OLD NULLAGVIK HOTEL
SITE CHARACTERIZATION AND REMEDIATION
SHORE AVENUE AND TUNDRA WAY
KOTZEBUE, ALASKA 99701

Prepared for

Nullagvik, LLC.
1001 East Benson Boulevard
Anchorage, Alaska 99508

Travis/Peterson
Environmental Consulting, Inc.

Prepared by

TRAVIS/PETERSON ENVIRONMENTAL CONSULTING, INC.

329 2nd Street
Fairbanks, Alaska 99701

&

3305 Arctic Boulevard
Suite 102
Anchorage, Alaska 99503

Project Number
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This Release Investigation Report has been developed in compliance with the provisions of 18 AAC 78 *Underground Storage Tanks, the Draft Field Sampling Guidance, and*.

OLD NULLAGVIK HOTEL
ADEC FILE NO: 410.38.018

Melissa S. Shippey, Senior Scientist — *Melissa S. Shippey* — 12/20/12
Travis/Peterson Environmental Consulting, Inc. — Signature — Date
Project Manager

Nullagvik, LLC. — Signature — Date
Owner

EXECUTIVE SUMMARY

Project Description and Purpose:
Travis/Peterson Environmental Consulting, Inc. (TPECI) prepared this report in accordance with State regulation 18 AAC 78 and summarizes the work completed during site characterization and remediation in 2012 at the Old Nullagvik Hotel site in Kotzebue, Alaska (Figure 1).

The subject property is located at the corner of Tundra Way and Shore Avenue, Kotzebue, Alaska (Latitude 66° 53' 52.21" N, Longitude 162° 36' 01.63" W). Nullagvik, LLC. owns the Old Nullagvik Hotel in addition to the new Nullagvik Hotel, located on the adjacent property.

The site contained two underground storage tanks (USTs) including a 500-gallon tank that was removed in 2006, and a bunkered 3,000-gallon UST that was decommissioned in place, using a sand/water slurry, in 2007. Work planed for the site characterization and remediation in 2012 included removing and stockpiling contaminated soil after demolition of the old hotel; completing final decommissioning of the bunkered 3,000 gallon UST; and confirming the presence/absence of supra-permafrost groundwater contamination migration to Kotzebue Sound.

Eleven soil borings placed near the former heating oil tank (HOT), indicated elevated concentrations of diesel range organics (DRO) ranging from 499 mg/Kg to 1,580 mg/Kg. Three soil borings had DRO concentrations above Alaska Department of Environmental Conservation (ADEC) cleanup standards and ranged from 330 mg/Kg to 453 mg/Kg. The 2006 soil boring data is included in Appendix C and on Figure 2.

In September of 2012, the water in the bunked 3,000 gallon UST was pumped into a holding tank and temporarily stored on site, until it could be remediated. Most of the sand, used to decommission the tank in place, was left in the tank, transported to the Kotzebue Landfill to be sampled and ultimately disposed. Areas of contamination, associated with this tank and the 500 gallon tank, removed in 2006 were delineated and excavated. Soils with PID values below 20 ppm was classified as clean. Petroleum impacted soils were stockpiled, characterized and eventually removed from the project site and taken to the Kotzebue Landfill.

Field work in accordance with the work plan was completed during two visits to Kotzebue; during August 27-30, 2012 and September 18-21, 2012. The work during 2012 mainly consisted of removing soil in areas where borings had indicated high levels of DRO contamination. Figure 2 in Appendix A shows the locations of all 11 soil borings and the levels of DRO contamination detected. Target areas for excavation included the material surrounding both USTs, an area in the northwest corner of the lot and a third small area in the center of the lot where soil boring results indicated high DRO concentrations.

Quality Assurance / Quality Control
Quality assurance and quality control procedures for sample collection and transport were outlined in the approved work plan for this project and adhered to during the course of work in 2012.

Known Contaminants
The contaminants of concern are related to the former USTs and include gasoline range organics (GRO), DRO and bezene, toluene, ethylbenzene and xylenes (BTEX) compounds and poly-aromatic hydrocarbons (PAHs) in both soils and groundwater. Soil boring results from 2006

show petroleum related contamination existed within the vicinity of both USTs, above applicable cleanup standards.

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ACRONYMS AND ABBREVIATIONS

AAL	Alaska Analytical Laboratory
ADEC	Alaska Department of Environmental Conservation
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, xylene
°C	degrees Celsius
CSM	conceptual site model
GRO	gasoline range organic compounds
HV	hydrocarbon vapor
ID	identification
IDW	investigative derived waste
L	liter
LCS/LCSD	laboratory control sample/laboratory control sample duplicate
MDL	method detection limit
mg/Kg	milligrams per kilogram
mg/L	milligrams per liter
MS/MSD	matrix spike/matrix spike duplicate
OIT	Organic Incineration Technologies
PAH	polycyclic aromatic hydrocarbons
PID	photoionization detector
ppm	parts per million
PQL	practical quantitation limit
RL	reporting limit
SCUR	sample condition upon receipt
TPECI	Travis/Peterson Environmental Consulting, Inc.
µg/L	micrograms per liter
µg/Kg	micrograms per kilogram
µS/cm	micro Siemens per centimeter
UST	underground storage tank
VOCs	volatile organic compounds

1.0 INTRODUCTION

Travis/Peterson Environmental Consulting Inc. (TPECI) presents the following release investigation report for the old Nullagvik Hotel property located in Kotzebue, Alaska (66°53'52.21"N, 162°36'01.63"W, NAD83) (Figure 1, Appendix A).

Nullagvik, LLC owns the subject property and contracted TPECI to manage the cleanup of the old Nullagvik Hotel property. In 2006 and 2007, TPECI personnel supervised the removal of a 500-gallon heating oil tank (HOT), sampled soil borings, installed and sampled temporary monitoring wells, and supervised the decommissioning in place of a bunkered heating oil UST with an estimated capacity of about 3,000 gallons.

In November 2006, TPECI and Kikktagruk Inupiat Corporation (KIC) personnel advanced 11 soil borings on the east and north sides of the old Nullagvik Hotel. Soil was field screened and sampled every two feet to an average boring depth of 18 feet below ground surface and results indicated concentrations of diesel range organics (DRO) in soil above ADEC cleanup standards at varying depths in both frozen and unfrozen soil.

Borings placed near the former 500 gallon HOT indicated elevated concentrations of DRO ranging from 499 mg/Kg to 1,580 mg/Kg. Of the remaining borings, three of them had DRO concentrations above ADEC cleanup standards and ranged from 330 mg/Kg to 453 mg/Kg in detections above cleanup standards. The 2006 soil borings field data is presented in Appendix C.

Excavation near the HOT in 2006 also revealed buried debris such as can lids, broken glass, bone fragments, coal, and wood debris. This material is likely the result of past use of the site which also could have contributed to the subsurface fuel contamination.

In 2007, TPECI personnel were on site to supervise the decommissioning in place of a bunkered 3,000 gallon UST located in the crawl space of the hotel. Residual fuel was pumped out of the tank prior to backfilling with sand-gravel-water slurry.

In the summer of 2012, Nullagvik, LLC demolished the old hotel and removed the bunkered UST. Diesel-related contamination in soil and suprapermafrost groundwater was confirmed in 2006, 2007, and 2008 by soil and groundwater borings. Contamination appeared to be limited to the subject property with the possible exception of groundwater contamination, which may be migrating to Kotzebue Sound under Shore Avenue.

1.1 Purpose and Objectives

TPECI presents the following Release Investigation Report for work completed during August and September, 2012. All work was completed in accordance with the June, 2012 ADEC approved Site Characterization and Remediation Work Plan and correspondence.

The project purpose was to characterize soil and groundwater and remove existing contamination associated with the old USTs.

The following project objectives were completed during August and September, 2012:

- Screen soil for petroleum-related contamination during the excavation of the old building foundation;

- Excavate and segregate potentially contaminated soil from clean soil during field screening;
- Characterize all soil stockpiles in accordance with the ADEC 2010 Draft Field Sampling Guidance;
- Obtain permission to store and ultimately dispose of all contaminated soil at the Kotzebue Landfill as cover material from ADEC Division of Solid Waste;
- Pump the backfilled contents of the bunkered underground storage tank (UST) onto a lined containment for testing and disposal; and
- Remove bunkered UST for final disposal.

Objectives that still must be completed are:

- Field screen soils at former boiler building structure and fuel tank location for evidence of petroleum related soil contamination;
- Confirm presence/absence of contaminant migration pathway between the site and Kotzebue Sound via groundwater and characterize any suprapermafrost aquifer that may exist on site for petroleum related contaminants. This work will be further outlined in a work plan addendum and performed as a secondary phase of environmental characterization at the site.

1.2 Deviations and Justification

There were no deviations from the approved Site Characterization Work Plan.

1.3 Potential Contaminants of Concern

The contaminants of concern for this site are related to the former USTs and include GRO, BTEX and polycyclic aromatic hydrocarbons (PAH).

Table 1 Contaminants of Concern in Groundwater

Contaminant of Concern	State of Alaska Cleanup Level
Benzene	5.0 µg/L
Toluene	1,000 µg/L
Ethylbenzene	700 µg/L
Xylenes	10,000 µg/L
Gasoline Range Organics (GRO)	2.2 mg/L
PAHs	**
Diesel Range Organics (DRO)	1.5 mg/L

Notes:
Cleanup levels are from Table C of 18 AAC 75.345
**Cleanup levels for each PAH compound are presented in Table C of 18AAC75.345
µg/L – micrograms per liter mg/L – milligrams per liter

Table 2 Contaminants of Concern in Soil

Contaminant of Concern	State of Alaska Cleanup Level
Benzene	20 µg/Kg

Toluene	5,400 µg/Kg
Ethylbenzene	5,500 µg/Kg
Xylenes (total)	78,000 µg/Kg
PAH	**
GRO	260 mg/Kg
DRO	230 mg/Kg

Notes:
Cleanup levels are from Table B1 of 18 AAC 75.341
**Cleanup levels for each PAH compound are presented in Table B1 of 18AAC75.341
mg/Kg – milligrams per kilogram
µg/Kg – micrograms per kilogram

Analytical results for 2012 are summarized in Appendix B.

1.4 Conceptual Site Model

An updated Conceptual Site Model (CSM) scoping form is attached in Appendix C. Sources of contamination on this site are most likely two USTs and possible historic contamination related to its previous use as a cannery. Based on observations in 2012, it seems likely that contamination from these sources has reached the water table.

2.0 FIELD WORK

Field work in accordance with the work plan was completed over two visits to Kotzebue; during August 27-30, 2012 and September 18-21, 2012.

2.1 Soil Sample Collection and Analysis

Field screening was performed with a calibrated photoionization detector (PID) and soil headspace samples. Soil screening samples were collected every ten cubic feet, using either direct screening or headspace analysis.

All sampling equipment was decontaminated prior to being reused. Decontamination methods are described in Section 3.3 of this plan.

Analytical samples were collected in accordance with the procedures discussed in Section 2.1.2.1 of the approved work plan.

2.2 Field Observations

This section summarizes field observations from each excavation location. Field notes appear in Appendix D.

Borings placed near the former HOT indicated elevated concentrations of DRO ranging from 499 mg/Kg to 1,580 mg/Kg. Of the remaining borings, three of them had DRO concentrations above ADEC cleanup standards and ranged from 330 mg/Kg to 453 mg/Kg. Two of these areas were in the northwest corner of the lot (near the intersection of Tundra Way and Shore Avenue). The third boring, was near the center of the lot without obvious landmarks by which it could be distinguished (site map, Figure 2) The 2006 soil borings field data is presented in Appendix C.

During the first visit to Kotzebue, August 27-30, 2012, the bunkered 3,000 gallon UST was removed and the surrounding area was screened, and excavated to clean limits (see site map Figure 3). The northwest corner of the lot where two soil borings indicated high DRO concentrations (Soil Boring Map, Figure 2), was also excavated and clean limits were found at the property line. Material from these areas was removed and stockpiled at the Kotzebue Landfill, until analytical results were received. Analytical samples were collected within the excavation around the bunkered UST and in the northwest corner of the site.

Analytical samples indicated that clean limits had been established on all sides of both excavations, except the southwest corner of the bunkered tank excavation, where groundwater had been exposed. Additional excavation was performed in this area to establish clean limits, via headspace analysis. Stockpiled material from both the tank excavation and the northwest corner was below ADEC cleanup standards and was used as fill material at the Kotzebue Landfill. Analytical results for these samples are summarized in tables with full analytical reports in Appendix E.

During September 18-21, 2012, the two remaining areas where borings had shown high DRO concentrations were excavated. Test pits were used to determine the location of contamination found in the center of the lot by soil borings in 2006. Three large test pits were excavated. The first test pit was approximately 3 by 8 feet and was excavated to a depth of approximately six feet. No signs of fuel-related contamination were detected. Many drums were uncovered, which had been tipped on side and laid top to bottom in a long line. The drums were in poor condition, but were filled with thick, sodden peat. The peat and soil within the drums was field screened for signs of fuel, but none could be detected. After additional excavation and removing three drums, it seemed likely these drums had once been a make-shift septic system. Other debris, old cans and trash, had been buried in this area. When no signs of fuel could be detected, the excavation was backfilled and remaining drums left untouched.

A second test pit was excavated 15 feet southwest and still no fuel contamination could be detected. The second test pit was approximately 3 by 3 feet and six feet deep and was backfilled after field screening. A third test pit, with the same dimensions was placed approximately 30 feet southwest of the original excavation and no signs of fuel contamination were found. Cans, bottles and other debris were throughout all three test pits, but no visual, olfactory or screening signs of fuel-related contamination were found. The locations of all three test pits are shown on Figure 3 in Appendix A.

PID readings between 100-200 ppm were found approximately five feet below ground surface (bgs) when excavation began near the old 500 gallon HOT. As contamination was discovered along sidewalls and base of the excavation, it was removed and stockpiled in a lined and bermed containment cell located on site. Excavation continued until clean sidewalls were found on all sides. The total depth of the excavation was approximately nine feet, with some areas below groundwater.

A peat layer, approximately six inches thick, was present throughout the excavation at a depth of five feet. This layer appeared to be saturated with fuel. Clay or coarse gravel underlies the peat. Clean limits were eventually established using headspace analysis on all sides of the excavation. With few exceptions, the contamination was confined to the peat layer and soil above. The total depth of the excavation was approximately eight feet with groundwater exposed in most areas. A slight sheen could be seen on the exposed groundwater. The excavated area was nearly 45 feet long by 25 feet wide. Once clean limits were established using headspace analysis, analytical samples were collected. The majority of the analytical samples from sidewalls were collected at a depth of five feet, within the peat layer, focusing on the most contaminated areas. Figure 4 in Appendix A shows the extent of the excavation and corresponding analytical results.

The excavated material was stockpiled and analytically tested. Approximately 500 cubic yards of material was removed from the 500 gallon tank excavation and stockpiled in the southwest corner of the site. Analytical results for this material are summarized in tables, with full analytical reports in Appendix E.

2.3 Field Screening and Sampling Procedures

In addition to observations of visual and olfactory indicators, field screening was performed using a hydrocarbon vapor (HV) test. A PID was the field HV measurement instrument. TPECI personnel used the standard headspace field screening process with a PID in accordance with the procedures defined in the *Draft Field Sampling Guidance* (ADEC, 2010). Soils with PID values below 20 ppm will be classified as clean.

Based upon our firm's experience over the past 13 years, the 20 ppm screening value offers the best compromise between obtaining clean results within an excavation and not generating excess amounts of falsely classified "contaminated" material. Sampling frequency for screening purposes was performed using the following procedures:

- Calibrate PID field instrument according to the manufacturer's specifications on the day of use;
- Partially fill (one-third to one-half full) a glass jar or resealable Ziploc™ bag with the sample material to be analyzed. Total capacity of the jar or bag may not be less than eight ounces (approximately 250 mL), and the container should not be so large as to allow vapor diffusion and stratification effects to significantly affect the sample. TPECI use Ziploc™ or equivalent brand of re-sealable plastic sandwich size baggies that average 6 ½ inches by 5 7/8 inches in size. Based on over 10 years of field screening experience, this size of baggie provides an adequate size container for collecting soil for screening and allows for adequate development of organic vapors in the baggie;
- If the sample is collected from a split spoon or Geoprobe™ sampling device, transfer the material directly into the re-sealable baggie for headspace analysis immediately after opening the sampling device;
- If the headspace sample material is collected from a stockpile, or from an excavation, the sample material must be collected from freshly uncovered soil;
- If a re-sealable baggie is used it must be quickly sealed shut once the sample material is added to the baggie;
- From the time of collection, allow headspace vapors to develop in the container for a minimum of 10 minutes or up to one hour but no longer. This will be done by warming the sample either in the direct sunlight, if weather conditions allow, or on the dash board heater of a field vehicle. Sample material must be warmed to room temperature and should not be hot nor should it be cold to ensure accurate field screening data;
- After this time period, the material must be shaken in the baggie to sufficiently agitate and mix the soil. At this time field sampling personnel can determine if the sample

material has been sufficiently warmed by holding the baggie and determining if the soil is still cold. If the material is not considered warm enough then the baggie of soil will be allowed to warm for additional time to ensure adequate accumulation of organic vapors in the headspace prior to analyzing with the PID;

- Once the sample material is sufficiently warmed, but not hot to the touch, the baggie will again be agitated for 15 seconds prior to analyzing with the PID;
- After headspace development is complete, insert the tip of the PID tubing to a point approximately one-half the depth of the headspace in the sample container. Care must be taken to avoid collecting moisture and soil particles into the tubing from inside the sample container. This could clog the PID tubing and affect the PID value. Moisture can also affect the ability of the instrument's lamp to accurately analyze any organic vapor content in the container's headspace and can result in false positive PID readings from sample material that is otherwise clean;
- The highest value observed is the one recorded in the field notebook along with the sample identification. The high reading value on a PID can occur anywhere between a few seconds and one to two minutes after inserting the tip of the PID probe into the sample container depending on the PID model being used. This is based on direct field observation and experience of TPECI personnel;
- Headspace sample screening must be completed within one hour of sample collection; and
- Document all field screening results in a bound, numbered, field notebook.

All PID screening results are presented in tables in Appendix D.

2.4 Analytical Confirmation Samples

The following sections describe field preparation, sampling frequency, and laboratory analytical parameters.

Field Sample Procedure-Soil
Confirmation sampling of soil was performed in accordance with the following criteria (ADEC, 2010):

- All samples were collected with disposable or clean, decontaminated tools;
- Environmental field staff wore disposable nitrile gloves during sampling and changed them between samples;
- All samples were labeled in accordance with the provisions of the work plan; and
- All samples were preserved in accordance with laboratory specifications and cooled to a temperature of 4 degrees Celsius (+/- 2°C).
- Samples were collected as quickly as possible, sample preservative added within 10 seconds of collection, and placed in laboratory provided containers in order of decreasing volatility (i.e. GRO/BTEX, PAH, and then lead);

2.5 Investigative Derived Waste

All investigative derived waste (IDW) water from the decommissioned 3,000 gallon tank was placed in a holding tank until analytical samples could be collected. Results indicated high levels of DRO contamination; these results are summarized in tables in Appendix B. A water Scrubber 55, at Drake Construction, Inc. headquarters, was used in conjunction with an oil water separator to remediate water, before it was finally discharged into the city sewer, which terminates at the sewage lagoon.

3.0 DATA DELIVERABLES

TPECI used the following laboratories and analytical methods for soils collected on this project.

Table 3 Soil Analytical Methods

Contaminant of Concern	State of Alaska Cleanup Level (mg/Kg)	Analytical Method	Analytical Laboratory (Standard Turnaround)
Benzene	20 µg/Kg	EPA 8021B	AAL
Toluene	5,400 µg/Kg	EPA 8021B	AAL
Ethylbenzene	5,500 µg/Kg	EPA 8021B	AAL
Xylenes (total)	78,000 µg/Kg	EPA 8021B	AAL
GRO	260 mg/Kg	AK 101	AAL
DRO	230 mg/Kg	AK 102	AAL
PAH	Parameter Dependent	SW8270D	Pace Analytical Services

Notes:
AAL – Alaska Analytical Laboratory
Cleanup levels are from Table B1and B2 of 18 AAC 75.341
mg/Kg – milligrams per kilogram
EPA – U.S. Environmental Protection Agency

3.1 Soil Data Deliverables

Analytical results showed clean limits in the northwest corner of the lot. Clean limits were also established around the 3,000 gallon UST, to the level of the groundwater. The DRO contamination in the center of the site, previously documented via soil borings in 2006, could not be recovered. It may be that this area was an isolated pocket of contamination.

Material removed from the excavation near the 500 gallon UST showed high levels of DRO contamination, with results as high as 4,670 mg/Kg. All analytical results from the 500 cubic yards of material had DRO levels above ADEC cleanup standards. This material was removed from the site and hauled to the Kotzebue Landfill to be used as cover material. Some analytical results within the excavation were above cleanup standards. The highest levels of DRO contamination within the excavation was 586 mg/Kg, suggesting the majority of the contamination was successfully removed. Samples with higher moisture content seemed to also have higher DRO concentrations, which may indicate contamination present within the groundwater.

3.2 Data Quality Control Review

This quality assurance summary is included pursuant to the ADEC, Division of Spill Prevention and Response, Contaminated Sites Technical Memorandum, March 2009. The quality assurance summary, at a minimum, must describe the following six parameters for analytical results with respect to the impact that discrepancies have on the quality and usability of the data. For additional detailed quality assurance information see the ADEC laboratory data review checklists completed for the laboratory reports from Alaska Analytical Laboratory and Pace Analytical Laboratory, Appendix C.

- **Precision** - measures the reproducibility of repetitive measurements. It is measured by calculating the relative percent difference (RPD) between duplicate samples. Field duplicate samples, matrix spike (MS) and matrix spike duplicate (MSD) pairs, and laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) pairs were used to measure precision for this project.
- **Accuracy** - measures the correctness, or the closeness, between the true value and the quantity detected. It is measured by calculating the percentage recovery of known concentrations of spiked compounds that were introduced into the appropriate sample matrix. Surrogate and LCS/LCSD and/or MS/MSD pairs sample recoveries were used to measure accuracy for this project.
- **Representativeness** - describes the degree to which data accurately and precisely represents site characteristics.
- **Comparability** (if applicable) - describes whether two data sets can be considered equivalent with respect to the project goal.
- **Completeness** - describes the amount of valid data obtained from the sampling event(s). It is calculated as the percentage of valid measurements compared to the total number of measurements. The completeness goal for this project was set at 85 percent.
- **Sensitivity** - describes the lowest concentration that the analytical method can reliably quantitate, and is evaluated by verifying that the detected results and/or practical quantification limits (PQLs) meet the applicable cleanup levels listed in the ADEC Title 18, AAC, Chapter 75.341, Tables B1 and B2 and 18, AAC Chapter 75.345, Table C

3.2.1 Precision

Precision of measurements must be evaluated for field duplicates, LCSDs, and/or MSDs. Precision of field and laboratory data for this project is presented in the following sections.

3.2.1.1 Field Sampling Precision

Field duplicate samples were collected and submitted to the laboratory as blind samples during the analytical sampling for the Old Nullagvik Hotel Site Characterization and Remediation Project. Pursuant to 18 AAC 75, a minimum of one field duplicate per 10 samples was be submitted for laboratory analysis. The following table lists the field duplicates, their corresponding project sample, general location of where samples were acquired from, and the report number in which analytical results can be found.

Primary Sample	Field Duplicate	Location	Alaska Analytical Report Number	Pace Analytical Report Number
1S	5S	NW Corner/3,000 gal tank	1208018	2513457
1B	4B			
1T	3T			
E3-1B	E3-6B			
1	2	Water samples	1209018	2513646
1S	7S	500 gal tank	1209020	2513673
10SW	1SW			
1B	10B			

All field duplicate sample results were comparable to all project sample results except for those listed below. Consequently, the results of the following analytes in the project sample are lacking field precision.

- Report 1208018 (1T/3T) - 3,000g. tank area
  - GRO – 88.7%

Impact to data was minor as the affected data were at least one order of magnitude below the ADEC cleanup level.

- Report 2513457 (1T/3T) " "
  - Fluorene – 87.5%
  - 1-Mathylnapthalene – 123.8%
  - 2-Mathylnapthalene – 127.2%
  - Napthalene – 106.9%

Impact to data was minor as the affected data were at least two orders of magnitude below the ADEC cleanup level.

- Report 2513457 (1B/4B) " "
  - Anthracene – 82.2%
  - Pyrene – 74.4%
  - Fluoranthene – 74.4%

Impact to data was minor as the affected data were at least five orders of magnitude below the ADEC cleanup level.

- Report 2513457 (1/2) " "
  - 1,2,4-trimethylbenzene – 92.9%

Impact to data was minor as the affected data were at least one order of magnitude below the ADEC cleanup level.

- Report 1209020 (1S/7S)
  - GRO – 155.3%
  - M,p-xylenes – 87.6%

Impact to GRO data was minor as the affected data were at least one order of magnitude below the ADEC cleanup level. M,p-xylene isomers were detected in sample 1S but were not detected in the field duplicate 7S. As a result, the reporting limit was used for the RPD calculation. Lower precision is expected as a result.

- Report 1209020 (1SW/10SW) 500 g. tank area
  - DRO – 73.8%

Field duplicate pair is affected and has poor field precision.

- Report 2513673 (1S/7S) " "

  - Acenaphthylene – 54.8%
  - Benzo(a)anthracene – 56.8%
  - 1-Mathylnapthalene – 59.2%
  - Pyrene – 50.7%

Impact to data was minor as the affected data were at least two orders of magnitude below the ADEC cleanup level.

- Report 2513673 (1SW/10SW) 500g tank area
  - Acenapthene – 64.0%
  - Acenaphthylene – 53.1%
  - Anthracene – 112.0%
  - Benzo(a)anthracene – 108.0%
  - Benzo(a)pyrene – 102.1%
  - Benzo(b)fluoranthene – 95.8%
  - Benzo(g,h,i)perylene – 79.7%
  - Benzo(k)fluoranthene – 112.6%
  - Chrysene – 107.5%
  - Dibezo(a,h)anthracene – 59.0%
  - Fluoranthene – 117.4%
  - Fluorene – 120.6%
  - Indeno(1, 3, 3-cd)pyrene – 77.5%
  - 1-Mathylnapthalene – 64.4%
  - Phenanthrene – 137.1%
  - Pyrene – 109.0%

Impact to data was minor as the affected data were at least two orders of magnitude below the ADEC cleanup level.

3.2.1.2 Laboratory Control Sample Duplicates and/or Matrix Spike Duplicates

LCS and LCSDs (where spike compounds were added to blank samples to assess laboratory extraction and instrumentation performance) and/or MS/MSDs (where spike compounds were added to project samples to assess potential matrix interference) are forms of laboratory quality control. Analytical batches containing a project LCSD had acceptable LCS/LCSD precision. Analytical batches containing a project MSD had acceptable MS/MSD precision.

3.2.2 Accuracy

Accuracy of measurements must be evaluated for all laboratory quality control samples (LCS/LCSD pairs, MS/MSD pairs) and surrogates. Accuracy of laboratory measurements for this project is presented in the following section.

3.2.2.1 Percent Recoveries for Laboratory Quality Control Samples and Surrogates

Analytical batches containing a project LCSD had acceptable LCS/LCSD accuracy, surrogates had acceptable accuracy, and analytical batches containing a project MSD had acceptable MS/MSD accuracy. Any exceptions are listed below.

- Report 1208018
  - Surrogate o-terphenyl recovery acceptance criteria was not met for DRO samples 1S, 3W, and E3-2B. Impact to data was likely minor as dilution used resulted in surrogate values outside the established control limits.
  - Surrogate a,a,a-tricluorotoluene acceptance criteria was not met for GRO/BTEX sample 2T. Impact to data was likely minor as one of two surrogates had recoveries within the acceptable limits.
- Report 1209018
  - Surrogate o-terphenyl recovery acceptance criteria was not met for DRO samples 1 and 2. Impact to data was likely minor as dilution used resulted in surrogate values outside the established control limits.
- Report 1209020
  - Surrogate o-terphenyl recovery acceptance criteria was not met for DRO samples 1S, 2S, 3S, 4S, 5S, 7S, 4SW, 6SW, 7SW, 8SW, 9SW, 10SW, 3B, and 10B. Impact to data was likely minor as dilution used resulted in surrogate values outside the established control limits.
- Report 2513646
  - The MS/MSD recovery did not meet acceptance criteria (17%) for PAH analyte naphthalene (-4270%/-3950%). Consequently, the result of the aforementioned analyte in the MS/MSD sample was qualified E and M1by the laboratory. Batch results were accepted based on acceptable LCS batch recovery.
  - The MS/MSD recovery exceeded acceptance criteria (110% and 115%) for PAH analytes 1-methylnaphthalene (116%/276%) and 2-methylnaphthalene (141%/283%). Consequently, the results of the aforementioned analytes in the MS/MSD sample were qualified E and M1 by the laboratory. Batch results were accepted based on acceptable LCS recoveries.

3.2.3 Representativeness

The representativeness of the data collected must be evaluated in terms of the degree to which data characterizes the actual site conditions and the consistency with the conceptual site model (CSM) and data quality objectives in the approved SAP. Within the work area for this project the collected data is characteristic of the site and consistent with data quality objectives.

3.2.4 Comparability

The comparability of the data collected must be evaluated in terms of the degree to which data are comparable to field screening methods (if applicable). In addition, the comparability of standard methods, procedures, quantitation units, and reporting formats between laboratories and laboratory reports must be evaluated if more than one laboratory is used. An evaluation of data comparability for this project is appropriate because field screening methods were used to protect worker health and safety. Analytical data were found to be comparable to screening data.

3.2.4.1 Comparability of Laboratory Data to Field Screening Data

The specified screening threshold for classifying soils as 'contaminated' was 20 ppm by headspace analysis. Based upon a comparison of field screening values, 20 ppm was an appropriate screening level.

3.2.4.2 Comparability of Data between Laboratories

Alaska Analytical Laboratory was the contract laboratory for this project and Pace Analytical Laboratory was subcontracted by Alaska Analytical Laboratory for the analysis of VOCs by EPA 8260, PAH by EPA 8270C,and lead by EPA 6020. There was no overlap of analysis between the laboratories and comparability of methods, procedures quantitation limits, and reporting formats was not applicable.

3.2.5 Completeness

The completeness of the data collected must be evaluated in terms of number of valid samples collected. All samples, including the duplicates, were valid samples.

3.2.6 Sensitivity

The sensitivity of the data collected must be evaluated in terms of method detection limits relative to regulatory cleanup standards. Additionally, trip blank results must be evaluated in terms of the PQL.

The following analytes listed below had non-detect results with PQLs greater than the ADEC soil cleanup levels listed in 18AAC 75.341 and/or groundwater cleanup levels listed in 18AAC 75.345. Therefore, the results of the analytes in the samples listed below have limited usefulness.

- Report 2513646 - GW
  - 1,2,3-Trichloropropane: 1,2, and trip blank
  - 1,2-Dibromoethane: 1,2, and trip blank
  - Benzo(a)anthracene: 1
  - Benzo(a)pyrene: 1
  - Benzo(b)fluoranthene; 1
  - Dibenz(a,h)anthracene: 1
  - Indeno(1,2,3-cd)pyrene: 1

- Report 1209020 - GW
  - Benzene: 1SW, 7SW, 8SW, 10B

4.0 CONCLUSIONS

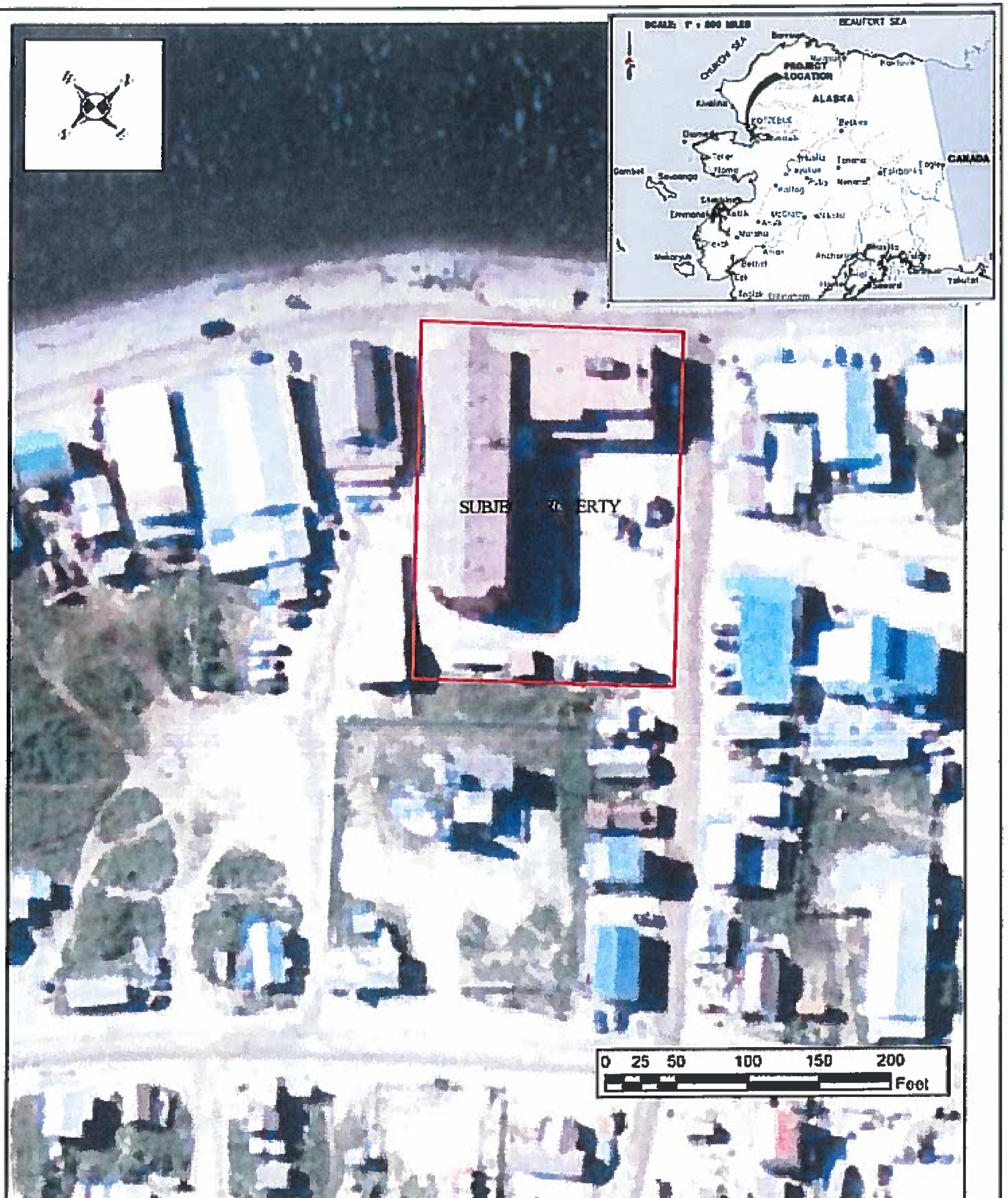
Analytical results showed clean limits in the northwest corner of the lot, where soil borings had previously shown contamination. Clean limits were also established around the 3,000 gallon UST, removed in August, 2012, with additional excavation completed during September, 2012. The DRO contamination in the center of the site, previously documented via soil borings in 2006, could not be recovered. It may be that this area was an isolated pocket of contamination.

Some contamination may be remaining on the site, which may be attributed to its historical use as a cannery or for military activities. Drums recovered from the center of the site bore military identifications. Debris found during excavation included discarded canning jars, soda cans and bottles, vapor barrier, insulation, wood and old airplane and car parts.

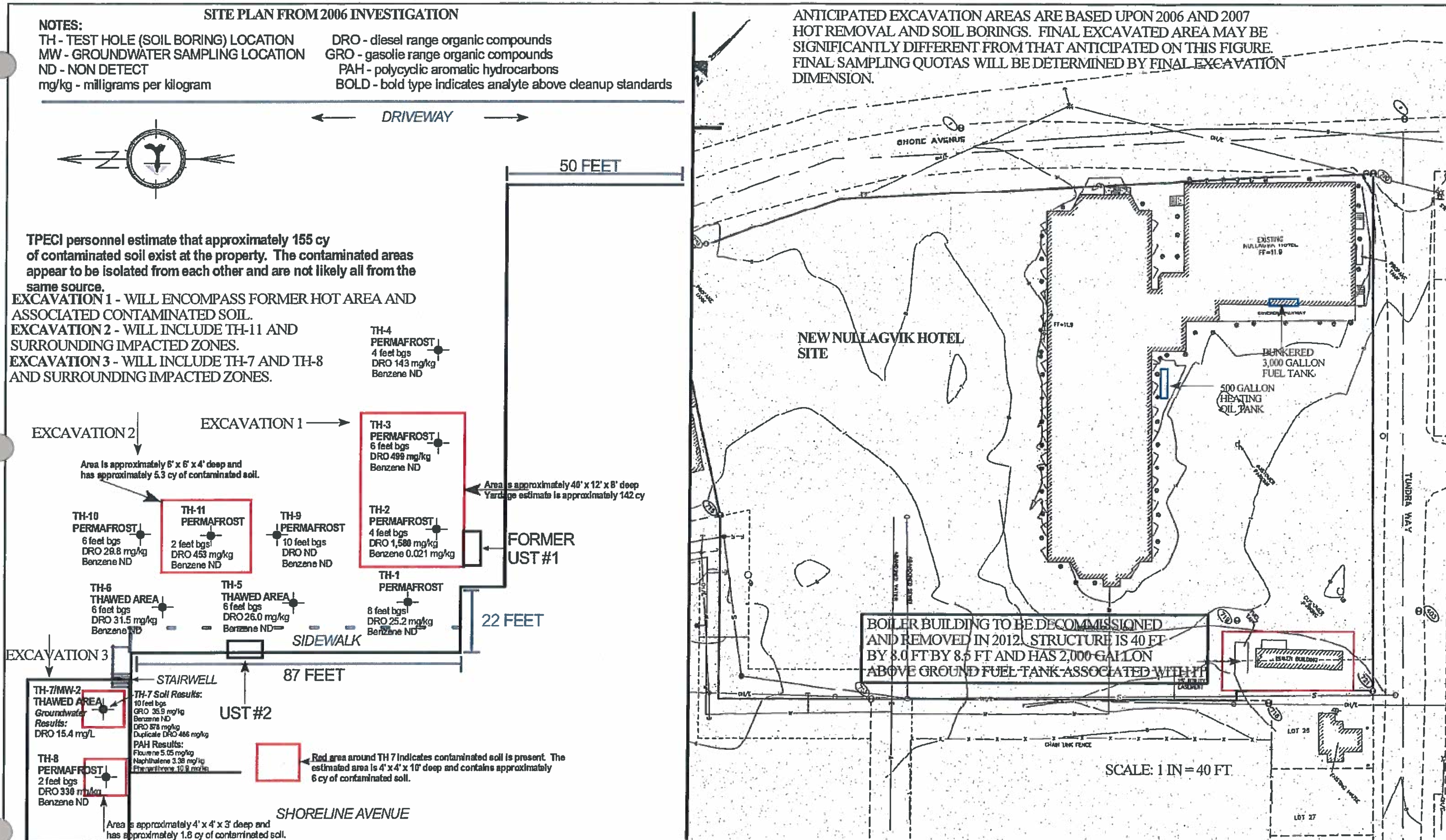
Material removed from the excavation near the 500 gallon UST showed high levels of DRO contamination, with results as high as 4,670 mg/Kg. All analytical results from the 500 cubic yards of material had DRO levels above ADEC cleanup standards. This material was removed from the site and hauled to the Kotzebue Landfill to be used as cover material. Some analytical results within the excavation were above cleanup standards. The highest levels of DRO contamination within the excavation was 586 mg/Kg, suggesting the majority of the contamination was successfully removed.

Samples with higher moisture content seemed to also have higher DRO concentrations, which may indicate contamination in groundwater. TPECI personnel suggest that push probes be installed to collect groundwater samples and investigate the extent of groundwater contamination. A work plan addendum will be drafted and submitted to ADEC for approval on all proposed well locations.

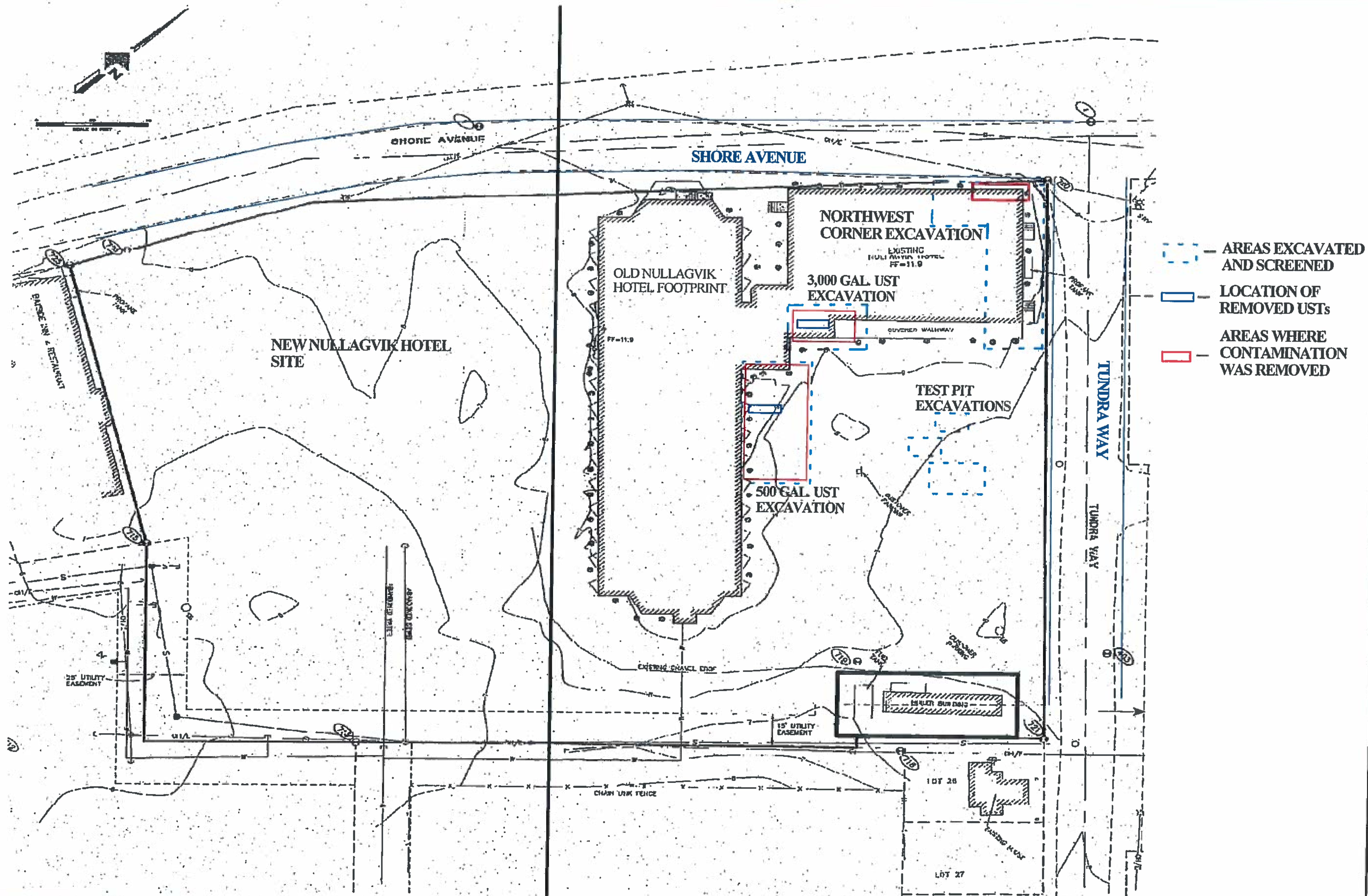
APPENDIX A
FIGURES



TRAVIS/PETERSON ENVIRONMENTAL CONSULTING, INC. 329 SECOND STREET FAIRBANKS, AK 99701	NANA DEVELOPMENT CORPORATION, INC.	FIGURE 1 LOCATION & VICINITY
PROJECT NO: 1080-38	FILE:S/PROJECTS/1080/38/2012 WORK PLAN/FIGURES	DATE: 01/13/2012	SCALE: AS SHOWN



TRAVIS/PETERSON ENVIRONMENTAL CONSULTING, INC. 329 SECOND STREET FAIRBANKS, ALASKA 99701	NANA DEVELOPMENT CORPORATION, INC.	FIGURE 2 SITE PLAN
PROJECT NO: 1080-38	FILE: S/PROJECTS/1080/38/2012 WORK PLAN/FIGURE 2.SKF	DATE: 11/06/2012 — SCALE: AS SHOWN



TRAVIS/PETERSON ENVIRONMENTAL CONSULTING, INC.
329 SECOND STREET
FAIRBANKS, ALASKA 99701

NANA DEVELOPMENT CORPORATION , INC.

FIGURE 3
EXCAVATION SITE MAP

PROJECT NO: 1080-38 | FILE: S/PROJECTS/1080/38/2012 WORK PLAN/FIGURE.SKF | DATE: 11/03/2012 | SCALE: AS SHOWN

Excavation : 500 gallon tank HOT

- Below cleanup standards

- Above cleanup standards

SW- Analyticals from excavation sidewalls

B - Analyticals from excavation base

10SW / 10B - Duplicates

3B - DRO: 544 mg/Kg

4SW - DRO: 526 mg/Kg

6SW - DRO: 421 mg/Kg

8SW - DRO: 371 mg/Kg

9SW - DRO: 586 mg/Kg

10SW - DRO: 473 mg/Kg

NOTE: AVERAGE DEPTH FOR ALL SIDEWALL SAMPLE LOCATIONS WAS 5.0 FT BELOW THE TOP OF THE EXCAVATION IN THE DARK PEAT LAYER.

TRAVIS/PETERSON ENVIRONMENTAL CONSULTING, INC. 329 2ND STREET FAIRBANKS, ALASKA 99701		NANA - Nullagvik Hotel	FIGURE 4 ANALYTICAL SAMPLING LOCATIONS
PROJECT NO: 1080-38	FILE: PROJECTS/1080/38/FIGURES/ANALYTICAL SITE MAP.SKF	DATE: 11/03/2012	SCALE: AS SHOWN

APPENDIX B
SUMMARY DATA TABLES

8/28/2012
3,000 Gallon Tank Excavation

Sample #	Depth (ft bgs)	Reading	Time
1	4.5	20.8	8:20
2	5	42.7	8:50
3	3	33.1	9:15
4	4	63.5	9:20
5	5	55.6	9:45
6	5.5	34.5	9:50
7	4.5	44.3	10:20
8	6	22.1	10:25
9	5	33.7	10:50
10	4.5	32.5	11:20
11	4	24.6	11:40
12	4	23.6	11:50
13	6	19.2	12:01
14	6	2.9	12:20
15	7	1	12:22
16	8	1	14:35
17	8.5	6.3	14:50
18	8.5	12	14:51
19	9	9.3	14:52
20	9.5	15	15:20
21	9.5	19.8	15:22
22	9.5	21	15:23
23	9.5	9.6	15:24
24	9	10	15:25
25	9	21.6	15:26
26	9	1	16:00
27	9	2.2	16:01
28	8.5	1.7	16:02
29	9	2.1	16:03
30	8	3.2	16:04
31	8	1.4	16:05
32	8.5	1.1	16:06
33	8	3	17:20
34	8	1.5	17:21
35	8	2	17:22
36	8.5	2.8	17:23
37	8.5	4.6	17:24
38	8	4	17:25

8/29/2012

Sample #	Depth (ft bgs)	Reading	Time
1	4	1	16:20
2	4	8.5	16:21

3	4	2.7	16:22
4	4	4.1	16:23
5	4	1.9	16:24
6	4	1	16:25
7	5	3.3	17:30
8	5	1.7	17:32
9	5	3.3	17:33
10	5	2.3	17:35
11	8	3.2	17:36
12	8	1.7	17:38
13	5	1.6	17:39
14	5	1	18:30
15	5	2.1	18:31
16	5	0.1	18:32
17	5	0	18:33

9/18/2012 Test Pits

Sample #	Depth (ft bgs)	Reading	Time
1	2	0.6	15:05
2	6	0.2	15:10
3	5	0	15:12
4	2	0	15:40
5	6	0.8	15:45
6	5	1.2	16:00
7	4	0.1	16:20
8	6	1.6	17:00
9	5	0.6	17:30
10	7	0.3	18:15

9/19/2012 Test Pits and 500 Gallon Tank Excavation

Sample #	Depth (ft bgs)	Reading	Time
1	6	156.2	8:42
2	6	59.8	8:50
3	6	122.9	8:51
4	6	186.4	8:52
5	6	291.8	9:22
6	6	124.3	9:23
7	6	1.8	9:24
8	6	96.2	9:25
9	6	31.6	9:26
10	2	0.6	10:30
11	2	133.2	10:32
12	2	3.8	10:33
13	2	13.2	10:34
14	2	0.2	10:50
15	5.5	6.4	10:51
16	3	44.8	10:52

17	2	2.3	10:59
18	6	3.1	11:02
19	3	0.6	11:04
20	3	33.2	11:30
21	3	126.8	11:33
22	3	182.3	11:34
23	3	45.3	11:35
24	6	56.9	11:36
25	2	33.6	12:10
26	5	51.2	12:20
27	3	111.6	12:21
28	6	856.3	12:22
29	4	236.8	12:23
30	6	342.4	12:24
31	5	228.1	12:25
32	2	52.6	13:30
33	2	71.5	13:31
34	2	65.6	13:32
35	2	11.2	13:33
36	5	126.8	14:50
37	5	27.9	14:55
38	5	133.2	14:56
39	5	560.8	14:57
40	6	280.1	14:58
41	5	110	16:10
42	7	115.6	16:11
43	5	86.3	16:20
44	5	72.9	16:31
45	6	73.3	16:33
46	6	76.1	16:34
47	4	79.8	18:20
48	3	126.3	18:21
49	1	32.1	18:22
50	2	44.8	18:23
51	5	121.2	18:24
52	5	22.1	18:25
53	5	226.8	19:02
54	5	86.9	19:03
55	6	27.6	19:04
56	5	13.2	19:05
57	7	6.1	19:06
58	5	0.8	19:07
59	5	17.2	19:08
60	6	8.3	19:09
61	6	122.3	19:10
62	4	86.8	20:00
63	3	82.2	20:03

64	1	126.4	20:05
65	5	37.2	20:06
66	5	PID FAILURE	21:09
67	6	PID FAILURE	21:10
68	5	PID FAILURE	21:12

9/20/2012

Sample #	Depth (ft bgs)	Reading	Time
1	5	86.3	8:30
2	5	122.4	8:31
3	5	8.9	8:32
4	6	33.6	8:33
5	5	124.8	8:40
6	7	333.9	8:41
7	5	280.6	8:42
8	5	88.4	8:43
9	6	96.2	8:44
10	6	82.3	9:20
11	4	22.1	9:25
12	3	38.9	9:26
13	1	46.8	9:27
14	5	128.6	9:35
15	5	44.8	9:36
16	6	296.8	9:37
17	5	222.3	9:38
18	5	46.3	9:39
19	5	37.8	9:40
20	6	15.8	10:00
21	5	6.7	10:01
22	7	0.6	10:02
23	5	0.8	10:03
24	5	1.3	10:10
25	6	7.9	10:11
26	6	22.1	10:12
27	4	36.8	10:13
28	3	224.1	10:14
29	1	116.3	10:15
30	5	76.2	11:00
31	5	22.1	11:02
32	6	37.8	11:04
33	8	88.9	12:06
34	9	33.9	12:07
35	5	32.8	12:08
36	6	6.3	12:09
37	7	0.4	12:10
38	4	1.6	12:30
39	5	6.1	12:33

40	5	64.9	12:34

Northwest Corner and 3,000 gallon Tank Analytical Results:

* Duplicate Sample

** Direct Contact Cleanup Limit

S and T- indicate soil stockpile

E- indicates excavation

SW- indicates excavation sidewall

B- indicates excavation base

AAL Report #	**Pace Report #**	
1208018	**2513457**	**9/11/2012**

Parameter (mg/Kg)	ADEC Cleanup Levels (mg/Kg)	Sample ID																
		1S	2S	3S	4S	5S*1S	1T	2T	3T	1B	2B	3B	4B*1B	1SW	2SW	3SW	4SW	E3-1B
DRO	230	68	33.9	31.6	32.5	112	25	218	20	53.2	49	52.4	55.5	71.3	76.9	3,450	27.8	20.5
RRO	9700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	6.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GRO	260	ND	ND	ND	ND	ND	ND	ND	ND	1.33J	ND	ND	1.63J	ND	ND	ND	ND	ND
m,p-Xylene	TOTAL Xylenes: 63[12]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	6.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead	400 **	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ancenaphthene	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	3000	0.0081	ND	ND	ND	0.0078	ND	ND	ND	0.0194	ND	ND	0.0081	ND	ND	ND	ND	ND
Benzo (a) anthracene	3.6	0.0271	ND	ND	ND	0.0254	ND	ND	ND	0.0453	ND	ND	0.0282	ND	ND	ND	ND	ND
Benzo (a) pyrene	2.1	0.0357	ND	ND	ND	0.0397	ND	ND	ND	0.0468	ND	ND	0.0307	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	12	0.0353	ND	ND	ND	0.0367	ND	ND	ND	0.0412	ND	ND	0.0277	ND	ND	ND	ND	ND
Benzo (g,h,i) perylene	38700	0.0298	ND	ND	ND	0.0298	ND	ND	ND	0.0313	ND	ND	0.0236	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	120	0.0101	ND	ND	ND	0.0134	ND	ND	ND	0.0176	ND	ND	0.0012	ND	ND	ND	ND	ND
Chrysene	360	0.0383	ND	ND	ND	0.0381	0.0085	ND	ND	0.0689	ND	ND	0.0541	ND	ND	ND	ND	ND
Dibenz (a,h) anthracene	4	ND	ND	ND	ND	ND	ND	ND	ND	0.0091	ND	ND	0.0079	ND	ND	ND	ND	ND
Fluoranthene	1400	0.0435	ND	ND	ND	0.00448	ND	ND	ND	0.0686	ND	ND	0.0314	ND	ND	ND	ND	ND
Fluorene	220	ND	ND	ND	ND	ND	0.0212	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd) pyrene	41	0.0241	ND	ND	ND	0.0252	ND	ND	ND	0.0308	ND	ND	0.0209	ND	ND	ND	ND	ND
1-Methylnaphthalene	6.2	ND	ND	ND	ND	ND	0.394	ND	0.0927	ND	ND	ND	0.0083	ND	ND	ND	ND	ND
2-Methylnaphthalene	6.1	0.0102	ND	ND	ND	ND	0.472	ND	0.0105	0.0083	ND	ND	0.00104	ND	ND	ND	ND	ND
Naphthalene	20	0.0087	ND	ND	ND	ND	0.208	ND	0.0631	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	3000	0.0186	ND	ND	ND	0.0173	ND	ND	ND	0.0262	ND	ND	0.00201	ND	ND	ND	ND	ND
Pyrene	1000	0.0536	ND	ND	ND	0.0519	ND	ND	ND	0.0841	ND	ND	0.00385	ND	ND	ND	ND	ND

Parameter (mg/Kg)	ADEC Cleanup Levels (mg/Kg)	Sample ID								
		E3-2B	E3-3B	E3-4B	E3-5B	E3-6B	E3-SW1	E3-SW2	E3-SW3	E3-SW4
DRO	230	137	23.3	18.7	4.81	21.1	3.48	8.55	19.5	2.09 J
RRO	9700	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	6.9	ND	ND	ND	ND	ND	ND	ND	ND	ND
GRO	260	1.35J	ND	ND	ND	ND	ND	ND	ND	1.98J
m,p-Xylene	TOTAL Xylenes: 63[12]	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene		ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	6.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead	400 **	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ancenaphthene	180	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	180	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	3000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) anthracene	3.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) pyrene	2.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	12	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (g,h,i) perylene	38700	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	120	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	360	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenz (a,h) anthracene	4	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	1400	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	220	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd) pyrene	41	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	6.2	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	3000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND

500 gallon Tank Analytical Results:
* Duplicate Sample
** Direct Contact Cleanup Limit
S and T- indicate soil stockpile
E- indicates excavation
SW- indicates excavation sidewall
B- indicates excavation base

AAL Report # **1209020**   **Pace Report #** **2513673**   **10/2/2012**

Parameter (mg/Kg)	ADEC Cleanup Levels (mg/Kg)	Sample ID																
		1S	2S	3S	4S	5S	6S	7S*1S	1SW	2SW	3SW	4SW	5SW	6SW	7SW	8SW	9SW	10SW *1SW
DRO	230	450	265	1860	1850	4670	93	511	218	59.6	38.1	526	211	421	208	371	586	473
RRO	9700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	6.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GRO	260	75.7	126	11.5	13.5	25.9	9.04	9.52	3.64J	2.58J	ND	ND	ND	ND	ND	ND	4.17J	2.83J
m,p-Xylene	TOTAL Xylenes: 63[12]	0.128	3.21	ND	ND	ND	0.074	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene		ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	6.5	ND	1.27	0.101	0.116	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.149	0.394	0.552	ND
Lead	400 **	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ancenaphthene	180	0.0131	ND	ND	ND	ND	ND	0.0101	0.0108	ND	ND	ND	ND	ND	ND	ND	ND	0.0167
Acenaphthylene	180	0.0214	ND	ND	ND	ND	ND	0.0122	0.044	ND	ND	ND	ND	ND	ND	ND	ND	0.0186
Anthracene	3000	0.0154	ND	ND	ND	ND	ND	0.0123	0.0932	ND	ND	ND	ND	ND	ND	ND	ND	0.156
Benzo (a) anthracene	3.6	0.0303	ND	ND	ND	ND	ND	0.0169	0.104	ND	ND	ND	ND	ND	ND	ND	ND	0.312
Benzo (a) pyrene	2.1	0.0359	ND	ND	ND	ND	ND	0.0222	0.111	ND	ND	ND	ND	ND	ND	ND	ND	0.321
Benzo (b) fluoranthene	12	0.0357	ND	ND	ND	ND	ND	0.0244	0.0895	ND	ND	ND	ND	ND	ND	ND	ND	0.315
Benzo (g,h,i) perylene	38700	0.0279	ND	ND	ND	ND	ND	0.0223	0.0895	ND	ND	ND	ND	ND	ND	ND	ND	0.208
Benzo (k) fluoranthene	120	0.011	ND	ND	ND	ND	ND	ND	0.0316	ND	ND	ND	ND	ND	ND	ND	ND	0.113
Chrysene	360	0.0371	ND	ND	ND	ND	ND	0.024	0.012	ND	ND	ND	ND	ND	ND	ND	ND	0.338
Dibenz (a,h) anthracene	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0158
Fluoranthene	1400	0.0573	ND	ND	ND	ND	ND	0.0344	0.02	ND	ND	ND	ND	ND	ND	ND	ND	0.769
Fluorene	220	0.0366	ND	ND	ND	ND	ND	0.0262	0.0218	ND	ND	ND	ND	ND	ND	ND	ND	0.088
Indeno(1,2,3-cd) pyrene	41	0.0291	ND	ND	ND	ND	ND	0.0219	0.0102	ND	ND	ND	ND	ND	ND	ND	ND	0.231
1-Methylnaphthalene	6.2	0.0782	ND	ND	ND	ND	ND	0.0425	0.0111	ND	ND	ND	ND	ND	ND	ND	ND	0.0569
2-Methylnaphthalene	6.1	0.0325	ND	ND	ND	ND	ND	0.0296	0.0106	ND	ND	ND	ND	ND	ND	ND	ND	0.0729
Naphthalene	20	0.0358	ND	ND	ND	ND	ND	0.0251	0.0595	ND	ND	ND	ND	ND	ND	ND	ND	0.0762
Phenanthrene	3000	0.056	ND	ND	ND	ND	ND	0.0372	0.0149	ND	ND	ND	ND	ND	ND	ND	ND	0.799
Pyrene	1000	0.0729	ND	ND	ND	ND	ND	0.0434	0.0231	ND	ND	ND	ND	ND	ND	ND	ND	0.784

		Sample ID									
Parameter (mg/Kg)	ADEC Cleanup Levels (mg/Kg)	1B	2B	3B	4B	5B	6B	7B	8B	9B	10B*1B
DRO	230	111	23.3	544	169	12.8	110	71.1	113	40.9	122
RRO	9700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	6.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GRO	260	ND	ND	3.37	2.15J	1.24J	2.39J	1.87J	1.26J	3.37J	ND
m,p-Xylene	TOTAL Xylenes: 63[12]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	6.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead	400 **	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ancenaphthene	180	0.0352	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	180	0.0372	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	3000	0.0201	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) anthracene	3.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) pyrene	2.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (g,h,i) perylene	38700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	120	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	360	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0197
Dibenz (a,h) anthracene	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	1400	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	220	0.107	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd) pyrene	41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	6.2	0.185	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	6.1	0.0513	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	20	0.0396	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	3000	0.107	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	1000	0.0177	ND	ND	ND	ND	ND	ND	ND	ND	ND

(within back filled contents)

Water Samples from 3,000 gallon Tank

* Duplicate Sample

** Direct Contact Cleanup Limit

NT- Not tested

AAL Report #	**Pace Report #**	**Sampling Date**
1205006	**2512123**	**5/10/2012**

Parameter (mg/Kg)	ADEC Cleanup Levels (mg/L)	Sample ID	
		1	2*1
DRO	1.5	421	489
RRO	1.1	ND	ND
Benzene	0.005	ND	ND
Ethylbenzene	0.7	0.005	0.005
GRO	2.2	12500	NT
m,p-Xylene	TOTAL	0.0444	0.0436
o-Xylene	Xylenes: 10	0.0347	0.0332
Toluene	1	ND	ND
Ethylene Glycol	73	ND	ND
Propylene Glycol	Not listed	ND	ND
Lead	0.015	0.0138	3.6
Ancenaphthene	2.2	0.33	ND
Acenaphthylene	2.2	0.789	ND
Anthracene	11	ND	ND
Benzo (a) anthracene	0.0012	ND	ND
Benzo (a) pyrene	0.0002	ND	ND
Benzo (b) fluoranthene	12	ND	ND
Benzo (g,h,i) perylene	38700	ND	ND
Benzo (k) fluoranthene	120	ND	ND
Chrysene	360	ND	ND
Dibenz (a,h) anthracene	4	ND	ND
Fluoranthene	1400	ND	ND
Fluorene	220	0.365	ND
Indeno(1,2,3-cd) pyrene	41	ND	ND
1-Methylnaphthalene	6.2	9.22	ND
2-Methylnaphthalene	6.1	11.2	ND
Naphthalene	20	3.78	0.116
Phenanthrene	3000	0.951	ND
Pyrene	1000	ND	ND
Acetone	33	0.0065	0.0086
Bromochloromethane	0.014	ND	ND
Bromodichloromethane	0.014	ND	ND
Bromoform	0.11	ND	ND
Bromomethane	Not listed	ND	ND
2-Butanone (MEK)	Not listed	0.045	ND
n-Butylbenzene	0.37	0.0169	0.0367
sec-Butylbenzene	0.37	0.0012	0.0145
tert-Butylbenzene	0.37	ND	0.0011
Carbon disulfide	3.7	ND	ND
Carbon tetrachloride	0.005	ND	ND
Chlorobenzene	0.1	ND	ND
Chloroethane	0.29	ND	ND
Chloroform	0.14	ND	ND
Isopropylbenzene	3.7	0.0097	0.0087
p-Isopropyltoluene	Not listed	0.0254	0.022
n-Propylbenzene	Not listed	0.0203	0.0197
1,2,4-Trimethylbenzene	1.80	0.0362	0.99
1,3,5-Trimethylbenzene	1.80	0.0974	0.0927