THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION & RESPONSE
Contaminated Sites Program

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File No: 1513.26.005

October 3, 2014

Mr. Skye Stekoll
CBJ Engineering
155 South Seward Street
Juneau, AK 99801

RE: Decision Document: Eaglecrest Ski Area
Corrective Action Complete with Institutional Controls Determination

Dear Skye,

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has reviewed the environmental records for the referenced site. This decision letter explains the site history, cleanup activity and specific conditions required to effectively manage any remaining contamination. No additional remedial action is required as long as compliance with these conditions is maintained.

Site Name and Location
CBJ - Eaglecrest Ski Area
3000 Fish Creek Road
Juneau, Alaska 99801
Section 31 T 41 S R 67 E CRM

Address of Contact Party
Rorie Watt
City and Borough of Juneau
155 South Seward
Juneau, AK 99801

DEC Site Identifiers
Hazard ID: 24491
File: 1513.26.005

Regulatory Authority for Determination
Title 18 Alaska Administrative Code 78

Site Description and Background
Eaglecrest Ski Area (ESA) is located on Douglas Island approximately nine miles from downtown Juneau, Alaska, at the end of Fish Creek Road. The City and Borough of Juneau (CBJ) constructed the facility in the 1970's on previously undeveloped CBJ land. The facility operates as a ski area annually between early November and April. Property use in the summer months includes a tourist destination for light recreational activity and facility maintenance. The main structures associated with the ski area are located in a sub-alpine environment between 1,110 and 1,230 feet above sea level. Potable water is treated surface water from a source far upland from the ski activity areas and facility structures.

The remote location has no residential land use and occupancy is limited to seasonal commercial and maintenance activity. The property is dominated by muskeg meadows and low vegetation; coniferous trees are present in areas on the mountain as well as on the periphery of the ski area. Surrounding the property is undeveloped land in the Tongass National Forest. Fish Creek, an anadromous fish stream, runs through the property down gradient from the Ptarmigan Lift Terminal and within 250 feet of the Maintenance Building. Soil in the region consists of coarse sub-angular gravel and sand covered with a thin layer of organic rich soil. Wildlife include those common to the area: bear, wolf, deer, martin, eagles, ravens, mice, voles, etc. Groundwater is directly influenced by surface water. The depth below ground surface (BGS) to groundwater is intermittent and varies throughout the site. Sometimes groundwater is near the surface but is usually found between five and fifteen feet BGS.

Eight Underground Storage Tanks (UST's) were installed in five locations on the property between 1975-1981 to service ski area facilities. The USTs were located at the Ski Lodge (5,000 gallon heating oil), at the Platter Pull Lift Terminal (1,500 gallon diesel fuel), at the Ptarmigan Lift Terminal (10,000 gallon diesel fuel), and at the Hooter Lift Terminal (6,000 gallon diesel fuel). The four remaining USTs were located at the Maintenance Building. Two 10,000 gallon diesel fuel USTs, a 2,000 gallon diesel fuel UST, and a 670 gallon gasoline UST were situated to the north and east of the building within 250 feet of Fish Creek. At each of the Lift Terminals is a lift platform or building, an operator shelter and a lift platform.

In 1991, CBJ made arrangements for Smith Bayliss LeResche (SBL) to perform an environmental assessment of the Maintenance Building site at the ESA. In July, 1991, SBL advanced test pits to collect analytical samples of subsurface soil around two 10,000-gallon diesel USTs. Test Pit #1 was advanced northwest of the two side by side USTs, Pit #2 was advanced northeast of the two USTs, and Pit #3 was advanced on the eastern side near the location of a former oil shed. Laboratory results for soil samples collected from the pits at depths between three and six feet BGS indicated that petroleum is present in the diesel (DRO) hydrocarbon range in concentrations between 45 and 4,500 milligrams per kilogram (mg/kg). The highest concentration was detected in a sample collected three and one half feet BGS on the southern wall of Pit #3 near a former oil shed. CBJ reported the finding to DEC with a note that, based on historical poor handling of petroleum products in the oil shed, and results from regular UST system tightness testing, the release was not likely from one of the USTs.

In conjunction with upgrade project CBJ planned for the ESA in the fall of 1997, CBJ scheduled the closure by removal of eight USTs on the ESA property that were regulated by the DEC UST Program under 18 AAC 78. Based on the findings in the 1991 SBL Report on USTs at the Maintenance Shop, CBJ anticipated that soil contamination may be present during the UST closures and included interim removal of contaminated soil in the scope of work for the project. CBJ selected Montgomery Watson Inc. (MWI) to perform the required site assessment sampling in conjunction with a closure by removal at each of eight UST systems. In October 1997, MWI reported to DEC that a petroleum release at the site was likely based on data in the SBL site assessment. Subsequently DEC listed the site on the department leaking UST (LUST) database. MWI submitted and DEC approved a Sampling Plan for the site in September, 1997. Later in that year, MWI sold the local engineering firm and it became Carson Dorn Inc. (CDI).

In addition to the eight regulated USTs scheduled for closure by removal, CBJ added an out of service 500-gallon UST located adjacent to the 5,000-gallon UST at the Lodge to the scope of work.

Figure 1. ESA regulated UST Sites with structures displayed as darkened polygons

Contaminants of Concern

The following petroleum contaminant of concern was identified above cleanup levels during the course of the site investigations summarized in the Characterization and Cleanup Activities section of this decision letter.

- Diesel Range Hydrocarbons (DRO)

Cleanup Levels

The cleanup level requirements for hazardous substances in soil, groundwater, and surface water at this site are those established in 18 AAC 75.341(b)(2) Method Two for soil with chemicals listed on 18 AAC 75.341(c) Table B1 and petroleum hydrocarbon ranges listed on 18 AAC 75.341(d) Table B2 for the over 40 inch rainfall zone for soil, those established in 18 AAC 75.345(b)(1) on Table C for groundwater and those established in 18 AAC 70 Water Quality Standards for surface water. The following table displays the contaminant of concern cleanup levels for completed pathways at this site protective of migration to groundwater and in turn, surface water.

Table 1 – Approved Cleanup Levels

Chemical	Soil(mg/kg)	Groundwater (mg/L)	Surface Water(mg/L)
DRO	230	1.5	N/A

mg/kg = milligrams per kilogram
mg/L = milligrams per liter

Site Characterization and Cleanup Activities

Release investigation and corrective action activities conducted under the regulatory authority of the Contaminated Sites Program began in 1997 with site assessment and release investigation during the CBJ UST closure by removal operations. Due to limited number of release investigation analytical sampling results, the UST closure by removal activities are described below with detailed background and field observations to assist in the corrective action complete decision making process.

Soil

Ski Lodge USTs

The first UST closed by removal in the ESA upgrade project was a 5,000 gallon heating oil UST oriented in a north-south direction adjacent to the northern corner of the Ski Lodge. The UST provided heating oil to the Lodge boiler, and was not regulated or registered in the DEC UST database. For project consistency, CDI closed the Lodge tank using the same procedures as a regulated tank.

John Berthol, Certified Underground Storage Tank Worker ID # 462, with Channel Construction (Channel) began the UST closure by removal activity at the ESA in September, 1997, by draining the oil remaining in the single walled, 5,000 gallon UST. The fill, vent, and supply/ return lines were easily observed above a reinforced concrete slab. Although the UST and piping were in good condition, CDI observed stained soil contamination around the fill and supply lines at the northern end of the tank indicating a fuel transfer release. CDI using photoionization detector (PID) field screening confirmed the presence of volatile hydrocarbons in samples collected from soil removed from the surface at the northern end of the tank which was consistent with visual and olfactory clues. Excavation of the south wall exposed a closed-in-place 500-gallon heating oil tank which was in good condition with no soil contamination. CDI directed the removal of soil from areas beyond the footprint of the UST in all directions, segregating contaminated soil from clean fill for storage between liners in an on-site temporary stockpile. CDI performed PID field screening on samples from remaining soil on the perimeter of the excavation to qualitatively determine the extent of soil contamination and to select locations to collect laboratory confirmation samples. Soil screening samples were collected from native soils in the side walls and footprint of the excavation at an average depth of five feet BGS.

A total of three soil samples were chosen from the excavation screening samples to analyze for the COC DRO as well as residual range hydrocarbons (RRO) and benzene, toluene, ethylbenzene, and total xylene (BTEX) hydrocarbon compounds. The results of the analyses are presented in Table 2, and the corresponding sample locations are shown in Figure 2. CDI collected samples 97ECSS-16 and 97ECSS-22 in the UST footprint and sample 97ECSSA-15 from a region of organic rich material at the north end of the excavation. Ground water did not infiltrate the pit at any point during the excavation process. Heavy rain hindered efforts to identify and remove contaminated soil.

As the results in Table 2 indicate, minimal hydrocarbon contamination was present on the side wall at the northern limit of the excavation. Levels of contamination remaining at the bottom of the excavation are above approved cleanup levels for DRO. Depth BGS constraints did not allow the excavation of all contaminated soils to the vertical extent before installation of a new double-walled heating oil UST. CDI recommended an additional release investigation if determining the vertical extent of contamination was deemed necessary by DEC.

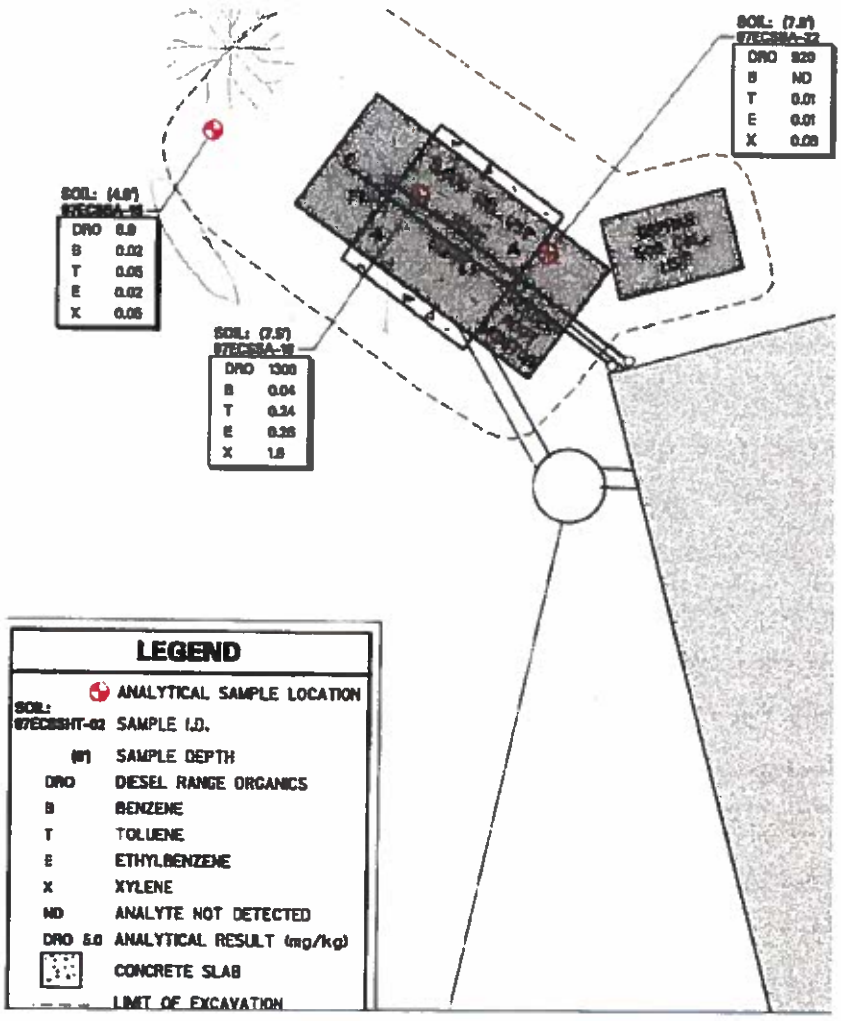
Table 2. Lodge UST Soil Sample Concentrations

COC	97ECSSA-15	97ECSSA-16	97ECSSA-22	Cleanup Level
Depth BGS feet	4.5	7.5	7.5	
DRO	6.9	**1300**	**920**	230
Benzene	0.02	0.04	<0.01*	0.025
Toluene	0.05	0.24	0.01	6.5
Ethylbenzene	0.02	0.26	0.01	6.9
Total Xylenes	0.05	1.9	0.08	69

Concentrations in milligrams per kilogram (mg/kg)
Depth below ground surface (BGS) in feet
*Approved 1997 Laboratory Reporting Limit

On September 18, 1997, a concrete pad was prepared in the former UST excavation to anchor placement of a new 8,000 gallon double-walled UST. Although the volume was not estimated, DEC approved transport of all contaminated soil from the former Ski Lodge UST pit to a contaminated soil storage area on CBJ commercial property located at the end of Commercial Blvd in Lemon Creek valley.

Figure 2. Ski Lodge USTs (dark polygons) & confirmation sample locations



Platter Pull Lift Terminal UST

The third tank removed in the ESA upgrade project was a 1,500 gallon diesel fuel UST aligned parallel with the east side of the Platter Pull Lift Terminal in a north-south direction (Figure 3). The asphalt coated steel tank (ID # 007) was installed in June, 1975 and used continuously until September 1, 1997, when Channel submitted the UST closure notice to DEC.

Removal activities began on September 19, 1997, by draining the UST of remaining diesel fuel and removing the reinforced concrete hold down slab from the top of the tank. The UST piping was visibly in good condition and soil above the slab was not contaminated. As the tank was removed from the excavation groundwater began to infiltrate the pit. A sheen was not immediately visible on the surface of the groundwater but developed as water continued to flow into the excavation. The top of the tank appeared to be slightly rusted but otherwise in good condition.

Stained soil was removed from the sidewalls and from the bottom of the excavation. When CDI encountered bedrock, CDI determined the extent of contamination was met. PID field screening and visual observations indicated minimal contamination throughout the pit and minor staining at the end of an abandoned pipe adjacent to the functional supply and return piping from the terminal building, A release from the abandoned pipe be the source of the discontinuous contamination found.

The three confirmation soil samples that CDI collected from the excavation were analyzed for DRO and BTEX. The results of the analyses are presented in Table 3, and the corresponding sample locations are shown in Figure 3. Samples 97ECSSPP-ll and 97ECSSPP-12 were collected from soil remaining in the bottom of the excavation and Sample 97ECSSPP-I0 was collected from the sidewall under the abandoned supply line. Concentrations of DRO in soil remaining in bedrock depressions at a depth of eight feet BGS are below soil above cleanup levels. A thin lens of stained soil less than one foot thick over bedrock extended toward the lift terminal building under the abandoned piping run.

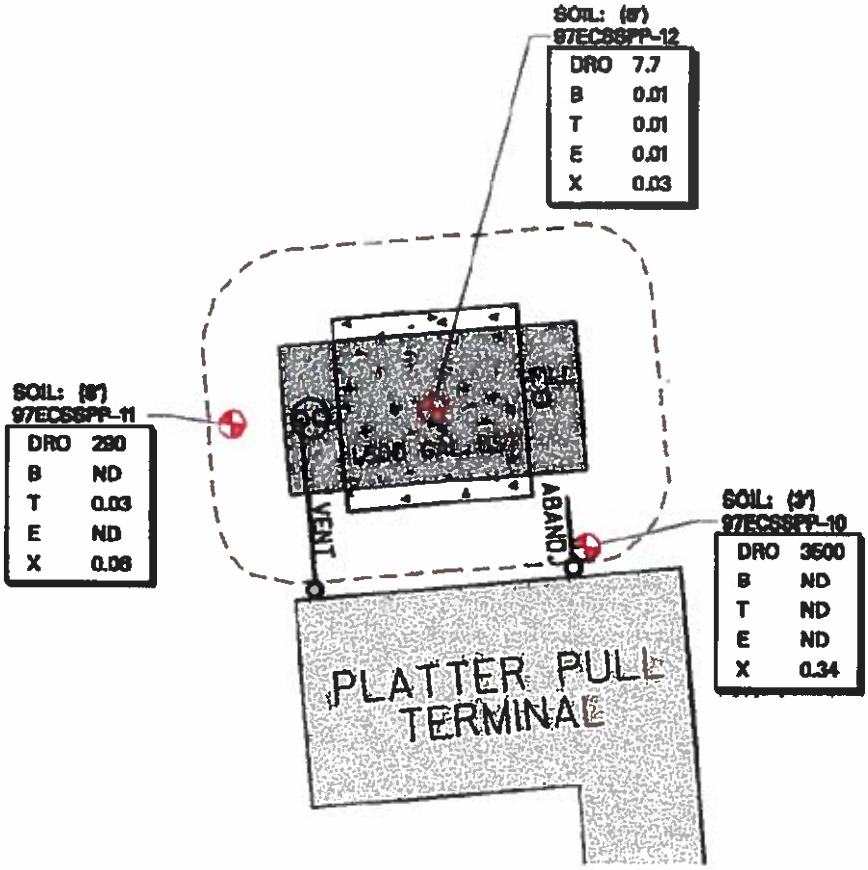
Although a volume was not estimated, the contaminated soil excavated from beneath the tank and side walls was placed in a temporary on-site stockpile. With DEC approval, Channel transported all contaminated soil to the storage site in Lemon Creek. CBJ installed a pipeline to connect the Platter Pull Lift Terminal generator to the newly installed UST at the Ski Lodge. Based upon visual observations and field screening results, CDI considered the excavation clean and backfilled the pit with clean soil. A de minimis lens of contaminated soil associated with the supply and return piping could not be removed without significant risk of damage to the lift terminal building and remains in situ.

Table 3. Platter Pull UST Soil Sample Concentrations

COC	97ECSSA-10	97ECSSA-11	97ECSSA-12	Cleanup Level
Depth BGS feet	3	8	8	
DRO	**3,500**	**290**	7.7	230
Benzene	<0.06	<0.02	0.01	0.025
Toluene	<0.06	0.03	0.01	6.5
Ethylbenzene	<0.06	0.02	0.01	6.9
Total Xylenes	0.34	0.06	0.03	69

Concentrations in milligrams per kilogram (mg/kg)
Depth below ground surface (BGS) in feet
*Approved 1997 Laboratory Reporting Limit

Figure 3. Platter Pull (dark polygon) & confirmation sample locations



Ptarmigan Lift Terminal UST

The fourth tank removed during the ESA upgrade project was a 10,000 gallon diesel fuel UST aligned parallel with the east side of the Ptarmigan Lift Terminal in a north-south direction (Figure 4). The asphalt coated steel tank (ID # 006) was installed in June, 1976 and used continuously until September 19, 1997, when Channel submitted the UST closure notice to DEC.

Removal activities began on September 24, 1997 by draining the UST of remaining diesel fuel and removing the reinforced concrete hold down slab from the top of the tank. The fill, vent, supply and return piping for the tank were easily visible and were in good condition. Two excavators dug an area 35 feet in length and eight feet wider than the tank to facilitate the removal process. As the tank was removed groundwater seeped into the excavation from the east sidewall. Soil staining appeared around the tank mid-line at a depth of 4.5 feet BGS. CDI performed PID screening on samples collected from along the base of all four sidewalls but saturated soil conditions prevented sampling the center of the excavation and the depth of contaminated soil excavation in that area was limited.

The first four confirmation soil samples that CDI collected from remaining soil at the soil/water interface on the excavation walls (4.5 feet BGS) and the fifth sample collected under the supply/return piping (1.0 feet BGS) were analyzed for DRO and BTEX. The analytical results are displayed in Table 4

and the sampling locations in Figure 4. DRO concentrations in remaining soil were higher than cleanup levels on the west wall and under the supply and return lines to the terminal building.

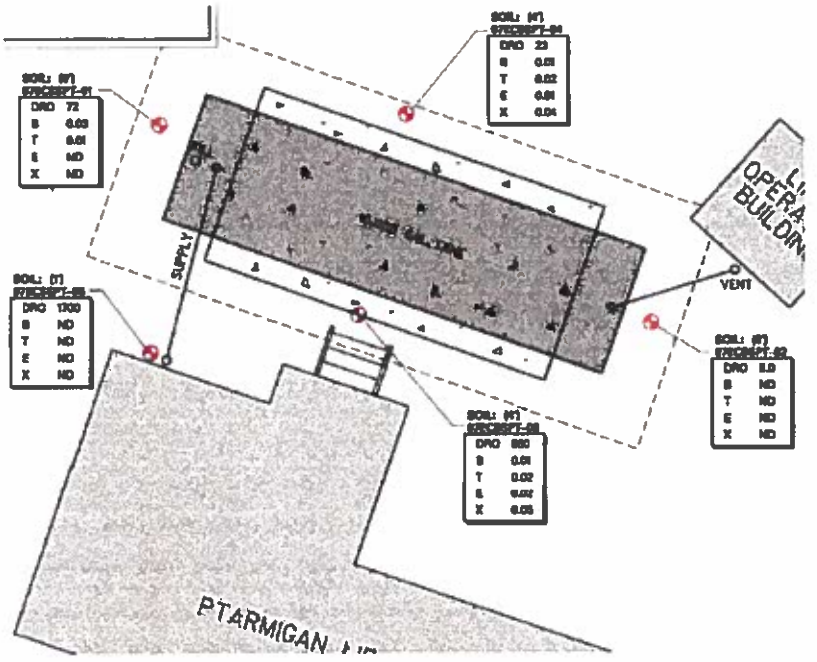
Table 4. Ptarmigan Terminal UST Soil Sample Concentrations

COC	97ECSPT-01	97ECSPT-02	97ECSPT-03	97ECSPT-04	97ECSPT-05	Cleanup Level
Depth BGS ft	6	8	4	4	1	
DRO	72	5	**560**	23	**1,700**	230
Benzene	0.03	<0.01*	<0.01*	<0.01*	<0.01*	0.025
Toluene	0.01	<0.01*	0.02	0.02	0.02	6.5
Ethylbenzene	<0.01*	<0.01*	0.02	0.01	<0.01*	6.9
Total Xylenes	<0.01*	<0.01*	0.05	0.04	<0.01*	69

Concentrations in milligrams per kilogram (mg/kg)
Depth below ground surface (BGS) in feet
*Approved 1997 Laboratory Reporting Limit

With DEC approval, an undetermined volume of contaminated soil removed from beneath the tank and the side walls was transported to the storage site in Lemon Creek. Due to saturated soil conditions, the new 8,000 gallon double wall diesel fuel tank was installed in a separate excavation 20 feet east of the 10,000 gallon UST pit. CDI concluded the source of release is likely fuel transfers and a leaks from pipe joints. For a short period of time petroleum may have leached from a de minimis volume of remaining soil contamination into surface water runoff to Fish Creek, located down gradient from the site.

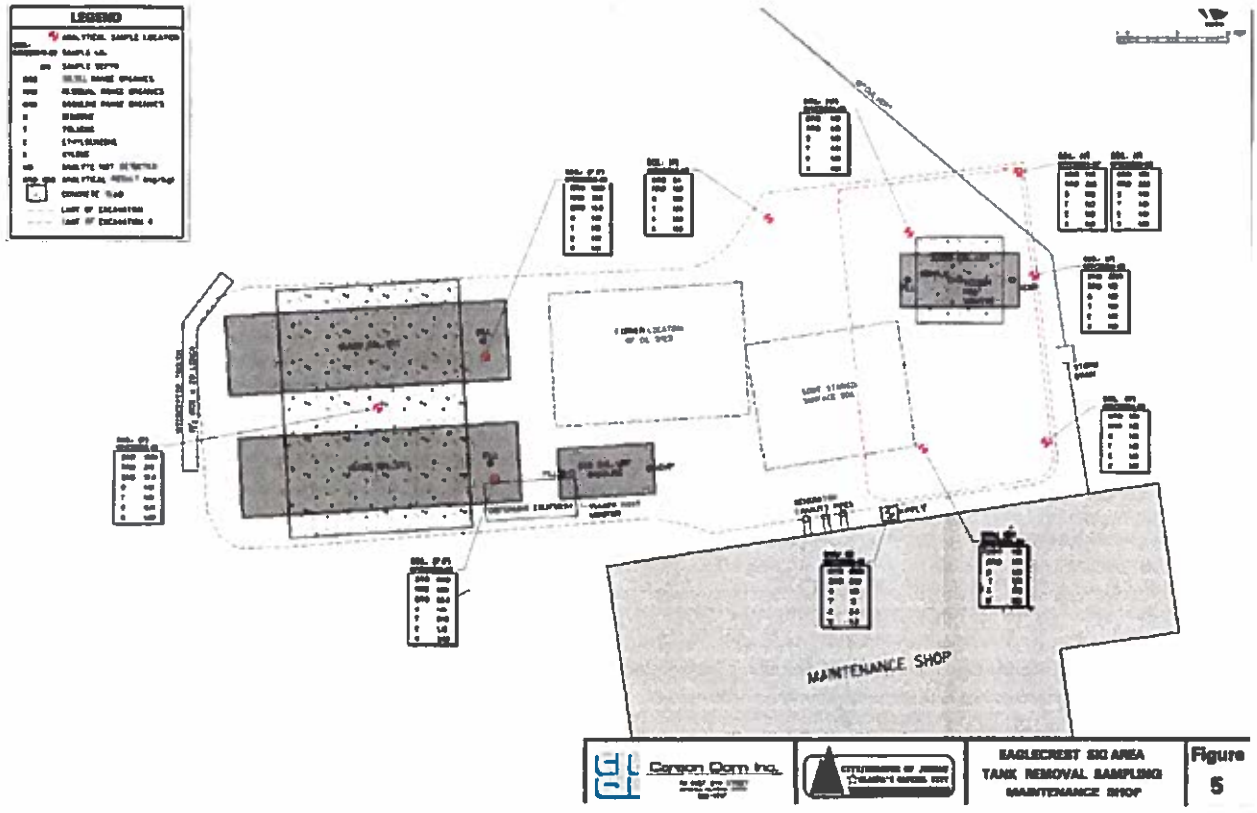
Figure 4. Ptarmigan Lift Terminal UST (dark polygon) & confirmation sample locations



Maintenance Building USTs (4)

During the 1991 Phase 1 Site Assessment, petroleum contamination was identified at shallow depths near a former oil shed on the east side of the Maintenance Building. Analytical soil samples collected from an investigation trench in this area had DRO concentrations of 4,500 mg/kg at a depth of 3.5 feet BGS. As part of the 1997 UST removal and contaminated soil cleanup, these soils were removed and added to the on-site temporary contaminated soil stockpile. In addition, stained soil removed from under generator exhaust pipes were also added to the contaminated soil stockpile. When excavation reached within 2.5 feet of the two 10,000 gallon tanks, CDI observed staining of subsurface soil. When excavation approached the gasoline UST, subsurface soil appeared bright gray in color and had a gasoline odor.

Figure 5. Four Maintenance Building USTs as darkened polygons & confirmation sample locations



2,000 gallon diesel UST

The first regulated tank removed at the Maintenance Building was a 2,000 gallon diesel fuel UST located roughly 20 feet from the east side of the Maintenance Building. In Figure 5A, it is the darkened polygon in the upper right hand corner. The tank was oriented in a northwest-southeast direction, nearly parallel to the building. The asphalt coated steel tank (ID # 004) was installed in June, 1977 and was used continuously until September 19, 1997 when Channel submitted a closure notice to DEC.

Removal of the 2,000 gallon diesel tank on October 1, 1997 began with pumping out the diesel fuel, removing the concrete hold-down slab and excavating overburden soil. As the tank was lifted out of the ground, CDI observed sheen on soil below the UST and below the supply and return piping. As groundwater seeped into the excavation, Channel moved quickly to transfer stained soil from the footprint of the tank to a lined on-site stockpile. To extend vertical access to contaminated soil, excavation water was pumped into the 2,000 gallon UST positioned near the excavation. The depth of removal ended when clean soil appeared at a depth of 13 feet BGS in the excavation. As removal expanded laterally to accommodate the installation of two new 12,000 gallon USTs, it came within five feet of the building foundation to the west and a utility line to the south. CDI collected soil confirmation analytical samples at these limits as indicated in Figure 5A.

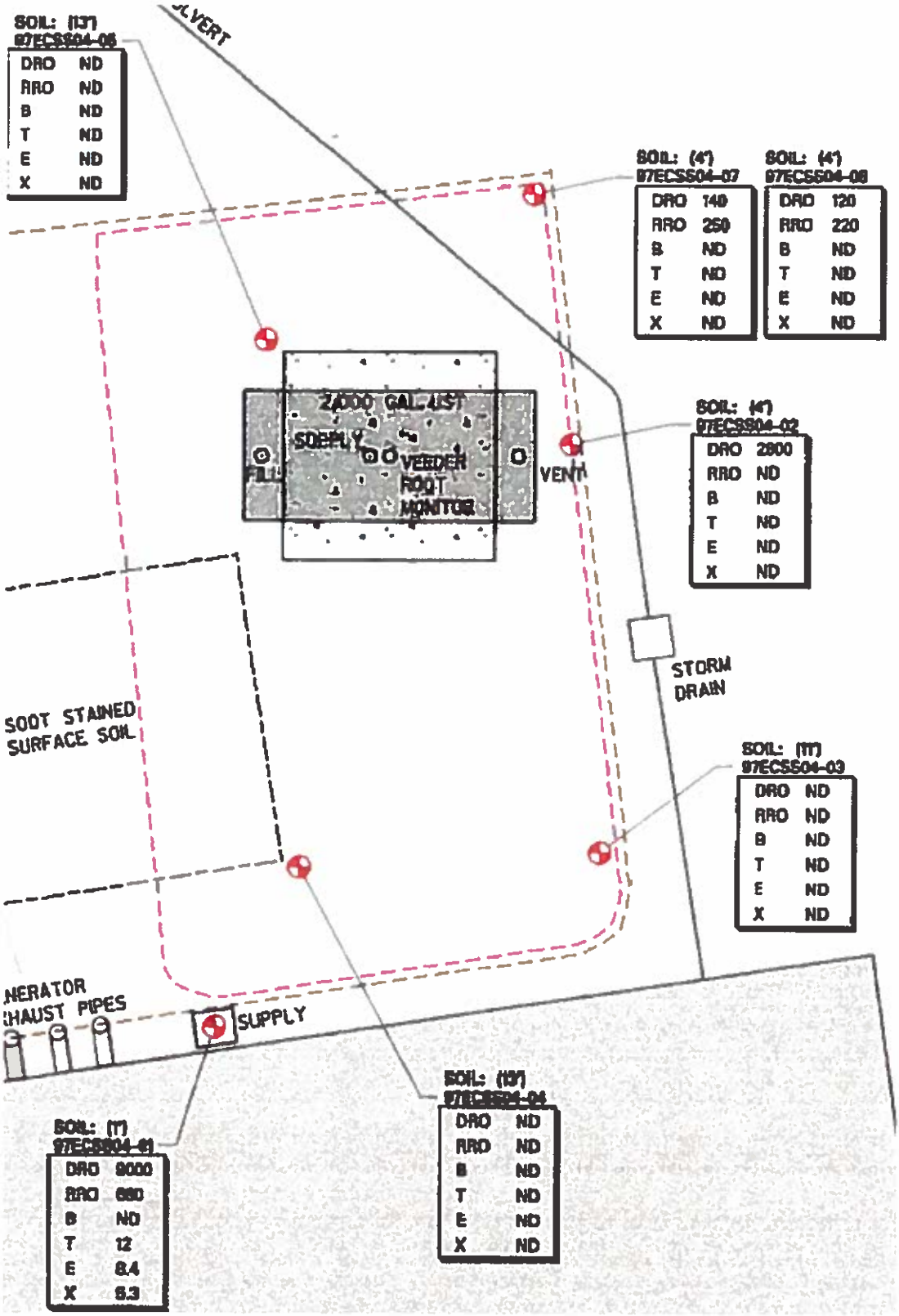
The samples collected from the eastern and southern limits at four feet BGS had DRO concentrations above cleanup levels of 9,000 mg/kg and 2,800 mg/kg respectively. Concentrations of RRO and all BTEX compounds in analytical samples were below laboratory reporting limits. Analytical results for samples collected from the northeast, northwest, and southwest comers of the excavation floor at four feet BGS indicated that contaminated soil removal reached the lateral limit of contamination. Contamination in remaining soil is located where structures limited access (i.e. building & utilities). COCs were not detected in soil samples taken at depth (13 feet BGS) within the excavation. The analytical results are displayed in Table 5A and the sampling locations in Figure 5a.

Table 5a. Soil Sample Results at the Maintenance Building 2,000 gallon UST

COC	97EC SS04-01	97EC SS04-02	97EC SS04-03	97EC SS04-04	97EC SS04-05	97EC SS04-06	97EC SS04-07	97EC SS04-08	Cleanup Level
Depth BGS feet	4.0	7.5	7.5	13	13	4	4	4	
DRO	**9,000**	**2,800**	**920**	<	<	24	140	120	230
Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.025
Toluene	**12**	<0.01	0.01	<	<	0.008	<	<	6.5
Ethylbenzene	**8.4**	1.1	0.01	<	<	<	<	<	6.9
Total Xylenes	53	3.2	0.08	<	<	<	<	<	69

Concentrations in milligrams per kilogram (mg/kg)
Depth below ground surface (BGS) in feet
*Approved 1997 Laboratory Reporting Limit

Figure 5a. Maintenance Shop 2,000 gallon UST Removal Site



The second UST removed at the Maintenance Building during the ESA upgrade project was a 670 gallon gasoline UST oriented in a northwest-southeast direction parallel to the eastern edge of the Maintenance Building. One of two 10,000 gallon diesel USTs was positioned directly adjacent to the gasoline tank (Figure 5b). The steel tank (ID # 003) storing gasoline was installed in June, 1977 and was used continuously until September 19, 1997 when Channel submitted a closure notice to DEC.

Removal of the gasoline UST on October 1, 1997, began with draining fuel from the tank and dismantling the dispenser and piping system positioned above the tank. Field screening results and visual observations indicated that contamination began above the hold-down concrete slab. As it was removed the soil was added directly to the on-site stockpile. After the tank was removed, light gray contaminated soil was removed to a depth of 12 feet BGS. At that depth, the soil became saturated with water making further removal and confirmation sampling unfeasible. Removal of the adjacent tank necessitated backfilling the pit with clean fill before proceeding.

The third and fourth USTs removed at the maintenance building were identical 10,000 gallon diesel fuel tanks oriented in a northwest- southeast direction 10 feet north of the eastern comer of the Maintenance Building (Figures 5 and 5b). The regulated asphalt coated steel tanks (ID #'s 001 and 002) were installed in June, 1981 and were used continuously until September 19, 1997, when Channel submitted a closure notice to DEC.

Removal of the twin USTs on October 2, 1997, began with pumping out any remaining fuel, removing the overburden soil and concrete hold-down slabs. Field screening results indicated contamination in soil above and below the slab and above the tanks and around the fill, vent, supply and return lines. This soil was added to a lined on-site contaminated soil stockpile.

Upon removal the two tanks appeared to be in good condition in spite of contaminated soil surrounding all ports and piping connections. Sheen and brown emulsion visible on the excavation water was removed using absorbent pads. The release is likely the result of poor fueling practices, leaking dispensers, faulty piping or a combination of all three.

CDI collected a confirmation analytical sample from remaining soil at the center of the pit between the twin USTs at a depth of eight feet BGS and one sample from under the fill end of each tank at a depth of seven and one half feet BGS. DRO concentrations in the samples ranged between 1300 and 6100 mg/kg (Table 5B). The lateral extent of a narrow lens of contaminated soil extending beyond the perimeter of the twin USTs pit was not found. Contaminated soil saturated with water was stockpiled and drained in the center of the pit between the UST removal excavations before transport to the stockpile site in Lemon Creek.

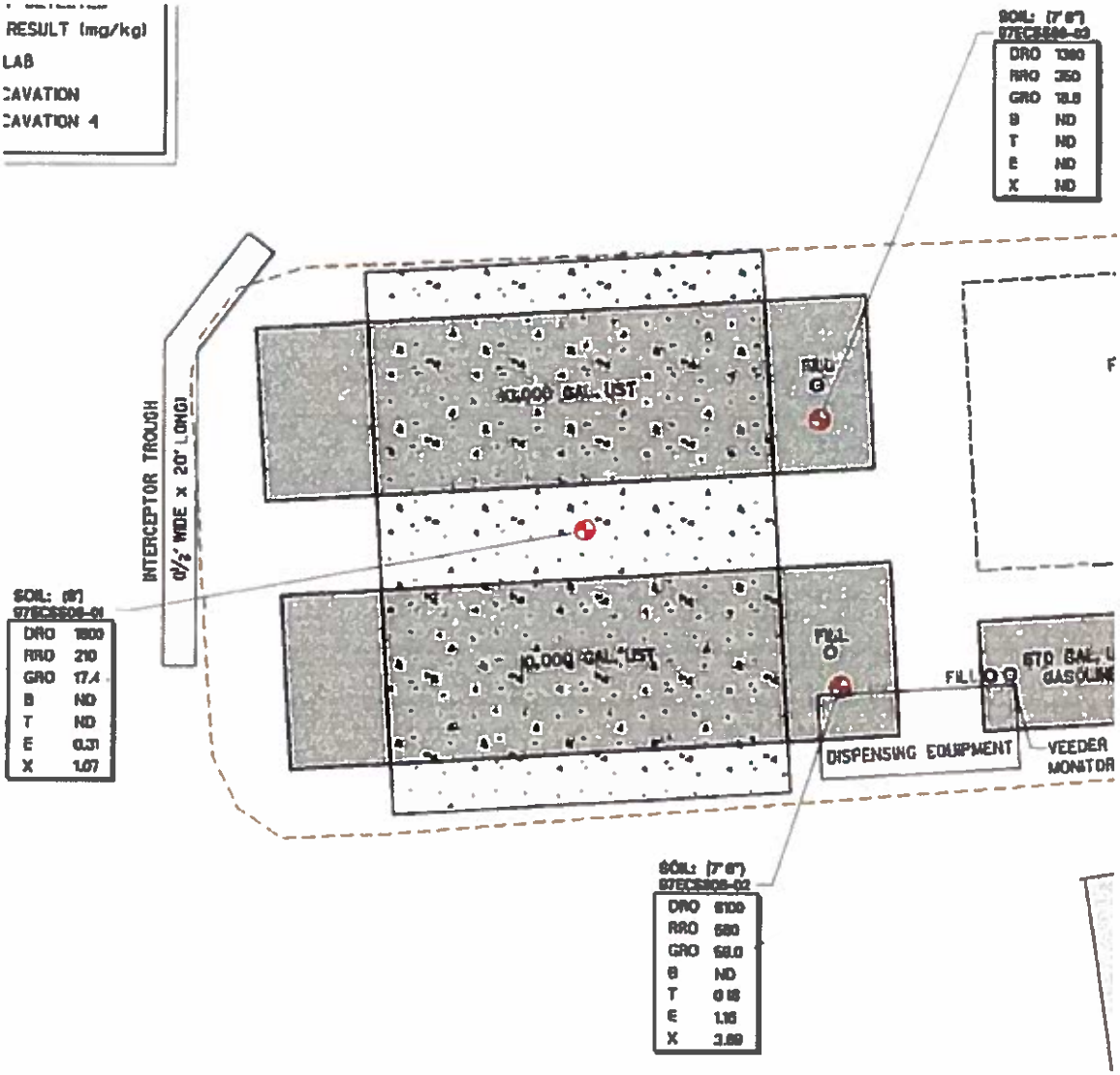
In late October 1997, DEC visited the site with CBJ and CDI to discuss remedial options. Concern over possible contamination of Fish Creek prompted DEC to request that CBJ perform a release investigation of groundwater for contamination and ensure that the contaminated soil stockpile be remediated after the close of the 1997-1998 winter ski season. Prior to the closure of the site in preparation for the winter ski season, the excavation behind the Maintenance Building was leveled to grade. Roughly 150 cubic yards of contaminated material was removed from the pit. With DEC approval, an undetermined volume of soil was transported from the site to the contaminated soil stockpile in Lemon Creek for storage.

Table 5b. Confirmation Sample Results for three (3) Maintenance Building USTs

COC	97ECSS06-01	97ECSS06-02	97ECSS06-03	Cleanup Level
Depth BGS feet	8	7.5	7.5	
GRO	17.4	59	18.6	250
DRO	1,800	6,100	1,300	230
Benzene	N/A	N/A	N/A	0.025
Toluene	N/A	N/A	N/A	6.5
Ethylbenzene	N/A	N/A	N/A	6.9
Total Xylenes	N/A	N/A	N/A	69

Concentrations in milligrams per kilogram (mg/kg)
Depth below ground surface (BGS) in feet
Not Analyzed (N/A)

Figure 5b. Maintenance Building USTs



Hooter Lift Terminal UST

The ninth UST removed from Eaglecrest Ski Area was a 6,000 gallon diesel tank oriented in a northwest southeast direction parallel to the eastern edge of the Hooter Lift Terminal (Figure 6). The asphalt coated steel tank (ID # 005) installed in June, 1978, was used continuously until Channel submitted a closure notice to DEC dated September 19, 1997.

Removal activities on October 7, 1997, began with Channel draining all fuel from the UST prior to removal of overburden soil and the concrete hold-down slab with an excavator. The fill, vent, supply and return, and monitoring fixtures for the tank were in good condition and field screening samples of surface soil had no readings indicating contamination.

Upon removal, the body of the UST was visibly in good condition. Groundwater seeping into the pit from under the lift terminal building displayed a sheen typically produced by natural occurring organics in the soil and not by petroleum hydrocarbon contamination. A brown staining visible on the surface of the groundwater was attributed to the asphalt tank coating which was disturbed during removal.

CDI collected three analytical confirmation soil samples (and a field duplicate) from native soils in the side walls of the pit. Results of the DRO and BTEX analyses are presented in Table 5, and the corresponding sample locations are shown in Figure 6. Due to the rapid infiltration of water into the pit, collecting a sample from the bottom of the pit was not feasible. As the results in Table 6 indicate, minimal hydrocarbon contamination was present in most of the excavation; although elevated levels of DRO (470 mg/kg) were encountered in the center of the western side wall of the excavation.

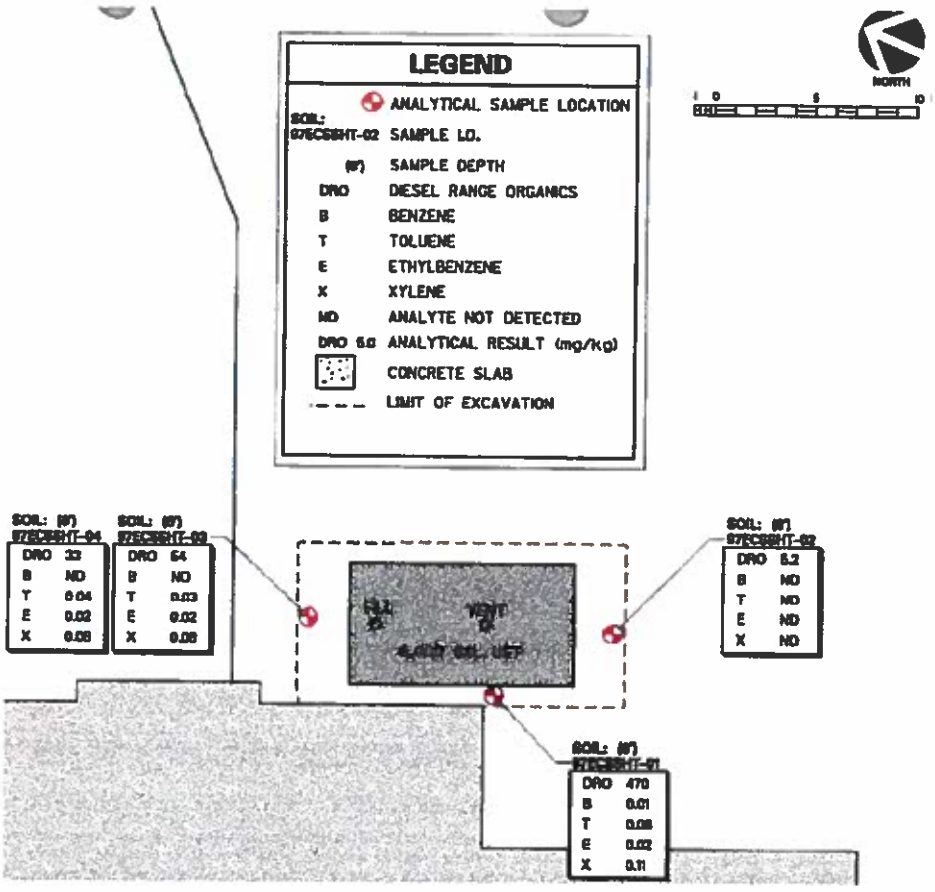
A pipeline was installed to connect the Hooter Lift Terminal generator to the newly installed tank at the Ski Lodge. Based upon visual observations and field screening results, the excavation was considered clean and was backfilled.

Table 6. Hooter Terminal UST Soil Sample Concentrations

COC	97ECSSHT-01	97ECSSHT-02	97ECSSHT-03	97ECSSHT-04	Cleanup Level
Depth BGS feet	6	6	6	6	
DRO	**470**	5.2	54	33	230
Benzene	0.01	<0.01*	<0.01*	<0.01*	0.025
Toluene	0.08	<0.01*	0.03	0.04	6.5
Ethylbenzene	0.02	<0.01*	0.02	0.02	6.9
Total Xylenes	0.11	<0.01*	0.08	0.09	69

Concentrations in milligrams per kilogram (mg/kg)
Depth below ground surface (BGS) in feet
*Approved 1997 Laboratory Reporting Limit

Figure 6. Hooter Terminal



In 2001, SBL and Bicknell Inc. (Bicknell) submitted a plan to recycle into asphalt all petroleum contaminated soils at the CBJ contaminated soil storage facility at Lemon Creek and assess the property for contamination. Bicknell recycled the contaminated soil into 73 small asphalt paving projects throughout the Juneau area. Site assessment sampling of soil underlying the stockpile indicated that petroleum from the contaminated soil stockpiles had impacted the site. DEC approved the results and released the property for unconditional land use. The Lemon Creek property is now occupied by the retailer Home Depot.

Groundwater

In October 1998, CBJ arranged to have SBL install four monitoring wells along Fish Creek at the Maintenance Shop and collect groundwater samples for chemical analysis. Each of the groundwater samples had DRO concentrations (9.3 mg/L in MW-1, 28 mg/L in MW-2, 8.3 mg/L in MW-3, and 7.4 mg/L in MW-4) above Table C cleanup levels. Each of the groundwater samples had concentrations of BTEX compounds below the laboratory reporting limit and Table C cleanup levels.

In 1998, SBL collected two additional water samples at the site. One sample was collected from the monitoring well located nearest the former USTs and one was collected from Fish Creek about 100 feet downstream from the UST closure by removal area. The analytical results for each sample indicated that

DRO and BTEX compound concentrations were below the laboratory reporting limit and Table C cleanup levels.

In October 2012, the water wells previously installed were either damaged beyond repair or were not found. As a result, CBJ arranged to have CDI install two permanent water wells between the maintenance building and Fish Creek to investigate groundwater for contamination. CDI selected the well locations to optimize a calculation of groundwater flow direction and the probable extent of residual petroleum contamination from the UST release. Due to consistent refusal in cobbles and boulders, drilling was halted at a monitoring well location next to Fish Creek. At another location an abandoned utility pipe was struck so that location was also abandoned. Two wells were successfully completed with flush mounted well covers to a depth of ten feet BGS with five feet of screen interval to ensure sampling near the water table and access when hydraulic levels are low.

When sampling parameters normalized and depth to groundwater was recorded at eight feet BGS, CDI collected samples from Wells MW-1 and MW-2. CDI submitted two samples and a field duplicate for analysis of DRO, RRO and BTEX compounds. Results of the laboratory analysis of samples from the new wells are displayed in Table 7. Consistent with historical data, concentrations of BTEX compounds were below the laboratory reporting limit and Table C cleanup levels. Results displayed in Table 7 show that groundwater contamination at the site is present below the respective 18 AAC 75.345 Table C regulatory levels for the COC DRO, and for RRO. Based on the results, CDI recommended a corrective action complete determination for the site.

Table 7. Analytical results of January, 2013, ESA groundwater sampling event

Analyte	Units	MW-1	MW-1 duplicate	MW-2	Table C level
DRO	mg/L	0.754	0.959	1.07	1.5
RRO	mg/L	0.545	0.542	0.638	1.1

Release Investigation of groundwater at the Maintenance Building ESA site concludes that BTEX compounds, as indicators of potential effects to aquatic life in 18 AAC 70 water quality standards, are not migrating from remaining soil contamination. Of all the UST closure by removal sites at the ESA, the Maintenance Building had the highest levels of DRO and the largest volume of remaining contaminated soil. DEC agrees that any in situ petroleum soil contamination remaining at the former UST system sites at the ESA is unlikely to migrate off-site.

An undetermined volume of DRO contamination remains present beneath the Maintenance Building and the Ski Lodge sites at the ESA. When this soil becomes accessible, an additional release investigation will be necessary.

Cumulative Health Risk Calculation

Pursuant to 18 AAC 75.325 (g), when detectable contamination remains on-site following a cleanup, a cumulative risk determination must be calculated. Cumulative risk from petroleum contamination of environmental media at the site is addressed using the BTEX and PAH analyte concentration data. Based on a review of the environmental record, DEC has determined that residual concentrations of the COC DRO do not pose a cumulative human health risk.

Exposure Pathway Evaluation
Following investigation and cleanup at the site, exposure to the remaining contaminants was evaluated using DEC's Exposure Tracking Model (ETM). Exposure pathways are the conduits by which contamination may reach human or ecological receptors. ETM results show all pathways to be one of the following: De Minimis Exposure, Exposure Controlled, or Pathway Incomplete. A summary of this pathway evaluation is included in Table 8 as Attachment A to this determination letter.

DEC Decision
Petroleum contamination remains on-site in soil above approved cleanup levels; however DEC has determined there is no unacceptable risk to human health or the environment as long as the contamination is properly managed and commercial land use remains unchanged.

In order to insure proper management of the remaining DRO soil contamination, DEC has determined that an institutional control (IC) agreement, signed by current and any future landowners and/or managers, is necessary for the ESA property. This determination letter identifies the nature and extent of contamination remaining on the ESA property and establishes IC conditions that the owners and operators are subject to in accordance with this decision document. These conditions are as follows:

1. Any future change in land use may impact the exposure assumptions cited in this document. If land use and/or ownership changes, these management conditions may not be protective and DEC may require additional remediation and revised conditions. Therefore the City and Borough of Juneau shall report to DEC every five years to document land use, or report as soon as the City and Borough of Juneau becomes aware of any change in land ownership and/or use, if earlier, with a written description and photographs of the condition of ground surfaces overlying the contamination with notation of any changes since the last report. The report can be sent to the local DEC office or electronically to DEC.ICUnit@alaska.gov

2. Contaminated groundwater below cleanup levels is present at the ESA Maintenance Shop site. Any installation of new groundwater access wells requires DEC approval.

3. Existing groundwater monitoring wells must be decommissioned in accordance with DEC guidance. Submit well decommissioning documentation to DEC after removal.

4. An undetermined volume of sub-surface soil contamination remains beneath the Maintenance Building and the Ski Lodge at the ESA. When these buildings are removed and/or the soil becomes accessible, the soil must be evaluated and any contamination addressed in accordance with a DEC approved work plan before any work begins at the site.

5. Any proposal to transport soil or groundwater off-site requires DEC approval in accordance with 18 AAC 78.600(h). A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership. (See attached site figure.)

6. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

7. Groundwater in the state of Alaska is protected for aquaculture use. In the event that an aquaculture facility uses groundwater from this site in the future, additional treatment may be required to meet aquatic life criteria under 18 AAC 70.

The DEC Contaminated Sites Database will be updated to reflect the change in site status as detailed above, and will include a description of the contamination remaining at the site. Institutional controls will be removed in the future if documentation can be provided that shows cleanup levels have been met. Management conditions 5-7 remain in effect after ICs 1-4 are removed.

This determination is in accordance with 18 AAC 78.276(f) and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or the environment.

Appeal
Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 -18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, within 15 days after receiving the department's decision reviewable under this section. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, within 30 days after the date of issuance of this letter, or within 30 days after the department issues a final decision under 18 AAC 15.185. If a hearing is not requested within 30 days, the right to appeal is waived.

Please arrange to have an appropriate authority with CBJ sign and return *Attachment B* to DEC within 30 days of receipt of this letter. If you have questions about this closure decision, please contact the DEC project manager, Bruce Wanstall in the Juneau office at (907) 465-5210 or by email at bruce.wanstall@alaska.gov.

Sincerely,

Bruce Wanstall

Bruce Wanstall
Remedial Project Manager
State & Private Contaminated Sites Program

Attachment A: Table 8 – Exposure Pathway Evaluation
Attachment B: Corrective Action Complete-ICs Agreement and Signature Page*

cc: Jolene Cox, Carson Dorn Inc., via email
Sally Schlichting, DEC Unit Manager, State & Private Program, via email
DEC SPAR Cost Recovery, via email at dec.spar.cr@alaska.gov
DEC IC Unit, via email at DEC.ICUnit@alaska.gov

Attachment A: Exposure Pathway Evaluation

Table 8 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Incomplete pathway	Surface soil contamination at the UST sites has been removed and remediated off-site.
Sub-Surface Soil Contact	Deminimis exposure	DRO concentrations in soil are between migration to groundwater and ingestion cleanup levels. An unknown volume of contaminated soil remains trapped under structures and future excavation is not planned.
Inhalation – Outdoor Air	Pathway Incomplete	Volatile petroleum compounds were consistently not detected in soil samples above laboratory reporting limits and inhalation pathways.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Although buildings are present at each of the UST closure by removal sites, volatile compounds are not COCs for the site and pose no unacceptable risk to human health.
Groundwater Ingestion	Deminimis exposure	DRO concentrations in remaining soil is between migration to groundwater and ingestion cleanup levels and DRO in groundwater is below Table C cleanup levels. Potable water at the facility is supplied from a treated surface water source above any of the UST system sites.
Surface Water Ingestion	Incomplete Pathway	Treated surface water from a location far upland from the UST systems is used as a drinking water source.
Wild Foods Ingestion	Incomplete Pathway	Wild foods harvest is more likely in undeveloped locations outside the developed ski corridors and lift stations where the USTs were removed. The COC DRO does not bioaccumulate in wild foods.
Exposure to Ecological Receptors	Incomplete Pathway	Direct ecological impacts are not evident and COC concentrations are not present to cause acute toxicity.

Notes to Table 1: "De-minimis exposure" means that in DEC's judgment receptors are unlikely to be affected by the minimal volume of remaining contamination. "Pathway incomplete" means that in ADEC's judgment contamination has no potential to contact receptors. "Exposure controlled" means there is an administrative mechanism in place limiting land or groundwater use, or a physical barrier in place that deters contact with residual contamination.

Skye Stekoll
Eaglecrest Ski Area

October 3, 2014

Attachment B: Corrective Action Complete-ICs Agreement and Signature Page*

The City and Borough of Juneau agrees to the terms and conditions of this Corrective Action Complete with ICs Determination, as stated in decision letter for the Eaglecrest Ski Area, dated October 3, 2014. Failure to comply with the terms and conditions of the determination may result in DEC reopening this site and requiring further remedial action in accordance with18 AAC 18 AAC 78.276(f).

10/13/14

Signature of Authorized Representative, Title

Date

BORIS WATT, ENGINEERING DIRECTOR
City and Borough of Juneau

Printed Name of Authorized Representative, Title

City and Borough of Juneau

Rcvd ADEC
OCT 15 2014

Note to Responsible Person (RP):

After making a copy for your records, please return a signed copy of this form to the ADEC project manager at the address on this correspondence within 30 days of receipt of this letter.