

APPENDIX R

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

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

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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
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-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)											
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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

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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

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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

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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

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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

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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

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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

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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

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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	Unauthorized 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; ADNDR, 2014d, 2015a,e,g, 2017h; BLM, 2016b; EPA, 2017a, 2017c, 2018d; USGS, 2015a, 2016b											
ADEC = Alaska Department of Environmental Conservation; ADNDR = 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: ADNDR 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: ADNDR 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	Distance 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.										