Tanana Valley State Forest
Mainline right-of-way	430.9	438.8	7.8	143	Minto Flats State Game Refuge
Mainline right-of-way	438.8	438.8	0	1	RST 66 and Minto Flats State Game Refuge
Mainline right-of-way	438.8	439.4	0.6	10	Minto Flats State Game Refuge
Mainline right-of-way	439.4	439.4	0	1	RST 66 and Minto Flats State Game Refuge
Mainline right-of-way	439.4	441.1	1.7	32	Minto Flats State Game Refuge
Mainline right-of-way	446.2	446.4	0.2	4	Minto Flats State Game Refuge
Mainline right-of-way	447.6	447.9	0.3	6	Minto Flats State Game Refuge
Mainline right-of-way	447.9	453.4	5.5	103	Tanana Valley State Forest
Mainline right-of-way	453.4	453.6	0.2	5	Minto Flats State Game Refuge
Mainline right-of-way	453.6	454.6	1	19	Tanana Valley State Forest
Mainline right-of-way	454.6	454.7	0	1	Minto Flats State Game Refuge
Mainline right-of-way	454.7	454.7	0	<1	RST 66 and Minto Flats State Game Refuge
Mainline right-of-way	454.7	455.3	0.6	10	Minto Flats State Game Refuge
Mainline right-of-way	455.5	455.9	0.4	7	Minto Flats State Game Refuge

TABLE Q-2 (cont'd)

Recreation Areas Permanently Affected by Project Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [a]	Footprint Affected (acres)	Land Name
Mainline right-of-way	455.9	455.9	0	<1	RST 1595 and Minto Flats State Game Refuge
Mainline right-of-way	455.9	457.7	1.8	32	Minto Flats State Game Refuge
Mainline right-of-way	459.1	460.2	1	19	Minto Flats State Game Refuge
Mainline right-of-way	460.6	460.8	0.2	4	Minto Flats State Game Refuge
Mainline right-of-way	461.4	468.6	7.2	131	Minto Flats State Game Refuge
Mainline right-of-way	467.1	492.9	25.8	0	BLM Lands
Mainline right-of-way	471.7	472.6	0.9	12	Tanana Basin Area Plan
Mainline right-of-way	473.9	473.9	0	<1	RST 346
Mainline right-of-way	497.3	497.3	0	<1	RST 345
Mainline right-of-way	498.1	498.1	0	0	RST 343 and RST 491
Mainline right-of-way	498.1	498.1	0	<1	RST 343 and RST 491
Mainline right-of-way	517.8	534.8	17	0	Denali National Park and Preserve
Mainline right-of-way	523.3	523.3	0	<1	RST 340 and RST 344
Mainline right-of-way	527	527	0	1	RST 709
Mainline right-of-way	534.7	534.8	0.1	1	Nenana River Gorge and McKinley SUA
Mainline right-of-way	534.8	534.8	0	0	Denali National Park and Preserve
Mainline right-of-way	534.8	538.8	4	0	Denali National Park and Preserve
Mainline right-of-way	536.3	537.6	1.2	19	Nenana River Gorge and McKinley SUA
Mainline right-of-way	538.8	546.4	7.6	0	Denali National Park and Preserve
Mainline right-of-way	546.5	572.2	25.7	0	BLM Lands
Mainline right-of-way	547.3	547.3	0	<1	BLM Lands
Mainline right-of-way	551.2	551.2	0	<1	BLM Lands
Mainline right-of-way	556.4	556.4	0	1	BLM Lands
Mainline right-of-way	559.6	559.6	0	<1	BLM Lands
Mainline right-of-way	566.5	566.5	0	<1	RST 625
Mainline right-of-way	570.9	570.9	0	<1	BLM Lands
Mainline right-of-way	574.1	574.1	0	<1	National Park Service
Mainline right-of-way	581.9	581.9	0	<1	BLM Lands
Mainline right-of-way	609.1	646.9	37.9	594	Denali State Park
Mainline right-of-way	704.0	705.8	1.8	30	Lower Deshka Recreation River
Mainline right-of-way	707.1	707.5	0.4	6	Lower Deshka Creek Recreation River
Mainline right-of-way	720.8	720.8	0	<1	Iditarod National Historic Trail
Mainline right-of-way	721.2	721.2	0	<1	RST 198
Mainline right-of-way	723.5	723.6	0.1	1	RST 199
Mainline right-of-way	724.3	724.3	0	<1	Iditarod National Historic Trail
Mainline right-of-way	727.3	728.5	1.2	21	Alexander Creek Recreation River

TABLE Q-2 (cont'd)

Recreation Areas Permanently Affected by Project Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [a]	Footprint Affected (acres)	Land Name
Mainline right-of-way	737.3	740.4	3.1	53	Susitna Flats State Game Refuge
Mainline right-of-way	741.6	742.7	1	19	Susitna Flats State Game Refuge
Mainline right-of-way	743.2	747.0	3.7	66	Susitna Flats State Game Refuge
Mainline right-of-way	747.2	748.0	0.9	15	Susitna Flats State Game Refuge
Theodore River Heater Station	749.0	749.2	0	11	Susitna Flats State Game Refuge
Mainline right-of-way	749.0	749.4	0.4	6	Susitna Flats State Game Refuge
Mainline right-of-way	750.5	750.8	0.3	5	Susitna Flats State Game Refuge
Mainline right-of-way	751.5	751.5	0	<1	RST 1862
Mainline right-of-way	751.8	752.4	0.6	8	Susitna Flats State Game Refuge
Mainline right-of-way	766.2	766.2	0	<1	RST 200
Mainline right-of-way	793.4	799.8	6.5	0	BLM Lands
Mainline right-of-way	794.5	794.5	0	<1	BLM Lands
Mainline right-of-way	796.8	796.8	0	1	BLM Lands
Mainline right-of-way	799.8	799.8	0	0	BLM Lands
Mainline right-of-way	801.6	801.6	0	<1	BLM Lands
Dunbar	N/A	N/A	0	1	Tanana Basin Area Plan
Nenana	N/A	N/A	0	6	Tanana Basin Area Plan
Berthing basin	N/A	N/A	0	14	North Slope Special Use Area
Dock head	N/A	N/A	0	31	North Slope Special Use Area
GTP pad	N/A	N/A	0	228	North Slope Special Use Area
Ice road - pipeline right-of-way	N/A	N/A	0	11	North Slope Special Use Area
Expanded causeway road	N/A	N/A	0	43	North Slope Special Use Area
Expanded module haul road	N/A	N/A	0	36	North Slope Special Use Area
New haul road	N/A	N/A	0	44	North Slope Special Use Area
Expanded causeway road	N/A	N/A	0	33	North Slope Special Use Area
Point Thomson Meter Station	0	0	0	1	North Slope Special Use Area
PTTL right-of-way	0	1.8	1.8	45	North Slope Special Use Area
PTTL right-of-way	1.8	1.8	0	1	RST 1043 and North Slope Special Use Area
PTTL right-of-way	1.8	3.3	1.5	34	RST 1043 and North Slope Special Use Area
PTTL right-of-way	3.3	3.4	0.1	2	North Slope Special Use Area
PTTL right-of-way	3.4	8.0	4.6	112	North Slope Special Use Area
PTTL right-of-way	8.0	8.0	0	1	RST 1043 and North Slope Special Use Area
PTTL right-of-way	8.0	52.6	44.5	1,245	North Slope Special Use Area
PTTL right-of-way	52.6	54.6	2.1	44	Dalton Highway Utility Corridor and North Slope Special Use Area
PTTL right-of-way	54.6	62.5	7.9	244	North Slope Special Use Area

TABLE Q-2 (cont'd)

Recreation Areas Permanently Affected by Project Operation

Facility Name	Start Milepost [a]	End Milepost [a]	Length (miles) [a]	Footprint Affected (acres)	Land Name
PTTL right-of-way	54.7	54.7	0	2	Dalton Highway Utility Corridor and North Slope Special Use Area

BLM = Bureau of Land Management; CGF = Central Gas Facility; GTP = Gas Treatment Plant; N/A = not applicable; PTTL = Point Thomson Unit Gas Transmission Line; RST = Revised Statute Trail; SUA = Special Use Area

[a] Mileposts numbers are for the Mainline Pipeline except for PTTL entries, which use PTTL milepost numbers.

[b] Length is based on the Mainline Pipeline centerline and may not exactly match estimated milepost numbers; the straight-line distance between consecutive mileposts may be greater than or less than 5,280 feet due to changes in elevation and adoption of route alternatives and variations. The mileposts should be considered reference points only.

APPENDIX R

Landfills, Mines, and Spill/Release Sites near the Project Area

APPENDIX R, LANDFILLS, MINES, AND SPILL/RELEASE SITES NEAR THE PROJECT AREA

List of Tables

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Table R-2 Summary of Landfills, Mines, and Spill/Release Sites near the Mainline Facilities R-4
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TABLE R-1

Summary of Landfills, Mines, and Spill/Release Sites near the Gas Treatment Facilities [a]

Location	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
Gas Treatment Plant											
Near CGF road	BPX Central Gas Facility Therminol Spill	Therminol	ADEC/CSRP	Open	No	East	1,121	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is south into lake at former pad or east into Prudhoe Bay.	Less likely
Near new haul road	BPX Term Well A	Drilling mud release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	West	69	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is north and northeast into ponds bordering former pad.	Less likely
Near expanded module haul road	BPX Abel State 1	Diesel spill	ADEC/CSRP	Cleanup Complete	No	Southeast	439	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is north and northeast into tundra wetlands bordering former pad.	Less likely
Near CGF road	BPX Central Gas Facility Therminol Spill	Therminol spill	ADEC/CSRP	Open	No	Northeast	424	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is west and south off pad into tundra wetland.	More likely

TABLE R-1 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near the Gas Treatment Facilities [a]

Location	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
PTTL (Nearest Milepost)											
0.0	Exxon Point Thomson Exploration Unit 1	Diesel spill	ADEC/CSRP	Cleanup Complete	No	North	1,068	Seasonal 1.5 – 6 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water either sheet-flows off pad into Prudhoe Bay or surrounding tundra wetlands or ponds on site.	Less likely
0.2	Exxon Point Thomson State C1 Pad	Petroleum release	ADEC/CSRP	Open	No	Northeast	927	Seasonal 1.5 – 6 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water either sheet-flows off pad into Prudhoe Bay or surrounding tundra wetlands or ponds on site depending on season and if inside bermed areas of pad.	Less likely
54.1	BPX Hot Water Plant	Petroleum release	ADEC/CSRP	Open	No	Southwest	700	Seasonal 1.5 – 6 ft Arctic Zone-permafrost: surface water migration only	Northwest, south, and southwest	Surface water ponds or sheet-flows east off pad into Sag River.	Less likely
54.2	BPX Drill Site Maintenance Warm Storage Facility	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	Northeast	1,079	Seasonal 1.5 – 6 ft Arctic Zone-permafrost: surface water migration only	Northwest and southwest	Surface water ponds on site or sheet-flows northwest, west, and southwest into tundra wetlands and Sag River.	Less likely

TABLE R-1 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near the Gas Treatment Facilities [a]

Location	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
54.3	BPX Drill Site Maintenance Pad Shop Site	Petroleum and solvent release	ADEC/CSRP	Open	No	Northeast	945	Seasonal 1.5 – 6 ft Arctic Zone-permafrost: surface water migration only	Northwest and southwest	Surface water ponds on site or sheet-flows northwest, west, and southwest into tundra wetlands and Sag River.	Less likely
54.3	BPX South Hangar Pad	Petroleum spill	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	North	870	Seasonal 1.5 – 6 ft Arctic Zone-permafrost: surface water migration only	Northwest and southwest	Surface water ponds on site or sheet-flows northwest, west, and southwest into tundra wetlands and Sag River.	Less likely

Sources: ADEC, 2016c, 2017e, 2018b; ADNR, 2014d, 2015a,e,g, 2017h; BLM, 2016b; EPA, 2017a, 2017c, 2018d; USGS, 2015a, 2016b

ADEC = Alaska Department of Environmental Conservation; ADNR = Alaska Department of Natural Resources; bgs = below ground surface; BPX = British Petroleum Exploration; CGF = Central Gas Facility; CSRP = Contaminated Sites Remediation Program; ft = feet; GIS = geographic information system; NA = data not available; PBTL = Prudhoe Bay Unit Gas Transmission Line; PTTL = Point Thomson Unit Gas Transmission Line; USGS = United States Geological Survey

[a] Includes all landfills and spill/release sites within 0.25 mile of the Gas Treatment Plant, West Dock Causeway, gravel mine, water reservoir, camps, and PTTL centerline: none were identified within 0.25 mile of the PBTL. No mines were identified that would affect these facilities.

[b] The types of sites are based on terminology provided by the agency databases to describe the site and associated releases. Note: petroleum is a general term that could indicate a number of products, such as diesel fuel, gasoline, and fuel oil (see section 4.9.6.1).

[c] The regulatory agency or program designates a site's regulatory status (see section 4.9.6.1 for definitions).

[d] Groundwater Well Depth Sources: ADNR Alaska Well Log Tracking System (WELTS), accessed November 2018; and USGS Groundwater Stations (2016b), accessed November 2018.

[e] Depth to groundwater and flow direction and surface water flow directions at contaminated sites are subject to change over time and with the seasons. During construction, the Project would adhere to the Unanticipated Contamination Plan guidelines and BMPs when conducting ground-disturbing activities.

[f] NA = Groundwater flow direction not available in database records. Groundwater flow direction sources: ADEC Division of Spill Prevention and Response, Contaminated Sites Program, Contaminated Site Database (CSD), accessed November 2018; ADEC Drinking Water Protection Areas - drinking water protection areas with groundwater and surface water zones: Zone A (Time of Travel in Months and surface water sources 1,000-foot buffer) and Zone B (2-year Time of Travel and surface water sources 1-mile buffers), accessed November 2018.

[g] Estimated surface water flow direction, if not provided in CSD reports, was visually interpreted using Project GIS webmapper contour layers and elevation data. Sources: ADNR Division of Geological & Geophysical Surveys (AK DGGS) LiDAR, 2018; USGS 3D Elevation Program (3DEP).

[h] Contamination potential is based on the evaluation in section 4.9.6.3, which considers a site's proximity, hydrogeologic setting, facility type, and regulatory status.

TABLE R-2

Summary of Landfills, Mines, and Spill/Release Sites near the Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
5.0	Alyeska PS 01 Tank 111	Petroleum release from AST	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	Southeast	1,232	Seasonal 1.5 –3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is south and southeast off pad directly into tundra wetlands.	Less likely
5.3	Alyeska Pump Station #1	Landfill	ADEC/SWP	Retired	No	East	727	Seasonal 1.5 –3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is south and southeast off pad directly into tundra wetlands.	Less likely
5.3	Alyeska PS 01 Back 40 Staging Area	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	East	625	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is south and southeast off pad directly into tundra wetlands.	Less likely
14.2	ConocoPhillips Hemi Springs 3	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	West	1,211	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is north and west and southwest southeast off pad into tundra wetlands.	Less likely
43.7	Alyeska Franklin Bluffs Camp	Diesel spill	ADEC/CSRP	Cleanup Complete with Institutional Controls	Yes	NA	0	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is east toward Sagavanirktok River.	More likely
43.7	Alyeska Franklin Bluffs Camp	Landfill	ADEC/SWP	Retired	Yes	NA	0	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is east toward Sagavanirktok River.	More likely
85.7	Alyeska Happy Valley Camp East	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	South	175	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is north and east toward Sagavanirktok River.	Less likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
85.7	ADNR Arctic Wilderness Lodge	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	Yes	NA	0	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is east toward Sagavanirktok River.	More likely
85.8	Alyeska Happy Valley Camp West	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	Yes	NA	0	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is northeast and east to Happy Valley Creek down-gradient of site.	More likely
90.3	Alyeska Dan Creek Spill	Petroleum release	ADEC/CSRP	Cleanup Complete	No	Northeast	778	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is west into Dan Creek down-gradient from site.	Less likely
113.5	Alyeska Milepost 108.1	Petroleum release	ADEC/CSRP	Cleanup Complete	No	Southeast	970	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is northeast toward unnamed tributary to Sagavanirktok River east of site.	Less likely
113.8	Sag River Maintenance Camp	Landfill	ADEC/SWP	Retired	Yes	NA	0	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is northeast off pad toward containment pond.	More likely
130.2	Alyeska Pipeline Site 117-1B Camp	Landfill	ADEC/SWP	Active	Yes	NA	0	Seasonal 1.5 – 3 ft Arctic Zone-permafrost: surface water migration only	NA	Surface water flow is north and northeast directly into wetlands draining into East Fork Kuparuk River 0.2 miles east and down-gradient from site.	More likely
141.6	Alyeska Galbraith Airport Generator	Petroleum release	ADEC/CSRP	Cleanup Complete	Yes	NA	0	3.5 – 4 ft bgs suprapermafrost meltwater, monitoring wells	NA	Surface water flow off pad is east into wetlands bordering runway and pad.	Less likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
141.7	Alyeska Galbraith Airport Diesel	Diesel spill	ADEC/CSRP	Cleanup Complete with Institutional Controls	Yes	NA	0	3.5 – 4 ft bgs suprapermafrost meltwater, monitoring wells	NA	Surface water flow off the pad west toward road entrance and drainage ditches into tundra wetlands.	More likely
143.0	BLM Alyeska Galbraith Camp	Diesel spill	ADEC/CSRP	Cleanup Complete with Institutional Controls	Yes	NA	0	3.5 – 4 ft bgs suprapermafrost meltwater, monitoring wells	NA	Surface water flow ponds on gravel pad site in a low spot on pad or flows east and northeast toward tundra wetlands.	More likely
149.0	Alyeska Pump Station #4	Landfill	ADEC/SWP	Retired	Yes	NA	0	142 ft bgs	NA	Surface water flow is north and northwest toward unnamed lake or northeast toward unnamed tributary and Tee Lake inlet.	More likely
197.2	Alyeska Remote Gate Valve 35A	Petroleum release	ADEC/CSRP	Cleanup Complete	No	Southwest	699	1.7 – 4.1 ft bgs monitoring well	NA	Surface flow is northwest toward Dietrich River down-gradient from site.	Less likely
205.9	Alyeska Dietrich Camp	Petroleum release	ADEC/CSRP	Open	Yes	NA	0	3.4 to 10.3 ft bgs old monitoring water well on site	NA	Surface water flow is northwest toward Dietrich River from site.	More likely
218.7	Linda Creek	Mine	BLM	Inactive	Yes	NA	0	NA	NA	NA	More likely
229.2	Minnie Creek	Mine	ADNR/BLM	Inactive	No	Northeast	6,700 [f]	NA	NA	NA	Less likely
239.3	Clara Creek	Mine	BLM	Active	No	Northeast	4,900 [f]	NA	NA	Surface water flow is toward the Project area.	More likely
241.0	Slate Creek	Mine	ADNR	Inactive	No	Southeast	6,700 [f]	NA	NA	NA	Less likely
241.1	Coldfoot Services	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	Yes	NA	0	11 ft bgs old water well on site	East	Surface water flow is south toward ponds bordering pad.	More likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
241.1	Coldfoot Camp Generator Release	Diesel spill	ADEC/CSRP	Open	No	Northwest	107	11 ft bgs old water well on site	East	Surface water flow is south toward ponds at edge of pad.	More likely
241.1	Coldfoot Camp Crew Quarters Fuel Line	Petroleum release	ADEC/CSRP	Open	No	Southwest	161	11 ft bgs old water well on site	East	Surface water flow is south toward ponds at edge of pad.	More likely
260.9	South Fork Koyukuk River	Mine	BLM	Inactive	No	Northeast	28,000 [f]	NA	NA	NA	Less likely
264.2	ADOT&PF Dalton Highway Mile 152.7	Petroleum release	ADEC/CSRP	Cleanup Complete	Yes	NA	0	NA	NA	Site is in former material site. Surface water flow is north and northeast into wetlands and unnamed tributary of Elwood Creek.	Less likely
271.7	Jim River Landfill ADOT&PF	Landfill	ADEC/SWP	Retired	No	North	310	NA	NA	Site is in former landfill surface flow toward center of gravel pit.	Less likely
271.9	ADOT&PF Dalton Highway Mile 145	Petroleum release	ADEC/CSRP	Cleanup Complete	No	North	250	NA	NA	Site is in former material site surface flow toward center of pit.	Less likely
272.0	Alyeska Pump Station #5	Landfill	ADEC/SWP	Retired	No	South	582	NA	NA	Site is in former landfill site surface water flow is toward center of landfill pit.	Less likely
278.7	ADOT&PF Jim River Maintenance and Operations Station	Petroleum release	ADEC/CSRP	Cleanup Complete	No	Northeast	831	7 ft bgs monitoring well	West and northwest	Surface water flow is northwest off pad toward Jim River.	Less likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
278.7	ADOT&PF Jim River Maintenance Camp	Diesel spill	ADEC/CSRP	Cleanup Complete	No	Northeast	758	12 ft bgs drinking water well	West and northwest	Surface water flow is north off pad toward Jim River.	Less likely
278.8	Prospect Airport Lease Lot 1	Diesel spill	ADEC/CSRP	Open	Yes	NA	0	43 ft bgs water well at Prospect camp west of site	Northwest	Surface water flow south off pad into wetland pond.	More likely
279.2	Alyeska PS 05 Fuel Island Spill 1	Petroleum release	ADEC/CSRP	Cleanup Complete	No	North	516	38-48 ft bgs old water wells on site	Northwest	Surface water flow is toward secondary containment on pad.	Less likely
279.2	Alyeska PS 05 Fuel Island Spill 2	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	North	516	38-48 ft bgs old water wells on site	Northwest	Surface water flow is toward secondary containment.	Less likely
279.2	Alyeska PS 05 Tank Farm	Therminol release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	North	516	38-48 ft bgs old water wells on site	Northwest	Surface water flow is toward secondary containment.	Less likely
279.2	Alyeska PS 05 Well House Spill	Petroleum release	ADEC/CSRP	Cleanup Complete	No	North	506	38-48 ft bgs old water wells on site	Northwest	Surface water flow is toward secondary containment.	Less likely
279.2	Alyeska PS 05 Turbine Fuel Spill	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	North	506	38-48 ft bgs old water wells on site	Northwest	Surface water flow is toward secondary containment.	Less likely
279.2	Alyeska PS 05 20RBO Valve Release	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	North	424	38-48 ft bgs old water wells on site	Northwest	Surface water flow is toward secondary containment.	Less likely
281.5	Prospect Creek	Mine	BLM	Inactive	No	Southeast	8,300 [f]	NA	NA	NA	Low

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
305.9	Alyeska Old Man Camp 87-1	Landfill	ADEC/SWP	Retired	Yes	NA	0	2-6 ft bgs monitoring well	South and west	Surface water flow less likely is south toward center of pit.	More likely
312.7	Alaska West Transport	Methanol spill	ADEC/CSRP	Cleanup Complete	No	Northeast	278	NA	NA	Surface water flow is south and southeast to an unnamed tributary of Olson Lake Creek.	Less likely
351.6	Alyeska Five Mile Airstrip	Petroleum release	ADEC/CSRP	Cleanup Complete	No	Northeast	480	Permafrost: surface water migration only	NA	Surface water flow is south and southeast toward Dalton Hwy ditch and wetlands.	Less likely
358.3	Alyeska PS 06 Former Mainline Turbine Sump	Petroleum release	ADEC/CSRP	Cleanup Complete	No	Southwest	387	6.68-10.44 ft bgs old monitoring well	East	Surface water flow is north and northeast off pad toward wetlands.	Less likely
358.3	Alyeska PS 06 Former Turbine Fuel Loading	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	Southwest	685	6.68-10.44 ft bgs old monitoring well	East	Surface water flow is north and northeast off pad toward wetlands.	Less likely
358.3	Alyeska PS 06 Leach Field/Fuel Island	Petroleum release	ADEC/CSRP	Open	No	South	397	10-19 ft bgs old monitoring well	East	Surface water flow is north and northeast off pad toward wetlands.	Less likely
358.3	Alyeska PS 06 Therminol Spill Site	Therminol spill	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	South	397	6.68-10.44 ft bgs old monitoring wells	East	Surface water flow is north and northeast off pad toward wetlands.	Less likely
358.4	Alyeska PS 06 JP4 Fueling Facility	Petroleum release	ADEC/CSRP	Cleanup Complete	No	Southwest	129	6.68-10.44 ft bgs: a closed well had 600 ft bgs	East	Surface water flow is north and northeast off pad toward wetlands.	Less likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
358.4	Alyeska PS 06 Jet Shed	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	Southwest	129	6.68-10.44 ft bgs monitoring well	East	Surface water flow is northeast and east.	Less likely
358.8	Alyeska PS 06 (DS 77-3)	Landfill	ADEC/SWP	Retired	No	Southwest	536	6.68-10.44 ft bgs well about 1,300 ft north	East	Surface water flow is northwest and west.	Less likely
365.1	Yukon Ventures	Landfill	ADEC/SWP	Retired	Yes	NA	0	NA	NA	Site is in former landfill. Surface water flow is toward center of landfill pit.	More likely
394.5	Dalton Highway Mile Post 7 Tanker Rollover	Diesel spill	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	West	400	NA	NA	Surface water flow is south and southwest toward Dalton Hwy.	Less likely
401.1	Tower Hill Mines Livengood Camp	Petroleum release	ADEC/CSRP	Open	Yes	NA	0	15 ft bgs water well at site	Northwest	Surface water flow is south off pad toward West Fork Tolovana River.	More likely
402.0–409.0	Tolovana River	Mines	ADNR	Inactive	Yes	NA	0	NA	NA	NA	More likely
440.5	Murphy Dome AFS White Alice Station	PCB release	ADEC/CSRP	Open	No	North	1,058	NA	NA	Seasonal groundwater flow is north and south following site topography. Surface water flow is south towards Dawson Creek or a tributary of Keystone Creek.	More likely
440.5	Murphy Dome AFS White Alice Station Bldg. 1001	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete	No	North	1,148	Same site	NA	Same site	Less likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
444.6	Murphy Dome AFS Landfill No. 2	Landfill	ADEC/SWP	Retired	No	East	353	NA	NA	Site is level: no surface flow, ponded water only. Regional surface water flow is south and southeast.	Less likely
445.2	Tank Rollover Spill	Diesel spill	ADEC/CSRP	Cleanup Complete	No	Northwest	831	3.46 ft bgs, 16.4 ft bgs old monitoring wells	NA	Flow is south toward wetlands.	Less likely
445.6	ARRC Dunbar Siding	Petroleum release	ADEC/CSRP	Cleanup Complete	No	Northeast	1,221	Shallow; discontinuous permafrost at site	NA	Surface water flow is northeast toward pond and Goldstream Creek.	Less likely
471.9	Nenana Landfill	Landfill	ADEC/SWP	Retired	No	Southeast	777	8 ft bgs water well about 1 mile south of site	Southeast	Site is an old landfill. Surface water ponds on site or flows west toward railroad and highway.	Less likely
501.9	AT&T Alascom Birch Creek Repeater	Petroleum release	ADEC/CSRP	Cleanup Complete	No	West	1,119	NA	NA	Site is on hill. Surface flow is east toward wetlands and Parks Highway ditch.	Less likely
525.6	Healy Small Tracts Subdivision	Petroleum release	ADEC/CSRP	Open	No	North	1,015	40 ft bgs water well about 744 ft north of site	NA	Surface flow is east toward wetlands.	Less likely
528.9	Usibelli Coal Mine	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete with Institutional Controls	No	East	589	25 ft bgs and 20 ft bgs old monitoring wells on site	Southwest	Surface water flow is northeast toward the Nenana River.	Less likely
536.3	Tesoro Lynx Creek	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete	No	South	765	38 ft bgs on-site water well north corner of site and 65 ft bgs water well about 250 ft west	East	Surface flow is west toward Parks Highway drainage ditch.	Less likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
566.0	ARRC Cantwell Section	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete	No	Northeast	426	18 ft bgs water well about 1,060 ft north of site	West	Surface water flow is south into wetland ponds east of Cantwell PSY.	Less likely
566.0	ARRC Cantwell Section House	Petroleum release	ADEC/CSRP	Cleanup Complete	No	Northwest	249	18 ft bgs water well about 670 ft north of site and upgradient of site	West	Surface water flow is south into wetland ponds east of Cantwell PSY.	Less likely
566.3	Cantwell ADOT&PF Inert Waste Landfill	Landfill	ADEC/SWP	Retired	No	East	100	15 ft bgs water well is about 1,400 ft west and down-gradient of site	East	Surface water flow is west and southwest.	Less likely
566.3	ADOT&PF Cantwell Maintenance Station	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete	No	Northwest	100	10 to 12 ft bgs old monitoring wells at site. 15 ft bgs water well about 750 ft north of site	East	Surface flow is west toward old Anchorage-Fairbanks Highway.	Less likely
566.6	Cantwell Landfill	Landfill	ADEC/SWP	Retired	No	West	344	Groundwater spring near Jack River about 2,100 ft northwest of site	West	Surface water flow is northwest toward Jack River.	Less likely
568.5	FAA Summit Air Navigation Site	Petroleum releases	ADEC/CSRP	Open	No	North	488	NA	NA	NA	More likely
568.5	Cantwell UAF Inert Landfill	Landfill	ADEC/SWP	Retired	No	North	978	18 ft bgs about 446 ft northeast and upgradient of site	West	Surface flow is east of site into unnamed tributary of Jack River or southeast toward Denali Highway drainage ditch.	Less likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
575.4	FAA Former Summit NDB/RCO	Petroleum release	ADEC/CSRP	Open	No	Southeast	1,169	9 ft bgs old monitoring well at site, 30 ft bgs old USGS groundwater station at site, and 51 ft bgs old USGS groundwater station about 1,600 ft northeast of site	North and northwest	Surface water is east toward Parks Highway drainage ditch.	More likely
575.5	FAA Former Summit Gasoline Pumphouse	Petroleum release	ADEC/CSRP	Open	No	Southeast	180	NA	NA	NA	More likely
575.5	FAA Former Summit Housing North	Petroleum release	ADEC/CSRP	Open	No	East	25	NA	NA	NA	More likely
575.5	FAA Former Summit Housing South	Petroleum release	ADEC/CSRP	Open	No	East	85	NA	NA	NA	More likely
575.5	ARRC Summit Siding	Petroleum release	ADEC/CSRP	Open	No	Northeast	830	51 ft bgs old USGS groundwater station about 1,600 ft northeast of site	South	Surface water flow from site is east toward Parks Highway drainage ditch.	Less likely
583.6	ARRC Broad Pass Railroad Station	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete with Institutional Controls	Yes	NA	0	7 ft bgs at excavation site	South	Site is generally level; surface flow is west and southwest.	More likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
591.9	ADOT&PF Chulitna Wayside	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete with Institutional Controls	No	Northeast	717	NA	NA	NA	Less likely
593.0	ADOT&PF East Fork Maintenance Station	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete with Institutional Controls	No	West	470	1.5 ft bgs – 6 ft bgs old monitoring wells, 11.3 ft bgs old water well might have perched aquifer at monitoring wells and deeper aquifer at old drinking well.	Southwest	Surface flow is west toward East Fork of Chulitna River bordering site.	Less likely
606.9	ARRC Hurricane Former UST	Petroleum release (LUST)	ADEC/LUST	Open	No	Southwest	726	Ranges 2.9 to 8 ft bgs old monitoring wells. A former 60 ft bgs artesian drinking water well was 75 ft from site. The artesian well's static water level was over the casing top.	Northwest	Surface flow is southwest toward railroad and drainage ditch.	More likely
609.0	Lynden Transport Vehicle Accident	Diesel spill	ADEC/CSRP	Cleanup Complete	No	Northwest	129	NA	NA	Surface flow is southwest along the north side of Parks Highway into wetlands.	Less likely
627.7	Denali Air McKinley Airstrip	Diesel spill	ADEC/CSRP	Cleanup Complete	No	Southeast	136	NA	NA	NA	Less likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
636.2	AT&T Alascom Byers Creek Repeater	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete	No	Northeast	774	NA	NA	Site is on hill; surface flow is south and southwest toward Parks Highway.	Less likely
658.0	ADOT&PF Chulitna Maintenance Station Injection Well	Volatile organic compounds, metals, and petroleum releases	EPA/CERCLA	Closed	No	East	343	NA	NA	NA	Less likely
			ADEC/CSRP	Open	No	East	343	NA	NA	NA	Less likely
658.3	ADOT&PF Chulitna Maintenance	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete with Institutional Controls	No	East	300	20–60 ft bgs former drinking water well about 50 ft south of site. 6-7 ft former Class V well was in shop at site.	South and southwest	Surface water flow is east toward Parks Highway.	Less likely
676.3	Sunshine Landfill	Landfill	ADEC/SWP	Retired	No	Northeast	61	26 ft bgs water well about 328 ft east of site	East and northeast	Surface flow would pond; site is a landfill pit.	Less likely
709.8	Kwik Kard Gas Station	Petroleum release	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	South	657	Ranges from 27 to 29 ft bgs old monitoring well and old drinking water well about 400 ft northeast of spill site	Northwest, southwest, and east	Surface flow is east toward Parks Highway.	Less likely
798.8	Nikiski Airstrip	Unauthor-ized dump	ADEC/CSRP	Cleanup Complete with Institutional Controls	No	North	119	97 ft and 131 ft bgs old monitoring wells	North, northwest, and southeast	Surface water flow is west and northwest.	Less likely
799.6	Marathon East Forelands Flare Pit	Petroleum release	ADEC/CSRP	Cleanup Complete	No	North	620	None encountered-drilled 127 ft	West	Surface flow is west toward bluff and Cook Inlet.	Less likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
800.1	Shell Western Middle Ground Shoal	Petroleum drum site	ADEC/CSRP	Cleanup Complete	No	West	933	137 ft bgs old water well	West	Surface flow is northwest toward bluff and Cook Inlet.	Less likely
800.1	Tesoro KPL Middle Ground Shoal	Petroleum release	ADEC/CSRP	Open	No	West	824	137 ft bgs old water well	West	Surface flow is northwest toward bluff and Cook Inlet.	Less likely
800.1	Middle Ground Shoals Onshore Frac	Petroleum release	ADEC/CSRP	Open	No	West	919	137 ft bgs old water well	West	Surface flow is northwest toward bluff and Cook Inlet.	Less likely
800.1	Shell Onshore Facility Landfarm	Petroleum release	ADEC/CSRP	Cleanup Complete	No	West	485	137 ft bgs old water well about 400 ft upgradient at middle ground sites	West	Site is a gravel pit; surface water would infiltrate or pond on site.	Less likely
800.5	AMOCO East Forelands Facility	Petroleum release	ADEC/CSRP	Cleanup Complete	No	Northwest	593	54 ft bgs, 214 ft bgs, 84 ft bgs, and 101.6 ft bgs old monitoring/ commercial water wells on site	West	Surface flow is east toward pond east of site or west into pond west of site.	Less likely
801.3	Alascom Nikishka Repeater	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete	No	Southeast	1,065	57 ft bgs water well on site	Northwest and west	Surface flow is north and northwest toward pond.	Less likely
804.1	Schlumberger Wireline Services	Petroleum and solvent release	ADEC/CSRP	Cleanup Complete	No	East	309	40 and 42 ft bgs monitoring wells	NA	Surface flow is east toward Bernice Lake.	Less likely
804.3	TBE Machine	Petroleum and solvent release	ADEC/CSRP	Open	No	East	333	Ranges 44 to 47 ft bgs several old monitoring wells	Southeast	Surface flow is southeast toward Bernice Lake.	Less likely
804.3	TBE Machine	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete	No	East	245	Ranges 44 to 47 ft bgs several old monitoring wells	Southeast	Surface flow is southeast toward Bernice Lake.	Less likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]
804.3	Bernice Lake Power Plant	PCB release	ADEC/CSRP	Cleanup Complete	No	West	538	57 ft bgs water well and 60 ft bgs monitoring well	West	Surface flow is south toward unnamed stream.	Less likely
804.3	Chevron USA Refinery Nikiski	Petroleum release	ADEC/CSRP	Open	No	South	673	Ranges from 5 to 80 ft bgs 20 water, commercial, and monitoring wells on site	West and southwest	Surface flow is southwest toward bluff and Cook Inlet.	Less likely
804.4	Beaver Creek Lact Unit	Petroleum release	ADEC/CSRP	Open	No	Southwest	432	Ranges from 44 to 77 ft bgs 30 old water and monitoring wells	Southwest	Surface flow is west toward unnamed creek bordering site.	Less likely
804.5	Dresser Atlas	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete with Institutional Controls	No	North	143	30 ft bgs 8 old monitoring wells	Northwest	Surface flow is west toward Kenai Spur Highway ditch.	Less likely
804.5	ADOT&PF Bernice Lake Maintenance Facility	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete	Yes	NA	0	10 and 30 ft bgs 2 water wells on site	East	Surface flow is east toward Bernice Lake.	Less likely
804.6	Tesoro KPL Bernice Lake Plume	Petroleum release (LUST)	ADEC/LUST	Open	No	Southwest	1,268	83 ft bgs 4 old monitoring wells	West	Surface flow is west and south into retaining pond.	Less likely
804.6	Kenai Pipeline Oily Water Sewer System	Petroleum release	ADEC/CSRP	Open	No	Southwest	1,318	27.5 ft bgs old drinking water well	West	Surface flow is north toward retaining pond.	Less likely

TABLE R-2 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near Mainline Facilities [a]

Pipeline Milepost	Site Name	Type of Site [b]	Regulatory Agency/ Program	Regulatory Status [c]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood for Encountering Contamination [h]

Sources: ADEC, 2016c, 2017d, 2018b; ADNR, 2014d, 2015a,e,g, 2017h; BLM, 2016b; EPA, 2017a, 2017c, 2018d; USGS, 2015a, 2016b

ADEC = Alaska Department of Environmental Conservation; ADNR = Alaska Department of Natural Resources; ADOT&PF = Alaska Department of Transportation and Public Facilities; AFS = Air Force Station; ARRC = Alaska Railroad Corporation; AST = aboveground storage tank; bgs = below ground surface; BLM = Bureau of Land Management; BPX = BP Exploration; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CSRP = Contaminated Sites Remediation Program; DS = drill site; EPA = United States Environmental Protection Agency; FAA = Federal Aviation Administration; ft = feet; GIS = geographic information system; KPL = Kenai Pipeline Company; LUST = leaking underground storage tank; NA = data not available; NDB/RCO = Non-directional Beacon and Radio Communications Outlet; PCB = polychlorinated biphenols; PS = pump station; PSY = Pipe Storage Yard; SWP = Alaska Solid Waste Program; TBE = TBE Machine (business name); UAF = University of Alaska Fairbanks; USGS = United States Geological Survey; UST = underground storage tank

[a] Includes all landfills and spill/release sites within 0.25 mile of the Mainline Facilities. Includes mines identified by AGDC that could affect the Project due to proximity and other factors.

[b] The types of sites are based on terminology provided by the agency databases to describe the site and associated releases. Note: petroleum is a general term that could indicate a number of products, such as diesel fuel, gasoline, and fuel oil (see section 4.9.6.1).

[c] The regulatory agency or program designates a site's regulatory status (see section 4.9.6.1 for definitions).

[d] Groundwater well depth sources: ADNR Alaska Well Log Tracking System (WELTS), accessed November 2018; and USGS Groundwater Stations (2016b), accessed November 2018.

[e] Depth to groundwater and flow direction and surface water flow directions at contaminated sites are subject to change over time and with the seasons. During construction, the Project would adhere to the Unanticipated Contamination Plan guidelines and BMPs when conducting ground-disturbing activities.

[f] Groundwater flow direction sources: ADEC Division of Spill Prevention and Response, Contaminated Sites Program, Contaminated Site Database (CSD), accessed November 2018; ADEC Drinking Water Protection Areas-drinking water protection areas with groundwater and surface water zones: Zone A (Time of Travel in Months and surface water sources 1,000-foot buffer) and Zone B (2-year Time of Travel and surface water sources 1-mile buffers), accessed November 2018.

[g] Estimated surface water flow direction, if not provided in CSD reports, was visually interpreted using Project GIS webmapper contour layers and elevation data. Sources: ADNR Division of Geological & Geophysical Surveys (AK DGGS) LiDAR, 2018; USGS 3D Elevation Program (3DEP).

[h] Contamination potential is based on the evaluation in section 4.9.6.3, which considers a site's proximity, hydrogeologic and topographic setting, facility type, and regulatory status.

TABLE R-3

Summary of Landfills, Mines, and Spill/Release Sites near the Liquefaction Facilities [a]

Location	Site Name	Type of Site [a]	Regulatory Agency/ Program	Regulatory Status [b]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood to Encounter Contamination [h]
LNG Construction Camp	Unocal Chemical/ Cabin Lake Drum Site	Illegal drum disposal	ADEC/CSRP	Cleanup Complete	No	Northeast	220	22 ft bgs old water well	East	Surface flow is south into Cabin Lake ponds.	Less likely
LNG Operations Area	Unocal Chemical Diesel Spill	Diesel spill	ADEC/CSRP	Open	No	West	1,266	Ranges 57 – 100 ft bgs, 14+ old monitoring wells on site	West	Surface flow is west and northwest toward Cook Inlet bluff.	Less likely
LNG Operations Area	Unocal Chemical Drain	Petroleum spill	ADEC/CSRP	Open	No	West	1,117	Ranges 57 – 100 ft bgs, 14+ old monitoring wells on site	West	Surface flow is west and northwest toward Cook Inlet bluff.	Less likely
LNG Operations Area	Unocal Chemical Sulfinol Spill	Chemical spills	ADEC/CSRP	Open	No	West	1,117	Ranges 57 – 100 ft bgs, 14+ old monitoring wells on site	West	Surface flow is west and northwest toward Cook Inlet bluff.	Less likely
LNG Operations Area	Unocal Ammonia Plant	Ammonia spill	ADEC/CSRP	Open	No	West	1,117	Ranges 57 – 100 ft bgs, 14+ old monitoring wells on site	West	Surface flow is west and northwest toward Cook Inlet bluff.	Less likely
LNG Operations Area	Unocal/ Agrium Ammonia Urea Plant	Ammonia and other chemical spills	ADEC/CSRP	Open	No	West	1,167	Ranges 57 – 100 ft bgs, 14+ old monitoring wells on site	West	Surface flow is west and northwest toward Cook Inlet bluff.	Less likely
LNG Operations Area	Tesoro South Terminal	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete	No	West	83	94.5 ft bgs monitoring well	West	Surface flow is south toward Kenai Spur Highway drainage ditch.	Less likely

TABLE R-3 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near the Liquefaction Facilities [a]

Location	Site Name	Type of Site [a]	Regulatory Agency/ Program	Regulatory Status [b]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood to Encounter Contamination [h]
LNG Operations Area	Tesoro Northshore #201	Petroleum release (LUST)	ADEC/LUST	Cleanup Complete with Institutional Controls	Yes	NA	0	89 ft bgs monitoring well	West	Surface flow is west toward bluffs and Cook Inlet.	More likely
LNG Operations Area	Nikiski Plant APN 01505045	Surface soil petroleum contamination	ADEC/CSRP	Open	Yes	NA	0	NA	NA	NA	More likely
LNG Operations Area	Nikiski Plant APN 01506004	Surface soil petroleum contamination	ADEC/CSRP	Open	Yes	NA	0	NA	NA	NA	More likely
LNG Operations Area	Nikiski Plant APN 01504064	Surface soil petroleum contamination	ADEC/CSRP	Open	Yes	NA	0	NA	NA	NA	More likely
LNG Operations Area	Nikiski Plant APN 01515019	Petroleum release (LUST)	ADEC/LUST	Cleanup complete	Yes	NA	0	NA	NA	NA	Less likely
LNG Operations Area	Nikiski Plant APN 01512012	Illegal drum disposal and surface soil petroleum contamination	ADEC/CSRP	Open	Yes	NA	0	NA	NA	NA	More likely
LNG Operations Area	Nikiski Plant APN01502010	Petroleum release (LUST)	ADEC/LUST	Cleanup complete	Yes	NA	0	NA	NA	NA	Less likely

TABLE R-3 (cont'd)

Summary of Landfills, Mines, and Spill/Release Sites near the Liquefaction Facilities [a]

Location	Site Name	Type of Site [a]	Regulatory Agency/ Program	Regulatory Status [b]	Inside Project Footprint	Direction from Project Footprint	Distance to Project Footprint (feet)	Depth to Groundwater (ft bgs) [d,e]	Estimated Groundwater Flow Direction [f,e]	Estimated Surface Flow Direction [g,e]	Relative Likelihood to Encounter Contamination [h]

Sources: ADEC, 2016c, 2017e, 2018b; ADNR, 2014d, 2015a,e,g, 2017h; BLM, 2016b; EPA, 2017a, 2017c, 2018d; USGS, 2015a, 2016b

ADEC = Alaska Department of Environmental Conservation; ADNR = Alaska Department of Natural Resources; APN = Assessor Parcel Number; bgs = below ground surface; CSRP = Contaminated Sites Remediation Program; ft = feet; GIS = geographic information system; LNG = liquid natural gas; LUST = leaking underground storage tank; NA = data not available; USGS = United States Geological Survey

[a] Includes all landfills and spill/release sites within 0.25 mile of the Liquefaction Facilities. No mines were identified that would affect the Liquefaction Facilities.

[b] The types of sites are based on terminology provided by the agency databases to describe the site and associated releases. Note: petroleum is a general term that could indicate a number of products, such as diesel fuel, gasoline, and fuel oil (see section 4.9.6.1).

[c] The regulatory agency or program designates a site's regulatory status (see section 4.9.6.1 for definitions).

[d] NA = No groundwater encountered on site or groundwater well depth(s) was not available. Groundwater well depth sources: ADNR Alaska Well Log Tracking System (WELTS), accessed November 2018; and USGS Groundwater Stations (2016b), accessed November 2018.

[e] Depth to groundwater and flow direction and surface water flow directions at contaminated sites are subject to change over time and with the seasons. During construction, the Project would adhere to the Unanticipated Contamination Plan guidelines and BMPs when conducting ground-disturbing activities.

[f] NA = Groundwater flow direction not available in database records. Groundwater flow direction sources: ADEC Division of Spill Prevention and Response, Contaminated Sites Program, Contaminated Site Database (CSD), accessed November 2018; ADEC Drinking Water Protection Area -drinking water protection areas with groundwater and surface water zones: Zone A (Time of Travel in Months and surface water sources 1,000-foot buffer) and Zone B (2-year Time of Travel and surface water sources 1-mile buffers), accessed November 2018.

[g] Estimated surface water flow direction, if not provided in CSD reports, was visually interpreted using Project GIS webmapper contour layers and elevation data. Sources: ADNR Division of Geological & Geophysical Surveys (AK DGGS) LiDAR, 2018; USGS 3D Elevation Program (3DEP).

[h] Contamination potential is based on the evaluation in section 4.9.6.3, which considers a site's proximity, hydrogeologic setting, facility type, and regulatory status.