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Petro Marine AKDOT Project
Delta Western Tank Farm
Haines, Alaska
June 2013

1.0 INTRODUCTION

This report presents the methods and procedures followed during excavation, transportation and stockpiling of soil from the ditch area along Beach Road, below the Delta Western Tank Farm (Former Petro Marine) in Haines, Alaska.

This project report has been prepared to ensure that data quality objectives were met, and excavation and stockpile procedures were followed. This report was prepared in accordance with State of Alaska Department of Environmental Conservation (ADEC) *18 AAC 75 Articles 3 & 9*, and the ADEC *Draft Field Sampling Guidance May 2010.*

2.0 SITE BACKGROUND

On July 16th 2012, ChemTrack conducted a site characterization at the Former Petro Marine Station that included characterization of the ditch along Beach Road. The site characterization report was submitted to the ADEC in February of 2013. Data from the February site characterization report indicated that Diesel Range Organics (DRO) impacted soil was present between 2 and 7 feet below ground surface (bgs) in three of the five bore holes advanced in the ditch area.

On April 29th 2013, Southeast Roadbuilders Inc. (SRB) encountered petroleum impacted soil in the ditch below the former Petro Marine Station while installing a culvert for a Department of Transportation (DOT) project. The driveway culvert had a diameter of 18-inch and length of 40-feet. The area of excavation incidental to the culvert installation contained known contaminated soil according to site characterization report submitted by ChemTrack. SRB also encountered a 6-inch diameter steel casing located in the ditch that was discharging water and causing the soil to become saturated. The water discharging from the steel casing was observed to be free of petroleum indicators, but sheen was observed after the water came in contact with the soil in the ditch. Field measurements report that the casing depth was approximately 26-feet deep below top of casing (TOC) and was assumed to be an old water well.

3.0 OBJECTIVE

The objective of this report is to document the field activities that occurred after SRB encountered fuel impacted soil in the ditch area along Beach Road in Haines Alaska. The installation of two culverts on Beach Road directly below the Former Petro Marine Tank Farm was part of AKDOT project #69316. One culvert (40-feet length) was installed in the Petro Marine driveway and an additional culvert (70-feet length) spans the roadway. For the purpose of this report, the culverts will be referenced as “roadway” and “driveway”.

4.0 SITE LOCATION

The Former Petro Marine Tank Farm is located northwest of the junction between Beach Road and the Haines Highway in Haines Alaska. The area of concern is the ditch line and driveway to the east and down gradient of the Petro Marine facility.

5.0 PROJECT PERSONNEL

Site management and water treatment was performed by ChemTrack employees Chris McDonnell and Imre Manyoky. Excavation and transport of impacted soil was performed by Southeast Roadbuilders under the direction of ChemTrack. Soil sampling was performed by ADEC qualified person, Imre Manyoky.

6.0 EXCAVATION

Contaminated soil was excavated with a 320 CAT excavator and placed directly into 10-CUYD end dump trucks. Soil removal was limited to what was necessary for installation of the new culverts (ie. 6-inch below culvert inverts). Soil that was removed for culvert installation was segregated, dewatered, and transported to a designated stockpile at the Former Petro Marine Station. Prior to excavation, a containment cell was constructed by building a dirt berm and lining the area with a 12-mil high density polyethylene (HDPE) liner.

Most of the contaminated soil removed was saturated. To dewater the material for transport, the saturated material was placed in the dump trucks and bed raised with a trough under the back of the truck to catch the water dripping out of the truck. From the trough, the water was directed into a 55-gallon salvage drum. When the load stopped dripping water, the material was considered to be stable for transport. Assumed contaminated soil was then transported and placed in the stockpile. All stockpiled soil was covered by 12-mil HDPE liner and weighted down with sandbags.

A total of 50-CUYD of contaminated soil was removed from the site and temporarily staged at the Petro Marine tank farm site. Based on field screening results, all of the excavated soil (45 CUYD's) that was removed for the installation of the driveway culvert was considered contaminated. The trench for the roadway culvert was excavated starting at the downhill end of the culvert and working toward the Petro Marine tank farm, the first 50 LNFT of culvert was installed without encountering contaminated soil. While excavating the last 20 LNFT of the trench, contaminated soil was found in the bottom 0.5-1' of the excavation. A total of 5 CUYD was removed from the excavation for the roadway culvert installation.

7.0 WATER MANAGEMENT

A water treatment system consisting of a pump, a 10-micron bag filter and a 55-gallon granular activated carbon (GAC) filtration unit was set up on site prior to excavation.

The clean water which was pouring out of the old well casing was initially diverted by drawing a syphon through 5/8-inch clear tubing and discharged down gradient of the zone of exposed contamination. After this adjustment, the water was flowing at 0.75 gallons per minute (GPM) and the level was drawn down 1-foot below TOC. The water was clear and free of sheen and odor. A booster pump was later added to the clear tubing in an attempt to relieve hydraulic pressure and allow the material to dewater faster and to prevent water from flowing back into the excavation.

The booster pump drew the well down to 12-feet below TOC, which increased the flow rate to 1.67 GPM.

While excavating the driveway culvert, groundwater was flowing into the excavation at the rate of approximately 3 GPM. This water was treated by pumping into drums where bulk sediment could settle out and the water was decanted into the treatment system. While digging toward the inlet end of the culvert, the total flow rate into the excavation increased significantly to about 15-25 GPM. The higher flow rate was also heavily loaded with sediment. To contain the high volume of water, a 5,000 gallon settling pond was constructed by lining a section of the ditch between two check dams with 6 mil clear poly sheeting. The water was pumped into the containment pond using a high power trash pump. A total of 3,600 gallons was pumped into the containment basin; the water was left to settle for 2 days and then decanted into the water treatment system. The settling pond had about 100 gallons of sludge on the bottom which was containerized into 55 gallon salvage drums and will be disposed of when the dirt is shipped out. After the culvert was installed a sump hole was left at each end of the culvert and check dam; both holes and the culvert filled with water. The water was free of sediment but had sheen from contacting the disturbed contaminated soil. To flush out the residual contamination in the water, absorbent booms were placed on the surface of the water and we pumped about 3000 gallons (3 water changes) out of the downhill sump hole into the treatment system, the water appeared to be clean and sheen free.

While excavating the roadway culvert a minimal amount of water was encountered. Approximately 100 gallons of water was removed from the excavation and containerized into 55 gallon salvage drums and treated.

8.0 DECONTAMINATION

A bootwash station was setup and maintained for personnel decontamination. Equipment decontamination was limited to the excavator bucket and the dump truck bin; these items were decontaminated before using equipment to move clean material. The truck tires and excavator tracks did not contact the contamination and did not need to be decontaminated.

9.0 SOIL CHARACTERIZATION

Based on olfactory field screening observations (i.e. visual staining, sheen, odor), soil was assumed petroleum contaminated and assumed clean. The soil which was assumed contaminated showed obvious olfactory indications of petroleum based contamination, sheen and odor, some of the soil in the deeper depths of the excavation appeared to have a dark stain. A total of 6 field screen samples were collected and 2 samples were selected for laboratory analysis based on visual comparison of the sheen test results. Approximately 50 CUYD of contaminated soil was staged at the Petro Marine tank farm; the material will loaded into waste management bins and transported to the loading dock by ChemTrack. Waste management will ship the material from the barge landing to a recycling facility for disposal.

10.0 SAMPLE ANALYTICAL METHODS

Samples were analyzed by TestAmerica – Anchorage, a State of Alaska ADEC-approved laboratory using ADEC required analytical methods. The following table presents a summary of analytes, analytical methods, method detection limits, and Practical Quantitation Limit.

Analyte	Analytical Method	MRL* mg/Kg	PQL** mg/Kg	Container	Holding Times
DRO	AK 102	2	20	4 oz Amber Jar, TLC	4°C, 14 days to extract
*Method Reporting Limit **Practical Quantitation Limit					

Table 1: Soil Analytes, Methods, MRL/PQL, Containers, Holding Times

11.0 FIELD AND LAB SAMPLE RESULTS

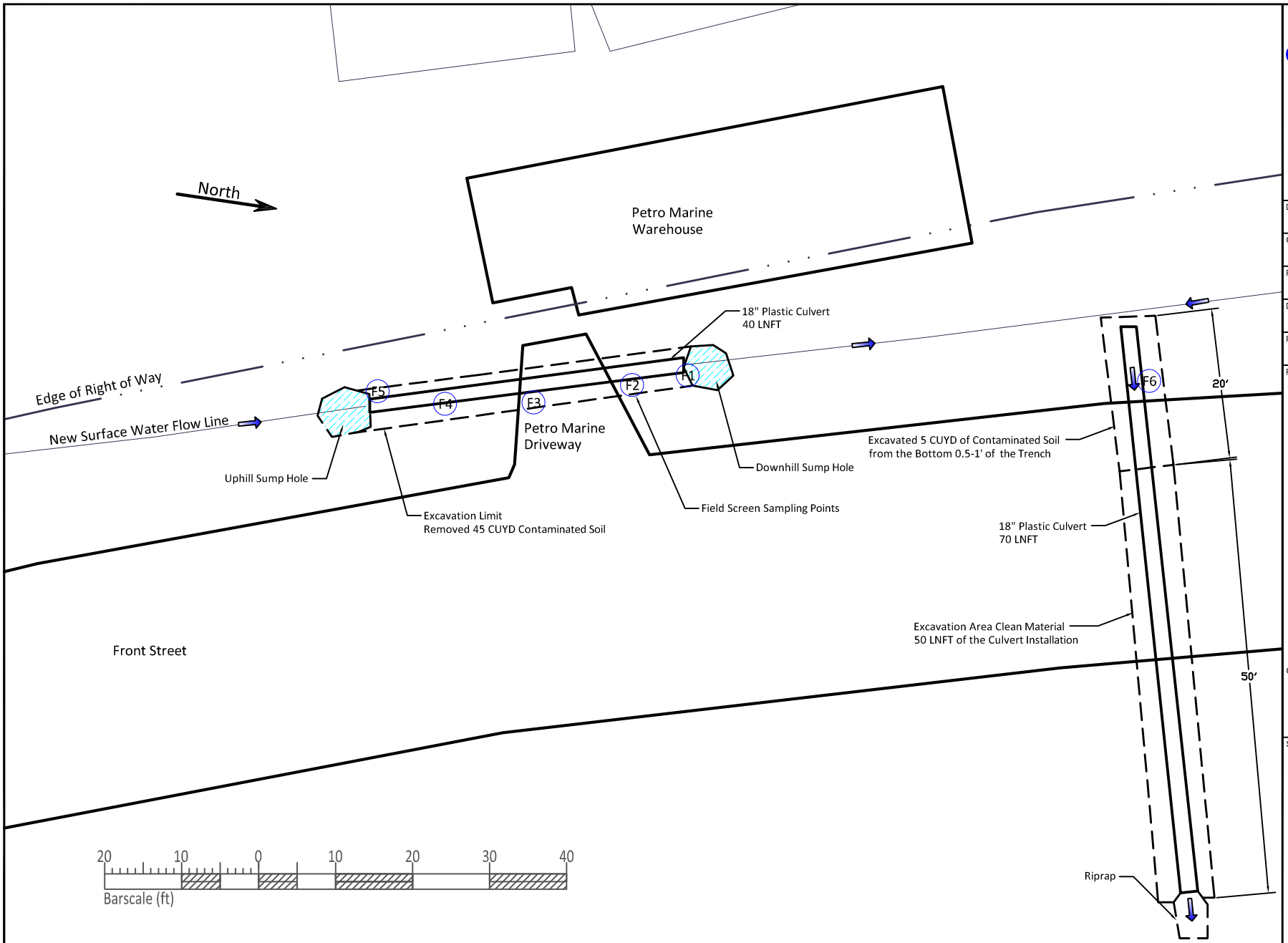
All laboratory samples collected from the ditch area below the Former Petro Marine Tank Farm were above the ADEC Migration to Groundwater Cleanup Level for DRO. See Table 2 below for sample results.

Sample ID	Odor	Sheen	Lab ID	DRO (ppm)	RRO (ppm)	Sample Location
F1	Y	Y				Driveway Excavation
F2	Y	Y	DW1	1450	136	Driveway Excavation
F2	Y	Y	DW10	1610	116	Driveway Excavation
F3	Y	Y				Driveway Excavation
F4	Y	Y				Driveway Excavation
F5	Y	Y				Driveway Excavation
F6	Y	Y	RW1	1370	ND	Roadway Excavation
ADEC Migration to Groundwater Cleanup Level	---	---	---	230	9700	

Table 2: Field Screen and Laboratory Analysis Summary

12.0 CONCLUSION

The affected areas where contaminated soil at the Petro Marine tank farm was disturbed due to the construction phase of the AKDOT road project have been capped and contained. The hydraulic migration paths have been stabilized by flushing out the disturbed non-aqueous phase liquid (NAPL). While there is apparent groundwater movement in the area of contamination, the water was not found to be permeating through the contaminated soil, but channeling through the clean overburden and also the old well casing is relieving hydraulic pressure from below the contaminated soil. It has not been verified whether the 2 sources of groundwater are communicating or not. Considering the relatively low levels contamination in the soil removed and after observing the hydraulic functions of the site; the remaining contamination does not appear to pose a significant risk of migration unless further excavation is required.



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PLOT SCALE: Barscale

DATE OF PLOT: 6/11/13

PROJECT NO.: 6085

PROJECT:

Petro Marine Tank Farm AKDOT Project# 69316

CLIENT:

Delta Western

SHEET CONTENTS:

Culvert Excavation Layout/Front Street Plan View

FIGURE NO.

1 of 3

Driveway Excavation

Driveway Excavation Uphill Sump Hole

Temporary Containment Pond

Roadway Excavation

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PLOT SCALE:

DATE OF PLOT: 6/11/13

PROJECT NO.: 6165

PROJECT:

Petro Marine Tank Farm AKDOT Project# 69316

CLIENT:
Delta Western

SHEET CONTENTS:

Culvert Excavation Layout and New Road Plan View

FIGURE NO.

Dewatering Trough

Driveway Culvert Uphill Sump Hole

Contaminated Stockpile

Covered Contaminated Stockpile

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SHEET CONTENTS:

Site Pictures

FIGURE NO.