## INTERIM REMEDIAL ACTION COMPLETION REPORT

FORMER TIGER OIL SITE 2312 WEST NOB HILL BOULEVARD YAKIMA, WASHINGTON



Prepared for **CITY OF YAKIMA** June 17, 2015 Project No. 0818.02.01

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### INTERIM REMEDIAL ACTION COMPLETION REPORT FORMER TIGER OIL SITE 2312 WEST NOB HILL BOULEVARD YAKIMA, WASHINGTON The material and data in this report were prepared under the supervision and direction of the undersigned.

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### CONTENTS

TABLES	AND	ILLUSTRATIONS	V
ACRO	nyms	and abbreviations	VI
1	INTRO	DDUCTION	1
2	BAC 2.1 2.2 2.3	KGROUND SITE LOCATION SITE HISTORY ENVIRONMENTAL CONDITIONS	     2
3	DEM 3.1 3.2 3.3	DLITION BUILDING DEMOLITION GROUNDWATER MONITORING WELL DECOMMISSIONING TREATMENT SYSTEM DEMOLITION	3 3 3 3
4	EXCA 4.1 4.2 4.3 4.4	VATION OF CONTAMINATED SOIL SITE PREPARATION AND LAYOUT EXCAVATION BACKFILL AS-BUILT	4 4 6 7
5	IN SIT 5.1	U BIOREMEDIATION/ENHANCED AEROBIC BIODEGRADATION REGENOX/ORCA TREATMENT	7 7
6	INFILT 6.1	RATION GALLERY INSTALLATION INFILTRATION GALLERY	8 8
7	FINAI	- INSPECTION	8
8	POST	ACTION MONITORING WELL INSTALLATION	8
LIMITA	tions		
REFERE			

TABLES

FIGURES

APPENDIX A ASBESTOS SURVEY

APPENDIX B

WELL DECOMMISSIONING LOGS

### APPENDIX C

PHOTOGRAPHS

#### APPENDIX D

FIELD SAMPLING DATA SHEETS

### APPENDIX E

LABORATORY REPORTS AND DATA VALIDATION MEMORANDUM

APPENDIX F

AS-BUILT SURVEY

APPENDIX G

PRELIMINARY SOURCE EVALUATION AND CLEAN SOIL STATEMENT

APPENDIX H

UNDERGROUND INJECTION CONTROL PROGRAM DOCUMENTATION

APPENDIX I

MONITORING WELL CONSTRUCTION LOGS

### TABLES AND ILLUSTRATIONS

FOLLOWING REPORT:

TABLES

- 1 CONFIRMATION SAMPLE ANALYTICAL RESULTS
- 2 STOCKPILE AND WELL ANALYTICAL RESULTS

### FIGURES

- 1 SITE LOCATION
- 2 PRE-CONSTRUCTION SITE FEATURES
- 3 LNAPL AND DISSOLVED-PHASE PLUMES
- 4 EXCAVATION EXTENT AND SAMPLE LOCATIONS
- 5 NEW MONITORING WELL LOCATIONS

Anderson	Anderson Rock and Demolition Pits
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	cleanup action plan
the City	City of Yakima, Washington
COC	chemical of concern
CUL	cleanup level
DID	drainage improvement district
Ecology	Washington State Department of Ecology
FBI	Friedman and Bruya, Inc.
FSDS	field sampling data sheet
GWE	groundwater extraction
IHS	indicator hazardous substance
IO	IO Environmental and Infrastructure, Inc.
MFA	Maul Foster & Alongi, Inc.
MTCA	Model Toxics Control Act
New Tiger	Tiger Oil Corporation
ORC	oxygen release compound
ORCa	Regenesis Oxygen Release Compound Advanced
PCS	petroleum-contaminated soil
PID	photoionization detector
the Property	2312 West Nob Hill Boulevard, Yakima, Washington
PVC	polyvinyl chloride
the Site	Ecology Facility Site No. 469, Cleanup Site No. 4919
SVE	soil vapor extraction
TPH	total petroleum hydrocarbons
UIC	underground injection control
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

### INTRODUCTION

BACKGROUND

On behalf of the City of Yakima, Washington (the City), Maul Foster & Alongi, Inc. (MFA) has prepared this report describing the completion of the interim remedial action at the former Tiger Oil facility at 2312 West Nob Hill Boulevard, Yakima, Washington, Washington State Department of Ecology (Ecology) Facility Site No. 469, Cleanup Site No. 4919 (the Site). From February to May 2015, with oversight from MFA and Ecology, IO Environmental and Infrastructure, Inc. (IO) performed structure demolition, soil excavation, and associated tasks supporting environmental remediation of the Site. The interim remedial action was completed in accordance with an Amended Consent Decree between Ecology and the City and with the amended cleanup action plan (CAP) (Ecology, 2014).

### 2.1 Site Location

The physical address for the property upon which the former Tiger Oil retail fueling station operated is 2312 West Nob Hill Boulevard in Yakima, Washington (the Property) (see Figure 1). The Property, a 0.52-acre, rectangular parcel (tax assessor parcel number 18132642051), is bordered by West Nob Hill Boulevard to the north, a Safeway Shopping Center parking lot to the east and southeast, the Xochimilco Mexican Restaurant to the east, the One Love Smoke Shop to the south, and South 24th Avenue to the west (see Figure 2). The Property is zoned Local Business District (B-2) and is located in section 26 of township 13 north and range 18 east of the Willamette Meridian.

### 2.2 Site History

The Property was operated by the Tiger Oil Company as a retail fuel station until it was purchased by Tiger Oil Corporation (New Tiger) in 1987. New Tiger operated an Exxon-branded fuel station and convenience store at the Property from 1987 until 2001. All commercial operations ceased in 2001 and the Property has since remained vacant (TerraGraphics, 2013). The fuel station comprised four underground storage tanks (USTs) (one 20,000-gallon, two 10,000-gallon, and one 8,000-gallon tank) and associated product lines. The system was used for bulk petroleum storage and distribution.

In April 1981, volatilization of petroleum products in a drainage improvement district (DID) storm drain line adjacent to the Property resulted in an explosion and triggered an investigation by the City and Ecology to test the Property's UST system (Ecology, 2014). During the investigation, it was determined that a leak in the product line of the UST system had impacted the surrounding soil and groundwater at the Property and adjoining properties. The leak in the UST line was determined to be the source of the petroleum products found in the nearby DID line. Ecology issued a Notice of Violation and Enforcement Order, No. DE 82-517, to Tiger Oil Company, requiring recovery of free product from the Site (Ecology, 2014).

It was estimated that, in the early 1980s, approximately 20,000 gallons<sup>1</sup> of petroleum-related product was released from the Property's UST system (Ecology, 2014). Several recovery wells were installed by early 1983 at the Property and on adjacent parcels to the east and south. By March 1984, approximately 16,000 gallons of free product had been extracted from the recovery wells (Kleinfelder, 1994).

In March 1990, Ecology issued Enforcement Order No. DE 90-C140 to New Tiger and Federated Insurance, requiring site stabilization and a remedial investigation and feasibility study for the Site (Ecology, 2014). In 1991, a site hazard assessment was conducted, resulting in a hazard ranking of 1 (with 1 as the highest risk and 5 the lowest risk).

In August 1995, soil vapor extraction (SVE) and groundwater extraction (GWE) systems began operation to collect free product (i.e., gasoline that has not dissolved into groundwater), and impacted groundwater and soil vapor on the Site as well as to mitigate off-site migration of dissolved-phase gasoline-range total petroleum hydrocarbons (TPH) and free product. However, the SVE and GWE systems were limited in scope and did not adequately target areas of free product present on the Site. Ecology concluded that the SVE and GWE systems were not representative of final cleanup actions for the Site (Ecology, 2014

In October 2004, New Tiger and Federated Insurance entered into a Consent Decree with Ecology requiring implementation of Ecology's 2004 amended CAP. In December 2004, the USTs and their associated piping, along with approximately 650 cubic yards of impacted soil around the UST system, were removed from the Site. Two trenches were excavated in the vicinity of the USTs to determine the amount of free product, if present, at the top of the water table at the Site. Free product was encountered, and an additional SVE system was installed to treat the impacted soil vapor at the Site. Appreciable free product was encountered at monitoring wells MW-7 (at 2.34 feet thick, located adjacent east of the Property on the Xochimilco restaurant parking lot) and MW-11 (at 1.46 feet thick, located adjacent southeast of the former USTs on the Property) during the groundwater monitoring event in June 2013 (TerraGraphics, 2013). An approximate delineation of the extent of free product and dissolved-phase gasoline-range petroleum hydrocarbons in groundwater, based on the June 2013 sampling event, is presented in Figure 3.

The City purchased the Property in 2014 and entered into an Amended Consent Decree with Ecology to implement an amended CAP at the Site (Ecology, 2014).

### 2.3 Environmental Conditions

Historical subsurface investigations and remedial investigations conducted between 1982 and 1994 identified the following chemicals of concern (COCs) in soil and groundwater at the Site: gasoline-range petroleum hydrocarbons and petroleum-fuel-associated volatile organic compounds (VOCs).

<sup>&</sup>lt;sup>1</sup> Based on remedial actions, Ecology staff believe actual volume of release may have been greater.

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These COCs are also confirmed as indicator hazardous substances (IHS), which are defined as chemicals exceeding a cleanup level (CUL) at one or more locations.

Soil and groundwater IHSs confirmed at the Site include:

- Gasoline-range TPH
- Benzene, toluene, ethylbenzene, and xylenes (BTEX)

An interim remedial action was designed to address these soil exceedances.

# 3 demolition

### 3.1 Building Demolition

The former convenience store building was demolished in February 2015 as part of the interim remedial action. Metal salvaged from the building was collected and recycled by Pacific Steel and Recycling. Before demolition of the building, asbestos abatement was completed by All-Safe Abatement. The asbestos abatement report is included as Appendix A. A three-foot high retaining wall running north-south on the west side of the Xochimilco Restaurant, the building footings, and the former concrete pump islands were also removed during building demolition.

Asphalt pavement within the excavation extents was also removed prior to excavation activities. Asphalt and concrete were taken to Anderson Rock and Demolition Pits (Anderson) Recycling facility in Yakima, Washington to be recycled. Remaining materials were disposed at Anderson's Landfill also located in Yakima, Washington.

### 3.2 Groundwater Monitoring Well Decommissioning

Groundwater monitoring wells MW-8, MW-15, MW-20, KMW-20, and KMW-22 located within the extent of excavation, and MW-12, located outside of the excavation boundary, were decommissioned in accordance with Washington State regulations prior to soil excavation. Well decommissioning logs are included as Appendix B.

### 3.3 Treatment System Demolition

During completion of excavation activities described in further detail in Section 4, existing SVE piping located within the excavation boundaries was removed. SVE system lines were capped at locations where the piping exited the excavation sidewall and the locations recorded. The treatment system located in the Safeway Shopping Center parking lot east of the Xochimilco restaurant was removed as part of the interim remedial action. Fluids in the system were analyzed for BTEX and gasoline-range TPH to identify appropriate disposal options. Analytical results of the fluids indicated

no contaminants were present above associated detection limits. After receiving analytical results, fluid was discharge to the City sanitary sewer at the direction of Ecology.

# 4 EXCAVATION OF CONTAMINATED SOIL

The interim remedial action included excavation of soils exceeding Model Toxics Control Act (MTCA) Method A CULS, in situ chemical oxidation and aerobic biodegradation enhancement, backfilling the excavation, and transporting the contaminated material off site for disposal. Photographs showing contaminated-material excavation, in situ treatment, and backfilling activities are presented in Appendix C.

### 4.1 Site Preparation and Layout

Before excavation, silt fence was installed along the down-gradient perimeter of excavation activities, where stormwater runoff had the potential to migrate offsite. The general excavation limits were laid out by the contractor and approved by the engineer. Underground utilities at the Site were identified by a private utility locating company. Catch basin inserts were installed to protect all storm sewer inlets from debris.

Prior to excavation, the contractor excavated five test pits at the direction of Ecology. The test pits were installed near the former pump islands, which lay outside of the original excavation area. Test pit locations are shown on Figure 4. The test pits were installed to evaluate if any leaks had occurred in these areas in the past. Five test pits were excavated, three of which extended beneath the former pump islands. Each test pit was dug to 9 feet below ground surface (bgs). Stained soil was observed starting at 1.5 feet bgs in Test Pit No. 1, and at 4 feet bgs in Test Pit Nos. 2 through 5, with PID readings ranging from 79 to 920 parts per million. Field screening indicated the presence of PCS, which resulted in expansion of excavation area to encompass these test pits. This extended excavation area is described in Section 4.2.2.

### 4.2 Excavation

The estimated excavation boundaries were developed as part of the amended CAP and in coordination with Ecology (Ecology, 2014). According to these plans, soils exceeding MTCA Method A CULs were to be disposed of offsite. Shallow soil, from ground surface to approximately 2 feet bgs, was segregated and stockpiled on site for characterization to ensure eligibility for use as backfill. Soil excavated between approximately 2 and 9 feet bgs was continuously assessed through field screening as potential petroleum-contaminated soil (PCS). If screening indicated that the soil was not PCS, the soil was segregated and stockpiled on site for characterization to ensure eligibility for reuse as backfill. Soil stored on site for use as backfill was securely covered with plastic sheeting when not being handled or tested. If field screening indicated that it was PCS, then the soil was loaded directly into haul trucks and transported off site for disposal. Excavation near the building footprints of the Xochimilco Mexican Restaurant and the One Love Smoke Shop were limited in

order to protect the building foundation integrity. Excavations in these areas were offset a two to three feet away from the foundation and were sloped away from the buildings at a stable gradient to ensure building integrity.

Confirmation samples were collected from the floor and walls of the excavation, as outlined in the sampling and analysis plan, which is Appendix A to the Remedial Action Plan and Engineering Design Report (MFA, 2015). Wall samples were collected in areas where soil appeared impacted every 4 to 5 vertical feet. Samples were submitted to Friedman and Bruya, Inc. (FBI) in Seattle, Washington, and were analyzed for gasoline-range TPH by Northwest Method TPH-Gx, and for BTEX by U.S. Environmental Protection Agency (USEPA) Method 8021B. Selected confirmation wall samples were also analyzed for toxicity characteristic leaching procedure lead. Table 1 summarizes laboratory analytical results for confirmation soil samples collected during the interim remedial action. The confirmation sample locations are shown on Figure 4. Confirmation sample PID readings and soil descriptions were recorded on field sampling data sheets (FSDS) for each soil sample. FSDSs are included as Appendix D.

Overburden segregated for use as backfill was stockpiled and sampled in accordance with Chapter 12 of Ecology's Guidance for Remediation of Petroleum Contamination Sites (Pub. No. 10-09-057). Composite samples were collected from soil stockpiles with each sample comprised five subsamples of approximately equal volume. Overburden samples were also submitted to FBI and analyzed for gasoline-range TPH by Northwest Method TPH-Gx, and for BTEX by USEPA Method 8021B. Table 2 summarizes laboratory analytical results for stockpile soil samples collected during the interim remedial action.

Appendix E contains the laboratory reports and the data validation memorandum.

PLSA Engineering and Surveying surveyed the excavation limits upon notification of completion by IO. A comprehensive as-built survey showing the excavation extents is included as Appendix F.

### 4.2.1 Initial PCS Excavation

PCS was identified through field screening techniques for petroleum hydrocarbons and fuelassociated VOCs; screening included the following:

- Visual
- Olfactory
- Photoionization detector (PID)
- Sheen testing

Initially, soil was excavated to the approximate depths and extents indicated in the remedial action plan design drawings (MFA, 2015). Additional soil was removed in areas where field screening indicated PCS was present. In the southeastern corner of the excavation, PCS was uncovered between 9 and 14 feet bgs. The vertical extent of contamination became shallower as the excavation progressed farther northwest. For this reason, the vertical extents of the entire excavation were extended to a depth of 14 feet bgs. Additional lateral excavation was completed on Property, as

described in Section 4.2.2. Groundwater and free product were encountered at approximately 14 feet bgs in the southeast corner and east sidewall of the excavation. Slight groundwater and free product upwelling was observed at well completion depth in the vicinity of MW-11 and former location of MW-15. Groundwater did not hinder excavation activities and no dewatering was of the excavation was needed.

### 4.2.2 Extended PCS Excavation

The excavation boundary near Nob Hill Boulevard and the adjoining sidewalk was limited in order to protect the integrity of the roadway and sidewalk. Excavation in these areas was offset a minimum 1 foot away from the property boundary and was sloped away from the property boundary at approximately 1:1.5 slope. The vertical extent of this excavation area was also extended to 14 feet bgs based on field screening.

### 4.2.3 PCS Disposal

Prior site investigations indicated that contaminated soil was nonhazardous. PCS was loaded directly into haul trucks and transported to Anderson's PCS facility in Yakima, Washington. Loose soil was brushed off truck trailers before the vehicles left the Site to prevent soil from falling off the truck during transit.

### 4.3 Backfill

Following excavation and confirmation soil sample collection, the excavation was backfilled with a one-foot layer quarry spalls, followed by clean overburden and imported clean fill. Quarry spalls and clean fill were imported from Anderson Rock Quarry. Some large concrete debris from the Property was also placed at the base of the excavation with the quarry spalls to reduce disposal costs. Due to the size of the excavation relative to the overall Property size, once the excavation extent was reached and necessary confirmation samples collected, that portion of the excavation was backfilled while excavation activities proceeded into portions of the Site that had not yet been excavated. A preliminary source evaluation and clean soil statement for import material that originated from the Anderson site are included in Appendix G.

Clean backfill was placed in the excavation areas and compacted in accordance with the project specifications. The base fill course of the excavation was composed of an approximately one-foot layer of 6 to 8-inch least mean diameter quarry spalls. Oxygen-releasing compound (ORC)-amended soil was placed in four lifts of approximately one foot each. The first two lifts were amended with Regenesis RegenOx® oxidizer Part A and B mix, and vibratory- or track-compacted prior to placement of the next lift. Subsequent backfill lifts were amended with Regenesis Oxygen Release Compound Advanced (ORCa®) activator (time released pellets). Additional ORC of both types was placed near the east and south sidewalls where free product was observed. Refer to Section 5 for more detail specific to application of the contaminant bioremediation products.

The final grade was placed to match the existing grade. The area surrounding the former retaining wall was graded to smoothly transition between different elevations. Remaining asphalt pavement

was removed within the Property boundary and re-surfaced with 6 inches of crushed base course. Geotextile road fabric was placed beneath the base course to guard against vegetation. The offproperty excavation surface was repaved to match existing asphalt. Parking stops were replaced and striping was added to new pavement to match existing striping.

### 4.3.1 Sanitary Sewer

An existing 4-inch diameter cast-iron sanitary sewer lateral extending from the east side of the One Love Smoke Shop building to the southeast corner of the Xochimilco Mexican Restaurant was not identified during the utility locate. The portion of the sewer line within the excavation boundary was inadvertently removed during excavation. The damaged line was replaced with 4-inch-diameter D304 polyvinyl chloride (PVC) pipe and connected at each end of the undamaged portion of the existing cast-iron pipe using Fernco flexible couplings. A cleanout was added to the new sewer line near the One Love Smoke Shop building. The alignment of the new sanitary sewer line is included in the as-built survey.

### 4.4 As-Built

The soil removal was surveyed during and at the conclusion of the excavation activities. Vertical extents were continuously measured by the contractor and were uniform at 14 feet bgs. The lateral extents of the excavation were recorded for final location. The as-built surveys were used to verify that the boundary of the excavation had been met and that the quantity of material removed was sufficient, and to map the locations of all additional excavation. A final as-built plan is included as Appendix F.

### 5 IN SITU BIOREMEDIATION/ENHANCED AEROBIC BIODEGRADATION

### 5.1 RegenOx/ORCa Treatment

The in situ bioremediation included chemical oxidation by application of Regenesis RegenOx® oxidizer and Regenesis ORCa® activator to reduce sorbed and soil-matrix-bound petroleum hydrocarbons in the vadose and saturation zone, as well as the dissolved phase in groundwater.

The Regenesis RegenOx was received from the manufacturer in two parts: Part A and Part B. Part A was the oxidizer complex in a dry powder form. Part B was the activator complex in a gel form. Parts A and B were power-mixed together in the excavator bucket. Water was then added to create a slurry, which was applied to clean overburden and mixed using the excavator bucket. Regenesis RegenOx was placed into the excavation pit at approximately 11 to 13 feet bgs.

Regenesis ORCa was received from the manufacturer in the form of dry pellets, which were mixed directly with clean overburden and placed approximately 8 to 12 feet bgs. The Regenesis ORCa and

overburden were placed in 1-foot lifts, with water applied to each lift activate the treatment compound.

# 6 INFILTRATION GALLERY INSTALLATION

### 6.1 Infiltration Gallery

Prior to backfill of the excavation, two infiltration galleries were installed to provide avenues for injection of additional bioremediation products as an additional in situ bioremediation option in the future. Each infiltration gallery is constructed of schedule 40 PVC pipe with 0.030-inch slotted manifolds. Plastic sheets were installed consistent with project specification in order to prevent small soil particles from entering the lateral. The cleanout and injection ports were installed with access points in close proximity to the property line to avoid inhibiting future development of the Property while still retaining access to the injection ports and cleanouts. The layout of each infiltration gallery is included in the attached as-built drawing. The infiltration system was registered with Ecology's Underground Injection Control (UIC) program and assigned a UIC site number of 32803. Documentation associated with the registration is provided in Appendix H.

After backfill was completed, each infiltration gallery was hydrated for three hours. Cleanout and injection points were cut to be flush with the existing surface and are protected by a plastic vault.



The final inspection of the excavation work was completed on May 6, 2015. No unresolved issues or work items remained at that time.

# 8 post action monitoring well installation

Following completion of the interim remedial action, three groundwater monitoring wells (YMW-1 through YMW-3) were installed within the footprint of the excavation to support monitoring of the effectiveness of the interim remedial action. Each well was installed by hollow-stem auger drilling method to a depth of 20 feet bgs with screens installed from 5 to 20 feet bgs. Well construction logs for each well are provided in Appendix I and the well locations are presented on Figure 5.

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

Ecology. 2014. Amended cleanup action plan, Tiger Oil facility, 2312 West Nob Hill Boulevard, Yakima, Washington. Washington State Department of Ecology. June.

Kleinfelder. 1994. Final draft RI/FS report MTCA enforcement order no. DE 90-C140, second amendment, Tiger Oil facility, West Nob Hill Boulevard and South 24th Avenue, Yakima, Washington. Kleinfelder, Inc., Bellevue, Washington. April 4.

MFA. 2015. Final remedial action plan and engineering design report: former Tiger Oil Site. Prepared for the City of Yakima. Maul Foster & Alongi, Inc., Bellingham, Washington. January 23.

TerraGraphics. 2013. Groundwater sampling report, Tiger Oil, Yakima, Washington. Prepared for State of Washington Department of Ecology. TerraGraphics Environmental Engineering, Inc., Boise, Idaho. June 12.

# TABLES



Sample Name	BH-01-S-9.0	BH-01-S-14.0	BH-02-S-9.0	BH-02-S-14.0	BH-03-S-9.0	BH-03-S-14.0	BH-04-S-9.0	BH-04-S-14.0	BH-05-S-9.0	BH-06-S-14.0	BH-07-S-14.0	BH-08-S-14.0	BH-09-S-14.0
Sample Date	03/17/2015	03/17/2015	03/18/2015	03/18/2015	03/18/2015	03/18/2015	03/18/2015	03/18/2015	03/18/2015	03/18/2015	03/19/2015	03/19/2015	03/19/2015
Sample Depth (ft bas)	9	14	9	14	9	14	9	14	9	14	14	14	14
Total Metals (mg/kg)					1	1	I		1	I	1	I	1
Lead	497	13.4											
TCLP Metals (mg/L)	•					•	•	•	•	•	•	•	
Lead	1 U	1 U											
Volatile Organic Compounds (mg/kg)		•			•	•		•	•			•	
1,1,1,2-Tetrachloroethane	0.05 U	0.05 U											
1,1,1-Trichloroethane	0.05 U	0.05 U											
1,1,2,2-Tetrachloroethane	0.05 U	0.05 U											
1,1,2-Trichloroethane	0.05 U	0.05 U											
1,1-Dichloroethane	0.05 U	0.05 U											
1,1-Dichloroethene	0.05 U	0.05 U											
1,1-Dichloropropene	0.05 U	0.05 U											
1,2,3-Trichlorobenzene	0.25 U	0.25 U											
1,2,3-Trichloropropane	0.05 U	0.05 U											
1,2,4-Trichlorobenzene	0.25 U	0.25 U											
1,2,4-Trimethylbenzene	55	11											
1,2-Dibromo-3-chloropropane	0.5 U	0.5 U											
1,2-Dibromoethane	0.05 U	0.05 U											
1,2-Dichlorobenzene	0.05 U	0.05 U											
1,2-Dichloroethane	0.05 U	0.05 U											
1,2-Dichloropropane	0.05 U	0.05 U											
1,3,5-Trimethylbenzene	15	2.6											
1,3-Dichlorobenzene	0.05 U	0.05 U											
1,3-Dichloropropane	0.05 U	0.05 U											
1,4-Dichlorobenzene	0.05 U	0.05 U											
2,2-Dichloropropane	0.05 U	0.05 U											
2-Butanone	0.5 U	0.5 U											
2-Chlorotoluene	0.05 U	0.05 U											
2-Hexanone	0.5 U	0.5 U											
4-Chlorotoluene	0.05 U	0.05 U											
4-Isopropyltoluene	0.92	0.19											
4-Methyl-2-pentanone	0.5 U	0.5 U											
Acetone	0.5 U	0.5 U											
Benzene	0.5	0.98	0.1	0.59	0.03 U	3	0.25	3.5	0.051	0.35	1.8	2.4	1.7
Bromobenzene	0.05 U	0.05 U											
Bromodichloromethane	0.05 U	0.05 U											
Bromoform	0.05 U	0.05 U											
Bromomethane	0.5 U	0.5 U											
Carbon tetrachloride	0.05 U	0.05 U											

### Table 1 Confirmation Sample Analytical Results Former Tiger Oil Site City of Yakima Yakima, Washington

Sample Name	BH-01-S-9.0	BH-01-S-14.0	BH-02-S-9.0	BH-02-S-14.0	BH-03-S-9.0	BH-03-S-14.0	BH-04-S-9.0	BH-04-S-14.0	BH-05-S-9.0	BH-06-S-14.0	BH-07-S-14.0	BH-08-S-14.0	BH-09-S-14.0
Sample Date	03/17/2015	03/17/2015	03/18/2015	03/18/2015	03/18/2015	03/18/2015	03/18/2015	03/18/2015	03/18/2015	03/18/2015	03/19/2015	03/19/2015	03/19/2015
Sample Depth (ft bgs)	9	14	9	14	9	14	9	14	9	14	14	14	14
Chlorobenzene	0.05 U	0.05 U											
Chloroethane	0.5 U	0.5 U											
Chloroform	0.05 U	0.05 U											
Chloromethane	0.5 U	0.5 U											
cis-1,2-Dichloroethene	0.05 U	0.05 U											
cis-1,3-Dichloropropene	0.05 U	0.05 U											
Dibromochloromethane	0.05 U	0.05 U											
Dibromomethane	0.05 U	0.05 U											
Dichlorodifluoromethane	0.5 U	0.5 U											
Ethylbenzene	9.3	1.2	0.2	9.9	0.05 U	24	0.26	19	0.053	6.8	0.68	4.1	38
Hexachlorobutadiene	0.25 U	0.25 U											
Isopropylbenzene	1.3	0.13											
m,p-Xylene	43	5.4	0.47	43	0.1 U	99	1.4	86	0.24	30	2.8	17	160
Methyl tert-butyl ether	0.5 U	0.5 U							-				
Methylene chloride	0.5 U	0.5 U											
Naphthalene	40	12											
n-Propylbenzene	6.5	0.81											
o-Xylene	16	2.5	0.15	16	0.05 U	36	0.58	31	0.075	10	1.2	6.4	60
sec-Butylbenzene	1.1	0.23											
Styrene	0.05 U	0.05 U											
tert-Butylbenzene	0.05 U	0.05 U											
Tetrachloroethene	0.025 U	0.025 U											
Toluene	5.7	3.4	0.05 U	9.7	0.05 U	34	0.05 U	31	0.05 U	5.4	2.9	11	43
trans-1,2-dichloroethene	0.05 U	0.05 U											
trans-1,3-Dichloropropene	0.05 U	0.05 U											
Trichloroethene	0.02 U	0.02 U											
Trichlorofluoromethane	0.5 U	0.5 U											
Vinyl chloride	0.05 U	0.05 U											
Total Petroleum Hydrocarbons (mg/kg)													
Gasoline	690	1600	83	130	2 U	340	13	2300	4.3	290	500	400	3600

### Table 1 Confirmation Sample Analytical Results Former Tiger Oil Site City of Yakima Yakima, Washington

Sample Name	BH-10-S-14.0	BH-10-DUP	BH-11-S-14.0	BH-12-S-14.0	BH-13-S-14.0	BH-14-S-14.0	BH-15-S-14.0	BH-16-S-9.0	BH-16-S-14.0	BH-17-S-9.0	BH-17-S-14.0
Sample Date	03/30/2015	03/30/2015	03/30/2015	03/30/2015	03/30/2015	03/31/2015	03/31/2015	04/01/2015	04/01/2015	04/01/2015	04/01/2015
Sample Depth (ft bgs)	14	14	14	14	14	14	14	9	14	9	14
Total Metals (mg/kg)	1	L	•	•	•	l .	•	l .			•
Lead											
TCLP Metals (mg/L)	•	•	•	•	•	•	•	•			
Lead											
Volatile Organic Compounds (mg/kg)											
1,1,1,2-Tetrachloroethane											
1,1,1-Trichloroethane											
1,1,2,2-Tetrachloroethane											
1,1,2-Trichloroethane											
1,1-Dichloroethane											
1,1-Dichloroethene											
1,1-Dichloropropene											
1,2,3-Trichlorobenzene											
1,2,3-Trichloropropane											
1,2,4-Trichlorobenzene											
1,2,4-Trimethylbenzene											
1,2-Dibromo-3-chloropropane											
1,2-Dibromoethane											
1,2-Dichlorobenzene											
1,2-Dichloroethane											
1,2-Dichloropropane											
1,3,5-Trimethylbenzene											
1,3-Dichlorobenzene											
1,3-Dichloropropane											
1,4-Dichlorobenzene											
2,2-Dichloropropane											
2-Butanone											
2-Chlorotoluene											
2-Hexanone											
4-Chlorotoluene											
4-Isopropyltoluene											
4-Methyl-2-pentanone											
Acetone											
Benzene	0.02 UJ	0.02 UJ	1.3	0.4 U	0.02 UJ	12	1.6	0.02 U	0.02 U	0.02 U	0.02 UJ
Bromobenzene											
Bromodichloromethane											
Bromoform											
Bromomethane											
Carbon tetrachloride											

### Table 1

### Confirmation Sample Analytical Results Former Tiger Oil Site City of Yakima Yakima, Washington

Sample Name	BH-10-S-14.0	BH-10-DUP	BH-11-S-14.0	BH-12-S-14.0	BH-13-S-14.0	BH-14-S-14.0	BH-15-S-14.0	BH-16-S-9.0	BH-16-S-14.0	BH-17-S-9.0	BH-17-S-14.0
Sample Date	03/30/2015	03/30/2015	03/30/2015	03/30/2015	03/30/2015	03/31/2015	03/31/2015	04/01/2015	04/01/2015	04/01/2015	04/01/2015
Sample Depth (ft bgs)	14	14	14	14	14	14	14	9	14	9	14
Chlorobenzene											
Chloroethane											
Chloroform											
Chloromethane											
cis-1,2-Dichloroethene											
cis-1,3-Dichloropropene											
Dibromochloromethane											
Dibromomethane											
Dichlorodifluoromethane											
Ethylbenzene	0.1 UJ	<b>41</b> J	57	18	5.1	130	95	0.02 U	0.84	0.02 U	8.6
Hexachlorobutadiene							-				
Isopropylbenzene											
m,p-Xylene	350	470	370	85	28	780	580	0.06 U	2.3	0.06 U	48
Methyl tert-butyl ether											
Methylene chloride											
Naphthalene											
n-Propylbenzene											
o-Xylene											
sec-Butylbenzene											
Styrene											
tert-Butylbenzene											
Tetrachloroethene											
Toluene	3.7	4	24	1.5	0.26	160	19	0.02 U	0.026	0.02 U	0.13
trans-1,2-dichloroethene											
trans-1,3-Dichloropropene											
Trichloroethene											
Trichlorofluoromethane											
Vinyl chloride											
Total Petroleum Hydrocarbons (mg/kg)	•	-		-							1
Gasoline	6600	9700	6600	1900	500	8500	7100	2 U	290	2 U	2600

### Table 1

### Confirmation Sample Analytical Results Former Tiger Oil Site City of Yakima Yakima, Washington

### NOTES:

Detected results in **bold** font. -- = not analyzed. ft bgs = feet below ground surface. J = estimated. mg/kg = milligrams per kilogram. mg/L = milligrams per liter. TCLP = toxicity characteristic leaching procedure. U = Analyte not detected at or above method reporting limit. Table 1 Confirmation Sample Analytical Results Former Tiger Oil Site City of Yakima Yakima, Washington

Sample Name	SP-1-S1	SP-1-S2	SP-1-S3	SP-1-S4	SP-1-S5	SP-1-S6	SP-1-S7	SP-02-S-01	SP-02-S-02	SP-02-S-03	SP-02-S-04	SP-02-S-05
Sample Date	03/17/2015	03/17/2015	03/17/2015	03/17/2015	03/17/2015	03/17/2015	03/17/2015	03/19/2015	03/19/2015	03/19/2015	03/19/2015	03/19/2015
TCLP Metals (mg/L)		•			•	•				•		μ
Lead	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Volatile Organic Compounds (mg/kg	)				-		-			-	-	
1,1,1,2-Tetrachloroethane	0.05 U											
1,1,1-Trichloroethane	0.05 U											
1,1,2,2-Tetrachloroethane	0.05 U											
1,1,2-Trichloroethane	0.05 U											
1,1-Dichloroethane	0.05 U											
1,1-Dichloroethene	0.05 U											
1,1-Dichloropropene	0.05 U											
1,2,3-Trichlorobenzene	0.25 U											
1,2,3-Trichloropropane	0.05 U											
1,2,4-Trichlorobenzene	0.25 U											
1,2,4-Trimethylbenzene	0.05 U	0.062	0.8	0.24								
1,2-Dibromo-3-chloropropane	0.5 U											
1,2-Dibromoethane	0.05 U											
1,2-Dichlorobenzene	0.05 U											
1,2-Dichloroethane	0.05 U											
1,2-Dichloropropane	0.05 U											
1,3,5-Trimethylbenzene	0.05 U	0.24	0.075									
1,3-Dichlorobenzene	0.05 U											
1,3-Dichloropropane	0.05 U											
1,4-Dichlorobenzene	0.05 U											
2,2-Dichloropropane	0.05 U											
2-Butanone	0.5 U											
2-Chlorotoluene	0.05 U											
2-Hexanone	0.5 U											
4-Chlorotoluene	0.05 U											
4-Isopropyltoluene	0.05 U											
4-Methyl-2-pentanone	0.5 U											
Acetone	0.5 U											
Benzene	0.03 U											
Bromobenzene	0.05 U											
Bromodichloromethane	0.05 U											
Bromoform	0.05 U											
Bromomethane	0.5 U											
Carbon tetrachloride	0.05 U											

Sample Name	SP-1-S1	SP-1-S2	SP-1-S3	SP-1-S4	SP-1-S5	SP-1-S6	SP-1-S7	SP-02-S-01	SP-02-S-02	SP-02-S-03	SP-02-S-04	SP-02-S-05
Sample Date	03/17/2015	03/17/2015	03/17/2015	03/17/2015	03/17/2015	03/17/2015	03/17/2015	03/19/2015	03/19/2015	03/19/2015	03/19/2015	03/19/2015
Chlorobenzene	0.05 U											
Chloroethane	0.5 U											
Chloroform	0.05 U											
Chloromethane	0.5 U											
cis-1,2-Dichloroethene	0.05 U											
cis-1,3-Dichloropropene	0.05 U											
Dibromochloromethane	0.05 U											
Dibromomethane	0.05 U											
Dichlorodifluoromethane	0.5 U											
Ethylbenzene	0.05 U	0.15	0.05 U									
Hexachlorobutadiene	0.25 U											
Isopropylbenzene	0.05 U											
m,p-Xylene	0.1 U	0.78	0.16									
Methyl tert-butyl ether	0.05 U											
Methylene chloride	0.5 U											
Naphthalene	0.05 U	0.28	0.17									
n-Propylbenzene	0.05 U	0.11	0.05 U									
o-Xylene	0.05 U	0.34	0.074									
sec-Butylbenzene	0.05 U											
Styrene	0.05 U											
tert-Butylbenzene	0.05 U											
Tetrachloroethene	0.025 U											
Toluene	0.05 U	0.096	0.05 U									
trans-1,2-dichloroethene	0.05 U											
trans-1,3-Dichloropropene	0.05 U											
Trichloroethene	0.02 U											
Trichlorofluoromethane	0.5 U											
Vinyl chloride	0.05 U											
Total Petroleum Hydrocarbons (mg/kg	g)											
Gasoline	2 U	2 U	2 U	2 U	2 U	4.2	2 U	2 U	2 U	2 U	11	6.5
Hydrocarbon Identification												
Diesel												
Gasoline												
Heavy-Oil-Range Hydrocarbons												

Sample Name	SP-03-S01	SP-03-S02	SP-03-S03	SP-03-S04	SP-03-S05	SP-04-S-01	SP-04-S-02	SP-04-S-03	SP-04-S-04	SP-04-S-05	SP-04-S-06	SP-04-S-07
Sample Date	03/23/2015	03/23/2015	03/23/2015	03/23/2015	03/23/2015	03/30/2015	03/30/2015	03/30/2015	03/30/2015	03/30/2015	03/30/2015	03/30/2015
TCLP Metals (mg/L)			•		•	•	•			•		
Lead												
Volatile Organic Compounds (mg/kg	Ĺ	-					-				-	
1,1,1,2-Tetrachloroethane												
1,1,1-Trichloroethane												
1,1,2,2-Tetrachloroethane												
1,1,2-Trichloroethane												
1,1-Dichloroethane												
1,1-Dichloroethene												
1,1-Dichloropropene												
1,2,3-Trichlorobenzene												
1,2,3-Trichloropropane												
1,2,4-Trichlorobenzene												
1,2,4-Trimethylbenzene												
1,2-Dibromo-3-chloropropane												
1,2-Dibromoethane												
1,2-Dichlorobenzene												
1,2-Dichloroethane												
1,2-Dichloropropane												
1,3,5-Trimethylbenzene												
1,3-Dichlorobenzene												
1,3-Dichloropropane												
1,4-Dichlorobenzene												
2,2-Dichloropropane												
2-Butanone												
2-Chlorotoluene												
2-Hexanone												
4-Chlorotoluene												
4-Isopropyltoluene												
4-Methyl-2-pentanone												
Acetone												
Benzene	0.02 U											
Bromobenzene												
Bromodichloromethane												
Bromoform												
Bromomethane												
Carbon tetrachloride												

Sample Name	SP-03-S01	SP-03-S02	SP-03-S03	SP-03-S04	SP-03-S05	SP-04-S-01	SP-04-S-02	SP-04-S-03	SP-04-S-04	SP-04-S-05	SP-04-S-06	SP-04-S-07
Sample Date	03/23/2015	03/23/2015	03/23/2015	03/23/2015	03/23/2015	03/30/2015	03/30/2015	03/30/2015	03/30/2015	03/30/2015	03/30/2015	03/30/2015
Chlorobenzene												
Chloroethane												
Chloroform												
Chloromethane												
cis-1,2-Dichloroethene												
cis-1,3-Dichloropropene												
Dibromochloromethane												
Dibromomethane												
Dichlorodifluoromethane												
Ethylbenzene	0.02 U											
Hexachlorobutadiene												
Isopropylbenzene												
m,p-Xylene	0.06 U											
Methyl tert-butyl ether												
Methylene chloride												
Naphthalene												
n-Propylbenzene												
o-Xylene												
sec-Butylbenzene												
Styrene												
tert-Butylbenzene												
Tetrachloroethene												
Toluene	0.02 U											
trans-1,2-dichloroethene												
trans-1,3-Dichloropropene												
Trichloroethene												
Trichlorofluoromethane												
Vinyl chloride												
Total Petroleum Hydrocarbons (mg/k	ç											
Gasoline	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Hydrocarbon Identification					•				•			
Diesel												
Gasoline												
Heavy-Oil-Range Hydrocarbons												

Sample Name	SP-05-S-01	SP-05-S-DUP	SP-05-S-02	SP-05-S-03	SP-05-S-04	SP-05-S-05	SP-06-S-01	SP-06-S-02	SP-06-S-03	SP-06-S-04	SP-06-S-05	WELL-01-S
Sample Date	04/07/2015	04/07/2015	04/07/2015	04/07/2015	04/07/2015	04/07/2015	04/14/2015	04/14/2015	04/14/2015	04/14/2015	04/14/2015	04/07/2015
TCLP Metals (mg/L)							•			•		
Lead												
Volatile Organic Compounds (mg/kg	Ĺ	•	•	•		•	•		•		•	•
1,1,1,2-Tetrachloroethane												
1,1,1-Trichloroethane												0.05 U
1,1,2,2-Tetrachloroethane												
1,1,2-Trichloroethane												
1,1-Dichloroethane												0.05 U
1,1-Dichloroethene												0.05 U
1,1-Dichloropropene												
1,2,3-Trichlorobenzene												
1,2,3-Trichloropropane												
1,2,4-Trichlorobenzene												
1,2,4-Trimethylbenzene												
1,2-Dibromo-3-chloropropane												
1,2-Dibromoethane												
1,2-Dichlorobenzene												
1,2-Dichloroethane												0.05 U
1,2-Dichloropropane												
1,3,5-Trimethylbenzene												
1,3-Dichlorobenzene												
1,3-Dichloropropane												
1,4-Dichlorobenzene												
2,2-Dichloropropane												
2-Butanone												
2-Chlorotoluene												
2-Hexanone												
4-Chlorotoluene												
4-Isopropyltoluene												
4-Methyl-2-pentanone												
Acetone												
Benzene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	7.3
Bromobenzene												
Bromodichloromethane												
Bromoform												
Bromomethane												
Carbon tetrachloride												

Sample Name	SP-05-S-01	SP-05-S-DUP	SP-05-S-02	SP-05-S-03	SP-05-S-04	SP-05-S-05	SP-06-S-01	SP-06-S-02	SP-06-S-03	SP-06-S-04	SP-06-S-05	WELL-01-S
Sample Date	04/07/2015	04/07/2015	04/07/2015	04/07/2015	04/07/2015	04/07/2015	04/14/2015	04/14/2015	04/14/2015	04/14/2015	04/14/2015	04/07/2015
Chlorobenzene												
Chloroethane												0.5 U
Chloroform												
Chloromethane												
cis-1,2-Dichloroethene												0.05 U
cis-1,3-Dichloropropene												
Dibromochloromethane												
Dibromomethane												
Dichlorodifluoromethane												
Ethylbenzene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	34
Hexachlorobutadiene												
Isopropylbenzene												
m,p-Xylene	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	210
Methyl tert-butyl ether												
Methylene chloride												0.5 U
Naphthalene												
n-Propylbenzene												
o-Xylene												
sec-Butylbenzene												
Styrene												
tert-Butylbenzene												
Tetrachloroethene												0.025 U
Toluene	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	76
trans-1,2-dichloroethene												0.05 U
trans-1,3-Dichloropropene												
Trichloroethene												0.02 U
Trichlorofluoromethane												
Vinyl chloride												0.05 U
Total Petroleum Hydrocarbons (mg/k	ç											
Gasoline	2 U	2 U	2 U	2 U	2 U	2 U	2.5	2 U	2 U	2 U	2 U	
Hydrocarbon Identification												
Diesel												ND
Gasoline												DETECT
Heavy-Oil-Range Hydrocarbons												ND

NOTES:

Detected results in **bold** font. Stockpile samples do not have sample depths. -- = not analyzed. mg/kg = milligrams per kilogram. mg/L = milligrams per liter. ND = not detected. TCLP = toxicity characteristic leaching procedure. U = Analyte not detected at or above method reporting limit.

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# FIGURES

















### Figure 3 LNAPL and **Dissolved-Phase Plumes**

Former Tiger Oil 2312 West Nob Hill Boulevard Yakima, Washington

### Legend





Source: Aerial photograph obtained from Esri ArcGIS Online; monitoring wells obtained from PLSA; plumes obtained from TerraGraphics; taxlot boundaries obtained from City of Yakima.



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### Figure 4 **Excavation Extent** and Confirmation **Sample Locations**

Former Tiger Oil 2312 West Nob Hill Boulevard Yakima, Washington

### Legend

- $\oplus$ Monitoring Well
- Decommissioned X
- Monitoring Well
- ÷ Floor Sample  $\bullet$ Sidewall Sample
- $\bigcirc$ **Dry Well Location**
- 03 **Excavation Area** 
  - Pot Holes (Approximate)
  - Property Taxlot Boundary

#### Notes:

- 1. All features are approximate.
- 2. GWE = groundwater extraction.
   3. LNAPL = light nonaqueous-phase liquid.
- 4. PVC = polyvinyl chloride.
  5. SVE = soil vapor extraction.
- 6. Monitoring wells located near and within the excavation boundary were protected during interim remedial activities.



Source: Aerial photograph obtained from Esri ArcGIS Online; monitoring wells obtained from PLSA; plumes obtained from TerraGraphics; taxlot boundaries obtained from City of Yakima.



This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or sult the primary data and information sources to



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### Figure 5 New Monitoring Well Locations

Former Tiger Oil 2312 West Nob Hill Boulevard Yakima, Washington

### Legend



Monitoring Well Installed on May 26, 2015 Property Taxlot Boundary



Source: Aerial photograph obtained from Esri ArcGIS Online; monitoring wells obtained from PLSA; plumes obtained from TerraGraphics; taxlot boundaries obtained from City of Yakima.



This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

## APPENDIX A ASBESTOS SURVEY




March 9, 2015

- To: Jim Decker IO Environmental & Infrastructure Inc. 2200 1118<sup>th</sup> Ave. Bellevue WA 98006
- From: Greg McCary, President All-Safe Abatement 6223 West Deschutes Ave., #316 Kennewick, WA 99336
- Re: Asbestos Abatement Closeout Report Former Tiger Mart, 2312 West Nob Hill Blvd., Yakima, WA – PO # ASA-2015-01 All-Safe Project #15027

#### 1.0 GENERAL INFORMATION:

All-Safe Abatement provided the removal of specified non-friable asbestos-containing mastic beneath non-asbestos 12" x 12" vinyl floor tile for the above referenced project. The asbestos abatement was conducted to facilitate structure demolition. All-Safe conducted the abatement work from March 2, 2015 through March 4, 2015.

#### 2.0 ASBESTOS REGULATIONS:

All-Safe Abatement filed "Notice of Intent" (NOIs) to remove asbestos-containing materials with the Yakima Clean Air Agency and the Washington State Department of Labor and Industries for the project. For further information, please refer to the attached NOIs. The asbestos abatement was conducted in accordance with applicable asbestos regulations as follows:

- 1. U.S. Department of Ecology Asbestos Regulations, National Emission Standard for Hazardous Air Pollutants (NESHAP).
- Washington Administrative Code (WAC) Chapter 296-65, WAC, Asbestos Removal & Encapsulation.
- 3. Washington Administrative Code, Chapter 296-62, WAC, Part I-1, Asbestos, Tremolite, Anthophyllite & Actinolite.
- 4. U.S. Environmental Protection Agency, Asbestos Hazard Emergency Response Act (AHERA) 40 CFR 763, Final Rule & Notice

Jim Decker IO Environmental & Infrastructure Closeout Report: Limited Asbestos Abatement Former Tiger Mart 2312 West Nob Hill Blvd., Yakima, WA March 9, 2015

 U.S. Environmental Protection Agency Toxic Substance Control Act, TSCA, (Code of Federal Regulations Title 40, Part 761).
 U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 40 CFR 1910.1001& 1926.1001.

## 3.0 SCOPE OF WORK:

All-Safe provided removal of approximately 2,400 SF of asbestos-containing mastic beneath non-asbestos 12" x 12" vinyl floor tile located throughout the main store area at the former Tiger Mart, 2312 West Nob Hill Blvd., Yakima, WA.

## 4.0 ASBESTOS ABATEMENT:

The abatement of asbestos-containing mastic is a Class II regulated material in accordance with the Department of Labor and Industries asbestos regulations; Chapter 296-62-077 WAC. The removal of non-friable mastic beneath non-asbestos vinyl floor tile was conducted within a regulated work area by installing 6 mil poly critical barriers on all doors, windows, vents and penetrations within the regulated work area. The area was demarcated with asbestos danger tape and warning signs to insure restriction of access of unauthorized personnel. The removal was conducted by wet manual and chemical methods. The final cleaning was conducted by wet wipe and HEPA vacuum methods.

## 5.0 PCB BALLAST AND MERCURY LAMPS REMOVAL:

All-Safe provided the removal of PCB Ballasts and Mercury Lamps from the lighting fixtures. All-Safe Abatement turned over the subject waste to IO Environmental & Infrastructure for proper transport and disposal.

#### 6.0 CERTIFIED ASBESTOS PERSONNEL

All-Safe employed a Washington State Certified Asbestos Supervisor to oversee the project set up, removal, air monitoring and encapsulation activities. All workers on this project were Washington State Certified Asbestos Workers or 8 hour WISHA specific floor tile trained.

#### 7.0 PERSONAL PROTECTIVE EQUIPMENT:

Each worker entering the regulated work area donned tyvek or equivalent full body suits and proper respiratory protection (i.e. half-face APR respirators) with HEPA filters and general safety equipment.

## 8.0 VISUAL INSPECTION, AIR MONITORING & ANALYSIS:

A visual inspection was performed by the All-Safe Site Supervisor prior to collection of the final clearance air sample. Final clearance air sampling was performed by the All-Safe Abatement Supervisor. The asbestos clearance air sample was transported via Jim Decker IO Environmental & Infrastructure Closeout Report: Limited Asbestos Abatement Former Tiger Mart 2312 West Nob Hill Blvd., Yakima, WA March 9, 2015

chain of custody protocol to PBS Engineering and Environmental, Kennewick, WA, for Phase Contrast Microscopy (PCM) NIOSH 7400 analysis. The subject air clearance passed. For further information, please see attached clearance air monitoring results.

#### 9.0 WASTE PACKAGING, TRASPORT & DISPOSAL:

The asbestos waste was packaged in two layers of 6 mil poly (burrito wrapped) in a rolloff dumpster (provided by IO Environmental & Infrastructure), properly labeled and sealed. IO Environmental & Infrastructure was responsible for the proper waste manifesting, waste transport and disposal of asbestos, PCBs and lamp waste for this project.

## 10.0 **REPORT CERTIFICATION:**

The person signing this report below certifies that to the best of their knowledge, the above information in this report is a true and accurate representation of project events. If you have any questions or require additional information, please do not hesitate to contact me at (509) 783-1130.

Greg Mc Carry

March 9, 2015

Greg McCary, Project Manager All-Safe Abatement

Date

Report Attachments: Regulatory Notifications Supervisor Daily Logs Clearance Air Sample Laboratory Analysis

Cc: All-Safe Project File #15027

STILLE IVED	Harn Del.	DATE	RECEIVED	NOTIEICATION #
TYPE OF NOTIFI	CATION: / Original	Revised	Cancelled	I Annual Oth
. OWNER NAME Mailing Address /2 Contact Brett	Maul Foster Ale 29 11 2nd street Shaiffield	I elephone	Email Addr <i>Yakima</i> : 509-576-6	ess Brett. Sheffleh State with Zip 1910-19 1997 Cell Phone
BATEMENT CONT Mailing Address <u>62</u> Contact And 4 B.	RACTOR <u>All-Safe</u> 23 W. Deschutes andt	Abate Ave #316 Ci Telephone	Ment En 19 Kennews 509 783-1	nail Address ick State WA Zip 993 (130 Cell Phone 727-688
Mailing Address 27 Contact	I O Environmental " Intr 20 1118" HVE 20 Ker	<i>aStructure In</i> Ci Telephone	e Email Addr 19 Belleva - 425-454-1	state WA Zip 9 200 086 Cell Phone 428-577-1
II. TYPE OF OPERA	TION / Demolition Ren	ovation En	nergency Renov	vation   House Move   Ot
V. IS ASBESTOS PR	ESENT? / Yes UNO			
Building Name <u>Fe</u> Physical Address <u>23</u> Site Location of	Asbestos (basement piping, ma	styd. in floor ceiling, i	City <u>Later</u>	er): Num Statewn Zip 98. etc.) Main Floor Floor
Building Name <u>Fe</u> Physical Address <u>23</u> Site Location of Building Size <u>ZHe</u> Present Use <u>Jaca</u> I. ASBESTOS SURV	Asbestos (basement piping, matrix $C \leq F$ # of Floors $M \leq F$ (EY CONDUCTED? / Yes	Ic, number & fic <u>B(v Å</u> in floor ceiling, e Prior Use □ No By V	City <u>Vak</u> exterior siding, Age in Years Conventen	er): <u>Main</u> Statewor Zip <u>98</u> etc.) <u>Main Floop</u> Floo <u>37</u> <u>ce Store</u> rum Environmente
Building Name Physical Address <u>2-3</u> Site Location of Building Size <u>2 4</u> e Present Use <u>1. ASBESTOS SURV</u> hone <u>561-514-0836</u>	Asbestos (basement piping, ma $\infty \leq F$ # of Floors $\sim +$ /EY CONDUCTED? / Yes Date Conducted ///20/	I Prior Use Prio	City <u>Lake</u> exterior siding, Age in Years Conventent Vhom? <u>Fulc</u> on of Report <u>c</u>	er): <u>Main Floop 710</u> etc.) <u>Main Floop Floo</u> <u>ST</u> <u>ce Store</u> <u>rum Environmenta</u> <u>on-site</u>
Building Name Physical Address <u>2-3</u> Site Location of Building Size <u>2 4</u> Present Use <u>1022</u> 7. ASBESTOS SURV hone <u>5074-083</u> 71. Juantity of Friable	Asbestos (basement piping, ma COSE # of Floors WEY CONDUCTED? //Yes Date Conducted ///20/	In floor ceiling, of the second secon	City <u>Lake</u> exterior siding, Age in Years Conventent Whom? <u>Fulc</u> on of Report <u>c</u>	er): <u>Main Floop 710</u> etc.) <u>Main Floop 7100</u> <u>ST</u> <u>CE Store</u> <u>rum Environment</u> <u>on -Site</u> Description of Nonfriable ACM
Building Name <u>Fe</u> Physical Address <u>23</u> Site Location of Building Size <u>24</u> Present Use <u>Vaca</u> 7. ASBESTOS SURV hone <u>SG-574-83</u> 71. Quantity of Friable ACM To Be Removed Dime	Asbestos (basement piping, mar <u>COSE</u> # of Floors <u>COSE</u> # of Floors	In floor ceiling, o	City <u>Lake</u> exterior siding, Age in Years <u>Conventent</u> Whom? <u>Fulc</u> on of Report <u>c</u>	er): <u>Main Floop Zip 98</u> etc.) <u>Main Floop Floo</u> <u>ST</u> <u>CE Store</u> <u>rum Environment</u> <u>ori-Site</u> Description of Nonfriable ACM To Be Removed
Building Name <u>Fe</u> Physical Address <u>23</u> Site Location of Building Size <u>24</u> Present Use <u>Vaca</u> 1. ASBESTOS SURV hone <u>56-514-836</u> 11. Juantity of Friable ACM To Be Removed Pipes Surface Area	Asbestos (basement piping, mar <u>COSE</u> # of Floors <u>H</u> <u>H</u> <u>H</u> <u>H</u> <u>H</u> <u>H</u> <u>H</u> <u>H</u>	In floor ceiling, of the stud. Prior Use Prior Use No By V Zei 9 Location Quantity of No To Be Remove Category I	City <u>Lake</u> exterior siding, Age in Years <u>Conventent</u> Vhom? <u>Fulc</u> on of Report <u>_</u>	er): <u>Main Floop 710</u> <u>ST</u> <u>CE Store</u> <u>rum Environment</u> <u>on -site</u> Description of Nonfriable ACM To Be Removed
Building Name <u>Fe</u> Physical Address <u>2-3</u> Site Location of Building Size <u>Zuite</u> Present Use <u>Vala</u> (I. ASBESTOS SURV hone <u>Set-574-5836</u> (II. Duantity of Friable ACM To Be Removed Pipes Surface Area Dff Component	Asbestos (basement piping, ma COSE # of Floors Asbestos (basement piping, ma COSE # of Floors A /EY CONDUCTED? / Yes Date Conducted ///20/ Description of Friable ACM To Be Removed	I Prior Use I Prior Use I Di No By V Duantity of No To Be Remove Category I Category I Other	City <u>Later</u> exterior siding, Age in Years <u>Conventent</u> (onventent Vhom? <u>Fulc</u> on of Report <u>c</u>	er): <u>Main Flog- Floo</u> <u>ST</u> <u>CE Store</u> <u>rum Environment</u> <u>on-site</u> <u>Description of Nonfriable ACM</u> <u>To Be Removed</u> <u>Black Mastrc</u>



- XII. WASTETRANSPORTER All-SAFE Abatement Address 6233 W. Deschutes Ave. #316 City Kennewick State W/A Zip 99336 Contact Andy Brandt Telephone (200) 783-1130
- XIII. WASTE DISPOSAL SITE Zichland Landfill Location City Richland State MA Zip 99336 Telephone 1509
- XIV. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY BELOW Agency Date of Order Date Ordered to Begin
- XV. FOR EMERGENCY RENOVATION Date & Hour of the Emergency \_\_\_\_\_\_ Description of the Sudden, Unexpected Event

Explanation of how the event caused unsafe conditions or would cause equipment damage or an unreasonable financial burden

XVI. I CERTIFY THAT ALL WORKERS AND SUPERVISORS CONDUCTING ASBESTOS WORK ARE TRAINED IN ACCORDANCE WITH THE PROVISIONS OF 40 CFR, PART 61, SUBPART M, AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED WILL BE AVAILABLE ON SITE FOR INSPECTION DURING NORMAL WORKING HOURS.

(Signature - Owner/Operator)

XVIII. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.

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2	13	115	
	Da	e	000000

(Signature - Owner/Operator)

#### FEE SCHEDULE

AMOUNT OF ASBESTOS TO BE REMOVED	FEE	ТҮРЕ
Over 10,000 L.F. OR Over 50,000 S.F.	\$867	Demolition Or Renovation
1,001-10,000 L.F. OR 5,001-50,000 S.F.	\$425	Demolition Or Renovation
261 - 1,000 L.F. OR 161 - 5,000 S.F.	(\$164)	Demolition Or Renovation
11 - 260 L.F. OR 49 - 160 S.F.	\$ 86	Demolition Or Renovation
0 - 10 L.F. OR 0 - 48 S.F.	\$ 44	Demolition Only
Any Amount	\$ 77	Renovation Conducted By Owner At An Owner Occupied Single Family Residence
Any Amount	\$167	Commercial Flat Built-up Roofs
Up to 260 L.F. OR 160 S.F.	\$338	Annual Notice

#### **OTHER CHARGES - ADD TO QUANTITY BASED FEE**

Any Amount	\$87	Emergency Demolition or Renovation
Any Amount	\$39	Revision of Existing Notification

Comments

Department of Labor and Industries Asbestos Certification Program PO Box 44614 Olympia WA 98504-4614



## ASBESTOS ABATEMENT PROJECT NOTICE OF INTENT L&I DOSH ASBESTOS PROGRAM

This notice must be received no later than 10 calendar days prior to the start date. Complete all applicable boxes—incomplete or illegible notices will not be accepted. Circle changes on amended notices. Mail to the address above or fax to (360) 902-4409.

Submit this form online or get more information at http://www.lni.wa.gov/TradesLicensing/LicensingReq/Asbestos/

Notice date: 2 /13/15	Initial 💹 Amended 🗌 🛛 Si	te Work Hours	Su Mo	Tu We Th Fr Sa
Start date: 3 12/15	On Hold D Off Hold 7:0	6 am /2:00 an		MANIA MARY
Completion: 3/6/15	Emergency [12:3	o pm 3:30 pn	Project Dat	tes and Work Hours must be Exa
CONT	RACTOR		PROPER	TY OWNER
Company Name	afe Abatement	Name Maul	Foster	· Alongi, Inc.
Contractor Certification Numb	er 1410 7	Owner's Agent	Jun T	)er Ker
Signature	RA	Company	East ila	hickard Lie
Printed Name	DIT	Address 775	00 1118th	Alle
Phone Number	Brand I	City	1110	State NA ZIP+4
Job Site C.A.S.	785-1150	Phone number	Upe U	11 10 21
Jake	LOBSITE		965-7.	FACILITY
Adress	JOD SITE		Type	FACILITY
Address 2312 West Nob Hill Blud.			ConvenienceStore	
Building Name Former Tiger Mart Throughous		oughout	+ 37 years Size 2,4005F	
City Jakima		WA	Remo	del 📓 Demolition
ZIP+498902	County Yakime		🗌 Repai	r 🗌 Maintenance
QUANTITY OF ASBES	STOS TO BE: 🕅 R	EMOVED		CAPSULATED
Quantity 2,400	square feet	1	Indoors	Outdoors
Fireproofing	Boiler insulation	CONTROL	MEASURI	ES
Popcorn ceiling	Duct paper	Neg. pres.	. enclosure	Wrap & cut
CAB	U VAT	Glove bag	5	Wet methods
Sheet vinyl	Roofing	Mini encl	osure	HEPA vacuum
Asbestos paper	Other Black Mashic	Critical ba	arriers	Manual methods
Quantity	linear feet	Other		Other
Mag. pipe insulation	Cement asbestos pipe	RESPIRAT	FORY PRO	TECTION
Air cell pipe insulation	Mudded pipe ins.	1/2 mask A	PR	Type C continuous flow
Ducting/duct insulation	Duct tape	Full face	APR	Type C pressure demand
□ Other	D Other	D PAPR		Other

F413-025-000 notice of asbestos abatement project 9-2007

For clean copies go to http://www.lni.wa.gov/forms/

## LABORATORY SAMPLE CHAIN OF CUSTODY

PBS

PBS Project No: 3600 000.7 22

Client: All-Safe Abatement

Address: 6223 W. Deschutes #316 Kennewick, WA 99336

all-safe abate com, Send Results to: Phone: Turn Around Time (check one) Fax: A4-Hour Individuals signing this form warrant that the information provided is correct and complete. □24-Hour □48-Hour The Client should keep a copy and send the original to or leave it with PBS. PBS will □72-Hour Complete the form, keep a copy and return the original to the Client. Receiver shall Report damage of package immediately to Sender. 3-4-15 Date Signature Environmental à Infrastructure Inc. tigermart Client/Project ID No.: 10 5027 Sample ID Name/No. Lab ID No. Sample ID Name/No. Lab ID No. 1.15027-001 11. 2. 12. 3. 13. 4 14. 5. 15. 6. 16. 7. 17. 8. 18. 9. 19. 10. 20. SPECIAL INSTRUCTIONS

Relinquished by:	Date: 3-4-15	Received by:	Date:
Relinquished by:	Date:	Received by:	Date:
Method of Shipment:	Date:	Sample Condition Upon Receipt:	
		□ Acceptable □Other (explain)	



## **ASBESTOS AIR** SAMPLE DATA SHEET

CLIENT TO Environmenatal : In Frastructure DATA RECEIVED PROJECT NAME Tiger Mart PROJECT NUMBER 15027

Date Sampled	3-4-15			
Sampled By	AL			
Analyst (PBS)				
Client Sample ID No.	15027-00/		1.1	
ID No.				
Code	C			1
Worker name. Location,SS#,Activity, Personal prot,etc.	middle of containment tile 3 mastic			
Pump No.		0		
Time Started	9'00			
Time Ended	11:00			
Total Minutes	120			
Flow Rate Start	10			
Flow Rate End	10			
Average Flow Rate	10			
Air Volume (L)	1200			
Filter Area (mm <sup>2</sup> )	385	385	385	385
Field Area (mm <sup>2</sup> )	.00785	.00785	.00785	.00785
Blank Count				
Fiber Count	4			
Field Count	100		1	
Fibers/cc	6600			
			and the second se	

## TWA (To be completed by analyst)

Name:	Minutes:	F/CC:
	Name:	Name: Minutes:

	ABAT	EMENT	
1.1	ALL-SAF SUPERVIS	E ABATEMENT SORS DAILY LOG	
Date: 3/2/19	5	All-Safe Project #	1027
Contractor/Client:	> Environmental	Project Name:	er than t
Work Area:		Scope of Work: UAT	
Work Started: 6:30	Lunch Break:	Z:00 Work	ended: 3:00
Site Contact:	n Decker		
Project Start-up	Pre-Clean Containment F	Pren 🔀 Fauinment Set-un	Component Demo (non AC
Removal Methods:	eno-chain <u>s</u> containment i	rep <u>2</u> Equipment Set up	
Wet Method	Glovebag Mechanical Method	_ Terminator _ Bead Blast	Wrap & Cut Other
Engineering Controls:			
Regulated Area Esta	blishedManomete	ration 3 St	AC Isolated age Decontamination Unit
Danger Signs Poster	HEPA Vac	cuum Two	stage Bag
Critical Barriers Est	ablished Amended	Water Neg	ative Pressure Enclosure
HEPA Negative Air	Filtration Dust Colle	ection Othe	er
Safety Controls:	× -	Xaran-	A 1410
Fire Extinguisher	Safety Meeting	Safety Check (JSA)	Other
Personal Protective Equ	ipment:	4- N	DADD/JUDA PS
Work Boots	Gloves	Eve Protection	Type C/HEPA
Hard Hats	Half Face/HEPA Filters	Full Face/HEPA Filters	Cont. Flow/HEPA Filters
	A Eventsion	De Personal	Neo Exp Assessment
Air Monitoring:	Q Outside West Area		Other
Air Monitoring: Pre-Abatement Inside Work Area	Outside work Area	Negative Air Exhaust	
Air Monitoring: Pre-Abatement Inside Work Area Clearance	Ambient	Negative Air Exhaust Historical Air Data	
Air Monitoring: Pre-Abatement Inside Work Area Clearance Compliance Issues: Visual Inspection C	Ambient	Negative Air Exhaust Historical Air Data	: Pass Fail
Air Monitoring: Pre-Abatement Inside Work Area Clearance Compliance Issues: Visual Inspection C Corrective Action Taken:	Ambient	Negative Air Exhaust Historical Air Data	: Pass Fail
Air Monitoring: Pre-Abatement Inside Work Area Clearance Compliance Issues: Visual Inspection C Corrective Action Taken: Air Clearance Testi Air Clearance Conducted	Ambient onducted by (whom) ng: Pass, Fail by (whom):	Negative Air Exhaust Historical Air Data , Not Required	; Pass Fail , Sample Result
Air Monitoring: Pre-Abatement Inside Work Area Clearance Compliance Issues: Visual Inspection C Corrective Action Taken: Air Clearance Testi Air Clearance Conducted Waste Disposal:	Outside work Area Ambient onducted by (whom) ng: Pass, Fail by (whom):	Negative Air Exhaust Historical Air Data	: Pass Fail , Sample Result
Air Monitoring: Pre-Abatement Inside Work Area Clearance Compliance Issues: Visual Inspection C Corrective Action Taken: Air Clearance Testi Air Clearance Conducted Waste Disposal: 6' x 10' Lined Dump	Outside work Area Ambient onducted by (whom) ng: Pass, Faif by (whom): Trailer Material	Negative Air Exhaust Historical Air Data , Not Required Double WrappedLing	: Pass Fail , Sample Result  ed 30 Yard Dumpster perly Labaled



#### **ALL-SAFE ABATEMENT** SUPERVISORS DAILY LOG

Date: 3215	All-Safe Project # 15027
Project Supervisor: D Justin Wood D Jason Alefte	ras 🗌 Lance Kirby 🔲 Andrew Brandt 🔲 Jacob Dobson
Crew: 🗹 Clint Hunt 🗌 Ray Morrow 🗌 Aaron Gu	erra 🖉 Arturo Perez 🐔 Eliodoro Diego 🗌 Ryan Mortensen

Additional Project Comments: (include: project concerns, scope changes, items discussed w/GC/consultant/owner, delays, scope changes, work practices, regulatory inspections etc).

on Sik met ASA at 8:45. NIT Decker to Begar Nº 1 0 C ano 10 tica 01 r orvier S ? Ver Jin ows over doors ste 14 Vin at ble 10:30. 1 VILI on 6 au ova 6 th brow in in Jar Ber ba tì ar Van Inn 0 back wans atta tinish the Innl 1 6 lin ont bey Luna 06 er Jenna town Sh2 2:30 K 1812 51 a

Certification: The individual signing this report certifies that all information above is correct and accurate to the best of his/her knowledge.

Print Name:

istik

Signature:

	ALL-SAI	FE ABATEMENT	
	SUPERVI	SORS DAILY LOG	
Date: 3/3/	15	All-Safe Project #	027
Contractor/Client:	o triving and the	Project Name: Tise	mart
Work Area:		Scope of Work:	tie
Work Started: 6.	JP Lunch Break:	12:00 Work	ended: 3:00
Site Contact:	Jim Decker		
Project Start-up Mobilization	Pre-Clean Containment I	Prep Equipment Set-up	Component Demo (non ACM)
Removal Methods: Wet Method Manual Method	Glovebag Mechanical Method	_ Terminator _ Bead Blast	Wrap & Cut Other
Engineering Controls: Regulated Area Estal Danger Barrier Tape Danger Signs Posted Critical Barriers Esta Mini Enclosure HEPA Negative Air	blishedManomete Water Filt HEPA Va blishedAmended FiltrationDust Collect	er Installed HVz ration 3 St cuum Two Water Neg tion Smo ection Other	AC Isolated age Decontamination Unit o stage Bag ative Pressure Enclosure oke Testing er
Safety Controls: First Aid Kit Fire Extinguisher	Emergency Exits Established	GFCI's Safety Check (JSA)	Additional Equipment Other
Personal Protective Equi — Fall Protection Work Boots — Hard Hats	pment: Hearing Protection Gloves Half Face/HEPA Filters	Disposable Coveralls     Eye Protection     Full Face/HEPA Filters	PAPR/HEPA Filters     Type C/HEPA     Cont. Flow/HEPA Filters
Air Monitoring: Pre-Abatement Minside Work Area Clearance	Excursion Outside Work Area Ambient	Y Personal Negative Air Exhaust Historical Air Data	Neg. Exp. Assessment Other
Compliance Issues: Visual Inspection Co Corrective Action Taken:	onducted by (whom)		: Pass Fail
Air Clearance Testin Air Clearance Conducted	g: Pass, Fail by (whom):	, Not Required	, Sample Result f/co
Waste Disposal: 6' x 10' Lined Dump	Trailer <u> </u>	Double Wrapped Line	ed 30 Yard Dumpster



#### ALL-SAFE ABATEMENT SUPERVISORS DAILY LOG

Date: 3315	All-Safe Project # 15027
Project Supervisor: 🛛 Justin Wood 🔲 Jason Alefteras	Lance Kirby Andrew Brandt I Jacob Dobson
Crew: Clint Hunt Ray Morrow Aaron Guerra	a 🖉 Arturo Perez 🖉 Eliodoro Diego 🔲 Ryan Mortensen
D'ChrisBlacketta 0_	

Additional Project Comments: (include: project concerns, scope changes, items discussed w/GC/consultant/owner, delays, scope changes, work practices, regulatory inspections etc).

a 50 Pe wastic DT PULINE 鬯 100K ar 12:30 une a a ventora er lune e, Erit in ba 4 Ca tic iU C C ne IA 50 ~ bu on a 0 R ~ a 6 5 t K 3 51 -+ DR TA 0 a

Certification: The individual signing this report certifies that all information above is correct and accurate to the best of his/her knowledge.

Print Name:

instin Wood

Signature:

	ABATEM			
	ALL-SAFE ABA SUPERVISORS I	DAILY LOG		
2.4-15	AU 0-5	1502	7	
Date: 7 11	All-Sale	chung and	- M.A	
Contractor/Client: +0	n Jir On mentell 7" Project N	ame: rger	I viar I	
Work Area: <u>MAIN</u>	Grea Scope of	Work: 1965	FIC 1200	
Work Started: 6 20	Lunch Break:	Work	ended: _1200	
Site Contact:				
Project Start-up Mobilization Pr	e-Clean Containment Prep	_ Equipment Set-up	Component Demo (non	ACM
Removal Methods:				
Wet Method	GlovebagTermina Mechanical Method Bead Bla	tor ast	Wrap & Cut Other	
Danger Signs Posted     Critical Barriers Establ     Mini Enclosure     HEPA Negative Air Fi	ished HEPA Vacuum Amended Water Encapsulation Itration Dust Collection	Two Neg Smo	stage Bag ative Pressure Enclosure ike Testing er	
Safety Controls: First Aid Kit	Emergency Exits Established	GFCI's Safety Check (JSA)	Additional Equipment Other	
Personal Protective Equip	ment: Hearing Protection	sposable Coveralls	PAPR/HEPA Filters	
Work Boots Hard Hars	Gloves Ey	e Protection II Face/HEPA Filters	Type C/HEPA Cont. Flow/HEPA Filte	ers
Air Monitoring:	<i>—</i>			
Pre-Abatement	Excursion Pe	rsonal gative Air Exhaust	Neg. Exp. Assessment Other	
Clearance	Ambient Hi	storical Air Data		
Compliance Issues: Visual Inspection Con	ducted by (whom)		: Pass or	Fail_
Air Clearance Testing	Pass Fail N	Jot Required	Sample Result	
Air Clearance Conducted by	/ (whom):, * tan, *			
Waste Disposal: 6' x 10' Lined Dump T 8' x 14' Lined Dump 16 Mil Poly Bags (Dou	Trailer Material Double V Trailer Lined Mega Box's able) Lined 20 Yard Du	Vrapped Lin s Pro mpster Oth	ed 30 Yard Dumpster perly Labeled er:	



## **ALL-SAFE ABATEMENT** SUPERVISORS DAILY LOG

Date: 3-4-15	All-Safe Project # Tiger Ment
Project Supervisor: D Justin Wood D Jason Alefteras	a 🗌 Lance Kirby 🔲 Andrew Brandt 🔲 Greg McCary
Crew: Clint Hunt 🗌 Ray Morrow 🗌 Jake Dobsor	Arturo Perez Eliodoro Diego
00_	· □

Additional Project Comments: (include: project concerns, scope changes, items discussed w/GC/consultant/owner, delays, scope changes, work practices, regulatory inspections etc).

0 in 20 1 00

Certification: The individual signing this report certifies that all information above is correct and accurate to the best of his/her knowledge.

Print Name:

Signature

# APPENDIX B WELL DECOMMISSIONING LOGS



	Start	Card # AE	30841	
(1) OWNER/PROJECT WELL NO. MAD - 15	(6) LOCATION County JAKIM	OF WELL By /	egal description.	: <sup>1</sup> nude
City / allima, State WA Zip 98902	Township <u>13</u> <u><u>NW</u> 1/4 (</u>	_ Øor S) Range . of	1/4 of above section.	ection 26
(2) TYPE OF WORK	Street address of well	location Sam	pe	· · · ·
New construction     Alteration (Repair/Recondition)       Conversion     Deepening       Bandonment	Tax lot number of we	Il location	•	
(3) DRILLING METHOD Rotary Air Rotary Mud Cable Hollow Stein Auger Other	(7) STATIC WA	TER LEVEL: below land surface.	Date	1
(4) BORE HOLE CONSTRUCTION:	(8) WATER BE	ARING ZONES		
Special Standards Yes No Depth of Completed Well 18, 5 ft.	Depth at which water	was first found	5-1	
	From	То	Est. Flow Re	te SW1
Q				
TO Surface flush vault				
R. D Locking cap Casing diameter				
Material <u>PVC</u>	(9) WELL LOG	De la compe		
Welded Threaded Glued	Gro	Material		T. 10
Seal Sol	Phand		From	10 5
ft. pD pD	THOM THOM	in start		18.5
TO COS Material BenTinite	Chip	n na sana ang ang ang ang ang ang ang ang ang	n na sta	and the second s
A CASC Amount 14 bas	- Chip up	To Sur Fac	e 0	18:5
CR CONTRACT		n an	an a	Landrig and the
Borehole diameter;	ft.	- 17-	24	
10. 50 in. from ft. to	ft,	10 12 1 1 10 1		
Fiter D. S.C. Bentonite plug at least 3 ft.	thick			
pack: Sie States: Screen:				
TO T				
18.5 A. 6000 III 10000 III.		a dise The Alexandrian		
Filter pack:	Date started 2-2	4-15 0	completed 2 - 2	4-15-
			<u> </u>	
(5) WELL TESTS: Pump Baller Air Flowing Artesian	VVELL CONSTRU I constructed and/or compliance with all and the information	ICTION CERTIF accept responsibility Washington well con reported above are tr	ICATION: for construction of this struction standards. M ue to my best knowled	well, and its aterials used ge and belief.
Conductivity PH Temperature of users	Type or Print Name	HOMAS J. 141	License No	dle84
Was water analysis done'? Ves No By whom'?	Drilling Company E	TONRONME,	NTAL DEI	uing I
Depth of strata to be analyzed. Fromft. toft.	Address 10918	159 FAUE	SE SNO. 1	WA.

. . .

1) OWNER/PROJECT WELL NO. MAD-1	(6) LOCATION OF WELL By legal description:
Address 12312 W Nob Hill BIVD;	Township 13 Bor S) Range 18 (Dor W) Section 26
city Yakima, State WA Zip 9890	2 1/4 of 1/4 of above section.
(2) TYPE OF WORK	Street address of well location Same
New construction     Alteration (Repair/Recondition)     Conversion     Deepening     Abandonment	Tax lot number of well location
(3) DRILLING METHOD	(7) STATIC WATER LEVEL:
Cable	Pr, below land surface, Date 
(4) BORE HOLE CONSTRUCTION:	(8) WATER BEARING ZONES:
Yes No Special Standards	Depth at which water was first found
	From To Est. Flow Rate SY
Vault 👔 💦 🖁	
2 Aperal Standards Water-tight cover	
TO 3 Surface flush vault	
R. Locking cap	
Casing diameter_	
Solo Material	(9) WELL LOG:
Welded Threade	Jlued Material Days To
	l ivatorial Prom 10
Seal Dodd	Abandon 0 21
A. D. BO	
TO BOOM Material Bent	te Chip
ft. de com anont 14	bas Plined in To Suchange D 21'
Grout weight	Chipea up to suitace o si
Borehole diamete	12 A A A A A A A A A A A A A A A A A A A
in fromin	. to ft,
50.0 in from in from	, to ft.
DD DD DD DD DD Bentonite plug	cast 3 ft. thick
Material	an and the second se
From	
2/10 5001 : 目 .: 57074 Slot size	in.
Filter pack	
Karlel Materiel	Date started 2-24-15 Completed 2-24-15
2006 A	WELL CONSTRUCTION CERTIFICATION:
(S) WELL TERTS:	Compliance with all Washington well construction standards. Materials use
Pump Bailer Air Flowing /	sian and the information reported above are true to my best knowledge and belie
Permeability Yield QPM	Type or Print Name HOMAS J. HDAMS Woense No. 268
ConductivityPH	Trainee Name License No.
Temperature of water OF/C Depth artesian flow found	A. Drilling Company, FAURONMENTAL DEILLING
Was water analysis cone? LI '** LINO	The TAN JIM
Depth of strata to be analyzed. From A. to	A. INGIA ISOFA - OF CLICONSONO, X40
Brender	Address 10718 107 HUE SE SNO. 114.
Kemarks;	

(1) OWNER PROJECT WELL NO. KM/4)	-20 (6) LOCA	FION OF WELL By	legal description:	
Name City of Vekinle	County 24	Kima_ Latitude_	Longin	ide
Address 123/2 W NOB Hill BIVD, City Yaki MA, State WA Zip 9	B902 Township Z	_ 1/4 of NW	1/4 of above section.	action 12 10
(2) TYPE OF WORK	Street address	of well location 54	ne	
	The lat numb	an of wall location		4
New construction     Alteration (Repair/Recondition)     Conversion     Decompare Abandonm	nt Int Int Int Int	er of wen location		
	5			
(3) DRILLING METHOD	(7) STAT	C WATER LEVEL:	Date	1
☐ Rotary Air ☐ Rotary Mud ☐ Cable	Artesian F	ressurelb/sc	, in. Date	
(A) DODE LIQUE CONSTRUCTION:	(8) WATE	ER BEARING ZONE	S:	
(4) BORE HOLE CONSTRUCTION. Yes No	Denth at whi	oh water was first found	-6'	
Special Standards Depth of Completed Well 19.	C ft.	To	Est. Flow Ra	ite SW
Vault				1.1.1
Q Ape al Standards Water-tight	1940	and a second second second		
TO TO Surface flu	h vault			
A. D. Casury un	mener 411			
Casing di	PVC (9) WEL	L LOG:	<	
Welded	hreaded Glued	Oround Elevation		1 72 10
		Material	From	10 13
Seal Skall Skall	- h	bandon	0	19.5
	P. J. if dia	<u> </u>		
TO CONTRACTOR Amount	Dentinite Chipsed	up to Surfa	ce o	19.5
	117 No.			
Borehole	diameter:		· · · · · · · · · · · · · · · · · · ·	
	m ft. to ft.	- 10- 		1.000
Distant Distant Parton	e ning at least 3 A thick	141 		-
Fiter de di Fiter				
pack. Soc Haterial		د المراقع المراجع المراجع المراقع الم		
TO BOS I From	ft. to			
19.5 A. 19.000 Slot size	, , , , , , , , , , , , , , , , , , ,			
Filter pa	k: Date start	12-24-15	Completed 2-	24-15-
Sec. Standard Material				
128 - Size -	WELL CO	ONSTRUCTION CER	TIFICATION:	المبدأ محط المد
(5) WELL TESTS:	complia	nce with all Washington well	construction standards.	. Materials used
Pump 🖸 Batler 🗍 Air 🗍 F	owing Artesian and the	at blama TUNMAS. T	Annst inenes N	o. J/2
Permeability Yield Yield PH	UPM \ Trologo N	ame		CALLEN
Temperature of water OF/C Depth artesian flo	found ft.	many FRIMANNIA	MENTAL D	· ILLINK
Was water analysis done'? Vee No		The TAN	ICTOTAL LA	2108
Depth of strata to be analyzed. Fromft, to		10918 159 A.	ESE SUD	il A
Remarks:	Address	Han No - Han Ant	Dani Di	ato 3-12-
	Kegistra	ENVIRDIC	0731110	/

140	Start Card # AE	30841	
OWNER/PROJECT WELL NO. MIN - 20	(6) LOCATION OF WELL By County YAKIMA. Latitude	legal description: Longitude	
ress 12312 W Neb Hill BIVD,	Township 13 (Dor S) Range	18 Dor W) Section	16
Yakiina State WA Zip 98902	NW 14 or NW	1/4 of above section.	
TYPE OF WORK	Street address of well location 544	ne	
New approximation     Alteration (Reastin/Reputition)	Tax lot number of well location		
Conversion			
DRILLING METHOD	(7) STATIC WATER LEVEL:	Date	+
Rotary Air      Rotary Mud      Cable	Artering Pressure Ib/ro	la Date	-
BORE HOLE CONSTRUCTION:	(8) WATER BEARING ZONE	S:	
cial Standards Depth of Completed Well 19 ft.	Depth at which water was first found	-6 '	
	Prom To	Est. Flow Rate	SWI
Special Standards Water Hoht cover			-1
Surface flush vault			
	•	, .	
Casing diameter //			
Material Steel	(9) WELL LOG:		
Welded Threaded Glued	Ground Elevation		
	IVIAIQUIAU	Prom 10	
	Hosndon	0 19	4
A. D. B.	J presure Grant	0 19	
TO CARD A CONTRACT OF A MALE A			- 1
	9-		
208 30 Grout weight			<del></del>
Borehols diameter:			
in. from ft. to	- ft.		
5D 50 - n. 10m - n. 18 -			
Fiter Barden Bentonite plug at least 3 f	R. thick		
pack: Sie Streen:			
ft. SP. S. B. '. SP. S. From ft. to			 
10 10 0000 : E .: 0000 - Slot size in			
Filter pack:	104 Lange La		
Concernent States Material	Date started 2-24-15	Completed 2 - 24-1	5-
PORD Size	MELL AQUATOLIATION AFD	TICIALTION	
(C.0.0.9.10	I constructed and/or accept responsib	tifty for construction of this well, an	nd its
5) WELL TESTS:	compliance with all Weshington well	construction standards. Materials	Used
Demos Proving Artesian	Type or Prior Name TUNMAS. T	ADDMSLICENSE No 3/2	284
ConductivityPH	Trainea Name	Lines h	0 1
Temperature of water OF/C Depth artesian flow found	A. Dullas Company Fallfing Alla	LICONBONO.	K'1
Was water analysis done'? T <sup>res</sup> No By whom'?	Company Company CAUTACAT	CUTAL LACICIA	7-
оу иноши должно странительного	- (Signed) (Morriso ) (Ida	License No. 124	0.7
Depth of strata to be analyzed, From A, to	-n. INGIO 1595 A.	- SP SIM in M	

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surl.e

	Start Card # <u>HE 30841</u>	
(1) OWNER/PROJECT WELL NO. KMW - 22	(6) LOCATION OF WELL By legal description: County <u>Yakima</u> Latitude Longin	ude
Address 12312 W. Nob Hill BIVD,	Township 13 @ Or S) Range 18 @ Or W) Se	ection 26
city Yakima State WA ZID 98902	NW 1/4 of NW 1/4 of above section.	
(2) TYPE OF WORK	Street address of well location Same	
D New construction D Alteration (Ranals/Recondition)	Tax lot number of well location	
Conversion Deepening Abandonment		a transmission of the second sec
(3) DRILLING METHOD	(7) STATIC WATER LEVEL:	1
Cable	Artesian Pressure Ib/so, in, Date	
(4) BORE HOLE CONSTRUCTION:	(8) WATER BEARING ZONES:	2
Special Standards Depth of Completed Well 14 ft.	Depth at which water was first found	<u>.</u>
	From To Est, Flow Ra	te SW
Vault		
C n' F		
Size Material PUC	(9) WELL LOG:	
Welded Threaded Glued	Ground Elevation	
	Material From	To
Seal Soco	Abandon 0	14
A. pD:Sol	,	
TO HOW Material Bentinite	chip di ta Ta Sultan D	111
Amount bas	- Chipped up to Surfere	17
Grout weight		
		<u> </u>
0.6-9 million (1.6-9)		
borenoie diameter:	_ ft.	-
0.0	_ ft.	
BC DATE I DATE BOARD Bentonite plug at least 3	A. thick	-
		-
Parck. Sigod . E Material		
From A. to		
14/ 0 0004		+
Filter pack:		
Material	Date started $\alpha - \alpha - \beta - $	14-15
Size	WELL CONSTRUCTION CERTIFICATION:	
	I constructed and/or accept responsibility for construction of I	his well, and i
(5) WELL TESTS:	sind the information reported above are true to my best knowl	edge and belie
PermeabilityYield GPM	Type or Print Name THOMAS J. ADAMS License N.	· 268
Conductivity PH	Trainee Name	).
Temperature of waterOF/C Depth artesian flow found	A. Drilling Company FAIVIRDAIMIFAITAI DE	ILLINCO
Was water analysis done'? LI IV LI No	Grand The TAN	2104
Depth of strate to be enalyzed From A to	A. INGIA ISOKAL OF SUI	1. 11
		11 111

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(1) OWNER/PROJECT WELL NO. M/4)8 Name Cited OF Vaking	(6) LOCATION OF WELL By legal County Yakima. Latitude	description:
Address 2312 W Nob Hill BIVD,	Township 1.3 Dor S) Rango 18	Dor W) Section
City Takima State WA Zip 98902	1/4 of 1/4 of	above section.
(2) TYPE OF WORK	Sirest address of wen location	*
New construction Alteration (Repair/Recondition).	Tax lot number of well location	
Conversion Deepening Abandonment		
(3) DRILLING METHOD	(7) STATIC WATER LEVEL:	
Rotary Air     Rotary Mud     Cable	Ft. below land surface.	Date
Hollow Stein Auger	Artesian Pressure lb/sq. in.	Date
(4) BORE HOLE CONSTRUCTION:	(8) WATER BEARING ZONES:	
Special Standards Depth of Completed Well day ft.	Depth at which water was first found	
Vault 1	ri Prom To	Est. Flow Rate S
Ape al Standards Water-tight cover		
TO Surface flush vault		
R. B Looking cap		
Casing diameter States Material PVC	(9) WELL LOG:	
Welded Threaded Glue	d Ground Elevation	
	Material	From To
Seal Seal Seal	Abandon	0 221
A. pD. pC	plic	<u>}</u>
TO Amount to ba	Chipped up To Surface	0 22'
Grout weight		
Borenoie diameter:	ft.	
n n from ft. to in. from ft. to	ft,	
Den Den Dentonito plug at least	3 ft. thick	
pack:		
A. 80.03	······································	
7.7.10 0000 : E 0000 Slot size in		
Filter pack:		
Sa Si Sa Si Material	Date started 2-24-15 Com	pleted <u>2-24-15</u>
2883 U 2883 Size	WELL CONSTRUCTION CERTIFIC	ATION:
	I constructed and/or accept responsibility for	construction of this well, and
Dump Baller Air Flowing Artesian	and the information reported above are true	to my bast knowledge and be
PermeabilityYieldOPM	Type or Print Name HOMAS J. HOM	MS Lloense No. 2608
Temperature of water OF/C Depth artesian flow found	Trainee Name	License No.
Was water analysis done'? 🔲 Yes 🔲 No	Dritting Company ENVIRONMEN	TAL LACILLING
Depth of strata to be analyzed, From ft. to	R. (Signed) Thomso J (tham	E License No. 240
. Remarks:	Address 10718 107" HUE SL	JNO. 14
Name of Supervising Geologist/Engineer	- Registration No. ENVIRATO93	MG Dates -127

## APPENDIX C PHOTOGRAPHS





## **PHOTOGRAPHS**

Project Name:Tiger Oil WProject Number:0818.02.01Location:2312 West

Tiger Oil West Nob Hill 0818.02.01 2312 West Nob Hill Blvd. Yakima, Washington



#### **Photo No.** 1

**Description** Looking south, demolition of existing building

## **Photo No.** 2

**Description** Looking west, pavement removal





#### **Description**

Looking east, impactedsoil removal and free product

## **PHOTOGRAPHS**

Project Name:Tiger Oil WProject Number:0818.02.01Location:2312 West

Tiger Oil West Nob Hill 0818.02.01 2312 West Nob Hill Blvd. Yakima, Washington



<u>Photo No.</u> 4

Description Mixing Regenesis Regenox®





**Description** Looking south, mixing Regenesis Regenox® with clean overburden

## **PHOTOGRAPHS**

Project Name:Tiger Oil WProject Number:0818.02.01Location:2312 West

Tiger Oil West Nob Hill 0818.02.01 2312 West Nob Hill Blvd. Yakima, Washington



Photo No. 6

**Description** Looking east, installation of infiltration gallery





Description Looking

material

northeast, backfilling and compacting clean fill

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## **PHOTOGRAPHS**

Project Name:Tiger Oil WProject Number:0818.02.01Location:2312 West

Tiger Oil West Nob Hill 0818.02.01 2312 West Nob Hill Blvd. Yakima, Washington

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## **Description**

Looking north, fabric placement prior to gravel finish





9

**Description** Looking west, gravel finish course

## **PHOTOGRAPHS**

Project Name:Tiger Oil WProject Number:0818.02.01Location:2312 West

Tiger Oil West Nob Hill 0818.02.01 2312 West Nob Hill Blvd. Yakima, Washington



**Photo No.** 10

**Description** Looking north, asphalt pavement surface



## APPENDIX D FIELD SAMPLING DATA SHEETS



400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	SE Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/17/2015
Sampling Event		Sample Name	BH-01-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

## **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	215	2:15:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					<b>Total Containers</b>	5
Sample Description	l: G	iray, sandy soil. Hea	vy petroleum-li	ke odor.		
General Sampling	Comment S	oil saturated with fro	ee-product. Sam	pled also for TCLI	P lead for landfill	

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/17/2015
Sampling Event		Sample Name	BH-01-S-9.0
Sub Area		Sample Depth	9
FSDS QA:	LSC	Easting	Northing TOC

## **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	500	2:00:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
General Sampling	<b>Comment</b> Sa	ample collected from oserved. Sampled al	n SE corner of e lso for TCLP lea	excavation; 9.0 feet d for landfill docum	depth impacted soil mentation.	was

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	BH-02
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/18/2015
Sampling Event		Sample Name	BH-02-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

## **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	598	8:05:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
		ample collected from	n SE comor of c		isible contomination	
General Sampling	Comment S	ample collected from	n SE corner of e	excavation; top of v	isible contamination	1.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Southeast corner of Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/18/2015
Sampling Event		Sample Name	BH-02-S-9.0
Sub Area		Sample Depth	9
FSDS QA:	LSC	Easting	Northing TOC

## **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	163	8:00:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
	~ [					
General Sampling	Comment S	ample collected from	n SE corner of e	excavation; top of v	isible contamination	

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	SE Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/18/2015
Sampling Event		Sample Name	BH-03-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

## **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Soil	Confirmation	927	8:10:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n: G	ray silty soil. Semi-	saturated. Petro	leum-like odor.		
General Sampling	Comment <sup>S</sup>	ample collected fror	n SE corner of e	excavation.		

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	SE Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/18/2015
Sampling Event		Sample Name	BH-03-S-9.0
Sub Area		Sample Depth	9
FSDS QA:	LSC	Easting	Northing     TOC

## **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	72	8:15:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n: S	oil varies from brow	n, gray and blad	ck clay with some s	silts. Petroleum-like	odor.
General Sampling	Comment S	ample collected fror	n southeast corr	ner of excavation.		

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	South Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/18/2015
Sampling Event		Sample Name	BH-04-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

## **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	700	12:00:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
General Sampling	Comment S	ample collected from	n south edge of	excavation at the b	ottom of excavation	

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	South Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/18/2015
Sampling Event		Sample Name	BH-04-S-9.0
Sub Area		Sample Depth	9
FSDS QA:	LSC	Easting	Northing   TOC

## **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	212	9:40:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
	1.					
General Sampling	Comment Solo	ample collected from	n south wall of e	excavation; at begi	nning of where stain	ing was

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)
400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	South Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/18/2015
Sampling Event		Sample Name	BH-05-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	710	12:10:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	ı: G	aray sandy soil. Stro	ng petroleum-lik	ce odor.		
General Sampling	Comment <sup>S</sup>	ample collected fror	n south wall of e	excavation.		

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	South Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/18/2015
Sampling Event		Sample Name	BH-05-S-9.0
Sub Area		Sample Depth	9
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Soil	Confirmation		9:45:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
General Sampling	Comment S b	ample collected fror eginning of where st	n south wall of e taining was obse	excavation; 9 feet b erved.	below ground surface	e is

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	South Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/18/2015
Sampling Event		Sample Name	BH-06-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	750	11:10:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Conorol Somuling	Commont S	ample collected from	n SW wall behir	ud One Love Smok	e Shon huilding Slo	ne at
General Sampling	comment 3.	pproximately 1:1.5.			e shop bundhig. Sie	pe at

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	South Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/19/2015
Sampling Event		Sample Name	BH-07-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	488	8:50:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n: C	rray sandy soll. Near	Ty saturated. St	rong petroleum-like		
General Sampling	Comment S	ample collected at to	be of 1:1.5 slope	e away from restau	rant building in SE c	orner.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	South of Mexican Restaurant
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/19/2015
Sampling Event		Sample Name	BH-08-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	710	10:00:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	1: G	ray sand. Saturated.	Petroleum-like	odor.		
General Sampling	Comment S	ample collected fror estaurant.	n SE corner of e	excavation at toe of	f 1:1.5 slope on south	n side of

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/19/2015
Sampling Event		Sample Name	BH-09-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	717	10:10:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	1:	iray, clay soil. Nearl	y saturated. Stro	ong petroleum-like	odor.	
General Sampling	<b>Comment</b> S R	ample collected fror estaurant.	n wall directly s	outh of southwest o	corner of Mexican	

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	southeast/east of Mexican Rest
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/30/2015
Sampling Event		Sample Name	BH-10-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	376	11:00:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n:	Traysand. Strong pet				
General Sampling	Comment S	ample collected from	nwest side of S	W corner of mexica	an restaurant.	

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	east/southeast of Mexican Rest
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/30/2015
Sampling Event		Sample Name	BH-10-S-DUP
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing

### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	466	11:00:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Descriptio						
General Sampling	Comment D	OUPLICATE. Sampl	e collected from	nwest side of SW c	orner of mexican res	taurant.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	East of Mexican Restaurant
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/30/2015
Sampling Event		Sample Name	BH-11-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing

### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	394	11:30:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					<b>Total Containers</b>	5
Sample Description	n: G	ray sand. Strong pe	troleum-like odd	Dr.		
General Sampling	Comment S	ample collected 20 f	feet north of BH	-10.		

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	North of east of One Love
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/30/2015
Sampling Event		Sample Name	BH-12-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	640	2:00:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n: C	stray sand with streak	s of dark gray.	Strong petroleum-i	ike odor.	
General Sampling	<b>Comment</b> S e:	ample collected 20 f xtension.	eet west of toe	of bank from NE co	orner of original exc	avation

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	BH-13
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/30/2015
Sampling Event		Sample Name	BH-13-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	770	2:30:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	u. [					
General Sampling	Comment S e:	ample collected 20 t xtension. South of E	feet west of toe of the feet west of toe of the feet west of toe of the feet west of the fe	of bank from NE co	orner of original exc	avation

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Center of original Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/31/2015
Sampling Event		Sample Name	BH-14-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	500	8:45:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	u. [					
General Sampling	Comment S	ample collected bety	veen two toes o	f slopes where infil	Itration on gallery wi	ill sit.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	N or E corner of One Love
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	03/31/2015
Sampling Event		Sample Name	BH-15-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	550	9:00:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					<b>Total Containers</b>	5
Sumple Description						
General Sampling	Comment S	ample collected from ole.	n toe of slope fr	om NE corner of C	One Love shop, near	power

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	BH-16
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/01/2015
Sampling Event		Sample Name	BH-16-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	250	8:15:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n: C	Gray to brown sand v	vith silt. Rocky.			
General Sampling	Comment S	ample collected nor	th of One Love S	Smoke Shop, west	extended excavation	i corner.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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### Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	W corner of Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/01/2015
Sampling Event		Sample Name	BH-16-S-9.0
Sub Area		Sample Depth	9
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	5	8:00:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n:					
General Sampling	Comment S	ample collected nor	th of One Love	Smoke Shop, west	extended excavatior	i corner.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	West edge of Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/01/2015
Sampling Event		Sample Name	BH-17-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Soil	Confirmation	400	12:30:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n: C	ray sand. Petroleum	-like odor.			
General Sampling	Comment <sup>S</sup>	ample collected 40 f	feet north of One	e Love Smoke Sho	p, west extended exc	cavation.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	West edge of Excavation
Project Number	0818.02.01	Sampler	JGC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/01/2015
Sampling Event		Sample Name	BH-17-S-9.0
Sub Area		Sample Depth	9
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	1	12:45:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					<b>Total Containers</b>	5
Sample Description	n: B	Brown silty clay. No	odor.			
General Sampling	Comment <sup>S</sup>	ample collected 40 t	feet north of On	e Love Smoke Sho	p, west extended exc	cavation.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Northest corner of Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/07/2015
Sampling Event		Sample Name	BH-18-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	780	9:00:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
General Sampling	<b>Comment</b> S	ample collected at N be of 1:1.5 slope.	IE corner of ext	ended excavation a	long restaurant prop	erty at

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Northeast corner of Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/07/2015
Sampling Event		Sample Name	BH-19-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	398	11:00:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
General Sampling	Comment S	ample collected at N ample collected at to	VE corner of extension of extension of the second s	ended excavation a	t the property corner	

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Northeast corner of Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/07/2015
Sampling Event		Sample Name	BH-20-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Soil	Confirmation	760	11:45:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n:					
General Sampling	Comment <sup>S</sup>	ample collected alor	ng northern prop	perty boundary at to	be of 1:1.5 slope.	

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Norhteast Corner of Excavatio
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/07/2015
Sampling Event		Sample Name	BH-21-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Soil	Confirmation	422	1:15:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
	-					
General Sampling	<b>Comment</b> S	ample collected on f ample locations BH-	loor of extended 18 and BH-20.	d excavation in NE	corner across from	m

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	North Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/08/2015
Sampling Event		Sample Name	BH-22-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Soil	Confirmation	550	7:30:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
	1.					
General Sampling	<b>Comment</b> S ez	ample collected at to xcavation. Sample c	be of 1:1.5 slope ollected on east	along north prope side of discovered	rty boundary in exte dry well.	nded

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	North Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/08/2015
Sampling Event		Sample Name	BH-23-S-14.0
Sub Area		Sample Depth	14
FSDS QA:		Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Soil	Confirmation	881	9:30:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					<b>Total Containers</b>	5
Sample Description	n: G	iray, sandy-clay soil	. Strong petrolet	um-like odor. Satur	ated. Visible sheen o	on soil.
General Sampling	Comment S S	ample collected on a ample collected in-l	floor of extended ine with BH-18	d excavation along and BH-22 sample	northern perorty boo locations.	undary.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	North Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/08/2015
Sampling Event		Sample Name	BH-24-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	764	2:00:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n: C	nay, sandy-clay son		Strong perforeum-	ince outor. Saturated.	
General Sampling	Comment S	ample collected on a ample approximatel	floor of extended y 60 linear feet	d excavation along west of sample loca	northern property bo ation BH-18.	oundary.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	North Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/09/2015
Sampling Event		Sample Name	BH-25-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	908	8:30:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	1;	nay, sandy-ciay son	. Strong petrole			
General Sampling	<b>Comment</b> S e:	ample collected at to xcavation area.	be of 1:1.5 slope	e along north prope	rty boundary in exte	nded

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	North Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/14/2015
Sampling Event		Sample Name	BH-26-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Soil	Confirmation	695	8:15:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	1: C	iray sandy-clay soil.	Strong petroleu	ım-like odor. Wet.		
General Sampling	<b>Comment</b> S b	ample collected at b oundary.	ottom of extend	led excavation wall	along north propert	У

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	North Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/14/2015
Sampling Event		Sample Name	BH-26-S-8.0
Sub Area		Sample Depth	8
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Soil	Confirmation	162	8:20:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	1: C	irayish-brown, sand	y soil. Mild petr	oleum-like odor.		
General Sampling	Comment S	ample collected near bserved.	r middle of exte	nded excavation w	all where impacted s	oil was

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	North Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/14/2015
Sampling Event		Sample Name	BH-27-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	592	9:00:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	1: 0	nay, sandy-clay son	. Subilg periode	um-nke odor. wet.		
General Sampling	Comment S B	ample collected fror H-26 and BH-18.	n floor of northe	ern extended excav	ation. Collected in li	ne with

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	North Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/14/2015
Sampling Event		Sample Name	BH-28-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	14.55	1:00:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
General Sampling	Comment S e: g	ample collected at b xtended excavation round surface in this	ase of extended boundary. Impac s area.	excavation sidewa	ll at northwest corne from 12-14 feet belo	er of w

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	North Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/14/2015
Sampling Event		Sample Name	BH-29-S-10.0
Sub Area		Sample Depth	10
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	10.55	2:00:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
General Sampling	Comment S In	ample collected alor npacted soil here ob	ng excavation was served from 10-	all at northern exte 13 feet below grou	nded excavatation b ind surface.	oundary.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	North Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/14/2015
Sampling Event		Sample Name	BH-29-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	1.05	2:10:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
General Sampling	Comment Sabo sc	ample collected at b oundary. Soil looks bil observed 10-13 f	ase of extened e clean below 13 t bgs.	xcavation boundar feet below ground	y along north proper surface (ft bgs). Imp	rty bacted

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	West Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/15/2015
Sampling Event		Sample Name	BH-30-S-10.0
Sub Area		Sample Depth	10
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	0.15	10:15:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
General Sampling	<b>Comment</b> Sales m	ample collected 10 xcavation wall. Som	teet below groun te soil staining o	nd surface (ft bgs) a bserved around 10	along western extenc	red

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	West Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/15/2015
Sampling Event		Sample Name	BH-30-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	1.75	10:00:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
		omula collected at h	and of workers	uton do dou oou otot	an well. Some crow	
General Sampling	<b>Comment</b> of	bserved from 10-14	feet below grou	nd surface but app	eared mostly clean.	

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Northwest Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/16/2015
Sampling Event		Sample Name	BH-31-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	216	7:30:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	1: B	srownish-gray clay s	oil. Moderate P	etroleum-like odor.	. Moist.	
General Sampling	<b>Comment</b> C	Collected on floor of oints BH-29 and BH	northwest corne I-30.	er of extended exca	vation in-line with s	ample

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	West Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/16/2015
Sampling Event		Sample Name	BH-32-S-10.0
Sub Area		Sample Depth	10
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	1.6	11:15:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	1: D					
General Sampling	<b>Comment</b>	Collectd at sidewall contamination (smean	of west extended · zone).	excavation wall. C	Collected at top of ob	oserved

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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## Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Northwwest Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/16/2015
Sampling Event		Sample Name	BH-32-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	339	11:10:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n:	aray sandy-clay soll	with small grave	els. Strong Petroleu	im-like odor. wet.	
General Sampling	Comment S	ample collected fror	n base of west e	extended excavation	n wall.	

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)
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# Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	West Excation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/16/2015
Sampling Event		Sample Name	BH-33-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	202	12:30:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	1: G	ray, sandy clay soil	. Moderate Petro	Dieum-like odor. W	et.	
General Sampling	Comment C	follected on floor of 9.	extended excav	ation in-line with s	ample points BH-32	and BH-

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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# Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Southwest Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/16/2015
Sampling Event		Sample Name	BH-34-S-10.0
Sub Area		Sample Depth	10
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	0.05	1:30:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	ı: B	brown, sandy soil. N	o odor.			
General Sampling	Comment C	Collected at sideslope mear zone.	e of extended ex	cavation at west/so	outh corner. Collecte	d above

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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# Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Southwest Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/16/2015
Sampling Event		Sample Name	BH-34-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	167	1:45:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n: G	ray, silty-clay Mode	erate petroleum-	like odor. Wet.		
General Sampling	Comment <sup>S</sup>	ample collected at b	ase of SW exter	nded excavation.		

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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# Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Southwest Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/16/2015
Sampling Event		Sample Name	BH-34-S-Dup
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	167	1:45:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
General Sampling	<b>Comment</b> D e:	Duplicate sample of I xcavation.	BH-34-S-14.0. S	Sample collected at	base of SW extende	d

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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# Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Southwest Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/20/2015
Sampling Event		Sample Name	BH-35-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	61	11:50:00 AM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Concred Sampling	Commont S	ample collected at h	use of wall of SV	W extended excav	ation Sample 11 fee	t west
General Sampling	a	nd 4 feet north of K	MW-7.			

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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# Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Southwest Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/20/2015
Sampling Event		Sample Name	BH-35-S-9.0
Sub Area		Sample Depth	9
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	480	12:00:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
General Sampling	Comment S	ample collected alor eet west and 4 feet n	ngside slope of v orth of KMW-7	wall of SW extende	ed excavation. Samp	le 11

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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# Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	West Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/20/2015
Sampling Event		Sample Name	BH-36-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	418	1:00:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	1:	ray, siity clay. Stroi	ig petroleum-lik	e odor. wet.		
General Sampling	Comment C 2	Collected on floor of 6 & BH-32.	western extende	ed excavation. In-li	ne with sample locat	tions BH-

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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# Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	West Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/20/2015
Sampling Event		Sample Name	BH-36-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	418	1:00:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	1:	ray, siity clay. Stroi	ig petroleum-lik	e odor. wet.		
General Sampling	Comment C 2	Collected on floor of 6 & BH-32.	western extende	ed excavation. In-li	ne with sample locat	tions BH-

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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# Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Southwest Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil- West Nobhill	Sampling Date	04/21/2015
Sampling Event		Sample Name	BH-37-S-14.0
Sub Area		Sample Depth	14
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(1) Backhoe	Soil	Confirmation	313	2:40:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description:		iray, silty clay. Stror	ng petroleum-lik	e odor. Wet.		
General Sampling	Comment C	collect at base of sou	th extended exc	avation wall, 3' SE	of KMW-7.	

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

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# Soil Field Sampling Data Sheet

Client Name	City of Yakima	Sample Location	Southwest Excavation
Project Number	0818.02.01	Sampler	LSC
Project Name	Tiger Oil - West Nobhill	Sampling Date	04/21/2015
Sampling Event		Sample Name	BH-37-S-9.0
Sub Area		Sample Depth	9
FSDS QA:	LSC	Easting	Northing TOC

#### **Sample Information**

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	<b>Container Code</b>	#
(1) Backhoe	Soil	Confirmation	281	2:30:00 PM	2 oz. soil	
					4 oz. soil	1
					8 oz. soil	
					Other	4
					Total Containers	5
Sample Description	n: G	ray, sandy, soil. Str	ong petroleum-l	ike odor.		
General Sampling	Comment C	collect on south exte	nded excavatior	n wall, 3' SE of KM	IW-7.	

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

# APPENDIX E LABORATORY REPORTS AND DATA VALIDATION MEMORANDUM



#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 1, 2015

Justin Clary, Project Manager Maul Foster Alongi 411 1<sup>st</sup> Ave S, Suite 610 Seattle, WA 98104

Dear Mr. Clary:

Included are the results from the testing of material submitted on March 31, 2015 from the Tiger 0818.02.01, F&BI 503580 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0401R.DOC

# ENVIRONMENTAL CHEMISTS

## CASE NARRATIVE

This case narrative encompasses samples received on March 31, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger 0818.02.01, F&BI 503580 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Maul Foster Alongi</u>
503580 -01	SP-04-S-01
503580 -02	SP-04-S-02
503580 -03	SP-04-S-03
503580 -04	SP-04-S-04
503580 -05	SP-04-S-05
503580 -06	SP-04-S-06
503580 -07	SP-04-S-07

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/01/15 Date Received: 03/31/15 Project: Tiger 0818.02.01, F&BI 503580 Date Extracted: 03/31/15 Date Analyzed: 03/31/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	Ethyl <u>Benzene</u>	Total <u>Xylenes</u>	Gasoline <u>Range</u>	Surrogate ( <u>% Recovery)</u> (Limit 50-150)
SP-04-S-01 503580-01	< 0.02	< 0.02	< 0.02	< 0.06	<2	90
SP-04-S-02 503580-02	<0.02	< 0.02	< 0.02	< 0.06	<2	91
SP-04-S-03 503580-03	< 0.02	< 0.02	< 0.02	<0.06	<2	91
SP-04-S-04 503580-04	< 0.02	< 0.02	< 0.02	<0.06	<2	91
SP-04-S-05 503580-05	< 0.02	< 0.02	< 0.02	<0.06	<2	90
SP-04-S-06 503580-06	< 0.02	< 0.02	<0.02	<0.06	<2	91
SP-04-S-07 503580-07	<0.02	<0.02	<0.02	<0.06	<2	92
Method Blank 05-0657 MB	< 0.02	< 0.02	< 0.02	< 0.06	<2	89

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/01/15 Date Received: 03/31/15 Project: Tiger 0818.02.01, F&BI 503580

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 503417-04 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	80	69-120
Toluene	mg/kg (ppm)	0.5	96	70-117
Ethylbenzene	mg/kg (ppm)	0.5	95	65-123
Xylenes	mg/kg (ppm)	1.5	93	66-120
Gasoline	mg/kg (ppm)	20	105	71-131

#### ENVIRONMENTAL CHEMISTS

## **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 9, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Boulevard Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 8, 2015 from the Tiger Oil 0818.02.01, F&BI 504136 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0409R.DOC

# ENVIRONMENTAL CHEMISTS

## CASE NARRATIVE

This case narrative encompasses samples received on April 8, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil 0818.02.01 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Maul Foster Alongi
504136 -01	SP-05-S-01
504136 -02	SP-05-S-Dup
504136 -03	SP-05-S-02
504136 -04	SP-05-S-03
504136 -05	SP-05-S-04
504136 -06	SP-05-S-05

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/15 Date Received: 04/08/15 Project: Tiger Oil 0818.02.01, F&BI 504136 Date Extracted: 04/08/15 Date Analyzed: 04/08/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
Sample ID Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	Benzene	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery</u> ) (Limit 50-132)
SP-05-S-01 504136-01	< 0.02	< 0.02	< 0.02	<0.06	<2	91
SP-05-S-Dup 504136-02	<0.02	< 0.02	< 0.02	< 0.06	<2	91
SP-05-S-02 504136-03	<0.02	< 0.02	< 0.02	< 0.06	<2	93
SP-05-S-03 504136-04	<0.02	< 0.02	< 0.02	<0.06	<2	97
SP-05-S-04 504136-05	< 0.02	< 0.02	< 0.02	< 0.06	<2	94
<b>SP-05-S-05</b> 504136-06	< 0.02	< 0.02	< 0.02	< 0.06	<2	93
Method Blank 05-0695 MB2	< 0.02	< 0.02	< 0.02	< 0.06	<2	87

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/15 Date Received: 04/08/15 Project: Tiger Oil 0818.02.01, F&BI 504136

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 504119-03 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	87	69-120
Toluene	mg/kg (ppm)	0.5	87	70-117
Ethylbenzene	mg/kg (ppm)	0.5	86	65-123
Xylenes	mg/kg (ppm)	1.5	85	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

#### ENVIRONMENTAL CHEMISTS

## **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 16, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Boulevard Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 15, 2015 from the Tiger Oil 0818-02-01, F&BI 504267 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0416R.DOC

### ENVIRONMENTAL CHEMISTS

## CASE NARRATIVE

This case narrative encompasses samples received on April 15, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil 0818-02-01, F&BI 504267 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
504267 -01	SP-06-S-01
504267 -02	SP-06-S-02
504267 -03	SP-06-S-03
504267 -04	SP-06-S-04
504267 -05	SP-06-S-05

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/16/15 Date Received: 04/15/15 Project: Tiger Oil 0818-02-01, F&BI 504267 Date Extracted: 04/15/15 Date Analyzed: 04/15/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
Sample ID Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Benzene</u>	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery</u> ) (Limit 50-132)
SP-06-S-01 504267-01	< 0.02	< 0.02	< 0.02	< 0.06	2.5	98
SP-06-S-02 504267-02	< 0.02	< 0.02	< 0.02	<0.06	<2	103
SP-06-S-03 504267-03	< 0.02	< 0.02	< 0.02	<0.06	<2	100
SP-06-S-04 504267-04	< 0.02	< 0.02	< 0.02	<0.06	<2	95
SP-06-S-05 504267-05	< 0.02	< 0.02	< 0.02	<0.06	<2	98
Method Blank 05-0752 MB	< 0.02	< 0.02	< 0.02	< 0.06	<2	86

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/16/15 Date Received: 04/15/15 Project: Tiger Oil 0818-02-01, F&BI 504267

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 504262-06 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	86	69-120
Toluene	mg/kg (ppm)	0.5	86	70-117
Ethylbenzene	mg/kg (ppm)	0.5	86	65-123
Xylenes	mg/kg (ppm)	1.5	85	66-120
Gasoline	mg/kg (ppm)	20	105	71-131

#### ENVIRONMENTAL CHEMISTS

## **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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Friedman & Bruya, Inc.	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
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Seattle, WA 98119-2029	Received by: M M and	Nhan Phan	FEBI	4/15715	1430
Ph. (206) 285-8282	Relinquished by:				
Fax (206) 283-5044	Received by:		Samples received	at <u> </u>	;
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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 16, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Boulevard Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 9, 2015 from the Tiger Oil 0818.02.01, F&BI 504167 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0416R.DOC

### ENVIRONMENTAL CHEMISTS

## CASE NARRATIVE

This case narrative encompasses samples received on April 9, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil 0818.02.01, F&BI 504167 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Maul Foster Alongi</u>
504167 -01	BH-22-S-14.0
504167 -02	BH-23-S-14.0
504167 -03	BH-24-S-14.0

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/16/15 Date Received: 04/09/15 Project: Tiger Oil 0818.02.01, F&BI 504167 Date Extracted: 04/10/15 Date Analyzed: 04/10/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Benzene</u>	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery</u> ) (Limit 50-132)
BH-22-S-14.0 504167-01 1/100	78	480	150	910	11,000	107
BH-23-S-14.0 504167-02	0.19	0.92	1.7	11	200	116
BH-24-S-14.0 504167-03	0.28	1.2	1.0	6.5	49	111
Method Blank 05-0698 MB	<0.02	<0.02	< 0.02	<0.06	<2	92

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/16/15 Date Received: 04/09/15 Project: Tiger Oil 0818.02.01, F&BI 504167

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 504171-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	84	66-121
Toluene	mg/kg (ppm)	0.5	87	72-128
Ethylbenzene	mg/kg (ppm)	0.5	88	69-132
Xylenes	mg/kg (ppm)	1.5	89	69-131
Gasoline	mg/kg (ppm)	20	105	61-153

#### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 28, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Boulevard Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 17, 2015 from the Tiger Oil 0818.02.01, F&BI 504314 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0428R.DOC
### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on April 17, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil 0818.02.01, F&BI 504314 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	<u>Maul Foster Alongi</u>
504314 -01	BH-31-S-14.0
504314 -02	BH-32-S-14.0
504314 -03	BH-32-S-10.0
504314 -04	BH-33-S-14.0
504314 -05	BH-34-S-10.0
504314 -06	BH-34-S-14.0
504314 -07	BH-34-S-DUP

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/28/15 Date Received: 04/17/15 Project: Tiger Oil 0818.02.01, F&BI 504314 Date Extracted: 04/17/15 Date Analyzed: 04/17/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	Ethyl <u>Benzene</u>	Total <u>Xylenes</u>	Gasoline <u>Range</u>	Surrogate ( <u>% Recovery)</u> (Limit 50-150)
BH-31-S-14.0 504314-01	< 0.02	0.036	0.060	0.14	14	86
BH-32-S-14.0 504314-02	<0.02	0.59	0.094	0.28	65	91
BH-32-S-10.0 504314-03	< 0.02	< 0.02	< 0.02	< 0.06	<2	85
BH-33-S-14.0 504314-04	0.21	0.032	0.16	0.84	6.2	75
BH-34-S-10.0 504314-05	< 0.02	< 0.02	<0.02	< 0.06	<2	86
BH-34-S-14.0 504314-06	< 0.02	0.37	0.087	0.36	55	87
BH-34-S-DUP 504314-07	< 0.02	0.24	0.055	0.22	34	87
Method Blank <sup>05-0757 MB</sup>	< 0.02	< 0.02	< 0.02	< 0.06	<2	85

## ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 200.8

Client ID:	BH-32-S-14.0	Client:	Maul Foster Alongi
Date Received:	04/17/15	Project:	Tiger Oil 0818.02.01, F&BI 504314
Date Extracted:	04/20/15	Lab ID:	504314-02
Date Analyzed:	04/21/15	Data File:	504314-02.099
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
		Lower	Upper
Internal Standard:	% Recovery:	Limit:	Limit:
Holmium	97	60	125
	Concentration		
Analyte:	mg/kg (ppm)		
Lead	4.71		

## ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 200.8

Client ID: Date Received: Date Extracted:	Method Blank NA 04/20/15	Client: Project: Lab ID:	Maul Foster Alongi Tiger Oil 0818.02.01, F&BI 504314 I5-229 mb
Date Analyzed:	04/21/15	Data File:	I5-229 mb.098
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Internal Standard: Holmium	% Recovery: 98	Lower Limit: 60	Upper Limit: 125
Analyte:	Concentration mg/kg (ppm)		
Lead	<1		

## ENVIRONMENTAL CHEMISTS

Client ID:	BH-32-S-14.	0	Client:	Maul Foster Alongi
Date Received:	04/17/15		Project:	Tiger Oil 0818.02.01, F&BI 504314
Date Extracted:	04/23/15		Lab ID:	504314-02
Date Analyzed:	04/24/15		Data File:	504314-02.049
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	SP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		88	60	125
Applyto		Concentration	TCIPLim	<b>;</b> +
Allalyte.		шg/с (ррш)	ICLF LIII	iit.
Lead		<1	5.0	

## ENVIRONMENTAL CHEMISTS

Client ID:	Method Blan	ık	Client:	Maul Foster Alongi
Date Received:	NA		Project:	Tiger Oil 0818.02.01, F&BI 504314
Date Extracted:	04/23/15		Lab ID:	I5-246 mb
Date Analyzed:	04/24/15		Data File:	I5-246 mb.047
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	SP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		91	60	125
Analyte:		Concentration mg/L (ppm)	TCLP Lim	iit
Lead		<1	5.0	

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/28/15 Date Received: 04/17/15 Project: Tiger Oil 0818.02.01, F&BI 504314

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 504313-02 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	77	69-120
Toluene	mg/kg (ppm)	0.5	86	70-117
Ethylbenzene	mg/kg (ppm)	0.5	85	65-123
Xylenes	mg/kg (ppm)	1.5	83	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/28/15 Date Received: 04/17/15 Project: Tiger Oil 0818.02.01, F&BI 504314

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 504331-01 (Matrix Spike)							
			Sample	Percent	Percent		
	Reporting	Spike	Result	Recov ery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Lead	mg/kg (ppm)	50	<1	101	101	59-148	0

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Lead	mg/kg (ppm)	50	102	80-120

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/28/15 Date Received: 04/17/15 Project: Tiger Oil 0818.02.01, F&BI 504314

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TCLP METALS USING EPA METHOD 200.8 AND 40 CFR PART 261

Laboratory Code: 504314-02 (Matrix Spike)

				Percent	Percent		
	Reporting	Spike	Sample	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	Result	MS	MSD	Criteria	(Limit 20)
Lead	mg/L (ppm)	1.0	<1	97	97	50-150	0

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Lead	mg/L (ppm)	1.0	96	70-130

#### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

 ${\rm J}$  - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 28, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Boulevard Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 22, 2015 from the Tiger Oil 0818.02.01, F&BI 504405 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0428R.DOC

### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on April 22, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil 0818.02.01, F&BI 504405 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Maul Foster Alongi
504405 -01	BH-37_S-9.0
504405 -02	BH-37-S-14.0

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/28/15 Date Received: 04/22/15 Project: Tiger Oil 0818.02.01, F&BI 504405 Date Extracted: 04/23/15 Date Analyzed: 04/23/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Benzene</u>	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery</u> ) (Limit 50-150)
BH-37_S-9.0 504405-01	<0.02	0.062	0.19	1.7	69	99
BH-37-S-14.0 504405-02	0.27	0.24	2.0	7.3	160	104
Method Blank 05-0815 MB2	< 0.02	< 0.02	< 0.02	< 0.06	<2	97

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/28/15 Date Received: 04/22/15 Project: Tiger Oil 0818.02.01, F&BI 504405

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 504395-04 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

	Percent								
	Reporting	Spike	Recovery	Acceptance					
Analyte	Units	Level	LCS	Criteria					
Benzene	mg/kg (ppm)	0.5	92	69-120					
Toluene	mg/kg (ppm)	0.5	95	70-117					
Ethylbenzene	mg/kg (ppm)	0.5	96	65-123					
Xylenes	mg/kg (ppm)	1.5	95	66-120					
Gasoline	mg/kg (ppm)	20	105	71-131					

#### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

 $\ensuremath{\text{ip}}$  - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Send Report ToIustin (	Clary/ Yen-Vy	Van		SAMPLERS	(signature)										P: T	age #		
Company <u>Maul Foster</u>	and Alongi	•		PROJECT N	AME/NO.						P	0 #		<	Stan	darð	Turnai	Tound
Address				Tiger Oil 08	18.02.01									R	ush cl	harg	es auth	orized by:
City, State, ZIP		······	·	PROJECT ADDRESS						• D			S	SAMPLE DISPOSAL Dispose after 30 days				
Phone #	Fax #										Return samples Will call with instructions							
Email Address				ELECTRONIC DATA REQUESTED						Samples Received at °C								
[			<u>.</u>			1								IFCT	ED.			
:							e e	B	0	2			EQU					
Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasolin	BTEX by 802	VOCs by 826	SVOCs by 82	HFS	•			•			Notes
BH-37_S-9.0	01 A-E	4/21/15	14:30	\$	5		x	x		-								
BH-37-S-14.0	02 V	4/21/15	14:40	S	5		x	х́										
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	·			1							f	Can	piga	ICC	nveg	at	<u> </u>	<u>°C</u>
Friedman & Bruya, Inc. 3012 16th Avenue West	Relinquished by	SIGNATUI	RE		PRINT	NA	ME	I				CO	MPA	NY		I	DATE	TIME
Seattle, WA 98119-2029	Received by:	lantar	w	Nha	n ph	G.	2			-	F	c B	T			4/2	2/15	1530
Ph. (206) 285-8282	Relinquished by								1-		<u> </u>				-715	1370		
Fax (206) 283-5044	Received by:															1		1

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

March 24, 2015

Justin Clary, Project Manager Maul Foster Alongi 411 1<sup>st</sup> Ave S, Suite 610 Seattle, WA 98104

Dear Mr. Clary:

Included are the results from the testing of material submitted on March 20, 2015 from the Tiger Oil West Nob Hill 0818, F&BI 503385 project. There are 19 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby MFA0324R.DOC

#### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on March 20, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil West Nob Hill 0818, F&BI 503385 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
503385 -01	SP-02-S-01
503385 -02	SP-02-S-02
503385 -03	SP-02-S-03
503385 -04	SP-02-S-04
503385 -05	SP-02-S-05

cis-1,2-Dichloroethene in the 8260C laboratory control sample exceeded the acceptance criteria. The analyte was not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/15 Date Received: 03/20/15 Project: Tiger Oil West Nob Hill 0818, F&BI 503385 Date Extracted: 03/20/15 Date Analyzed: 03/20/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate ( <u>% Recovery</u> ) (Limit 50-150)
SP-02-S-01 503385-01	<2	103
SP-02-S-02 503385-02	<2	102
SP-02-S-03 503385-03	<2	102
SP-02-S-04 503385-04	11	105
SP-02-S-05 503385-05	6.5	103
Method Blank 05-0563 MB	<2	101

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	SP-02-S-01 03/20/15 03/20/15 03/20/15 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil West Nob H 503385-01 032026.D GCMS4 JS	ill 0818, F&BI 503385
Common atom to a se		0/ <b>D</b>	Lower	Upper	
Surrogates:	44	% Recovery:	Limit:	LIMIC:	
Taluana de	<b>u</b> 4	103	02 51	142	
4-Bromofluorobenze	ene	94	32	121	
		Concentration			Concentration
Compounds		mg/kg (nnm)	Compour	nde	concentration mg/kg (nnm)
Compounds:		mg/kg (ppm)	Compour	nus:	mg/kg (ppm)
Dichlorodifluor omet	thane	< 0.5	1,3-Dichl	oropropane	< 0.05
Chloromethane		<0.5	Tetrachl	oroethene	< 0.025
Vinyl chloride		< 0.05	Dibromo	chloromethane	< 0.05
Bromomethane		<0.5	1,2-Dibro	omoethane (EDB)	< 0.05
Chloroethane		<0.5	Chlorobe	enzene	< 0.05
Trichlorofluorometh	nane	<0.5	Ethylber	nzene	< 0.05
Acetone		<0.5	1,1,1,2-T	etrachloroethane	< 0.05
1,1-Dichloroethene		< 0.05	m,p-Xyle	ene	<0.1
Methylene chloride		<0.5	o-Xylene		< 0.05
Methyl t-butyl ether	r (MTBE)	< 0.05	Styrene		< 0.05
trans-1,2-Dichloroe	thene	< 0.05	Isopropy	lbenzene	< 0.05
1,1-Dichloroethane		< 0.05	Bromofor	rm	< 0.05
2,2-Dichloropropane	e	< 0.05	n-Propyl	benzene	< 0.05
cis-1,2-Dichloroethe	ne	< 0.05	Bromobe	enzene	< 0.05
Chloroform		< 0.05	1,3,5-Tri	methylbenzene	< 0.05
2-Butanone (MEK)		<0.5	1,1,2,2-T	etrachloroethane	< 0.05
1,2-Dichloroethane	(EDC)	< 0.05	1,2,3-Tri	chloropropane	< 0.05
1,1,1-Trichloroetha	ne	< 0.05	2-Chloro	toluene	< 0.05
1,1-Dichloropropene	<u>)</u>	< 0.05	4-Chloro	toluene	< 0.05
Carbon tetrachlorid	e	< 0.05	tert-Buty	ylbenzene	< 0.05
Benzene		< 0.03	1,2,4-Tri	methylbenzene	< 0.05
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
1,2-Dichloropropane	e	< 0.05	p-Isoproj	oyltoluene	< 0.05
Bromodichlorometh	ane	< 0.05	1,3-Dichl	orobenzene	< 0.05
Dibromomethane		< 0.05	1,4-Dichl	lorobenzene	< 0.05
4-Methyl-2-pentano	ne	<0.5	1,2-Dichl	orobenzene	< 0.05
cis-1,3-Dichloroprop	ene	< 0.05	1,2-Dibro	omo-3-chloropropane	<0.5
Toluene		< 0.05	1,2,4-Tri	chlorobenzene	< 0.25
trans-1,3-Dichlorop	ropene	< 0.05	Hexachle	orobutadiene	<0.25
1,1,2-Trichloroetha	ne	< 0.05	Naphtha	lene	< 0.05
2-Hexanone		< 0.5	1,2,3-Tri	chlorobenzene	<0.25

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	SP-02-S-02 03/20/15 03/20/15 03/20/15 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil West Nob H 503385-02 032027.D GCMS4 JS	ill 0818, F&BI 503385
			Lower	Upper	
Surrogates:		% Recovery:	Limit:	Limit:	
1,2-Dichloroethane-	d4	103	62	142	
Toluene-d8		104	51	121	
4-Bromofluorobenze	ene	96	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compour	nds:	mg/kg (ppm)
Dichlorodifluorome	thane	<0.5	1,3-Dichl	oropropane	< 0.05
Chloromethane		< 0.5	Tetrachl	oroethene	< 0.025
Vinyl chloride		< 0.05	Dibromo	chloromethane	< 0.05
Bromomethane		< 0.5	1,2-Dibro	omoethane (EDB)	< 0.05
Chloroethane		< 0.5	Chlorobe	enzene	< 0.05
Trichlorofluorometh	nane	<0.5	Ethylben	izene	< 0.05
Acetone		<0.5	1,1,1,2-T	etrachloroethane	< 0.05
1,1-Dichloroethene		< 0.05	m,p-Xyle	ene	<0.1
Methylene chloride		<0.5	o-Xylene		< 0.05
Methyl t-butyl ether	r (MTBE)	< 0.05	Styrene		< 0.05
trans-1,2-Dichloroe	thene	< 0.05	Isopropy	lbenzene	< 0.05
1,1-Dichloroethane		< 0.05	Bromofor	rm	< 0.05
2,2-Dichloropropane	e	< 0.05	n-Propyl	benzene	< 0.05
cis-1,2-Dichloroethe	ne	< 0.05	Bromobe	enzene	< 0.05
Chloroform		< 0.05	1,3,5-Tri	methylbenzene	< 0.05
2-Butanone (MEK)		<0.5	1,1,2,2-T	etrachloroethane	< 0.05
1,2-Dichloroethane	(EDC)	< 0.05	1,2,3-Tri	chloropropane	< 0.05
1,1,1-Trichloroetha	ne	< 0.05	2-Chloro	toluene	< 0.05
1,1-Dichloropropene	<u>)</u>	< 0.05	4-Chloro	toluene	< 0.05
Carbon tetrachlorid	e	< 0.05	tert-Buty	lbenzene	< 0.05
Benzene		< 0.03	1,2,4-Tri	methylbenzene	< 0.05
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
1,2-Dichloropropane	<u>è</u>	< 0.05	p-Isoprop	oyltoluene	< 0.05
Bromodichlorometh	ane	< 0.05	1,3-Dichl	orobenzene	< 0.05
Dibromomethane		< 0.05	1,4-Dichl	orobenzene	< 0.05
4-Methyl-2-pentano	ne	<0.5	1,2-Dichl	orobenzene	< 0.05
cis-1,3-Dichloroprop	ene	< 0.05	1,2-Dibro	omo-3-chloropropane	<0.5
Toluene		< 0.05	1,2,4-Trie	chlorobenzene	<0.25
trans-1,3-Dichlorop	ropene	< 0.05	Hexachle	orobutadiene	<0.25
1,1,2-Trichloroetha	ne	< 0.05	Naphtha	lene	< 0.05
2-Hexanone		< 0.5	1,2,3-Tri	chlorobenzene	<0.25

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	SP-02-S-03 03/20/15 03/20/15 03/20/15 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil West Nob H 503385-03 032028.D GCMS4 JS	ill 0818, F&BI 503385
			Lower	Upper	
Surrogates:		% Recovery:	Limit:	Limit:	
1,2-Dichloroethane-	d4	99	62	142	
Toluene-d8		105	51	121	
4-Bromofluorobenze	ene	95	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compour	nds:	mg/kg (ppm)
Dichlorodifluorome	thane	<0.5	1,3-Dichl	oropropane	< 0.05
Chloromethane		< 0.5	Tetrachl	oroethene	< 0.025
Vinyl chloride		< 0.05	Dibromo	chloromethane	< 0.05
Bromomethane		< 0.5	1,2-Dibro	omoethane (EDB)	< 0.05
Chloroethane		<0.5	Chlorobe	enzene	< 0.05
Trichlorofluorometh	nane	< 0.5	Ethylben	izene	< 0.05
Acetone		< 0.5	1,1,1,2-T	etrachloroethane	< 0.05
1,1-Dichloroethene		< 0.05	m,p-Xyle	ene	<0.1
Methylene chloride		< 0.5	o-Xylene		< 0.05
Methyl t-butyl ether	r (MTBE)	< 0.05	Styrene		< 0.05
trans-1,2-Dichloroe	thene	< 0.05	Isopropy	lbenzene	< 0.05
1,1-Dichloroethane		< 0.05	Bromofor	rm	< 0.05
2,2-Dichloropropane	e	< 0.05	n-Propyl	benzene	< 0.05
cis-1,2-Dichloroethe	ne	< 0.05	Bromobe	enzene	< 0.05
Chloroform		< 0.05	1,3,5-Tri	methylbenzene	< 0.05
2-Butanone (MEK)		< 0.5	1,1,2,2-T	etrachloroethane	< 0.05
1,2-Dichloroethane	(EDC)	< 0.05	1,2,3-Tri	chloropropane	< 0.05
1,1,1-Trichloroetha	ne	< 0.05	2-Chloro	toluene	< 0.05
1,1-Dichloropropene	è	< 0.05	4-Chloro	toluene	< 0.05
Carbon tetrachlorid	e	< 0.05	tert-Buty	lbenzene	< 0.05
Benzene		< 0.03	1,2,4-Tri	methylbenzene	0.062
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
1,2-Dichloropropane	e	< 0.05	p-Isoprop	oyltoluene	< 0.05
Bromodichlorometh	ane	< 0.05	1,3-Dichl	orobenzene	< 0.05
Dibromomethane		< 0.05	1,4-Dichl	orobenzene	< 0.05
4-Methyl-2-pentano	ne	< 0.5	1,2-Dichl	orobenzene	< 0.05
cis-1,3-Dichloroprop	ene	< 0.05	1,2-Dibro	omo-3-chloropropane	<0.5
Toluene		< 0.05	1,2,4-Tri	chlorobenzene	<0.25
trans-1,3-Dichlorop	ropene	< 0.05	Hexachlo	orobutadiene	<0.25
1,1,2-Trichloroetha	ne	< 0.05	Naphtha	lene	< 0.05
2-Hexanone		< 0.5	1,2,3-Tri	chlorobenzene	<0.25

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	SP-02-S-04 03/20/15 03/20/15 03/20/15 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil West Nob H 503385-04 032029.D GCMS4 JS	lill 0818, F&BI 503385
-			Lower	Upper	
Surrogates:	14	% Recovery:	Limit:	Limit:	
1,2-Dichloroethane-	d4	102	62	142	
Toluene-d8		103	51	121	
4-Bromofluorobenze	ene	96	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compour	nds:	mg/kg (ppm)
Dichlorodifluorome	thane	<0.5	1,3-Dichl	loropropane	< 0.05
Chloromethane		< 0.5	Tetrachl	oroethene	< 0.025
Vinyl chloride		< 0.05	Dibromo	chloromethane	< 0.05
Bromomethane		< 0.5	1,2-Dibro	omoethane (EDB)	< 0.05
Chloroethane		< 0.5	Chlorobe	enzene	< 0.05
Trichlorofluorometh	nane	< 0.5	Ethylben	nzene	0.15
Acetone		< 0.5	1,1,1,2-T	etrachloroethane	< 0.05
1,1-Dichloroethene		< 0.05	m,p-Xyle	ene	0.78
Methylene chloride		< 0.5	o-Xylene		0.34
Methyl t-butyl ether	r (MTBE)	< 0.05	Styrene		< 0.05
trans-1,2-Dichloroe	thene	< 0.05	Isopropy	lbenzene	< 0.05
1,1-Dichloroethane		< 0.05	Bromofor	rm	< 0.05
2,2-Dichloropropane	9	< 0.05	n-Propyl	benzene	0.11
cis-1,2-Dichloroethe	ne	< 0.05	Bromobe	enzene	< 0.05
Chloroform		< 0.05	1,3,5-Tri	methylbenzene	0.24
2-Butanone (MEK)		<0.5	1,1,2,2-T	etrachloroethane	< 0.05
1,2-Dichloroethane	(EDC)	< 0.05	1,2,3-Tri	chloropropane	< 0.05
1,1,1-Trichloroetha	ne	< 0.05	2-Chloro	toluene	< 0.05
1,1-Dichloropropene	)	< 0.05	4-Chloro	toluene	< 0.05
Carbon tetrachlorid	e	< 0.05	tert-Buty	ylbenzene	< 0.05
Benzene		< 0.03	1,2,4-Tri	methylbenzene	0.80
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
1,2-Dichloropropane	e	< 0.05	p-Isoproj	pyltoluene	< 0.05
Bromodichlorometh	ane	< 0.05	1,3-Dichl	lorobenzene	< 0.05
Dibromomethane		< 0.05	1,4-Dichl	lorobenzene	< 0.05
4-Methyl-2-pentance	ne	<0.5	1,2-Dichl	lorobenzene	< 0.05
cis-1,3-Dichloroprop	ene	< 0.05	1,2-Dibro	omo-3-chloropropane	<0.5
Toluene		0.096	1,2,4-Tri	chlorobenzene	<0.25
trans-1,3-Dichlorop	ropene	< 0.05	Hexachle	probutadiene	<0.25
1,1,2-Trichloroetha	ne	< 0.05	Naphtha	lene	0.28
2-Hexanone		<0.5	1,2,3-Tri	chlorobenzene	<0.25

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	SP-02-S-05 03/20/15 03/20/15 03/20/15 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil West Nob H 503385-05 032030.D GCMS4 JS	ill 0818, F&BI 503385
			Lower	Upper	
Surrogates:	14	% Recovery:	Limit:	Limit:	
1,2-Dichloroethane-	d4	102	62	142	
10luene-u8	200	103	31 29	121	
4-Bromonuorobenze	ene	95	32	140	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compour	nds:	mg/kg (ppm)
Dichlorodifluorome	thane	<0.5	1,3-Dichl	loropropane	< 0.05
Chloromethane		< 0.5	Tetrachl	oroethene	< 0.025
Vinyl chloride		< 0.05	Dibromo	chloromethane	< 0.05
Bromomethane		< 0.5	1,2-Dibro	omoethane (EDB)	< 0.05
Chloroethane	Chloroethane <0.5		Chlorobe	enzene	< 0.05
Trichlorofluoromethane <0.		< 0.5	Ethylber	izene	< 0.05
Acetone		< 0.5	1,1,1,2-T	etrachloroethane	< 0.05
1,1-Dichloroethene		< 0.05	m,p-Xyle	ene	0.16
Methylene chloride		< 0.5	o-Xylene		0.074
Methyl t-butyl ether	r (MTBE)	< 0.05	Styrene		< 0.05
trans-1,2-Dichloroe	thene	< 0.05	Isopropy	lbenzene	< 0.05
1,1-Dichloroethane		< 0.05	Bromofor	rm	< 0.05
2,2-Dichloropropane	<u>e</u>	< 0.05	n-Propyl	benzene	< 0.05
cis-1,2-Dichloroethe	ne	< 0.05	Bromobe	enzene	< 0.05
Chloroform		< 0.05	1,3,5-Tri	methylbenzene	0.075
2-Butanone (MEK)		<0.5	1,1,2,2-T	etrachloroethane	< 0.05
1,2-Dichloroethane	(EDC)	< 0.05	1,2,3-Tri	chloropropane	< 0.05
1,1,1-Trichloroetha	ne	< 0.05	2-Chloro	toluene	< 0.05
1,1-Dichloropropene	<u>)</u>	< 0.05	4-Chloro	toluene	< 0.05
Carbon tetrachlorid	e	< 0.05	tert-Buty	ylbenzene	< 0.05
Benzene		< 0.03	1,2,4-Tri	methylbenzene	0.24
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
1,2-Dichloropropane	e	< 0.05	p-Isoproj	oyltoluene	< 0.05
Bromodichlorometh	ane	< 0.05	1,3-Dichl	lorobenzene	< 0.05
Dibromomethane		< 0.05	1,4-Dichl	lorobenzene	< 0.05
4-Methyl-2-pentano	ne	< 0.5	1,2-Dichl	lorobenzene	< 0.05
cis-1,3-Dichloroprop	ene	< 0.05	1,2-Dibro	omo-3-chloropropane	<0.5
Toluene		< 0.05	1,2,4-Tri	chlorobenzene	<0.25
trans-1,3-Dichlorop	ropene	< 0.05	Hexachle	orobutadiene	<0.25
1,1,2-Trichloroetha	ne	< 0.05	Naphtha	lene	0.17
2-Hexanone		< 0.5	1,2,3-Tri	chlorobenzene	<0.25

## ENVIRONMENTAL CHEMISTS

Client Sample ID:	Method Bla	nk	Client:	Maul Foster Alongi	
Date Received:	Not Applica	ble	Project:	Tiger Oil West Nob H	lill 0818, F&BI 503385
Date Extracted:	03/20/15		Lab ID:	05-0546 mb	
Date Analyzed:	03/20/15		Data File:	032010.D	
Matrix:	Soil		Instrument:	GCMS4	
Units:	mg/kg (ppm	) Dry Weight	Operator:	JS	
	0 0 11	, , , ,	-		
~			Lower	Upper	
Surrogates:		% Recovery:	Limit:	Limit:	
1,2-Dichloroethane	·d4	103	62	142	
Toluene-d8		103	51	121	
4-Bromofluorobenz	ene	96	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compour	nds:	mg/kg (ppm)
Dichlorodifluorome	thane	< 0.5	1,3-Dich	loropropane	< 0.05
Chloromethane		< 0.5	Tetrachl	oroethene	<0.025
Vinyl chloride		< 0.05	Dibromo	chloromethane	<0.05
Bromomethane		< 0.5	1,2-Dibro	omoethane (EDB)	<0.05
Chloroethane <0.5		< 0.5	Chlorobe	enzene	< 0.05
Trichlorofluoromethane <0.5		< 0.5	Ethvlber	nzene	< 0.05
Acetone <0		< 0.5	1.1.1.2-T	etrachloroethane	< 0.05
1.1-Dichloroethene <0.05		< 0.05	m.p-Xvle	ene	< 0.1
Methylene chloride <0.5		< 0.5	o-Xvlene		< 0.05
Methyl t-butyl ether (MTBE) <0.05		< 0.05	Styrene	< 0.05	
trans-1.2-Dichloroe	thene	< 0.05	Isopropy	lbenzene	< 0.05
1.1-Dichloroethane		< 0.05	Bromofo	rm	< 0.05
2,2-Dichloropropan	e	< 0.05	n-Propyl	benzene	< 0.05
cis-1,2-Dichloroethe	ene	< 0.05	Bromobe	enzene	< 0.05
Chloroform		< 0.05	1,3,5-Tri	methylbenzene	< 0.05
2-Butanone (MEK)		< 0.5	1,1,2,2-T	etrachloroethane	< 0.05
1,2-Dichloroethane	(EDC)	< 0.05	1,2,3-Tri	chloropropane	< 0.05
1,1,1-Trichloroetha	ne	< 0.05	2-Chloro	toluene	< 0.05
1,1-Dichloropropen	9	< 0.05	4-Chloro	toluene	< 0.05
Carbon tetrachlorid	le	< 0.05	tert-But	ylbenzene	< 0.05
Benzene		< 0.03	1,2,4-Tri	methylbenzene	< 0.05
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
1,2-Dichloropropan	e	< 0.05	p-Isoproj	pyltoluene	< 0.05
Bromodichlorometh	ane	< 0.05	1,3-Dich	lorobenzene	< 0.05
Dibromomethane		< 0.05	1,4-Dichl	loroben zene	<0.05
4-Methyl-2-pentance	one	< 0.5	1,2-Dich	lorobenzene	< 0.05
cis-1,3-Dichloroprop	bene	< 0.05	1,2-Dibro	omo-3-chloropropane	<0.5
Toluene		< 0.05	1,2,4-Tri	chlorobenzene	<0.25
trans-1,3-Dichlorop	ropene	< 0.05	Hexachle	orobutadiene	<0.25
1,1,2-Trichloroetha	ne	< 0.05	Naphtha	alene	< 0.05
2-Hexanone		< 0.5	1,2,3-Tri	chlorobenzene	<0.25

## ENVIRONMENTAL CHEMISTS

Client ID:	SP-02-S-01		Client:	Maul Foster Alongi
Date Received:	03/20/15		Project:	Tiger Oil West Nob Hill 0818, F&BI 503385
Date Extracted:	03/23/15		Lab ID:	503385-01
Date Analyzed:	03/24/15		Data File:	503385-01.036
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		91	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Lim	hit
Lead		<1	5.0	

## ENVIRONMENTAL CHEMISTS

Client ID:	SP-02-S-02		Client:	Maul Foster Alongi
Date Received:	03/20/15		Project:	Tiger Oil West Nob Hill 0818, F&BI 503385
Date Extracted:	03/23/15		Lab ID:	503385-02
Date Analyzed:	03/24/15		Data File:	503385-02.040
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		92	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Lim	hit
Lead		<1	5.0	

## ENVIRONMENTAL CHEMISTS

Client ID:	SP-02-S-03		Client:	Maul Foster Alongi
Date Received:	03/20/15		Project:	Tiger Oil West Nob Hill 0818, F&BI 503385
Date Extracted:	03/23/15		Lab ID:	503385-03
Date Analyzed:	03/24/15		Data File:	503385-03.041
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		91	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Lim	hit
Lead		<1	5.0	

## ENVIRONMENTAL CHEMISTS

Client ID:	SP-02-S-04		Client:	Maul Foster Alongi
Date Received:	03/20/15		Project:	Tiger Oil West Nob Hill 0818, F&BI 503385
Date Extracted:	03/23/15		Lab ID:	503385-04
Date Analyzed:	03/24/15		Data File:	503385-04.042
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		93	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Lim	hit
Lead		<1	5.0	

## ENVIRONMENTAL CHEMISTS

Client ID:	SP-02-S-05		Client:	Maul Foster Alongi
Date Received:	03/20/15		Project:	Tiger Oil West Nob Hill 0818, F&BI 503385
Date Extracted:	03/23/15		Lab ID:	503385-05
Date Analyzed:	03/24/15		Data File:	503385-05.043
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		94	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Lim	hit
Lead		<1	5.0	

## ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	Method Blan NA 03/23/15 03/24/15 Soil	ık	Client: Project: Lab ID: Data File: Instrument:	Maul Foster Alongi Tiger Oil West Nob Hill 0818, F&BI 503385 I5-173 mb I5-173 mb.034 ICPMS1
Units:	mg/L (ppm)		Operator:	AP
Internal Standard: Holmium		% Recovery: 91	Lower Limit: 60	Upper Limit: 125
Analyte:		Concentration mg/L (ppm)	TCLP Lim	iit
Lead		<1	5.0	

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/15 Date Received: 03/20/15 Project: Tiger Oil West Nob Hill 0818, F&BI 503385

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 5	03366-01 (Duplic	ate)			
-	_	Samp	le Di	uplicate	
	Reporting	Resu	lt l	Result	RPD
Analyte	Units	(Wet V	Nt) (V	Vet Wt)	(Limit 20)
Gasoline	mg/kg (ppm)	<2		<2	nm
Laboratory Code: L	aboratory Contro	ol Sample	<u>è</u>		
			Percent		
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	
Gasoline	mg/kg (ppm)	20	90	71-131	_

#### ENVIRONMENTAL CHEMISTS

### Date of Report: 03/24/15 Date Received: 03/20/15 Project: Tiger Oil West Nob Hill 0818, F&BI 503385

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 503366-09 (Matrix Spike)

<b>y</b>	1		Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	21	18	10-142	15
Chloromethane	mg/kg (ppm)	2.5	<0.5	55	52	10-126	6
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	51	49	10-138	4
Chloroethane	mg/kg (ppm)	2.0	<0.5	65	55 64	10-103	9
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	49	46	10-176	6
Acetone	mg/kg (ppm)	12.5	<0.5	90	88	10-163	2
1,1-Dichloroethene	mg/kg (ppm)	2.5	< 0.05	66	67	10-160	2
Methylene chloride	mg/kg (ppm)	2.5	< 0.5	66	65	10-156	2
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	< 0.05	82	81	21-145	1
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	< 0.05	74	70	14-137	6
1,1-Dichloroethane	mg/kg (ppm)	2.5	< 0.05	77	77	19-140	0
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	68	66	10-158	3
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	83	81	25-135	2
2 Butanana (MEK)	mg/kg (ppm)	Z.5	<0.05	/8	11	21-145	1
1.2-Dichloroethane (FDC)	mg/kg (ppiii)	25	<0.5	89 79	94 76	19-147	3
1.1.1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	79	69	10-156	4
1.1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	77	77	17-140	0
Carbon tetrachloride	mg/kg (ppm)	2.5	< 0.05	70	69	9-164	1
Benzene	mg/kg (ppm)	2.5	0.21	85	84	29-129	1
Trichloroethene	mg/kg (ppm)	2.5	< 0.02	84	82	21-139	2
1,2-Dichloropropane	mg/kg (ppm)	2.5	< 0.05	84	82	30-135	2
Bromodichlor omethane	mg/kg (ppm)	2.5	< 0.05	81	80	23-155	1
Dibromomethane	mg/kg (ppm)	2.5	<0.05	82	83	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	96	99	24-155	3
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	86	84	28-144	2
trans_13_Dichloropropene	mg/kg (ppm)	2.5	<0.05	80 79	70	26-149	1
1 1 2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	81	84	10-205	4
2-Hexanone	mg/kg (ppm)	12.5	<0.5	82	85	15-166	4
1,3-Dichloropropane	mg/kg (ppm)	2.5	< 0.05	84	85	31-137	1
Tetrachloroethene	mg/kg (ppm)	2.5	< 0.025	80	80	20-133	0
Dibromochloromethane	mg/kg (ppm)	2.5	< 0.05	78	77	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	< 0.05	83	84	28-142	1
Chlorobenzene	mg/kg (ppm)	2.5	< 0.05	83	81	32-129	2
Ethylbenzene	mg/kg (ppm)	2.5	0.22	82	83	32-137	1
1,1,1,2-1 etrachioroethane	mg/kg (ppm)	2.5	<0.05	80 80 h	81 00 h	31-143	1
m,p-Aylene	mg/kg (ppm)	25	1.2	80 D 87	90 D 80	34-130	20
Styrene	mg/kg (ppm)	2.5	<0.05	84	83	35-137	1
Isopropylbenzene	mg/kg (ppm)	2.5	< 0.05	80	79	31-142	1
Bromoform	mg/kg (ppm)	2.5	< 0.05	74	73	21-156	1
n-Propylbenzene	mg/kg (ppm)	2.5	0.061	79	79	23-146	0
Bromobenzene	mg/kg (ppm)	2.5	< 0.05	83	83	34-130	0
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	0.18	82	83	18-149	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	82	81	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	79	80	25-144	1
4-Chlorotoluene	mg/kg (ppiii)	2.5	<0.05	78 77	76	31-134	0
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	82	81	30-137	1
1.2.4 Trimethylbenzene	mg/kg (ppm)	2.5	0.58	86 b	92 b	10-182	7 b
sec-Butylbenzene	mg/kg (ppm)	2.5	< 0.05	80	79	23-145	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	< 0.05	80	79	21-149	1
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	< 0.05	81	81	30-131	0
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	< 0.05	81	81	29-129	0
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	< 0.05	84	82	31-132	2
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	69	69	11-161	0
1,2,4-1 FICHIOFODENZENE	mg/kg (ppm)	2.5	<0.25	81	81	22-142	U 1
Nanhthalene	mg/kg (ppm)	2.0 2.5	<0.20 0.26	79 87	80 QA	10-142	1 2
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	82	82	20-144	Ő

#### ENVIRONMENTAL CHEMISTS

#### Date of Report: 03/24/15 Date Received: 03/20/15 Project: Tiger Oil West Nob Hill 0818, F&BI 503385

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	62	10-146
Chloromethane Visual ablastida	mg/kg (ppm)	2.5	93	27-133
Promomethana	mg/kg (ppm)	2.5	97	22-139
Chloroethane	mg/kg (ppm)	2.0	90 106	38-114
Trichlorofluoromethane	mg/kg (ppm)	2.5	99	10-196
Acetone	mg/kg (ppm)	12.5	120	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	111	47-128
Methylene chloride	mg/kg (ppm)	2.5	103	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	110	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	108	67-127
2.2 Dichloropropago	mg/kg (ppm)	2.5	102	52 170
cis-12-Dichloroethene	mg/kg (ppiii)	2.5	105 115 vo	52-170 72-113
Chloroform	mg/kg (ppm)	2.5	108	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	110	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	106	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	104	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	113	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	103	60-139
Benzene	mg/kg (ppm)	2.5	111	68-114
Trichloroethene	mg/kg (ppm)	2.5	115	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	112	72-127
Dibromomothano	mg/kg (ppm)	2.5	108	72-130
4-Methyl-2-pentanone	mg/kg (ppiii)	12.5	124	45-145
cis-1.3-Dichloropropene	mg/kg (ppm)	2.5	115	75-136
Toluene	mg/kg (ppm)	2.5	107	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	104	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	107	75-113
2-Hexanone	mg/kg (ppm)	12.5	106	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	110	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	110	72-114
1.2 Dibromochloromethane	mg/kg (ppm)	2.5	104	74-125
(LDB)	mg/kg (ppiii)	2.5	109	74-132
Fthylbenzene	mg/kg (ppm)	2.5	105	64-123
1.1.1.2-Tetrachloroethane	mg/kg (ppm)	2.5	106	69-135
m,p-Xylene	mg/kg (ppm)	5	106	78-122
o-Xylene	mg/kg (ppm)	2.5	107	77-124
Styrene	mg/kg (ppm)	2.5	110	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	104	76-127
Bromoform	mg/kg (ppm)	2.5	97	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	103	74-124
1.2.5 Twimethylhongone	mg/kg (ppm)	2.5	108	76 196
1,3,3-Trimethylbenzene 1,1,2,2-Tetrachloroethane	mg/kg (ppiii)	2.5	105	70-120 56-143
1.2.3 Trichloropropane	mg/kg (ppm)	2.5	101	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	102	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	100	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	106	73-130
1,2,4 Trimethylbenzene	mg/kg (ppm)	2.5	103	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	104	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	103	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5 2.5	105	/5-121 74-117
1.2-Dichlorobenzene	mg/kg (ppili)	2.5	100	76-191
1.2-Dibromo-3-chloropropane	mg/kg (nnm)	2.5	92	58-138
1,2,4 Trichlorobenzene	mg/kg (ppm)	2.5	106	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	103	50-153
Naphthalene	mg/kg (ppm)	2.5	109	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	109	63-138

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/15 Date Received: 03/20/15 Project: Tiger Oil West Nob Hill 0818, F&BI 503385

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TCLP METALS USING EPA METHOD 200.8 AND 40 CFR PART 261

Laboratory Code: 503385-01 (Matrix Spike)

				Percent	Percent		
	Reporting	Spike	Sample	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	Result	MS	MSD	Criteria	(Limit 20)
Lead	mg/L (ppm)	1.0	<1	102	100	50-150	2

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Lead	mg/L (ppm)	1.0	101	70-130
#### ENVIRONMENTAL CHEMISTS

#### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

 $\operatorname{ca}$  - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

503385		,		SAMPLE	CHAIN C	)F (	CUS	STC	)DY	7	٨	15	0	3 / a	20	15	-	V52
Send Report To <u>USTIN</u> Company <b>MAUL Fee</b> Address City, State, ZIP Phone #	CLARY STER \$	YEN-1 ALONG	Vy VAN A	SAMPI PROJE TIGE WEST REMA	LERS (sign CT NAME & OIL / NDB H-1 RKS		re) ( ). ( 18	ç,	lur	201		P	°O#			I Star RUS L RU L Dis D Dis L Ret	Page # TURN ndard SH_ charg SAM pose a urn sa 1 call	AROUND TIM (2 Weeks) (2 We
										ANA	LYS	SES R	EQU	EST	ED			r
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	100 (1311)						Notes
SP-02-5-01	OI E	3/19/15	1130	S	5		~		V			~						
5P-02-5-02	02		1145	)	5		1					1						
SP- 02-5-03	03		1200		5													
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Friedman & Brune Inc		SICN		L														
3012 16th Avenue West	Relinquis	hed by: \(\scrimed)					INA	IVIE					<u> </u>	MPA	INY			DATE TIN

J ,			COMITINI		T TIVLE
3012 16th Avenue West	Relinquished by:	JESSICA CAWLEY	MEA	3/19/15	1430
Seattle, WA 98119-2029	Received by:	Nhan Phan	FEBI	3/20/15	1100
Ph. (206) 285-8282	Relinquished by:			1 1-	
Fax (206) 283-5044	Received by:				
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#### ENVIRONMENTAL CHEMISTS

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March 24, 2015

Justin Clary, Project Manager Maul Foster Alongi 411 1<sup>st</sup> Ave S, Suite 610 Seattle, WA 98104

Dear Mr. Clary:

Included are the results from the testing of material submitted on March 18, 2015 from the Tiger Oil, F&BI 503342 project. There are 18 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby MFA0324R.DOC

### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on March 18, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil, F&BI 503342 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	<u>Maul Foster Alongi</u>
503342 -01	BH-01-S-9.0
503342 -02	BH-01-S-14.0

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/15 Date Received: 03/18/15 Project: Tiger Oil, F&BI 503342 Date Extracted: 03/19/15 Date Analyzed: 03/19/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	Gasoline Range	Surrogate ( <u>% Recovery</u> ) (Limit 50-150)
BH-01-S-9.0 503342-01 1/5	690	123
BH-01-S-14.0 503342-02 1/20	1,600	124
Method Blank 05-0557 MB2	<2	82

### ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 200.8

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	BH-01-S-9.0 03/18/15 03/19/15 03/19/15 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil, F&BI 503342 503342-01 503342-01.086 ICPMS1 AP
Internal Standard: Holmium	% Recovery: 103	Lower Limit: 60	Upper Limit: 125
Analyte:	Concentration mg/kg (ppm)		
Lead	497		

### ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 200.8

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	BH-01-S-14.0 03/18/15 03/19/15 03/19/15 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil, F&BI 503342 503342-02 503342-02.087 ICPMS1 AP
Internal Standard: Holmium	% Recovery: 101	Lower Limit: 60	Upper Limit: 125
Analyte:	Concentration mg/kg (ppm)		
Lead	13.4		

### ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 200.8

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank NA 03/19/15 03/19/15 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil, F&BI 503342 I5-162 mb2 I5-162 mb2.032 ICPMS1 AP
Internal Standard: Holmium	% Recovery: 100	Lower Limit: 60	Upper Limit: 125
Analyte:	Concentration mg/kg (ppm)		
Lead	<1		

### ENVIRONMENTAL CHEMISTS

Client Sample ID:	BH-01-S-9.0		Client:	Maul Foster Alongi	
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 50334	2
Date Extracted:	03/18/15		Lab ID:	503342-01	
Date Analyzed:	03/18/15		Data File:	031841.D	
Matrix:	Soil		Instrument:	GCMS4	
Units:	mg/kg (ppm)	Dry Weight	Operator:	JS	
	0 0 11		т Т	TT	
Commentation and		0/ <b>D</b>	Lower	Upper	
Surrogates:	14	% Recovery:	Limit:	Limit:	
1,2-Dichloroethane-	·d4	108	62	142	
Toluene-d8		103	51	121	
4-Bromofluorobenzo	ene	99	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compour	nds:	mg/kg (ppm)
Dichlorodifluorome	thane	< 0.5	Tetrachl	oroethene	< 0.025
Chloromethane		<0.5	Dibromo	chloromethane	< 0.05
Vinvl chloride		< 0.05	1.2-Dibro	omoethane (EDB)	< 0.05
Bromomethane		< 0.5	Chlorobe	enzene	< 0.05
Chloroethane		< 0.5	Ethylber	izene	9.3
Trichlorofluorometl	hane	< 0.5	1 1 1 2-T	etrachloroethane	< 0.05
Acetone	liune	< 0.5	m n-Xvle	ne	40 ve
1 1-Dichloroethene		<0.0	o-Xvlene		16
Methylene chloride		< 0.5	Styrene		<0.05
trans-1 2-Dichloroe	thene	<0.0	Isopropy	lbenzene	1 3
1 1-Dichloroethane	chene	<0.00	Bromofo	rm	< 0.05
2 2-Dichloropropan	۵	<0.00	n-Propyl	henzene	6.5
cis-1 2-Dichloroethe	ne	<0.00	Bromobe	nzene	< 0.0
Chloroform		<0.05	1 3 5-Tri	methylbenzene	<0.00 15
2-Butanone (MFK)		<0.00	1,0,0 III 1 1 2 2-T	etrachloroethane	<0.05
1 2-Dichloroethane	(FDC)	<0.0	1, 1, 2, 2 1 1 2 3-Tri	chloropropape	< 0.05
1 1 1-Trichloroetha	(LDC) ne	<0.05	2-Chloro	toluene	< 0.05
1 1-Dichloropropen	n. 2	<0.05	2-Chloro	toluene	< 0.05
Carbon Tetrachlorio		<0.05	tert-Buty	vlbenzene	< 0.05
Renzene		0.50	1 2 4-Tri	methylbenzene	<0.00 51 ve
Trichloroethene		<0.00	sec-Buty	lhenzene	11
1 2-Dichloropropan	۵	<0.02	n-Isonroi	ovitoluene	0.92
Bromodichlorometh	lane	<0.05	1 3-Dich	lorobenzene	<0.02
Dibromomethane	lune	<0.05	1 4-Dichl	lorobenzene	< 0.05
A-Methyl-2-pentanc	no	<0.00	1 2-Dichl	lorobenzene	< 0.05
$cis_1 3$ -Dichloropror		<0.0	1.2-Dibro	ma-3-chloropropapa	<0.05
Toluono	Jene	<0.03 5 7	1.2 <i>I</i> .Tri	chlorobenzene	<0.5
trans-1 3-Dichloron	ronene	<0.05	Havachle	prohutadiene	<0.25
1 1 2-Trichlorootho	no	<0.05	Nanhtha	alono	~0.20 31 vo
2-Hovanono		<0.05	1 9 2 Tri	chlorohonzono	24 VE
1 3 Dichloropropan	0	<0.5	1,2,0-111	CHIOLODEHZEHE	<0.23
1,5-Dichloropropane	e	<0.00			

### ENVIRONMENTAL CHEMISTS

Client Sample ID:	BH-01-S-9.0	)	Client:	Maul Foster Alongi	
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 5033	42
Date Extracted:	03/18/15		Lab ID:	503342-01 1/10	
Date Analyzed:	03/19/15		Data File:	031910.D	
Matrix:	Soil		Instrument:	GCMS4	
Units:	mg/kg (ppm	) Dry Weight	Operator:	JS	
	0 0 11		- T	TT	
C		0/ <b>D</b>	Lower	Upper	
Surrogates:	14	% Recovery:	Limit:	Limit:	
1,2-Dichloroethane	-04	103	62	142	
1 oluene-d8		102	51	121	
4-Bromofluorobenz	ene	95	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compou	nds:	mg/kg (ppm)
Dichlorodifluorome	thane	<5	1,3-Dich	loropropane	< 0.5
Chloromethane		<5	Tetrach	loroethene	< 0.25
Vinyl chloride		<0.5	Dibromo	ochloromethane	< 0.5
Bromomethane		<5	1,2-Dibr	omoethane (EDB)	< 0.5
Chloroethane		<5	Chlorobe	enzene	< 0.5
Trichlorofluorometl	nane	<5	Ethylber	nzene	10
Acetone		<5	1,1,1,2-T	etrachloroethane	< 0.5
1,1-Dichloroethene		< 0.5	m,p-Xyle	ene	43
Methylene chloride		<5	o-Xylene	<u>)</u>	18
Methyl t-butyl ethe	er (MTBE)	< 0.5	Stvrene		< 0.5
trans-1,2-Dichloroe	thene	< 0.5	Isopropy	lbenzene	1.4
1,1-Dichloroethane		< 0.5	Bromofo	rm	< 0.5
2,2-Dichloropropan	e	< 0.5	n-Propy	lbenzene	6.7
cis-1,2-Dichloroethe	ene	< 0.5	Bromob	enzene	< 0.5
Chloroform		< 0.5	1,3,5-Tri	imethylbenzene	15
2-Butanone (MEK)		<5	1,1,2,2-T	etrachloroethane	< 0.5
1,2-Dichloroethane	(EDC)	< 0.5	1,2,3-Tri	chloropropane	< 0.5
1,1,1-Trichloroetha	ne	< 0.5	2-Chloro	otoluene	< 0.5
1,1-Dichloropropen	e	< 0.5	4-Chloro	otoluene	< 0.5
Carbon tetrachlorio	de	< 0.5	tert-But	ylbenzene	< 0.5
Benzene		0.60	1,2,4-Tri	imethylbenzene	55
Trichloroethene		< 0.2	sec-Buty	lbenzene	1.4
1,2-Dichloropropan	e	< 0.5	p-Isopro	pyltoluene	1.1
Bromodichlorometh	nane	< 0.5	1,3-Dich	lorobenzene	< 0.5
Dibromomethane		< 0.5	1,4-Dich	lorobenzene	< 0.5
4-Methyl-2-pentan	one	<5	1,2-Dich	lorobenzene	< 0.5
cis-1,3-Dichloropro	pene	< 0.5	1,2-Dibr	omo-3-chloropropane	<5
Toluene		6.7	1,2,4-Tri	ichlorobenzene	<2.5
trans-1,3-Dichloron	propene	< 0.5	Hexachl	orobutadiene	<2.5
1,1,2-Trichloroetha	ne	< 0.5	Naphtha	alene	40
2-Hexanone		<5	1,2,3-Tri	ichlorobenzene	<2.5

### ENVIRONMENTAL CHEMISTS

Client Sample ID:	BH-01-S-14	.0	Client:	Maul Foster Alongi	
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 5033	42
Date Extracted:	03/18/15		Lab ID:	503342-02	
Date Analyzed:	03/18/15		Data File:	031840.D	
Matrix:	Soil		Instrument:	GCMS4	
Units:	mg/kg (ppm	) Dry Weight	Operator:	JS	
	0 0 11		- T	TT	
Commente		0/ <b>D</b>	Lower	Upper	
Surrogates:	14	% Recovery:	Limit:	Limit:	
1,2-Dichloroethane	-04	105	62	142	
1 oluene-d8		102	51	121	
4-Bromofluorobenz	ene	95	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compou	nds:	mg/kg (ppm)
Dichlorodifluorome	ethane	< 0.5	Tetrach	loroethene	< 0.025
Chloromethane		< 0.5	Dibromo	ochloromethane	< 0.05
Vinyl chloride		< 0.05	1,2-Dibr	omoethane (EDB)	< 0.05
Bromomethane		< 0.5	Chlorob	enzene	< 0.05
Chloroethane		< 0.5	Ethylber	nzene	1.2
Trichlorofluoromet	hane	< 0.5	1.1.1.2-T	etrachloroethane	< 0.05
Acetone		< 0.5	m.p-Xvl	ene	5.4
1.1-Dichloroethene		< 0.05	o-Xvlene	) )	2.5
Methylene chloride		< 0.5	Styrene		< 0.05
trans-1.2-Dichloroe	ethene	< 0.05	Isopropy	lbenzene	0.13
1.1-Dichloroethane		< 0.05	Bromofo	rm	< 0.05
2.2-Dichloropropan	e	< 0.05	n-Propy	lbenzene	0.81
cis-1,2-Dichloroeth	ene	< 0.05	Bromob	enzene	< 0.05
Chloroform		< 0.05	1,3,5-Tri	methylbenzene	2.6
2-Butanone (MEK)		< 0.5	1,1,2,2-T	'etrachloroethane	< 0.05
1,2-Dichloroethane	(EDC)	< 0.05	1,2,3-Tri	chloropropane	< 0.05
1,1,1-Trichloroetha	ne	< 0.05	2-Chloro	otoluene	< 0.05
1,1-Dichloropropen	e	< 0.05	4-Chloro	otoluene	< 0.05
Carbon Tetrachlori	de	< 0.05	tert-But	ylbenzene	< 0.05
Benzene		0.98	1,2,4-Tri	methylbenzene	11
Trichloroethene		< 0.02	sec-Buty	lbenzene	0.23
1,2-Dichloropropan	e	< 0.05	p-Isopro	pyltoluene	0.19
Bromodichlorometh	nane	< 0.05	1,3-Dich	lorobenzene	< 0.05
Dibromomethane		< 0.05	1,4-Dich	lorobenzene	< 0.05
4-Methyl-2-pentan	one	< 0.5	1,2-Dich	lorobenzene	< 0.05
cis-1,3-Dichloropro	pene	< 0.05	1,2-Dibr	omo-3-chloropropane	< 0.5
Toluene		3.4	1,2,4-Tri	chlorobenzene	< 0.25
trans-1,3-Dichlorop	oropene	< 0.05	Hexachl	orobutadiene	< 0.25
1,1,2-Trichloroetha	ine	< 0.05	Naphtha	alene	12
2-Hexanone		<0.5	1,2,3-Tri	chlorobenzene	< 0.25
1,3-Dichloropropan	e	< 0.05			

### ENVIRONMENTAL CHEMISTS

Client Sample ID:	Method Bla	ink	Client:	Maul Foster Alongi		
Date Received:	Not Applica	able	Project:	Tiger Oil, F&BI 5033	42	
Date Extracted:	03/18/15		Lab ID:	05-0544 mb		
Date Analyzed:	03/18/15		Data File:	031826.D		
Matrix:	Soil		Instrument:	GCMS4		
Units:	mg/kg (ppn	n) Dry Weight	Operator:	JS		
	0 0 11		- -			
9		04 <b>D</b>	Lower	Upper		
Surrogates:	14	% Recovery:	Limit:	Limit:		
1,2-Dichloroethane	-d4	100	62	142		
Toluene-d8		102	51	121		
4-Bromofluorobenz	ene	96	32	146		
		Concentration			Concentration	
Compounds:		mg/kg (ppm)	Compou	nds:	mg/kg (ppm)	
Dichlorodifluorome	thane	< 0.5	1,3-Dich	loropropane	< 0.05	
Chloromethane		< 0.5	Tetrachl	oroethene	< 0.025	
Vinvl chloride		< 0.05	Dibromo	chloromethane	< 0.05	
Bromomethane		< 0.5	1.2-Dibre	omoethane (EDB)	< 0.05	
Chloroethane		< 0.5	Chlorobe	enzene	< 0.05	
Trichlorofluoromet	hane	< 0.5	Fthylbenzene		< 0.05	
Acetone		< 0.5	1.1.1.2-Tetrachloroethane		< 0.05	
1 1-Dichloroethene		<0.0	m p Xyle	ne	< 0.00	
Mothylono chlorido		< 0.5	o-Xvlene		<0.1	
Methylene cinoride Mothyl t-butyl othor (MTBE)		<0.0	Styrene		<0.00	
trans-1 2-Dichloroe	thene	<0.00	Isopropylbenzene		<0.00	
1 1-Dichloroethane	thene	<0.00	Bromofo	rm	<0.05	
2 2-Dichloropropan	e	<0.00	n-Pronvl	<0.05		
cis-1 2-Dichlor opt optin	ne	<0.00	Bromobe	Bromobenzene		
Chloroform		<0.05	1 3 5-Tri	methylbenzene	<0.00	
2-Butanone (MEK)		< 0.5	1 1 2 2-Tetrachloroethane		< 0.05	
1.2-Dichloroethane	(EDC)	< 0.05	1.2.3-Tri	chloropropane	< 0.05	
1.1.1-Trichloroetha	ne	< 0.05	2-Chloro	toluene	< 0.05	
1.1-Dichloropropen	e	< 0.05	4-Chloro	toluene	< 0.05	
Carbon tetrachloric	le	< 0.05	tert-But	vlbenzene	< 0.05	
Benzene		< 0.03	1.2.4-Tri	methylbenzene	< 0.05	
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05	
1 2-Dichloropropan	e	<0.02	p-Isopro	nvltoluene	< 0.05	
Bromodichlorometh	ane	<0.05	1 3-Dich	lorobenzene	< 0.05	
Dibromomethane	lune	<0.05	1,0 Dich	lorobenzene	< 0.05	
4-Methyl-2-pentan	ne	< 0.5	1 2-Dich	lorobenzene	<0.05	
cis-1 3-Dichloropro	one	<0.0	1,2 Dien	omo-3-chloropropane	<0.50	
Toluene		<0.05	1,2 DIDI 1 2 4-Tri	chlorobenzene	<0.25	
trans-1 3-Dichloron	ropene	<0.05	Hexachl	orobutadiene	<0.25	
1 1 2-Trichloroetha	ne	<0.05	Nanhtha	alene	<0.20	
2-Hexanone		<0.5	1 9 3-Tri	chlorobenzene	<0.00	
~ IICAUIUIIC		<b>NO.0</b>	1,~,0-111		~0.20	

### ENVIRONMENTAL CHEMISTS

## Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	BH-01-S-9.0		Client:	Maul Foster Alongi
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 503342
Date Extracted:	03/19/15		Lab ID:	503342-01
Date Analyzed:	03/20/15		Data File:	503342-01.015
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		96	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Lim	it
Lead		<1	5.0	

### ENVIRONMENTAL CHEMISTS

## Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID: Date Received: Date Extracted:	BH-01-S-14.0 03/18/15 03/19/15	0	Client: Project: Lab ID:	Maul Foster Alongi Tiger Oil, F&BI 503342 503342-02
Date Analyzed:	03/20/15		Data File:	503342-02.016
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		95	60	125
Analyte:		Concentration mg/L (ppm)	TCLP Limi	it
Lead		<1	5.0	

### ENVIRONMENTAL CHEMISTS

## Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	Method Blank	κ.	Client:	Maul Foster Alongi
Date Received:	NA		Project:	Tiger Oil, F&BI 503342
Date Extracted:	03/19/15		Lab ID:	I5-166 mb
Date Analyzed:	03/20/15		Data File:	I5-166 mb.009
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		93	60	125
	C	Concentration		
Analyte:	_	mg/L (ppm)	TCLP Lim	it
Lead		<1	5.0	

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/15 Date Received: 03/18/15 Project: Tiger Oil, F&BI 503342

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code:	503283-21 (Duplic	ate)			
·	-	Samp	le Di	ıplicate	
	Reporting	Resu	lt I	Result	RPD
Analyte	Units	(Wet V	Vt) (V	Vet Wt)	(Limit 20)
Gasoline	mg/kg (ppm)	<2		<2	nm
Laboratory Code:	Laboratory Contro	ol Sample	<u>)</u>		
			Percent		
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	
Gasoline	mg/kg (ppm)	20	95	71-131	_

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/15 Date Received: 03/18/15 Project: Tiger Oil, F&BI 503342

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code	e: 503253-02 (M	atrix Spik	ke)				
-		_	Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Lead	mg/kg (ppm)	50	2.95	111	107	59-148	4

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Lead	mg/kg (ppm)	50	109	80-120

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/15 Date Received: 03/18/15 Project: Tiger Oil, F&BI 503342

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 503341-01 (Matrix Spike)

C C C C C C C C C C C C C C C C C C C	-		Sample	Percent	Percent		
	Reporting	Spike	Result	Recoverv	Recoverv	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	29	27	10-142	7
Chloromethane	mg/kg (ppm)	2.5	< 0.5	65	66	10-126	2
Vinyl chloride	mg/kg (ppm)	2.5	< 0.05	65	67	10-138	3
Bromomethane	mg/kg (ppm)	2.5	<0.5	63	64	10-163	2
Chloroethane	mg/kg (ppm)	2.5	<0.5	63	78 64	10-176	1
	mg/kg (ppm)	12.5	<0.5	88	91	10-163	2
1.1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	80	84	10-160	5
Methylene chloride	mg/kg (ppm)	2.5	<0.5	74	79	10-156	7
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	< 0.05	89	90	21-145	1
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	< 0.05	83	83	14-137	0
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	86	87	19-140	1
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	78	79	10-158	1
Chloroform	mg/kg (ppiii)	2.5	<0.05	88	90 89	21-145	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	97	102	19-147	5
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	< 0.05	87	87	12-160	0
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	< 0.05	81	82	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	2.5	< 0.05	88	90	17-140	2
Carbon tetrachloride	mg/kg (ppm)	2.5	< 0.05	83	82	9-164	1
Benzene	mg/kg (ppm)	2.5	<0.03	90	91	29-129	1
1 richloroethene	mg/kg (ppm)	2.5	<0.02	94	94	21-139	0
Bromodichloromethane	mg/kg (ppin)	2.5	<0.05	90	89	23-155	1
Dibromomethane	mg/kg (ppm)	2.5	<0.05	90	89	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	101	103	24-155	2
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	< 0.05	93	93	28-144	0
Toluene	mg/kg (ppm)	2.5	< 0.05	90	92	35-130	2
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	< 0.05	88	87	26-149	1
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	91	91	10-205	0
2-Hexanone 1 3-Dichloropropane	mg/kg (ppm)	12.5	<0.5	91	93	10-100	2
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	92	92	20-133	0
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	88	88	28-150	0 0
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	< 0.05	92	93	28-142	1
Chlorobenzene	mg/kg (ppm)	2.5	< 0.05	93	93	32-129	0
Ethylbenzene	mg/kg (ppm)	2.5	< 0.05	91	92	32-137	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	< 0.05	91	91	31-143	0
m,p-Xylene	mg/kg (ppm)	5	<0.1	91	92	34-130	1
0-Aylene Styropo	mg/kg (ppm)	2.0	<0.05	91	92	35-134	1
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	90	90	31-142	0
Bromoform	mg/kg (ppm)	2.5	< 0.05	82	81	21-156	1
n-Propylbenzene	mg/kg (ppm)	2.5	< 0.05	90	89	23-146	1
Bromobenzene	mg/kg (ppm)	2.5	< 0.05	94	93	34-130	1
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	< 0.05	90	90	18-149	0
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	89	88	28-140	1
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	86	86	23-144	1
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	86	86	31-136	0
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	91	92	30-137	1
1,2,4 Trimethylbenzene	mg/kg (ppm)	2.5	< 0.05	88	88	10-182	0
sec-Butylbenzene	mg/kg (ppm)	2.5	< 0.05	91	90	23-145	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	< 0.05	90	89	21-149	1
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	91	90	30-131	1
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	89	90	29-129	1
1.2-Dibrama-3-chlaranranana	mg/kg (ppm)	2.0	<0.05	92 79	92 75	31-132 11_161	1
1.2.4 Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	89	89	22-142	4 0
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	89	90	10-142	1
Naphthalene	mg/kg (ppm)	2.5	< 0.05	88	90	14-157	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	< 0.25	91	92	20-144	1

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/15 Date Received: 03/18/15 Project: Tiger Oil, F&BI 503342

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	61	10-146
Chloromethane Viscal ablastic	mg/kg (ppm)	2.5	89	27-133
Vinyi chioride Bromomothano	mg/kg (ppm)	2.5	92	22-139
Chloroethane	mg/kg (ppm)	2.5	102	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	89	10-196
Acetone	mg/kg (ppm)	12.5	102	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	104	47-128
Methylene chloride Methyl t butyl ether (MTRE)	mg/kg (ppm)	2.5	92	42-132
trans-1.2-Dichloroethene	mg/kg (ppm)	2.5	102	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	101	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	88	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	105	72-113
Chloroform	mg/kg (ppm)	2.5	101	66-120
2-Butanone (MEK) 1.2 Dichlaraethane (EDC)	mg/kg (ppm)	12.5	112	57-123
1 1 1-Trichloroethane	mg/kg (ppili)	2.5	97 95	62-131
1.1-Dichloropropene	mg/kg (ppm)	2.5	106	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	97	60-139
Benzene	mg/kg (ppm)	2.5	104	68-114
Trichloroethene	mg/kg (ppm)	2.5	108	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	106	72-127
Bromodicniorometnane	mg/kg (ppm)	2.5	101	72-130
4-Methyl-2-pentanone	mg/kg (ppili)	12.5	104	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	106	75-136
Toluene	mg/kg (ppm)	2.5	104	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	100	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	103	75-113
2-Hexanone	mg/kg (ppm)	12.5	102	33-152
1,3-Dichloropropane Tetrachloroethene	mg/kg (ppm)	2.5	108	72-130 72-114
Dibromochloromethane	mg/kg (ppiii)	2.5	101	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	101	74-132
Chlorobenzene	mg/kg (ppm)	2.5	105	76-111
Ethylbenzene	mg/kg (ppm)	2.5	103	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	102	69-135
m,p-Xylene	mg/kg (ppm)	5	103	78-122
0-Aylene Styrene	mg/kg (ppm)	2.0 2.5	103	77-124
Isopropylbenzene	mg/kg (ppm)	2.5	101	76-127
Bromoform	mg/kg (ppm)	2.5	93	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	103	74-124
Bromobenzene	mg/kg (ppm)	2.5	108	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	102	76-126
1,1,2,2-1 etrachioroethane 1,2,3-Trichloropropane	mg/kg (ppm)	2.0 2.5	100	50-145 61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	100	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	99	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	103	73-130
1,2,4 Trimethylbenzene	mg/kg (ppm)	2.5	101	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	102	71-130
1.2 Dishlarahangana	mg/kg (ppm)	2.5	100	70-132
1,3-Dichlorobenzene	mg/kg (ppili)	2.5	104	73-121
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	105	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	88	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	103	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	99	50-153
Naphthalene	mg/kg (ppm)	2.5	103	63-140
1,2,3-1 FICHIOFODENZENE	mg/кg (ppm)	2.5	105	63-138

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/24/15 Date Received: 03/18/15 Project: Tiger Oil, F&BI 503342

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TCLP METALS USING EPA METHOD 200.8 AND 40 CFR PART 261

Laboratory Code: 503265-02 (Matrix Spike)

				Percent	Percent		
	Reporting	Spike	Sample	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	Result	MS	MSD	Criteria	(Limit 20)
Lead	mg/L (ppm)	1.0	<1	87	97	50-150	11

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Lead	mg/L (ppm)	1.0	96	70-130

#### ENVIRONMENTAL CHEMISTS

#### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

March 25, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Blvd Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on March 24, 2015 from the Tiger Oil 0818-01, F&BI 503448 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby MFA0325R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on March 24, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil 0818-01, F&BI 503448 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
503448 -01	SP-03-S01
503448 -02	SP-03-S02
503448 -03	SP-03-S03
503448 -04	SP-03-S04
503448 -05	SP-03-S05

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/25/15 Date Received: 03/24/15 Project: Tiger Oil 0818-01, F&BI 503448 Date Extracted: 03/24/15 Date Analyzed: 03/24/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
Sample ID Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Benzene</u>	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery</u> ) (Limit 50-150)
SP-03-S01 503448-01	< 0.02	< 0.02	<0.02	< 0.06	<2	90
SP-03-S02 503448-02	< 0.02	< 0.02	< 0.02	< 0.06	<2	90
SP-03-S03 503448-03	< 0.02	< 0.02	< 0.02	< 0.06	<2	89
SP-03-S04 503448-04	< 0.02	< 0.02	< 0.02	< 0.06	<2	90
SP-03-S05 503448-05	<0.02	<0.02	<0.02	<0.06	<2	89
Method Blank <sup>05-0567 MB</sup>	< 0.02	< 0.02	< 0.02	< 0.06	<2	89

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/25/15 Date Received: 03/24/15 Project: Tiger Oil 0818-01, F&BI 503448

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 503426-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	85	69-120
Toluene	mg/kg (ppm)	0.5	87	70-117
Ethylbenzene	mg/kg (ppm)	0.5	87	65-123
Xylenes	mg/kg (ppm)	1.5	86	66-120
Gasoline	mg/kg (ppm)	20	110	71-131

#### ENVIRONMENTAL CHEMISTS

#### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

March 26, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Blvd Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on March 19, 2015 from the Tiger Oil Nob Hill 0818, F&BI 503366 project. There are 15 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby MFA0326R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on March 19, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil Nob Hill 0818, F&BI 503366 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Maul Foster Alongi</u>
503366 -01	BH-03-S-9.0
503366 -02	BH-03-S-14.0
503366 -03	BH-02-S-9.0
503366 -04	BH-02-S-14.0
503366 -05	BH-05-S-14.0
503366 -06	BH-04-S-14.0
503366 -07	BH-06-S-14.0
503366 -08	BH-05-S-9.0
503366 -09	BH-04-S-9.0

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/26/15 Date Received: 03/19/15 Project: Tiger Oil Nob Hill 0818, F&BI 503366 Date Extracted: 03/20/15 Date Analyzed: 03/20/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	Gasoline Range	Surrogate ( <u>% Recovery</u> ) (Limit 50-150)
BH-03-S-9.0 503366-01	<2	101
BH-03-S-14.0 503366-02 1/5	340	122
BH-02-S-9.0 503366-03	83	119
BH-02-S-14.0 503366-04 1/5	130	106
BH-05-S-14.0 503366-05 1/10	2,200	ip
BH-04-S-14.0 503366-06 1/20	2,300	133
BH-06-S-14.0 503366-07 1/10	290	116
BH-05-S-9.0 503366-08	4.3	102
BH-04-S-9.0 503366-09	13	105
Method Blank <sup>05-0563 MB</sup>	<2	101

### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix:	BH-03-S-9.0 03/19/15 03/20/15 03/20/15 Soil		Client: Project: Lab ID: Data File: Instrument:	Maul Foster Alongi Tiger Oil Nob Hill 0818, F&BI 503366 503366-01 032012.D GCMS4
Units:	mg/kg (ppm)	Dry Weight	Operator:	JS
Surrogates: 1,2-Dichloroethane- Toluene-d8 4-Bromofluorobenze	d4 ene	% Recovery: 102 103 96	Lower Limit: 62 51 32	Upper Limit: 142 121 146
Compounds:		Concentration mg/kg (ppm)		
Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene		<0.03 <0.05 <0.05 <0.1 <0.05		

### ENVIRONMENTAL CHEMISTS

Client Sample ID:	BH-03-S-14.0	0	Client:	Maul Foster Alongi
Date Received:	03/19/15		Project:	Tiger Oil Nob Hill 0818, F&BI 503366
Date Extracted:	03/20/15		Lab ID:	503366-02 1/25
Date Analyzed:	03/20/15		Data File:	032035.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm)	Dry Weight	Operator:	JS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	104	62	142
Toluene-d8		104	51	121
4-Bromofluorobenze	ene	94	32	146
		Concentration		
Compounds:		mg/kg (ppm)		
Benzene		3.0		
Toluene		34		
Ethylbenzene		24		
m,p-Xylene		99		
o-Xylene		36		

### ENVIRONMENTAL CHEMISTS

Client Sample ID:	BH-02-S-9.0		Client:	Maul Foster Alongi
Date Received:	03/19/15		Project:	Tiger Oil Nob Hill 0818, F&BI 503366
Date Extracted:	03/20/15		Lab ID:	503366-03
Date Analyzed:	03/20/15		Data File:	032013.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm)	Dry Weight	Operator:	JS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	102	62	142
Toluene-d8		103	51	121
4-Bromofluorobenze	ene	97	32	146
		Concentration		
Compounds:		mg/kg (ppm)		
Benzene		0.10		
Toluene		< 0.05		
Ethylbenzene		0.20		
m,p-Xylene		0.47		
o-Xylene		0.15		

### ENVIRONMENTAL CHEMISTS

Client Sample ID:	BH-02-S-14	.0	Client:	Maul Foster Alongi
Date Received:	03/19/15		Project:	Tiger Oil Nob Hill 0818, F&BI 503366
Date Extracted:	03/20/15		Lab ID:	503366-04
Date Analyzed:	03/20/15		Data File:	032016.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm	) Dry Weight	Operator:	JS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	102	62	142
Toluene-d8		104	51	121
4-Bromofluorobenze	ene	95	32	146
		Concentration		
Compounds:		mg/kg (ppm)		
Benzene		0.59		
Toluene		9.7		
Ethylbenzene		9.9		
m,p-Xylene		43		
o-Xylene		16		

### ENVIRONMENTAL CHEMISTS

Client Sample ID:	BH-05-S-14	.0	Client:	Maul Foster Alongi
Date Received:	03/19/15		Project:	Tiger Oil Nob Hill 0818, F&BI 503366
Date Extracted:	03/20/15		Lab ID:	503366-05 1/25
Date Analyzed:	03/21/15		Data File:	032038.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm	) Dry Weight	Operator:	JS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	101	62	142
Toluene-d8		104	51	121
4-Bromofluorobenze	ene	96	32	146
		Concentration		
Compounds:		mg/kg (ppm)		
Benzene		0.79		
Toluene		24		
Ethylbenzene		28		
m,p-Xylene		130		
o-Xylene		46		
## ENVIRONMENTAL CHEMISTS

Client Sample ID:	BH-04-S-14	.0	Client:	Maul Foster Alongi
Date Received:	03/19/15		Project:	Tiger Oil Nob Hill 0818, F&BI 503366
Date Extracted:	03/20/15		Lab ID:	503366-06 1/25
Date Analyzed:	03/20/15		Data File:	032036.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm	n) Dry Weight	Operator:	JS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	101	62	142
Toluene-d8		102	51	121
4-Bromofluorobenze	ene	96	32	146
		Concentration		
Compounds:		mg/kg (ppm)		
Benzene		3.5		
Toluene		31		
Ethylbenzene		19		
m,p-Xylene		86		
o-Xylene		31		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	BH-06-S-14 03/19/15 03/20/15 03/20/15 Soil mg/kg (ppm	.0 ) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil Nob Hill 0818, F&BI 503366 503366-07 032019.D GCMS4 JS
Surrogates: 1,2-Dichloroethane- Toluene-d8 4-Bromofluorobenze	d4 ene	% Recovery: 103 104 99	Lower Limit: 62 51 32	Upper Limit: 142 121 146
Compounds:		Concentration mg/kg (ppm)		
Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene		0.35 5.4 6.8 30 10		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	BH-05-S-9.0 03/19/15 03/20/15 03/20/15 Soil mg/kg (ppm) I	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil Nob Hill 0818, F&BI 503366 503366-08 032014.D GCMS4 JS
Surrogates: 1,2-Dichloroethane- Toluene-d8 4-Bromofluorobenze	d4 ene	% Recovery: 102 104 96	Lower Limit: 62 51 32	Upper Limit: 142 121 146
Compounds:	C 1	oncentration ng/kg (ppm)		
Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene		0.051 <0.05 0.053 0.24 0.075		

## ENVIRONMENTAL CHEMISTS

Client Sample ID:	BH-04-S-9.0		Client:	Maul Foster Alongi
Date Received:	03/19/15		Project:	Tiger Oil Nob Hill 0818, F&BI 503366
Date Extracted:	03/20/15		Lab ID:	503366-09
Date Analyzed:	03/20/15		Data File:	032015.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm)	Dry Weight	Operator:	JS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	99	62	142
Toluene-d8		103	51	121
4-Bromofluorobenze	ene	95	32	146
		Concentration		
Compounds:		mg/kg (ppm)		
Benzene		0.25		
Toluene		< 0.05		
Ethylbenzene		0.26		
m,p-Xylene		1.4		
o-Xylene		0.58		

### ENVIRONMENTAL CHEMISTS

Client Sample ID:	Method Blan	k	Client:	Maul Foster Alongi
Date Received:	Not Applicab	le	Project:	Tiger Oil Nob Hill 0818, F&BI 503366
Date Extracted:	03/20/15		Lab ID:	05-0546 mb
Date Analyzed:	03/20/15		Data File:	032010.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm)	Dry Weight	Operator:	JS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	103	62	142
Toluene-d8		103	51	121
4-Bromofluorobenze	ene	96	32	146
	(	Concentration		
Compounds:		mg/kg (ppm)		
Benzene		< 0.03		
Toluene		< 0.05		
Ethylbenzene		< 0.05		
m,p-Xylene		< 0.1		
o-Xylene		< 0.05		

### ENVIRONMENTAL CHEMISTS

Date of Report: 03/26/15 Date Received: 03/19/15 Project: Tiger Oil Nob Hill 0818, F&BI 503366

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 503366-01 (Duplicate)								
•	-	Samp	le Di	iplicate				
	Reporting	Resu	lt I	Result	RPD			
Analyte	Units	(Wet V	Nt) (V	/et Wt)	(Limit 20)			
Gasoline	mg/kg (ppm)	<2	<2 <2		nm			
Laboratory Code:	Laboratory Contro	ol Sample	<u>è</u>					
			Percent					
	Reporting	Spike	Recovery	Acceptance				
Analyte	Units	Level	LCS	Criteria				
Gasoline	mg/kg (ppm)	20	90	71-131	_			

### ENVIRONMENTAL CHEMISTS

Date of Report: 03/26/15 Date Received: 03/19/15 Project: Tiger Oil Nob Hill 0818, F&BI 503366

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 503366-09 (Matrix Spike)

3	1 /		Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Benzene	mg/kg (ppm)	2.5	0.20	77	76	29-129	1
Toluene	mg/kg (ppm)	2.5	< 0.05	79	79	35-130	0
Ethylbenzene	mg/kg (ppm)	2.5	0.21	73	74	32-137	1
m,p-Xylene	mg/kg (ppm)	5	1.2	62 b	66 b	34-136	6 b
o-Xylene	mg/kg (ppm)	2.5	0.48	67	69	33-134	3

Laboratory Code: Laboratory Control Sample

c c			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	2.5	111	68-114
Toluene	mg/kg (ppm)	2.5	107	66-126
Ethylbenzene	mg/kg (ppm)	2.5	105	64-123
m,p-Xylene	mg/kg (ppm)	5	106	78-122
o-Xylene	mg/kg (ppm)	2.5	107	77-124

### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

March 27, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Blvd Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on March 20, 2015 from the Tiger Oil 0818.01, F&BI 503386 project. There are 9 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby MFA0327R.DOC

### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on March 20, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil 0818.01, F&BI 503386 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	<u>Maul Foster Alongi</u>
503386 -01	BH-09-S-14.0
503386 -02	BH-08-S-14.0
503386 -03	BH-07-S-14.0

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 03/27/15 Date Received: 03/20/15 Project: Tiger Oil 0818.01, F&BI 503386 Date Extracted: 03/20/15 Date Analyzed: 03/20/15

### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	Gasoline Range	Surrogate ( <u>% Recovery</u> ) (Limit 50-150)
BH-09-S-14.0 503386-01 1/100	3,600	94
BH-08-S-14.0 503386-02 1/10	400	112
BH-07-S-14.0 503386-03 1/10	500	114
Method Blank 05-0563 MB	<2	101

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix:	BH-09-S-14.0 03/20/15 03/20/15 03/23/15 Soil	)	Client: Project: Lab ID: Data File: Instrument:	Maul Foster Alongi Tiger Oil 0818.01, F&BI 503386 503386-01 1/50 032310.D GCMS4
Units:	mg/kg (ppm)	Dry Weight	Operator:	JS
Surrogates: 1,2-Dichloroethane- Toluene-d8 4-Bromofluorobenze	d4 ene	% Recovery: 102 104 95	Lower Limit: 62 51 32	Upper Limit: 142 121 146
Compounds:		Concentration mg/kg (ppm)		
Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene		1.7 43 38 160 60		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	BH-08-S-14.0 03/20/15 03/20/15 03/20/15 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil 0818.01, F&BI 503386 503386-02 032031.D GCMS4 JS
Surrogates: 1,2-Dichloroethane- Toluene-d8 4-Bromofluorobenze	d4 ene	% Recovery: 102 103 95	Lower Limit: 62 51 32	Upper Limit: 142 121 146
Compounds:	(	Concentration mg/kg (ppm)		
Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene		2.4 11 4.1 17 6.4		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix:	BH-07-S-14 03/20/15 03/20/15 03/20/15 Soil	.0	Client: Project: Lab ID: Data File: Instrument:	Maul Foster Alongi Tiger Oil 0818.01, F&BI 503386 503386-03 032032.D GCMS4
Units:	mg/kg (ppm	) Dry Weight	Operator:	JS
Surrogates: 1,2-Dichloroethane- Toluene-d8 4-Bromofluorobenze	d4 ene	% Recovery: 103 104 94	Lower Limit: 62 51 32	Upper Limit: 142 121 146
Compounds:		Concentration mg/kg (ppm)		
Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene		1.8 2.9 0.68 2.8 1.2		

### ENVIRONMENTAL CHEMISTS

Client Sample ID:	Method Blar	ık	Client:	Maul Foster Alongi
Date Received:	Not Applical	ole	Project:	Tiger Oil 0818.01, F&BI 503386
Date Extracted:	03/20/15		Lab ID:	05-0546 mb
Date Analyzed:	03/20/15		Data File:	032010.D
Matrix:	Soil		Instrument:	GCMS4
Units:	mg/kg (ppm)	Dry Weight	Operator:	JS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	103	62	142
Toluene-d8		103	51	121
4-Bromofluorobenze	ene	96	32	146
		Concentration		
Compounds:		mg/kg (ppm)		
Benzene		< 0.03		
Toluene		< 0.05		
Ethylbenzene		< 0.05		
m,p-Xylene		< 0.1		
o-Xylene		< 0.05		

### ENVIRONMENTAL CHEMISTS

Date of Report: 03/27/15 Date Received: 03/20/15 Project: Tiger Oil 0818.01, F&BI 503386

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code:	503366-01 (Duplic	ate)			
-	-	Samp	le Du	plicate	
	Reporting	Resu	lt F	lesult	RPD
Analyte	Units	(Wet V	Nt) (W	/et Wt)	(Limit 20)
Gasoline	mg/kg (ppm)	<2		<2	nm
Laboratory Code:	Laboratory Contro	ol Sample	<u>)</u>		
			Percent		
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	_
Gasoline	mg/kg (ppm)	20	90	71-131	

### ENVIRONMENTAL CHEMISTS

Date of Report: 03/27/15 Date Received: 03/20/15 Project: Tiger Oil 0818.01, F&BI 503386

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 503366-09 (Matrix Spike)

,			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Benzene	mg/kg (ppm)	2.5	0.21	85	84	29-129	1
Toluene	mg/kg (ppm)	2.5	< 0.05	80	81	35-130	1
Ethylbenzene	mg/kg (ppm)	2.5	0.22	82	83	32-137	1
m,p-Xylene	mg/kg (ppm)	5	1.2	86 b	90 b	34-136	5 b
o-Xylene	mg/kg (ppm)	2.5	0.50	87	89	33-134	2

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	2.5	111	68-114
Toluene	mg/kg (ppm)	2.5	107	66-126
Ethylbenzene	mg/kg (ppm)	2.5	105	64-123
m,p-Xylene	mg/kg (ppm)	5	106	78-122
o-Xylene	mg/kg (ppm)	2.5	107	77-124

### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 7, 2015

Justin Clary, Project Manager Maul Foster Alongi 411 1<sup>st</sup> Ave S, Suite 610 Seattle, WA 98104

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 1, 2015 from the Tiger Oil/0818.02.01, F&BI 504024 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0407R.DOC

### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on April 1, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil/0818.02.01 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
504024 -01	BH-14-S-14.0
504024 -02	BH-15-S-14.0

All quality control requirements were acceptable.

### ENVIRONMENTAL CHEMISTS

Date of Report: 04/07/15 Date Received: 04/01/15 Project: Tiger Oil/0818.02.01, F&BI 504024 Date Extracted: 04/02/15 Date Analyzed: 04/02/15 and 04/03/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
Sample ID Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Benzene</u>	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery</u> ) (Limit 50-132)
BH-14-S-14.0 504024-01 1/1000	12	160	130	780	8,500	97
BH-15-S-14.0 504024-02 1/20	1.6	19	95	580	7,100	ip
Method Blank 05-0661 MB	< 0.02	< 0.02	< 0.02	< 0.06	<2	98

### ENVIRONMENTAL CHEMISTS

Date of Report: 04/07/15 Date Received: 04/01/15 Project: Tiger Oil/0818.02.01, F&BI 504024

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 503539-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

		Percent							
	Reporting	Spike	Recovery	Acceptance					
Analyte	Units	Level	LCS	Criteria					
Benzene	mg/kg (ppm)	0.5	91	66-121					
Toluene	mg/kg (ppm)	0.5	94	72-128					
Ethylbenzene	mg/kg (ppm)	0.5	96	69-132					
Xylenes	mg/kg (ppm)	1.5	96	69-131					
Gasoline	mg/kg (ppm)	20	110	61-153					

### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

 $\ensuremath{\text{ip}}$  - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 7, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 E Mill Plain Boulevard, Suite 400 Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on March 31, 2015 from the Tiger 0818.02.01, F&BI 503581 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0407R.DOC

### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on March 31, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger 0818.02.01, F&BI 503581 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Maul Foster Alongi
503581 -01	BH-10-S-14.0
503581 -02	BH-10-DUP
503581 -03	BH-11-S-14.0
503581 -04	BH-12-S-14.0
503581 -05	BH-13-S-14.0

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/07/15 Date Received: 03/31/15 Project: Tiger 0818.02.01, F&BI 503581 Date Extracted: 04/02/15 Date Analyzed: 04/02/15 and 04/03/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
Sample ID Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	Benzene	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery</u> ) (Limit 50-132)
BH-10-S-14.0 503581-01 1/5	<0.02 j	3.7	<0.1	350	6,600	ip
BH-10-DUP 503581-02 1/100	<0.02 j	4.0	41	470	9,700	116
BH-11-S-14.0 503581-03 1/20	1.3	24	57	370	6,600	ip
BH-12-S-14.0 503581-04 1/20	<0.4	1.5	18	85	1,900	120
BH-13-S-14.0 503581-05 1/5	<0.02 j	0.26	5.1	28	500	121
Method Blank <sup>05-0661 MB</sup>	< 0.02	< 0.02	< 0.02	< 0.06	<2	98

### ENVIRONMENTAL CHEMISTS

Date of Report: 04/07/15 Date Received: 03/31/15 Project: Tiger 0818.02.01, F&BI 503581

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 503539-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

		Percent							
	Reporting	Spike	Recovery	Acceptance					
Analyte	Units	Level	LCS	Criteria					
Benzene	mg/kg (ppm)	0.5	91	66-121					
Toluene	mg/kg (ppm)	0.5	94	72-128					
Ethylbenzene	mg/kg (ppm)	0.5	96	69-132					
Xylenes	mg/kg (ppm)	1.5	96	69-131					
Gasoline	mg/kg (ppm)	20	110	61-153					

### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 9, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Boulevard Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 2, 2015 from the Tiger Oil/0818.02.01, F&BI 504060 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0409R.DOC

### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on April 2, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil/0818.02.01, F&BI 504060 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
504060 -01	BH-16-S-9.0
504060 -02	BH-16-S-14.0
504060 -03	BH-17-S-9.0
504060 -04	BH-17-S-14.0

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/15 Date Received: 04/02/15 Project: Tiger Oil/0818.02.01, F&BI 504060 Date Extracted: 04/06/15 Date Analyzed: 04/06/15 and 04/07/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
Sample ID Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Benzene</u>	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery</u> ) (Limit 50-150)
BH-16-S-9.0 504060-01	< 0.02	< 0.02	< 0.02	< 0.06	<2	89
BH-16-S-14.0 504060-02	< 0.02	0.026	0.84	2.3	290	108
BH-17-S-9.0 504060-03	< 0.02	< 0.02	< 0.02	< 0.06	<2	89
BH-17-S-14.0 504060-04 1/5	<0.02 j	0.13	8.6	48	2,600	102
Method Blank 05-0692 MB	< 0.02	< 0.02	< 0.02	< 0.06	<2	88

### ENVIRONMENTAL CHEMISTS

Date of Report: 04/09/15 Date Received: 04/02/15 Project: Tiger Oil/0818.02.01, F&BI 504060

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 504053-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

	Percent				
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	
Benzene	mg/kg (ppm)	0.5	83	69-120	
Toluene	mg/kg (ppm)	0.5	94	70-117	
Ethylbenzene	mg/kg (ppm)	0.5	92	65-123	
Xylenes	mg/kg (ppm)	1.5	90	66-120	
Gasoline	mg/kg (ppm)	20	100	71-131	
#### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

 $\ensuremath{\text{ip}}$  - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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ANALYSES REQUESTED																				
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS								Notes	
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Seattle, WA 98119-2029	Received by: mlas ans	Nhan Phan	FOBT	4/2/15 1530
Ph. (206) 285-8282	Relinquished by:			
Fax (206) 283-5044	Received by:			
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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 13, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Boulevard Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 8, 2015 from the Tiger Oil Nob Hill 0818.02.01, F&BI 504135 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0413R.DOC

### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on April 8, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil Nob Hill 0818.02.01, F&BI 504135 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Maul Foster Alongi
504135 -01	BH-18-S-14.0
504135 -02	BH-19-S-14.0
504135 -03	BH-20-S-14.0
504135 -04	BH-21-S-14.0
504135 -05	WELL-01-S

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/13/15 Date Received: 04/08/15 Project: Tiger Oil Nob Hill 0818.02.01, F&BI 504135 Date Extracted: 04/08/15 Date Analyzed: 04/08/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID Results Reported as Not Detected (ND) or Detected (D)

#### THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

<u>Sample ID</u> Laboratory ID	<u>Gasoline</u>	<u>Diesel</u>	<u>Heavy Oil</u>	Surrogate <u>(% Recovery)</u> (Limit 53-144)
WELL-01-S 504135-05	D	ND	ND	88
Method Blank 05-727 MB	ND	ND	ND	102

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/13/15 Date Received: 04/08/15 Project: Tiger Oil Nob Hill 0818.02.01, F&BI 504135 Date Extracted: 04/08/15 Date Analyzed: 04/08/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES USING METHOD 8021B

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	Ethyl <u>Benzene</u>	Total <u>Xylenes</u>	Surrogate ( <u>% Recovery)</u> (Limit 50-132)
WELL-01-S 504135-05 1/5	7.3	76	34	210	101
Method Blank	<0.02	< 0.02	< 0.02	<0.06	87

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/13/15 Date Received: 04/08/15 Project: Tiger Oil Nob Hill 0818.02.01, F&BI 504135 Date Extracted: 04/08/15 Date Analyzed: 04/08/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
Sample ID Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	Benzene	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery</u> ) (Limit 50-150)
BH-18-S-14.0 504135-01 1/5	0.29	1.1	0.75	5.4	120	88
BH-19-S-14.0 504135-02 1/5	0.29	1.8	2.9	15	630	97
BH-20-S-14.0 504135-03 1/10	1.1	35	21	290	4,200	101
BH-21-S-14.0 504135-04 1/20	7.7	160	61	430	6,500	95
Method Blank 05-0695 MB2	< 0.02	< 0.02	< 0.02	< 0.06	<2	87

### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	WELL-01-S 04/08/15 04/08/15 04/08/15 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Maul Foster Alongi Tiger Oil Nob Hill 0818.02.01 504135-05 040810.D GCMS9 JS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane-	d4	97	89	113
Toluene-d8		104	64	137
4-Bromofluorobenze	ene	104	81	119
		Concentration		
Compounds:		mg/kg (ppm)		
Vinyl chloride		< 0.05		
Chloroethane		< 0.5		
1,1-Dichloroethene		< 0.05		
Methylene chloride		<0.5		
trans-1,2-Dichloroe	thene	< 0.05		
1,1-Dichloroethane		< 0.05		
cis-1,2-Dichloroethe	ene	< 0.05		
1,2-Dichloroethane	(EDC)	< 0.05		
1,1,1-Trichloroetha	ne	< 0.05		
Trichloroethene		< 0.02		
Tetrachloroethene		< 0.025		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received:	Method Blan Not Applicab	ık Ile	Client: Project: Lab ID:	Maul Foster Alongi Tiger Oil Nob Hill 0818.02.01
Date Extracted.	04/06/15		Lau ID. Data Eilai	
Date Analyzed:	04/08/13 Seil		Data File:	040808.D
Matrix:	5011		Instrument:	GCMS9
Units:	mg/kg (ppm)	Dry Weight	Operator:	JS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	103	89	113
Toluene-d8		99	64	137
4-Bromofluorobenz	ene	99	81	119
		Concentration		
Compounds:		mg/kg (ppm)		
Vinyl chloride		< 0.05		
Chloroethane		<0.5		
1,1-Dichloroethene		< 0.05		
Methylene chloride		< 0.5		
trans-1,2-Dichloroe	ethene	< 0.05		
1,1-Dichloroethane		< 0.05		
cis-1,2-Dichloroethe	ene	< 0.05		
1,2-Dichloroethane	(EDC)	< 0.05		
1,1,1-Trichloroetha	ne	< 0.05		
Trichloroethene		< 0.02		
Tetrachloroethene		< 0.025		

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/13/15 Date Received: 04/08/15 Project: Tiger Oil Nob Hill 0818.02.01, F&BI 504135

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 504119-03 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	87	69-120
Toluene	mg/kg (ppm)	0.5	87	70-117
Ethylbenzene	mg/kg (ppm)	0.5	86	65-123
Xylenes	mg/kg (ppm)	1.5	85	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/13/15 Date Received: 04/08/15 Project: Tiger Oil Nob Hill 0818.02.01, F&BI 504135

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 504123-09 (Matrix Spike)

····· · · · · · · · · · · · · · · · ·	· · · · · /						
			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Vinyl chloride	mg/kg (ppm)	2.5	< 0.05	48	50	10-91	4
Chloroethane	mg/kg (ppm)	2.5	< 0.5	59	63	10-101	7
1,1-Dichloroethene	mg/kg (ppm)	2.5	< 0.05	65	67	11-103	3
Methylene chloride	mg/kg (ppm)	2.5	< 0.5	80	82	14-128	2
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	< 0.05	73	77	13-112	5
1,1-Dichloroethane	mg/kg (ppm)	2.5	< 0.05	77	79	23-115	3
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	< 0.05	81	83	25-120	2
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	< 0.05	80	80	22-124	0
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	< 0.05	79	81	27-112	2
Trichloroethene	mg/kg (ppm)	2.5	< 0.02	79	80	30-112	1
Tetrachloroethene	mg/kg (ppm)	2.5	< 0.025	79	79	25-114	0

#### ENVIRONMENTAL CHEMISTS

### Date of Report: 04/13/15 Date Received: 04/08/15 Project: Tiger Oil Nob Hill 0818.02.01, F&BI 504135

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

	_		Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Vinyl chloride	mg/kg (ppm)	2.5	81	42-107
Chloroethane	mg/kg (ppm)	2.5	89	47-115
1,1-Dichloroethene	mg/kg (ppm)	2.5	93	65-110
Methylene chloride	mg/kg (ppm)	2.5	104	50-127
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	100	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	99	74-109
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	103	73-110
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	100	73-111
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	103	72-116
Trichloroethene	mg/kg (ppm)	2.5	101	72-107
Tetrachloroethene	mg/kg (ppm)	2.5	103	73-111

#### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.









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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 16, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Boulevard Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 10, 2015 from the Tiger Oil 0818-02-11, F&BI 504184 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0416R.DOC

### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on April 10, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil 0818-02-11, F&BI 504184 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Maul Foster Alongi</u>
504184-01	BH-25-S-14.0

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/16/15 Date Received: 04/10/15 Project: Tiger Oil 0818-02-11, F&BI 504184 Date Extracted: 04/10/15 Date Analyzed: 04/10/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
Sample ID Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Benzene</u>	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery)</u> (Limit 50-132)
BH-25-S-14.0 504184-01 1/50	1.6	16	13	91	960	96
Method Blank 05-0698 MB	< 0.02	< 0.02	< 0.02	< 0.06	<2	92

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/16/15 Date Received: 04/10/15 Project: Tiger Oil 0818-02-11, F&BI 504184

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 504171-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	84	66-121
Toluene	mg/kg (ppm)	0.5	87	72-128
Ethylbenzene	mg/kg (ppm)	0.5	88	69-132
Xylenes	mg/kg (ppm)	1.5	89	69-131
Gasoline	mg/kg (ppm)	20	105	61-153

#### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS						٦	∮otes	
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Friedman & Bruva Inc	<u></u>	SIGN	ATURE		PR		'NA	MF				C	ΤΜΡΑ	NY	T			TIN	
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Seattle, WA 98119-2029	<b>Neceived</b>	vy.	The		r	r		- '				-				1. L	. / . l	0.	$\alpha n$

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

March 19, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Blvd Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on March 18, 2015 from the Tiger Oil, F&BI 503341 project. There are 23 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby MFA0319R.DOC

### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on March 18, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Maul Foster Alongi Tiger Oil, F&BI 503341 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Maul Foster Alongi</u>
503341 -01	SP-1-S1
503341 -02	SP-1-S2
503341 -03	SP-1-S3
503341 -04	SP-1-S4
503341 -05	SP-1-S5
503341 -06	SP-1-S6
503341 -07	SP-1-S7

All quality control requirements were acceptable.

### ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/15 Date Received: 03/18/15 Project: Tiger Oil, F&BI 503341 Date Extracted: 03/18/15 Date Analyzed: 03/18/15 and 03/19/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate ( <u>% Recovery</u> ) (Limit 58-139)
SP-1-S1 503341-01	<2	96
SP-1-S2 503341-02	<2	98
SP-1-S3 503341-03	<2	95
SP-1-S4 503341-04	<2	94
SP-1-S5 503341-05	<2	100
SP-1-S6 503341-06	4.2	101
SP-1-S7 503341-07	<2	99
Method Blank 05-0557 MB	<2	104

# ENVIRONMENTAL CHEMISTS

Date Received: $03/18/15$ Project:Tiger Oil, F&BI 503341Date Extracted: $03/18/15$ Lab ID: $503341.01$ Date Analyzed: $03/18/15$ Data File: $03183.3.D$ Matrix:SoilInstrument:GCMS4Units:mg/kg (ppm) Dry WeightOperator:JSSurrogates:% Recovery:Limit:Limit:1,2-Dichioroethane-d4100 $62$ 142-Toluene-d8101511214-Bromofluorobenzene9532146ComcentrationConcentrationmg/kg (ppm)Dichlorodifluoromethane<0.51,3-Dichloropropane<0.05Chloromethane<0.51,2-Dibromoethane<0.05Chloromethane<0.5L1,2-Dibromoethane<0.05Chlorobenzene<0.51,2-Dibromoethane<0.05Chlorobethane<0.51,2-Dibromoethane<0.05Chlorobethane<0.5N,2-Niene<0.05Chlorobethane<0.50.50.51,1-Dichloroethene<0.05mp.Xylene<0.051,1-Dichloroethene<0.05mp.Xylene<0.051,1-Dichloroethene<0.05Nylenezene<0.051,1-Dichloroethene<0.05Styrene<0.051,1-Dichloroethene<0.05Nylenezene<0.051,1-Dichloroethene<0.05Nylenezene<0.051,1-Dichloroethene<0.05Nylenezene<0.051,1-Dichloroethene<0.05Nylenezene<0.05	Client Sample ID:	SP-1-S1		Client:	Maul Foster Alongi	
Date Extracted: $03/18/15$ Lab Dr. $503341-01$ Date Analyzed: $03/18/15$ Data File: $031833.D$ Matrix:SoilInstrument:GCMS4Units:mg/kg (ppm) Dry WeightOperator:JSSurrogates:% Recovery:Limit:Limit:1.2-Dichloroethane-d410062142Toluene-d8101511214-Bromofluorobenzene9532146ConcentrationConcentrationmg/kg (ppm)Compounds:mg/kg (ppm)Compounds:mg/kg (ppm)Dichlorodifluoromethane<0.5	Date Received:	03/18/15		Project:	Tiger Oil, F&BI 5033	41
Date Analyzed:03/8/15Data File:031833.DMatrix:SoilInstrument:GCMS4Matrix:SoilOperator:JSSurrogates:% Recovery:Limit:Limit:1,2-Dichloroethane-d410062142Toluene-d8101511214-Bromofluorobenzene9532146ComcentrationConcentrationConcentrationCompounds:mg/kg (ppm)Compounds:mg/kg (ppm)Dichlorodifluoromethane<0.5	Date Extracted:	03/18/15		Lab ID:	503341-01	
Matrix:SoilInstrument:GCMS4Units:mg/kg (ppm) Dry WeightOperator:JSSurrogates: $\%$ Recovery:Limit:Limit:1.2-Dichloroethane-d410062142Toluene-d8101511214-Bromofluorobenzene9532146ConcentrationConcentrationCompounds:mg/kg (ppm)Compounds:mg/kg (ppm)Dichlorodifluoromethane<0.5	Date Analyzed:	03/18/15		Data File:	031833.D	
Units:mg/kg (ppm) Dry WeightOperator:JSLowerUpper Upper Limit:1,2-Dichloroethane-d410062142Toluene-d8101511214-Bronofluorobenzene9532146Concentration mg/kg (ppm)Compounds:mg/kg (ppm)Dichlorodifluoromethane<0.5	Matrix:	Soil		Instrument:	GCMS4	
Lower       Upper         Surrogates:       % Recovery:       Limit:       Limit: </td <td>Units:</td> <td>mg/kg (ppm</td> <td>) Dry Weight</td> <td>Operator:</td> <td>JS</td> <td></td>	Units:	mg/kg (ppm	) Dry Weight	Operator:	JS	
LowerLowerUpperLowerLimit:Limit:1,2-Dichloroethane-d410062142Toluene-d8101511214-Bromofluorobenzene9532146ConcentrationConcentrationCompounds:mg/kg (ppm)Compounds:Dichlorodifluoromethane<0.5			• •	- T	TT	
Surrogates: % Recovery: Limit: Limit: Limit: 1.2-Dichloroethane-d4 100 62 142 Toluene-d8 101 51 121 4-Bromofluorobenzene 95 32 146 Concentration Compounds: mg/kg (ppm) Dichlorodifluoromethane $< 0.5$ 1.3-Dichloropropane $< 0.05$ Chloromethane $< 0.5$ Tetrachloroethane $< 0.05$ Chloromethane $< 0.5$ Tetrachloroethane $< 0.05$ Chloromethane $< 0.5$ Dibromochloromethane $< 0.05$ Chloroethane $< 0.5$ Chlorobenzene $< 0.05$ Chloroethane $< 0.5$ L.2-Dibromochlane (EDB) $< 0.05$ Chloroethane $< 0.5$ Chlorobenzene $< 0.05$ Chloroethane $< 0.5$ L.2-Dibromochlane (EDB) $< 0.05$ Chloroethane $< 0.5$ Chlorobenzene $< 0.05$ Chloroethane $< 0.5$ Styrene $< 0.05$ Methylene chloride $< 0.5$ Styrene $< 0.05$ Methylene chloride $< 0.5$ Styrene $< 0.05$ Methylene thoride $< 0.5$ Styrene $< 0.05$ I.1-Dichloroethene $< 0.05$ Isopropylbenzene $< 0.05$ I.1-Dichloroethene $< 0.05$ Isopropylbenzene $< 0.05$ Methyl t-butyl ether (MTBE) $< 0.05$ Styrene $< 0.05$ Chloroform $< 0.05$ Bromoform $< 0.05$ Chloroform $< 0.05$ Isopropylbenzene $< 0.05$ Chloroform $< 0.05$ Isopropylbenzene $< 0.05$ Chloroform $< 0.05$ I.3.5-Trimethylbenzene $< 0.05$ L3.Dichloroethane $< 0.05$ I.3.2-Trimethylbenzene $< 0.05$ L3.Dichloroethane $< 0.05$ I.3.2-Trimethylbenzene $< 0.05$ Chloroform $< 0.05$ I.2.3-Trichloroptopane $< 0.05$ I.1-Dichloroethane $< 0.05$ I.2.3-Trichloroptopane $< 0.05$ I.1.1-Trichloropthane $< 0.05$ I.2.3-Trichloroptopane $< 0.05$ Dibromodenzene $< 0.05$ Benzene $< 0.03$ I.2.4-Trimethylbenzene $< 0.05$ Benzene $< 0.05$ I.2.4-Trimethylbenzene $< 0.05$ Dibromomethane $< 0.05$ I.2.4-Trimethylbenzene $< 0.05$ Dibromomethane $< 0.05$ I.2.4-Trimethylbenzene $< 0.05$ I.2.Dichloroptopane $< 0.05$ I.2.4-Trimethylbenzene $< 0.05$ Dibromomethane $< 0.05$ I.2.2-Dichlorobenzene $< 0.05$ Dibromomethane $< 0.05$ I.2.2-Dichlorobenzene $< 0.05$ I.2.Dichloroptopane $< 0.05$ I.2.2-Dichlorobenzene $< 0.05$ I.2.Dichloroptopane $< 0.05$ I.2.2-Dichlorobenzene $< 0.05$ I.2.Dichloroptopane $< 0.05$ I.2.2-Dichlorobenzene $< 0$	Commentation of		0/ <b>D</b>	Lower	Upper	
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ConcentrationConcentration mg/kg (ppm)Compounds:Concentration mg/kg (ppm)Dichlorodifluoromethane<0.5	4-Bromofluorobenz	ene	95	32	146	
Compounds:mg/kg (ppm)Compounds:mg/kg (ppm)Dichlorodifluoromethane<0.5			Concentration			Concentration
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Vinyl chloride<0.05Dibromochloromethane<0.05Bromomethane<0.5	Chloromethane		< 0.5	Tetrach	loroethene	< 0.025
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Chloroethane<0.5Chlorobenzene<0.05Trichlorofluoromethane<0.5	Bromomethane		< 0.5	1.2-Dibr	omoethane (EDB)	< 0.05
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Acetone<0.51.1,1,2-Tetrachloroethane<0.051,1-Dichloroethene<0.05	Trichlorofluoromet	hane	< 0.5	Ethylbei	nzene	< 0.05
ArtonicConstructionConstructionConstruction1.1-Dichloroethene<0.05	Acetone	mane	< 0.5	1 1 1 2-T	'etrachloroethane	<0.05
Arthenio ControlConstructionConstructionMethylene chloride $< 0.55$ $o$ -Xylene $< 0.051$ Methyl t-butyl ether (MTBE) $< 0.055$ Styrene $< 0.055$ trans-1,2-Dichloroethene $< 0.055$ Isopropylbenzene $< 0.055$ 1,1-Dichloroethane $< 0.055$ Bromoform $< 0.055$ 2,2-Dichloropropane $< 0.055$ n-Propylbenzene $< 0.055$ Chloroform $< 0.055$ 1,3,5-Trimethylbenzene $< 0.055$ 2-Butanone (MEK) $< 0.055$ 1,2,2-Tetrachloroethane $< 0.055$ 1,2-Dichloroethane (EDC) $< 0.055$ 1,2,3-Trichloropropane $< 0.055$ 1,1-Dichloroethane (EDC) $< 0.055$ 2-Chlorotoluene $< 0.055$ 1,1-Trichloroethane $< 0.055$ 4-Chlorotoluene $< 0.055$ 1,1-Dichloropropene $< 0.055$ tert-Butylbenzene $< 0.055$ Carbon tetrachloride $< 0.055$ tert-Butylbenzene $< 0.055$ Benzene $< 0.025$ sec-Butylbenzene $< 0.055$ Trichloroethane $< 0.055$ p-Isopropyltoluene $< 0.055$ Bromodichloromethane $< 0.055$ 1,2-Dichlorobenzene $< 0.055$ Jibromomethane $< 0.055$ 1,2-Dichlorobenzene $< 0.055$ 4-Methyl-2-pentanone $< 0.055$ 1,2-Dichlorobenzene $< 0.055$ 51,2-Dichlorobenzene $< 0.055$ 1,2-Dichlorobenzene $< 0.055$ 61,2-Dichlorobenzene $< 0.055$ 1,2-Dichlorobenzene $< 0.055$ 61,2-Dichlorobenzene $< 0.055$ 1,2-Dichloro	1 1-Dichloroethene		<0.05	m n-Xvl	ne	< 0.1
And type in the function(0.05)(0.05)(0.05)Methyl t-butyl ether (MTBE)(0.05)Styrene(0.05)trans-1,2-Dichloroethene(0.05)Isopropylbenzene(0.05)1,1-Dichloroethane(0.05)Bromoform(0.05)2,2-Dichloropropane(0.05)n-Propylbenzene(0.05)cis-1,2-Dichloroethene(0.05)Isopropylbenzene(0.05)Chloroform(0.05)1,3,5-Trimethylbenzene(0.05)2-Butanone (MEK)(0.5)1,2,2-Tetrachloroethane(0.05)1,2-Dichloroethane (EDC)(0.05)1,2,3-Trichloropropane(0.05)1,1-Dichloroethane(0.05)2-Chlorotoluene(0.05)1,1-Dichloropropene(0.05)4-Chlorotoluene(0.05)Carbon tetrachloride(0.05)tert-Butylbenzene(0.05)Benzene(0.03)1,2,4-Trimethylbenzene(0.05)Trichloroethane(0.05)p-Isopropyltoluene(0.05)1,2-Dichloropropane(0.05)1,3-Dichlorobenzene(0.05)Carbon tetrachloride(0.05)p-Isopropyltoluene(0.05)1,2-Dichloropropane(0.05)1,3-Dichlorobenzene(0.05)1,2-Dichloropropane(0.05)1,4-Dichlorobenzene(0.05)1,2-Dichloropropane(0.05)1,2-Dichlorobenzene(0.05)1,2-Dichloropropane(0.05)1,2-Dichlorobenzene(0.05)1,2-Dichloropropane(0.05)1,2-Dichlorobenzene(0.05)1,2-Dichloropropene(0.05)1,2-Dichlorobenzene(0.05) <td>Methylene chloride</td> <td></td> <td>&lt;0.5</td> <td>o-Xvlene</td> <td></td> <td>&lt;0.1</td>	Methylene chloride		<0.5	o-Xvlene		<0.1
Internation of the large state(a) to the large state(b) to the large stateIt rans-1, 2-Dichloroethene $< 0.05$ Isopropylbenzene $< 0.05$ 1,1-Dichloroethane $< 0.05$ Bromoform $< 0.05$ 2,2-Dichloroethene $< 0.05$ n-Propylbenzene $< 0.05$ cis-1,2-Dichloroethene $< 0.05$ Bromobenzene $< 0.05$ Chloroform $< 0.05$ 1,3,5-Trimethylbenzene $< 0.05$ 2-Butanone (MEK) $< 0.5$ 1,2,2-Tetrachloroethane $< 0.05$ 1,2-Dichloroethane (EDC) $< 0.05$ 1,2,3-Trichloropropane $< 0.05$ 1,1-Dichloroethane (EDC) $< 0.05$ 2-Chlorotoluene $< 0.05$ 1,1-Dichloropropene $< 0.05$ 4-Chlorotoluene $< 0.05$ 1,1-Dichloropropene $< 0.05$ tetr-Butylbenzene $< 0.05$ Carbon tetrachloride $< 0.05$ tetr-Butylbenzene $< 0.05$ Benzene $< 0.05$ p-Isopropyltoluene $< 0.05$ 1,2-Dichloropropane $< 0.05$ p-Isopropyltoluene $< 0.05$ 1,2-Dichloropropane $< 0.05$ p-Isopropyltoluene $< 0.05$ 1,2-Dichloropropane $< 0.05$ 1,3-Dichlorobenzene $< 0.05$ 1,2-Dichloropropane $< 0.05$ 1,2-Dichlorobenzene $< 0.25$ 1,1-Dichloropropene $< 0.05$ 1,2-Dichlorobenzene <td< td=""><td>Methyl t-butyl ethe</td><td>r (MTBE)</td><td>&lt;0.05</td><td>Styrene</td><td>, ,</td><td>&lt;0.05</td></td<>	Methyl t-butyl ethe	r (MTBE)	<0.05	Styrene	, ,	<0.05
Initial 1, is binnor the interval(1,0)Bornof propriod (1,0)(0,0)1,1-Dichloroethane(0,05)Bromoform(0,05)2,2-Dichloropropane(0,05)n-Propylbenzene(0,05)cis-1,2-Dichloroethene(0,05)1,3,5-Trimethylbenzene(0,05)2-Butanone (MEK)(0,5)1,2,2-Tetrachloroethane(0,05)1,2-Dichloroethane (EDC)(0,05)1,2,3-Trichloropropane(0,05)1,1-Trichloroethane(0,05)2-Chlorotoluene(0,05)1,1-Dichloropropene(0,05)4-Chlorotoluene(0,05)1,1-Dichloropropene(0,05)tert-Butylbenzene(0,05)1,1-Dichloropropene(0,05)tert-Butylbenzene(0,05)Carbon tetrachloride(0,05)p-Isopropyltoluene(0,05)Benzene(0,05)p-Isopropyltoluene(0,05)Trichloroethane(0,05)1,3-Dichlorobenzene(0,05)J.2-Dichloropropane(0,05)1,2-Dichlorobenzene(0,05)Bromodichloromethane(0,05)1,2-Dichlorobenzene(0,05)Dibromomethane(0,05)1,2-Dichlorobenzene(0,05)cis-1,3-Dichloropropene(0,05)1,2-Dichlorobenzene(0,25)trans-1,3-Dichloropropene(0,05)1,2,4-Trichlorobenzene(0,25)trans-1,3-Dichloropropene(0,05)Naphthalene(0,25)trans-1,3-Dichloropropene(0,05)Naphthalene(0,25)trans-1,3-Dichloropropene(0,05)Naphthalene(0,05)trans-1,3-Dichloropropene(0,05) <t< td=""><td>trans-1 2-Dichloroe</td><td>thene</td><td>&lt;0.00</td><td>Isopropy</td><td>lhenzene</td><td>&lt;0.05</td></t<>	trans-1 2-Dichloroe	thene	<0.00	Isopropy	lhenzene	<0.05
1) FormittieConstraintConstraint2,2-Dichloropropane $< 0.05$ n-Propylbenzene $< 0.05$ Chloroform $< 0.05$ Bromobenzene $< 0.05$ 2-Butanone (MEK) $< 0.5$ $1,3,5$ -Trimethylbenzene $< 0.05$ 2-Butanone (MEK) $< 0.5$ $1,2,3$ -Trichloropropane $< 0.05$ 1,2-Dichloroethane (EDC) $< 0.05$ $1,2,3$ -Trichloropropane $< 0.05$ 1,1-Trichloroethane $< 0.05$ $2$ -Chlorotoluene $< 0.05$ 1,1-Dichloropropene $< 0.05$ $4$ -Chlorotoluene $< 0.05$ Carbon tetrachloride $< 0.05$ tert-Butylbenzene $< 0.05$ Benzene $< 0.03$ $1,2,4$ -Trimethylbenzene $< 0.05$ Trichloroethane $< 0.05$ p-Isopropyltoluene $< 0.05$ 1,2-Dichloropropane $< 0.05$ $1,3$ -Dichlorobenzene $< 0.05$ 1,2-Dichloropropane $< 0.05$ $1,3$ -Dichlorobenzene $< 0.05$ 1,2-Dichloropropane $< 0.05$ $1,4$ -Dichlorobenzene $< 0.05$ 1,2-Dichloropropane $< 0.05$ $1,2$ -Dichlorobenzene $< 0.05$ 1,2-Dichloropropane $< 0.05$ $1,2$ -Dichlorobenzene $< 0.05$ 0.5 $1,2$ -Dichlorobenzene $< 0.05$ $1,2$ -Dichlorobenzene $< 0.05$ 1,3-Dichloropropene $< 0.05$ $1,2$ -Dichlorobenzene $< 0.25$ 1,12-Trichloropenzene $< 0.05$ $1,2,4$ -Trichlorobenzene $< 0.25$ 1,1,2-Trichloropenzene $< 0.05$ $1,2,4$ -Trichlorobenzene $< 0.25$ 1,1,2-Trichloropenzene $< 0.05$ $1,2,4$ -Trichl	1 1-Dichloroethane		<0.05	Bromofo	rm	<0.05
$a_1, 2$ -Dichloroptoptime $a_1, a_2$ -Dichloroptime $a_2, a_3$ -Dichloroptime $a_1, a_2$ -Dichloroptime $a_2, a_3$ -Dichloroptime $a_$	2 2-Dichloropropan	e	<0.05	n-Propy	benzene	<0.05
Chloroform<0.051,3,5-Trimethylbenzene<0.052-Butanone (MEK)<0.5	cis-1 2-Dichloroeth	ene	<0.05	Bromobe	enzene	<0.05
2-Butanone (MEK)<0.51,1,2,2-Tetrachloroethane<0.051,2-Dichloroethane (EDC)<0.05	Chloroform		<0.05	1 3 5-Tri	methylbenzene	<0.05
1,2-Dichloroethane (EDC)<0.051,2,3-Trichloropropane<0.051,1-Trichloroethane<0.05	2-Butanone (MEK)		< 0.5	1,1,2,2-T	'etrachloroethane	< 0.05
1,1,1-Trichloroethane<0.052-Chlorotoluene<0.051,1-Dichloropropene<0.05	1.2-Dichloroethane	(EDC)	< 0.05	1.2.3-Tri	chloropropane	< 0.05
1,1-Dichloropropene<0.054-Chlorobulene<0.05Carbon tetrachloride<0.05	1.1.1-Trichloroetha	ne	< 0.05	2-Chloro	otoluene	< 0.05
Carbon tetrachloride<0.05tert-Butylbenzene<0.05Benzene<0.03	1.1-Dichloropropen	e	< 0.05	4-Chloro	otoluene	< 0.05
Benzene<0.031,2,4-Trimethylbenzene<0.05Trichloroethene<0.02	Carbon tetrachlorio	de	< 0.05	tert-But	vlbenzene	< 0.05
Trichloroethene<0.02sec-Butylbenzene<0.051,2-Dichloropropane<0.05	Benzene		< 0.03	1.2.4-Tri	methylbenzene	< 0.05
1,2-Dichloropropane<0.05p-Isopropyltoluene<0.05Bromodichloromethane<0.05	Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
Bromodichloromethane<0.051,3-Dichlorobenzene<0.05Dibromomethane<0.05	1.2-Dichloropropan	е	< 0.05	p-Isopro	pyltoluene	< 0.05
Dibromomethane<0.051,4-Dichlorobenzene<0.054-Methyl-2-pentanone<0.5	Bromodichlorometh	nane	< 0.05	1.3-Dich	lorobenzene	< 0.05
4-Methyl-2-pentanone<0.5	Dibromomethane		< 0.05	1,4-Dich	lorobenzene	< 0.05
cis-1,3-Dichloropropene<0.051,2-Dibrono-3-chloropropane<0.5Toluene<0.05	4-Methyl-2-pentan	one	< 0.5	1,2-Dich	lorobenzene	< 0.05
Toluene<0.051,2,4-Trichlorobenzene<0.25trans-1,3-Dichloropropene<0.05	cis-1.3-Dichloropro	pene	< 0.05	1,2-Dibr	omo-3-chloropropane	< 0.5
trans-1,3-Dichloropropene<0.05Hexachlorobutadiene<0.251,1,2-Trichloroethane<0.05	Toluene	L	< 0.05	1.2.4-Tri	chlorobenzene	< 0.25
1,1,2-Trichloroethane<0.05Naphthalene<0.052-Hexapone<0.5	trans-1.3-Dichloror	propene	< 0.05	Hexachl	orobutadiene	< 0.25
2-Hevanone <0.5 1.2.3-Trichlorobenzene <0.25	1.1.2-Trichloroetha	ne	< 0.05	Naphtha	alene	< 0.05
	2-Hexanone		<0.5	1,2,3-Tri	chlorobenzene	< 0.25

# ENVIRONMENTAL CHEMISTS

Client Sample ID:	SP-1-S2		Client:	Maul Foster Alongi	
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 5033	41
Date Extracted:	03/18/15		Lab ID:	503341-02	
Date Analyzed:	03/18/15		Data File:	031834.D	
Matrix:	Soil		Instrument:	GCMS4	
Units:	mg/kg (ppm	) Dry Weight	Operator:	JS	
			- T	TT	
Commentation of		0/ <b>D</b>	Lower	Upper	
Surrogates:	14	% Recovery:	Limit:	Limit:	
1,2-Dichloroethane	-04	101	62	142	
1 oluene-d8		102	51	121	
4-Bromofluorobenz	ene	97	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compou	nds:	mg/kg (ppm)
Dichlorodifluorome	ethane	<0.5	1,3-Dich	loropropane	< 0.05
Chloromethane		< 0.5	Tetrach	loroethene	< 0.025
Vinyl chloride		< 0.05	Dibromo	ochloromethane	< 0.05
Bromomethane		<0.5	1,2-Dibr	omoethane (EDB)	< 0.05
Chloroethane		< 0.5	Chlorob	enzene	< 0.05
Trichlorofluoromet	hane	< 0.5	Ethylbei	nzene	< 0.05
Acetone		< 0.5	1.1.1.2-T	etrachloroethane	< 0.05
1.1-Dichloroethene		< 0.05	m.p-Xvl	ene	< 0.1
Methylene chloride		<0.5	o-Xvlene	<u>)</u>	< 0.05
Methyl t-butyl ethe	r (MTBE)	<0.05	Styrene		<0.05
trans-1.2-Dichloroe	ethene	< 0.05	Isopropy	lbenzene	< 0.05
1.1-Dichloroethane		< 0.05	Bromofo	rm	< 0.05
2.2-Dichloropropan	e	< 0.05	n-Propylbenzene		< 0.05
cis-1.2-Dichloroeth	ene	< 0.05	Bromobe	enzene	< 0.05
Chloroform		< 0.05	1.3.5-Tri	imethylbenzene	< 0.05
2-Butanone (MEK)		<0.5	1,1,2,2-T	'etrachloroethane	< 0.05
1.2-Dichloroethane	(EDC)	< 0.05	1,2,3-Tri	ichloropropane	< 0.05
1.1.1-Trichloroetha	ine	< 0.05	2-Chloro	otoluene	< 0.05
1.1-Dichloropropen	e	< 0.05	4-Chloro	otoluene	< 0.05
Carbon tetrachlorio	de	< 0.05	tert-But	vlbenzene	< 0.05
Benzene		< 0.03	1.2.4-Tri	imethylbenzene	< 0.05
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
1.2-Dichloropropan	e	< 0.05	p-Isopro	pyltoluene	< 0.05
Bromodichlorometh	nane	<0.00	1 3-Dich	lorobenzene	<0.05
Dibromomethane	lune	<0.00	1,0 Dich	lorobenzene	<0.05
4-Methyl-2-pentan	one	< 0.5	1, 2 Dich	lorobenzene	<0.05
cis-1.3-Dichloropro	nene	< 0.05	1 2-Dibr	omo-3-chloropropane	< 0.5
Toluene	r - 110	<0.05	1 2 4-Tri	ichlorobenzene	< 0.25
trans-1 3-Dichloror	oronene	<0.05	Hexachl	orobutadiene	<0.25
1.1.2-Trichloroetha	ne	< 0.05	Nanhtha	alene	<0.20
2-Hexanone		< 0.5	1 2 3-Tri	ichlorobenzene	<0.25
~ . ionumono			1,~,0 111		-0.wo

# ENVIRONMENTAL CHEMISTS

Client Sample ID:	SP-1-S3		Client:	Maul Foster Alongi	
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 50334	41
Date Extracted:	03/18/15		Lab ID:	503341-03	
Date Analyzed:	03/18/15		Data File:	031835.D	
Matrix:	Soil		Instrument:	GCMS4	
Units:	mg/kg (ppn	ı) Dry Weight	Operator:	JS	
			- -		
Commente de la commen		0/ <b>D</b>	Lower	Upper	
Surrogates:	14	% Recovery:	Limit:	Limit:	
1,2-Dichloroethane-	14	101	62	142	
1 oluene-d8		102	51	121	
4-Bromofluorobenze	ne	96	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compou	nds:	mg/kg (ppm)
Dichlorodifluoromet	hane	< 0.5	1,3-Dich	loropropane	< 0.05
Chloromethane		< 0.5	Tetrachl	loroethene	< 0.025
Vinyl chloride		< 0.05	Dibromo	ochloromethane	< 0.05
Bromomethane		< 0.5	1,2-Dibr	omoethane (EDB)	< 0.05
Chloroethane		< 0.5	Chlorobe	enzene	< 0.05
Trichlorofluorometh	ane	< 0.5	Ethylber	nzene	< 0.05
Acetone		< 0.5	1.1.1.2-T	etrachloroethane	< 0.05
1.1-Dichloroethene		< 0.05	m.p-Xvle	ene	< 0.1
Methylene chloride		< 0.5	o-Xvlene	<u>)</u>	< 0.05
Methyl t-butyl ether (MTBE)		< 0.05	Styrene		< 0.05
trans-1.2-Dichloroet	hene	< 0.05	Isopropy	lbenzene	< 0.05
1.1-Dichloroethane		< 0.05	Bromofo	Bromoform	
2.2-Dichloropropane		< 0.05	n-Propylbenzene		< 0.05
cis-1.2-Dichloroethe	ne	< 0.05	Bromobe	enzene	< 0.05
Chloroform		< 0.05	1.3.5-Tri	imethylbenzene	< 0.05
2-Butanone (MEK)		< 0.5	1.1.2.2-T	etrachloroethane	< 0.05
1.2-Dichloroethane	(EDC)	< 0.05	1.2.3-Tri	chloropropane	< 0.05
1.1.1-Trichloroethar	ne	< 0.05	2-Chloro	otoluene	< 0.05
1.1-Dichloropropene		< 0.05	4-Chloro	otoluene	< 0.05
Carbon tetrachlorid	e	< 0.05	tert-But	vlbenzene	< 0.05
Benzene		< 0.03	1.2.4-Tri	methylbenzene	< 0.05
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
1,2-Dichloropropane	•	< 0.05	p-Isopro	pyltoluene	< 0.05
Bromodichlorometha	ane	< 0.05	1.3-Dich	lorobenzene	< 0.05
Dibromomethane		< 0.05	1,4-Dich	lorobenzene	< 0.05
4-Methyl-2-pentano	ne	< 0.5	1,2-Dich	lorobenzene	< 0.05
cis-1,3-Dichloroprop	ene	< 0.05	1,2-Dibr	omo-3-chloropropane	< 0.5
Toluene		< 0.05	1,2,4-Tri	chlorobenzene	< 0.25
trans-1,3-Dichloropi	ropene	< 0.05	Hexachl	orobutadiene	< 0.25
1,1,2-Trichloroethar	ne	< 0.05	Naphtha	alene	< 0.05
2-Hexanone		< 0.5	1,2,3-Tri	chlorobenzene	< 0.25

# ENVIRONMENTAL CHEMISTS

Client Sample ID:	SP-1-S4		Client:	Maul Foster Alongi	
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 50334	41
Date Extracted:	03/18/15		Lab ID:	503341-04	
Date Analyzed:	03/18/15		Data File:	031836.D	
Matrix:	Soil		Instrument:	GCMS4	
Units:	mg/kg (ppm	n) Dry Weight	Operator:	JS	
	0 0 11		- -	••	
C ·		04 <b>D</b>	Lower	Upper	
Surrogates:	1.4	% Recovery:	Limit:	Limit:	
1,2-Dichloroethane	-d4	101	62	142	
Toluene-d8		102	51	121	
4-Bromofluor obenz	ene	96	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compou	nds:	mg/kg (ppm)
Dichlorodifluorome	ethane	< 0.5	1,3-Dich	loropropane	< 0.05
Chloromethane		< 0.5	Tetrachl	oroethene	< 0.025
Vinyl chloride		< 0.05	Dibromo	ochloromethane	< 0.05
Bromomethane		< 0.5	1,2-Dibr	omoethane (EDB)	< 0.05
Chloroethane		< 0.5	Chlorobe	enzene	< 0.05
Trichlorofluoromet	hane	< 0.5	Ethylber	nzene	< 0.05
Acetone		< 0.5	1.1.1.2-T	'etrachloroethane	< 0.05
1.1-Dichloroethene		< 0.05	m.p-Xvle	ene	< 0.1
Methylene chloride	<b>`</b>	< 0.5	o-Xvlene	o-Xylene	
Methyl t-butyl ether (MTBF)		< 0.05	Styrene	, ,	< 0.05
trans-1.2-Dichloroe	ethene	< 0.05	Isopropy	lbenzene	< 0.05
1.1-Dichloroethane		< 0.05	Bromofo	rm	< 0.05
2.2-Dichloropropan	e	< 0.05	n-Propylbenzene		< 0.05
cis-1.2-Dichloroeth	ene	< 0.05	Bromobe	enzene	< 0.05
Chloroform		< 0.05	1.3.5-Tri	methylbenzene	< 0.05
2-Butanone (MEK)		< 0.5	1.1.2.2-T	'etrachloroethane	< 0.05
1.2-Dichloroethane	(EDC)	< 0.05	1.2.3-Tri	chloropropane	< 0.05
1.1.1-Trichloroetha	ne	< 0.05	2-Chloro	otoluene	< 0.05
1.1-Dichloropropen	e	< 0.05	4-Chloro	otoluene	< 0.05
Carbon tetrachlori	de	< 0.05	tert-But	vlbenzene	< 0.05
Benzene		< 0.03	1.2.4-Tri	methylbenzene	< 0.05
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
1.2-Dichloropropan	e	< 0.05	p-Isopro	pyltoluene	< 0.05
Bromodichlorometl	nane	< 0.05	1.3-Dich	lorobenzene	< 0.05
Dibromomethane		< 0.05	1.4-Dich	lorobenzene	< 0.05
4-Methyl-2-pentan	one	< 0.5	1.2-Dich	lorobenzene	< 0.05
cis-1.3-Dichloropro	pene	< 0.05	1.2-Dibr	omo-3-chloropropane	< 0.5
Toluene		< 0.05	1.2.4-Tri	chlorobenzene	< 0.25
trans-1,3-Dichloror	propene	< 0.05	Hexachl	orobutadiene	< 0.25
1,1,2-Trichloroetha	ine	< 0.05	Naphtha	alene	< 0.05
2-Hexanone		< 0.5	1,2,3-Tri	chlorobenzene	< 0.25

# ENVIRONMENTAL CHEMISTS

Client Sample ID:	SP-1-S5		Client:	Maul Foster Alongi	
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 50334	41
Date Extracted:	03/18/15		Lab ID:	503341-05	
Date Analyzed:	03/18/15		Data File:	031837.D	
Matrix:	Soil		Instrument:	GCMS4	
Units:	mg/kg (ppn	n) Dry Weight	Operator:	JS	
	0 0 11		- -	* *	
9		0/ <b>D</b>	Lower	Upper	
Surrogates:	14	% Recovery:	Limit:	Limit:	
1,2-Dichloroethane	-d4	102	62	142	
Toluene-d8		102	51	121	
4-Bromofluorobenz	ene	95	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compou	nds:	mg/kg (ppm)
Dichlorodifluorome	thane	< 0.5	1,3-Dich	loropropane	< 0.05
Chloromethane		< 0.5	Tetrachl	oroethene	< 0.025
Vinyl chloride		< 0.05	Dibromo	ochloromethane	< 0.05
Bromomethane		< 0.5	1.2-Dibr	omoethane (EDB)	< 0.05
Chloroethane		< 0.5	Chlorobe	enzene	< 0.05
Trichlorofluoromet	hane	< 0.5	Ethylber	nzene	< 0.05
Acetone		< 0.5	1.1.1.2-T	'etrachloroethane	< 0.05
1.1-Dichloroethene		< 0.05	m.p-Xvle	ene	< 0.1
Methylene chloride		< 0.5	o-Xvlene		<0.05
Methyl t-hutyl ether (MTBF)		< 0.05	Styrene		< 0.05
trans-1.2-Dichloroe	thene	< 0.05	Isopropy	lbenzene	< 0.05
1.1-Dichloroethane		< 0.05	Bromofo	rm	< 0.05
2.2-Dichloropropan	e	< 0.05	n-Propyl	benzene	< 0.05
cis-1.2-Dichloroeth	ene	< 0.05	Bromobe	enzene	< 0.05
Chloroform		< 0.05	1.3.5-Tri	methylbenzene	< 0.05
2-Butanone (MEK)		< 0.5	1.1.2.2-T	'etrachloroethane	< 0.05
1.2-Dichloroethane	(EDC)	< 0.05	1.2.3-Tri	chloropropane	< 0.05
1.1.1-Trichloroetha	ne	< 0.05	2-Chloro	otoluene	< 0.05
1.1-Dichloropropen	e	< 0.05	4-Chloro	otoluene	< 0.05
Carbon tetrachlorio	de	< 0.05	tert-But	vlbenzene	< 0.05
Benzene		< 0.03	1.2.4-Tri	methylbenzene	< 0.05
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
1.2-Dichloropropan	e	< 0.05	p-Isopro	pvltoluene	< 0.05
Bromodichlorometh	nane	< 0.05	1.3-Dich	lorobenzene	< 0.05
Dibromomethane		< 0.05	1.4-Dich	lorobenzene	< 0.05
4-Methyl-2-pentan	one	< 0.5	1.2-Dich	lorobenzene	< 0.05
cis-1.3-Dichloropro	pene	< 0.05	1.2-Dibr	omo-3-chloropropane	< 0.5
Toluene		< 0.05	1.2.4-Tri	chlorobenzene	< 0.25
trans-1.3-Dichloror	propene	< 0.05	Hexachl	orobutadiene	< 0.25
1.1.2-Trichloroetha	ne	< 0.05	Naphtha	alene	< 0.05
2-Hexanone	-	< 0.5	1.2.3-Tri	chlorobenzene	< 0.25
-			, ,		

# ENVIRONMENTAL CHEMISTS

Client Sample ID:	SP-1-S6		Client:	Maul Foster Alongi	
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 50334	11
Date Extracted:	03/18/15		Lab ID:	503341-06	
Date Analyzed:	03/18/15		Data File:	031838.D	
Matrix:	Soil		Instrument:	GCMS4	
Units:	mg/kg (ppm	) Dry Weight	Operator:	JS	
	0 0 11		- -	<b>T</b> T	
C		0/ <b>D</b>	Lower	Upper	
Surrogates:	14	% Recovery:	Limit:	Limit:	
1,2-Dichloroethane	-d4	101	62	142	
Toluene-d8		102	51	121	
4-Bromofluorobenz	ene	94	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compou	nds:	mg/kg (ppm)
Dichlorodifluorome	thane	<0.5	1,3-Dich	loropropane	< 0.05
Chloromethane		< 0.5	Tetrachl	oroethene	< 0.025
Vinvl chloride		< 0.05	Dibromo	ochloromethane	< 0.05
Bromomethane		<0.5	1.2-Dibre	omoethane (EDB)	< 0.05
Chloroethane		< 0.5	Chlorobe	enzene	<0.00
Trichlorofluoromet	hane	<0.5	Ethylber	nzene	<0.00
Acotono	nune	<0.5	1 1 1 2-T	atrachloroothano	<0.05
1 1-Dichloroothono		<0.0	1, 1, 1, 2		< 0.05
Methylene chloride		<0.05	o-Xvlene		<0.1
Mothyl t-hutyl otho	r (MTRF)	<0.5	Styrene	;	<0.05
trans_1 2-Dichlorog	thong	<0.05	Isopropi	lhanzana	<0.05
1 1-Dichloroothano	thene	<0.05	Bromofo	rm	<0.05
2 2 Dichloropropan	0	<0.05	n Dronyl	n-Pronvlbenzene	
2,2-Dicition optopation	e	< 0.05	Bromoby		< 0.05
Chloroform	ene	<0.05	1 2 5 Tri	mothylhonzono	< 0.05
2 Putanana (MEK)		< 0.05	1,3,3-111 1 1 9 9 T	atrachlaraathana	< 0.05
2-Dutatione (MEK)	(EDC)	< 0.5	$1, 1, 2, 2^{-1}$ 1 2 2 Tri	chloropropopo	< 0.05
1,2-Dicition betriatie	(EDC)	< 0.05	1,2,3-111 2 Chloro	taluana	< 0.05
1,1,1-11 Cillor Oetila	ne o	< 0.05	2-CIII010		< 0.05
Carbon totrachlari	e de	< 0.05	4-CIII0F0	ulhongono	< 0.05
Carbon tetrachiorie	le	<0.03	19.4  Tm	mothulhonzono	< 0.05
Benzene Tuishlanaathana		< 0.03	1,2,4-1f1	methylbenzene	< 0.05
1 9 Dishlanannan an		<0.02	sec-Buly		< 0.05
1,2-Dichloropropan	e	<0.05	p-isopro	pyitoiuene	<0.05
Bromodicniorometr	nane	< 0.05	I,3-Dich	lorobenzene	< 0.05
Dibromomethane		<0.05	I,4-Dich	lorobenzene	< 0.05
4-Methyl-2-pentan	one	<0.5	1,2-Dich	lorobenzene	<0.05
cis-1,3-Dichloropro	pene	< 0.05	1,2-Dibr	omo-3-chloropropane	<0.5
Toluene		< 0.05	1,2,4-Tri	chlorobenzene	< 0.25
trans-1,3-Dichlorop	oropene	< 0.05	Hexachl	orobutadiene	< 0.25
1,1,2-Trichloroetha	ne	< 0.05	Naphtha	alene	< 0.05
2-Hexanone		< 0.5	1,2,3-Tri	chlorobenzene	< 0.25

# ENVIRONMENTAL CHEMISTS

Client Sample ID:	SP-1-S7		Client:	Maul Foster Alongi	
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 5033	41
Date Extracted:	03/18/15		Lab ID:	503341-07	
Date Analyzed:	03/18/15		Data File:	031839.D	
Matrix:	Soil		Instrument:	GCMS4	
Units:	mg/kg (ppm	) Dry Weight	Operator:	JS	
			- T	TT	
C · · ·		0/ <b>D</b>	Lower	Upper	
Surrogates:	14	% Recovery:	Limit:	Limit:	
1,2-Dichloroethane-	<b>d</b> 4	101	62	142	
10luene-d8		103	51	121	
4-Bromofluorobenze	ene	95	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compou	nds:	mg/kg (ppm)
Dichlorodifluoromet	hane	<0.5	1,3-Dich	loropropane	< 0.05
Chloromethane		< 0.5	Tetrachl	oroethene	< 0.025
Vinyl chloride		< 0.05	Dibromo	ochloromethane	< 0.05
Bromomethane		< 0.5	1,2-Dibr	omoethane (EDB)	< 0.05
Chloroethane		< 0.5	Chlorobe	enzene	< 0.05
Trichlorofluorometh	nane	< 0.5	Ethylber	nzene	< 0.05
Acetone		< 0.5	1.1.1.2-T	'etrachloroethane	< 0.05
1.1-Dichloroethene		< 0.05	m.p-Xvle	ene	< 0.1
Methylene chloride		< 0.5	o-Xvlene		< 0.05
Methyl t-butyl ether (MTBE)		< 0.05	Styrene		< 0.05
trans-1.2-Dichloroet	thene	< 0.05	Isopropy	lbenzene	< 0.05
1.1-Dichloroethane		< 0.05	Bromofo	rm	< 0.05
2.2-Dichloropropane	<u>)</u>	< 0.05	n-Propylbenzene		< 0.05
cis-1.2-Dichloroethe	ne	< 0.05	Bromobe	enzene	< 0.05
Chloroform		< 0.05	1.3.5-Tri	methylbenzene	< 0.05
2-Butanone (MEK)		< 0.5	1.1.2.2-T	etrachloroethane	< 0.05
1.2-Dichloroethane	(EDC)	< 0.05	1.2.3-Tri	chloropropane	< 0.05
1,1,1-Trichloroethar	ne	< 0.05	2-Chloro	otoluene	< 0.05
1,1-Dichloropropene	<u>!</u>	< 0.05	4-Chloro	otoluene	< 0.05
Carbon tetrachlorid	e	< 0.05	tert-But	ylbenzene	< 0.05
Benzene		< 0.03	1,2,4-Tri	methylbenzene	< 0.05
Trichloroethene		< 0.02	sec-Buty	lbenzene	< 0.05
1,2-Dichloropropane	<b>)</b>	< 0.05	p-Isopro	pyltoluene	< 0.05
Bromodichlorometh	ane	< 0.05	1,3-Dich	lorobenzene	< 0.05
Dibromomethane		< 0.05	1,4-Dich	loroben zene	< 0.05
4-Methyl-2-pentano	ne	< 0.5	1,2-Dich	lorobenzene	< 0.05
cis-1,3-Dichloroprop	ene	< 0.05	1,2-Dibr	omo-3-chloropropane	< 0.5
Toluene		< 0.05	1,2,4-Tri	chlorobenzene	< 0.25
trans-1,3-Dichlorop	ropene	< 0.05	Hexachl	orobutadiene	< 0.25
1,1,2-Trichloroethar	ne	< 0.05	Naphtha	alene	< 0.05
2-Hexanone		<0.5	1,2,3-Tri	chlorobenzene	< 0.25

# ENVIRONMENTAL CHEMISTS

Client Sample ID:	Method Bla	ank	Client:	Maul Foster Alongi	
Date Received:	Not Applic	able	Project:	Tiger Oil, F&BI 5033	41
Date Extracted:	03/18/15		Lab ID:	05-0544 mb	
Date Analyzed:	03/18/15		Data File:	031826.D	
Matrix:	Soil		Instrument:	GCMS4	
Units:	mg/kg (ppn	n) Dry Weight	Operator:	JS	
	0 0 11				
a .			Lower	Upper	
Surrogates:		% Recovery:	Limit:	Limit:	
1,2-Dichloroethane	-d4	100	62	142	
Toluene-d8		102	51	121	
4-Bromofluorobenz	ene	96	32	146	
		Concentration			Concentration
Compounds:		mg/kg (ppm)	Compou	nds:	mg/kg (ppm)
Dichlorodifluorome	thane	<0.5	1,3-Dich	loropropane	< 0.05
Chloromethane		< 0.5	Tetrach	loroethene	< 0.025
Vinvl chloride		< 0.05	Dibromo	ochloromethane	< 0.05
Bromomethane		< 0.5	1.2-Dibr	omoethane (EDB)	< 0.05
Chloroethane		<0.5	Chlorobe	enzene	< 0.05
Trichlorofluoromet	hane	< 0.5	Ethylbei	nzene	< 0.05
Acetone		< 0.5	1.1.1.2-Tetrachloroethane		<0.00
1 1-Dichloroethene		<0.0	m.p-Xylene		<0.00
Methylene chloride		<0.50	o-Xvlene	o-Xvlene	
Methyl t-butyl ether (MTBE)		<0.0	Styrene	·	<0.05
trans-1 2-Dichloroethene		<0.00	Isopropy	lbenzene	<0.05
1 1-Dichloroethane		<0.00	Bromofo	rm	<0.00
2 2-Dichloropronan	e	<0.00	n-Pronvlbenzene		<0.05
cis_1 2-Dichloroothono		<0.00	Bromobenzene		<0.05
Chloroform		<0.00	1.3.5-Trimethylbenzene		<0.05
2-Butanone (MEK)		< 0.5	1,0,0 11 1 1 2 2-T	'etrachloroethane	<0.00
1 2-Dichloroethane	(EDC)	<0.0	1, 1, 2, 2 1 1 2 3-Tri	ichloropropane	<0.05
1 1 1-Trichloroetha	ne	<0.00	2-Chloro	otoluene	<0.00
1 1-Dichloropropen	e	<0.00	∠ Chlore	otoluene	<0.00
Carbon tetrachlorio	le	<0.00	tert-But	vlbenzene	<0.00
Benzene		< 0.03	1 2 4-Tri	imethylbenzene	<0.00
Trichloroethene		< 0.00	sec-Buty	lhenzene	<0.05
1 2-Dichloropropan	e	<0.02	n-Isonro	nvltoluene	<0.05
Bromodichlorometh	iane	<0.00	1 3-Dich	lorobenzene	<0.05
Dibromomethane	lane	<0.05	1,0 Dich	lorobenzene	<0.05
4-Methyl-2-pentan	nne	<0.00	1,4 Dich	lorobenzene	<0.05
cis-1 3-Dichloropro	nene	<0.0	1,2 Dien 1 2-Dibr	omo-3-chloropropane	<0.00
Toluene	pene	<0.05	1,2-D101 1 9 4-Tri	ichlorobenzene	<0.5
trans-1 3-Dichloror	ronene	<0.05	Heyachl	orobutadiene	<0.20
1 1 2-Trichloroetha	ne	<0.05	Nanhth	alene	<0.20
2-Hevanone	iic.	<0.00	1 9 2.Tri	1.9.9 Trichlanchangens	
~-IICAAIIUIIC		<b>\U.J</b>	1,2,0-111	icinol obelizelle	<b>\U.2</b> J

# ENVIRONMENTAL CHEMISTS

# Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	SP-1-S1		Client:	Maul Foster Alongi
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 503341
Date Extracted:	03/18/15		Lab ID:	503341-01
Date Analyzed:	03/19/15		Data File:	503341-01.011
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		100	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Limi	it
Lead		<1	5.0	
# ENVIRONMENTAL CHEMISTS

Client ID:	SP-1-S2		Client:	Maul Foster Alongi
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 503341
Date Extracted:	03/18/15		Lab ID:	503341-02
Date Analyzed:	03/19/15		Data File:	503341-02.014
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		102	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Limi	it
Lead		<1	5.0	

# ENVIRONMENTAL CHEMISTS

Client ID:	SP-1-S3		Client:	Maul Foster Alongi
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 503341
Date Extracted:	03/18/15		Lab ID:	503341-03
Date Analyzed:	03/19/15		Data File:	503341-03.015
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		105	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Lim	it
Lead		<1	5.0	

# ENVIRONMENTAL CHEMISTS

Client ID:	SP-1-S4		Client:	Maul Foster Alongi
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 503341
Date Extracted:	03/18/15		Lab ID:	503341-04
Date Analyzed:	03/19/15		Data File:	503341-04.016
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		103	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Limi	it
Lead		<1	5.0	

# ENVIRONMENTAL CHEMISTS

Client ID: Date Received: Date Extracted: Date Analyzed:	SP-1-S5 03/18/15 03/18/15 03/19/15		Client: Project: Lab ID: Data File:	Maul Foster Alongi Tiger Oil, F&BI 503341 503341-05 503341-05.017
Matrix:	Soil		Instrument:	ICPMSI
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		102	60	125
Analyte:		Concentration mg/L (ppm)	TCLP Limi	it
Lead		<1	5.0	

# ENVIRONMENTAL CHEMISTS

Client ID:	SP-1-S6		Client:	Maul Foster Alongi
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 503341
Date Extracted:	03/18/15		Lab ID:	503341-06
Date Analyzed:	03/19/15		Data File:	503341-06.018
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		104	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Limi	it
Lead		<1	5.0	

# ENVIRONMENTAL CHEMISTS

Client ID:	SP-1-S7		Client:	Maul Foster Alongi
Date Received:	03/18/15		Project:	Tiger Oil, F&BI 503341
Date Extracted:	03/18/15		Lab ID:	503341-07
Date Analyzed:	03/19/15		Data File:	503341-07.020
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:		% Recovery:	Limit:	Limit:
Holmium		103	60	125
		Concentration		
Analyte:		mg/L (ppm)	TCLP Limi	it
Lead		<1	5.0	

# ENVIRONMENTAL CHEMISTS

Client ID: Date Received:	Method Blank NA 02/18/15	ζ.	Client: Project: Lab ID:	Maul Foster Alongi Tiger Oil, F&BI 503341
Date Analyzed	03/19/15		Data File	15-164 mb 009
Matrix:	Soil		Instrument:	ICPMS1
Units:	mg/L (ppm)		Operator:	AP
			Lower	Upper
Internal Standard:	•	% Recovery:	Limit:	Limit:
Holmium		98	60	125
Analyte:	C	Concentration mg/L (ppm)	TCLP Lim	it
Lead		<1	5.0	

### ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/15 Date Received: 03/18/15 Project: Tiger Oil, F&BI 503341

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: \$	503283-21 (Duplic	ate)			
-	_	Samp	le D	uplicate	
	Reporting	Resu	lt 1	Result	RPD
Analyte	Units	(Wet V	Nt) (V	Vet Wt)	(Limit 20)
Gasoline	mg/kg (ppm)	<2		<2	nm
Laboratory Code:	Laboratory Contro	ol Sample	<u>)</u>		
			Percent		
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	
Gasoline	mg/kg (ppm)	20	95	71-131	_

### ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/15 Date Received: 03/18/15 Project: Tiger Oil, F&BI 503341

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 503341-01 (Matrix Spike)

	•		Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	29	27	10-142	7
Chloromethane	mg/kg (ppm)	2.5	<0.5	65	66	10-126	2
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	65	67	10-138	3
Bromomethane	mg/kg (ppm)	2.5	<0.5	63 77	64 79	10-163	2
Trichlorofluoromethane	mg/kg (ppiii)	2.5	<0.5	63	78 64	10-176	1 2
Acetone	mg/kg (ppm)	12.5	<0.5	88	91	10-163	3
1,1-Dichloroethene	mg/kg (ppm)	2.5	< 0.05	80	84	10-160	5
Methylene chloride	mg/kg (ppm)	2.5	< 0.5	74	79	10-156	7
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	< 0.05	89	90	21-145	1
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	83	83	14-137	0
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	80	87	19-140	1
2,2-Dichloropropane	mg/kg (ppm)	2.0	<0.05	78 89	79	10-138	1
Chloroform	mg/kg (ppm)	2.5	<0.05	88	89	21-145	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	97	102	19-147	5
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	< 0.05	87	87	12-160	0
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	< 0.05	81	82	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	2.5	< 0.05	88	90	17-140	2
Carbon tetrachloride	mg/kg (ppm)	2.5	< 0.05	83	82	9-164	1
Benzene	mg/kg (ppm)	2.5	<0.03	90	91	29-129	1
1 2 Dichleronnono	mg/kg (ppm)	2.5	<0.02	94	94	21-139	0
Bromodichloromethane	mg/kg (ppiii)	2.5	<0.05	94	93 89	23-155	1
Dibromomethane	mg/kg (ppm)	2.5	<0.05	90	89	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	101	103	24-155	2
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	< 0.05	93	93	28-144	0
Toluene	mg/kg (ppm)	2.5	< 0.05	90	92	35-130	2
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	< 0.05	88	87	26-149	1
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	91	91	10-205	0
2-Hexanone	mg/kg (ppm)	12.5	<0.5	91	93	15-166	2
Tetrachloroethene	mg/kg (ppiii)	2.5	<0.05	94 92	94 92	20-133	0
Dibromochloromethane	mg/kg (ppm)	2.5	<0.020	88	88	28-150	0
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	92	93	28-142	1
Chlorobenzene	mg/kg (ppm)	2.5	< 0.05	93	93	32-129	0
Ethylbenzene	mg/kg (ppm)	2.5	< 0.05	91	92	32-137	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	< 0.05	91	91	31-143	0
m,p-Xylene	mg/kg (ppm)	5	<0.1	91	92	34-136	1
o-Xylene	mg/kg (ppm)	2.5	<0.05	91	92	33-134	1
Isopropylbenzene	mg/kg (ppiii)	2.5	<0.05	93	94	31-142	1
Bromoform	mg/kg (ppm)	2.5	<0.05	82	81	21-156	1
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	90	89	23-146	1
Bromobenzene	mg/kg (ppm)	2.5	< 0.05	94	93	34-130	1
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	< 0.05	90	90	18-149	0
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	< 0.05	89	88	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	88	89	25-144	1
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	80	80	31-134	0
tert-Butylbenzene	mg/kg (ppin)	2.5	<0.05	91	92	30-137	1
1.2.4 Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	88	88	10-182	0
sec-Butylbenzene	mg/kg (ppm)	2.5	< 0.05	91	90	23-145	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	< 0.05	90	89	21-149	1
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	< 0.05	91	90	30-131	1
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	< 0.05	89	90	29-129	1
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	92	92	31-132	0
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	72	75	11-161	4
1,2,4 11 ICHIOI ODENZENE Hexachlorobutadiene	mg/kg (ppm)	∠.0 2.5	<0.25	69 89	90 99	22-142	1
Nanhthalene	mg/kg (ppm)	2.5	<0.05	88	90	14-157	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	91	92	20-144	ĩ

### ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/15 Date Received: 03/18/15 Project: Tiger Oil, F&BI 503341

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	61	10-146
Chloromethane Viscal ablastica	mg/kg (ppm)	2.5	89	27-133
Vinyi chioride Bromomothano	mg/kg (ppm)	2.5	92	22-139
Chloroethane	mg/kg (ppm)	2.5	102	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	89	10-196
Acetone	mg/kg (ppm)	12.5	102	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	104	47-128
Methylene chloride	mg/kg (ppm)	2.5	92	42-132
trans-1 2-Dichloroethene	mg/kg (ppiii)	2.5	99 102	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	101	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	88	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	105	72-113
Chloroform	mg/kg (ppm)	2.5	101	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	112	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	97	50-135 62-131
1.1.Dichloropropene	mg/kg (ppiii)	2.5	106	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	97	60-139
Benzene	mg/kg (ppm)	2.5	104	68-114
Trichloroethene	mg/kg (ppm)	2.5	108	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	106	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	101	72-130
A Mothyl 2 pontanono	mg/kg (ppm)	2.5	104	70-120
cis-1.3-Dichloropropene	mg/kg (ppm)	2.5	106	75-136
Toluene	mg/kg (ppm)	2.5	104	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	100	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	103	75-113
2-Hexanone	mg/kg (ppm)	12.5	102	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	108	72-130
Dibromochloromothano	mg/kg (ppiii)	2.5	100	74 195
1.2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	101	74-123
Chlorobenzene	mg/kg (ppm)	2.5	105	76-111
Ethylbenzene	mg/kg (ppm)	2.5	103	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	102	69-135
m,p-Xylene	mg/kg (ppm)	5	103	78-122
o-Xylene	mg/kg (ppm)	2.5	103	77-124
Isopronylbenzene	mg/kg (ppili)	2.5	105	74-120
Bromoform	mg/kg (ppm)	2.5	93	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	103	74-124
Bromobenzene	mg/kg (ppm)	2.5	108	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	102	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	100	56-143
2. Chlorotoluono	mg/kg (ppm)	2.5	101	01-137
4-Chlorotoluene	mg/kg (ppiii)	2.5	99	74-121
tert-Butylbenzene	mg/kg (ppm)	2.5	103	73-130
1,2,4 Trimethylbenzene	mg/kg (ppm)	2.5	101	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	102	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	100	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	104	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.0 2.5	105	74-117 76-191
1.2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	88	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	103	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	99	50-153
Naphthalene	mg/kg (ppm)	2.5	103	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	105	63-138

### ENVIRONMENTAL CHEMISTS

Date of Report: 03/19/15 Date Received: 03/18/15 Project: Tiger Oil, F&BI 503341

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TCLP METALS USING EPA METHOD 200.8 AND 40 CFR PART 261

Laboratory Code	: 503341-01 (M	latrix Spił	ke)				
				Percent	Percent		
	Reporting	Spike	Sample	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	Result	MS	MSD	Criteria	(Limit 20)
Lead	mg/L (ppm)	1.0	<1	97	96	50-150	1

Laboratory Code: Laboratory Control Sample

			Percent		
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	
Lead	mg/L (ppm)	1.0	96	70-130	

### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

-	503341				SAMPLE	CHAIN C	OF C		TO	DY		Ma	E	0	13 .	-/8 7	1 - /	s age :	# `\	VS ,	BT	、 え
	Send Report To <u>JUSTIN (LITPY</u> Company <u>MFA</u> Address <u>400 FAST MILL PLANN BLAD</u> City, State, ZIP <u>VANIOUNER</u> <u>WA 986600</u> Phone # <u>360 694 3691</u> Fax #					PROJECT NAME/NO. PO#							TURNAROUND TIME       Standard (2 Weeks)       RUSH       Rush charges authorized by          SAMPLE DISPOSAL       Dispose after 30 days       Return samples       Will call with instructions									
			r	r	· · · · · · · · · · · · · · · · · · ·						ANA	LYS	SES F	REQU	JEST	FED	ED					]
	Sample ID ;	Lab ID	Date Sampled	Time Sampled	Sample Typ	e # of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	Teve Ap 1311							Ne	• . otes	
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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 21, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Boulevard Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 16, 2015 from the Tiger Oil 0818-02-01, F&BI 504291 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0421R.DOC

## ENVIRONMENTAL CHEMISTS

## CASE NARRATIVE

This case narrative encompasses samples received on April 16, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil 0818-02-01, F&BI 504291 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Maul Foster Alongi</u>
504291 -01	BH-30-S-14.0
504291 -02	BH-30-S-10.0

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/21/15 Date Received: 04/16/15 Project: Tiger Oil 0818-02-01, F&BI 504291 Date Extracted: 04/16/15 Date Analyzed: 04/16/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	Ethyl <u>Benzene</u>	Total <u>Xylenes</u>	Gasoline <u>Range</u>	Surrogate ( <u>% Recovery)</u> (Limit 50-150)
BH-30-S-14.0 504291-01	<0.02	<0.02	< 0.02	<0.06	<2	87
BH-30-S-10.0 504291-02	< 0.02	< 0.02	< 0.02	<0.06	<2	87
Method Blank 05-0754 MB	< 0.02	< 0.02	< 0.02	< 0.06	<2	88

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/21/15 Date Received: 04/16/15 Project: Tiger Oil 0818-02-01, F&BI 504291

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 504291-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	80	69-120
Toluene	mg/kg (ppm)	0.5	90	70-117
Ethylbenzene	mg/kg (ppm)	0.5	89	65-123
Xylenes	mg/kg (ppm)	1.5	87	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

#### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 21, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Boulevard Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 15, 2015 from the Tiger Oil 0818.02.01, F&BI 504268 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0421R.DOC

### ENVIRONMENTAL CHEMISTS

## CASE NARRATIVE

This case narrative encompasses samples received on April 15, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil 0818.02.01, F&BI 504268 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Maul Foster Alongi
504268 -01	BH-26-S-14.0
504268 -02	BH-26-S-8.0
504268 -03	BH-27-S-14.0
504268 -04	BH-28-S-14.0
504268 -05	BH-29-S-10.0
504268 -06	BH-29-S-14.0

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/21/15 Date Received: 04/15/15 Project: Tiger Oil 0818.02.01, F&BI 504268 Date Extracted: 04/15/15 Date Analyzed: 04/15/15 and 04/16/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
Sample ID Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Benzene</u>	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery</u> ) (Limit 50-132)
BH-26-S-14.0 504268-01 1/5	< 0.02	0.44	2.8	17	220	107
BH-26-S-8.0 504268-02	< 0.02	< 0.02	0.022	0.13	3.9	99
BH-27-S-14.0 504268-03 1/5	0.043	0.45	4.9	23	420	109
BH-28-S-14.0 504268-04	<0.02	0.042	< 0.02	<0.06	<2	99
BH-29-S-10.0 504268-05	< 0.02	< 0.02	< 0.02	< 0.06	<2	98
BH-29-S-14.0 504268-06	<0.02	< 0.02	<0.02	<0.06	<2	101
Method Blank 05-0752 MB	<0.02	<0.02	<0.02	<0.06	<2	86

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/21/15 Date Received: 04/15/15 Project: Tiger Oil 0818.02.01, F&BI 504268

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 504262-06 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	86	69-120
Toluene	mg/kg (ppm)	0.5	86	70-117
Ethylbenzene	mg/kg (ppm)	0.5	86	65-123
Xylenes	mg/kg (ppm)	1.5	85	66-120
Gasoline	mg/kg (ppm)	20	105	71-131

### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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#### ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D. Yelena Aravkina, M.S. Michael Erdahl, B.S. Arina Podnozova, B.S. Eric Young, B.S. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282 fbi@isomedia.com www.friedmanandbruya.com

April 24, 2015

Justin Clary, Project Manager Maul Foster Alongi 400 East Mill Plain Boulevard Vancouver, WA 98660

Dear Mr. Clary:

Included are the results from the testing of material submitted on April 21, 2015 from the Tiger Oil 0818 02.01, F&BI 504374 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Yen-Vy Van, Lindsey Crosby, Jessica Cawley MFA0424R.DOC

## ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on April 21, 2015 by Friedman & Bruya, Inc. from the Maul Foster Alongi Tiger Oil 0818 02.01 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Maul Foster Alongi</u>
504374 -01	BH-35-S-14.0
504374 -02	BH-35-S-9.0
504374 -03	BH-36-S-14.0

All quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/24/15 Date Received: 04/21/15 Project: Tiger Oil 0818 02.01, F&BI 504374 Date Extracted: 04/21/15 Date Analyzed: 04/21/15 and 04/22/15

#### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis Results Reported as mg/kg (ppm)

			Ethyl	Total	Gasoline	Surrogate
Sample ID Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Benzene</u>	<u>Xylenes</u>	<u>Range</u>	( <u>% Recovery</u> ) (Limit 50-132)
BH-35-S-14.0 504374-01	0.035	0.066	0.53	1.2	25	106
BH-35-S-9.0 504374-02 1/5	0.02 j	1.2	5.5	48	960	129
BH-36-S-14.0 504374-03 1/5	0.43	1.5	15	110	930	124
Method Blank 05-0813 MB	< 0.02	< 0.02	< 0.02	< 0.06	<2	73

#### ENVIRONMENTAL CHEMISTS

Date of Report: 04/24/15 Date Received: 04/21/15 Project: Tiger Oil 0818 02.01, F&BI 504374

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 504356-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet Wt)	(Wet Wt)	(Limit 20)
Benzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Toluene	mg/kg (ppm)	< 0.02	< 0.02	nm
Ethylbenzene	mg/kg (ppm)	< 0.02	< 0.02	nm
Xylenes	mg/kg (ppm)	< 0.06	< 0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Benzene	mg/kg (ppm)	0.5	87	69-120
Toluene	mg/kg (ppm)	0.5	87	70-117
Ethylbenzene	mg/kg (ppm)	0.5	86	65-123
Xylenes	mg/kg (ppm)	1.5	83	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

#### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

 ${\bf b}$  - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

 ${\rm d}$  - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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# DATA QUALITY ASSURANCE/ QUALITY CONTROL REVIEW

## PROJECT NO. 0818.02.01 | MAY 14, 2015 | CITY OF YAKIMA

This report reviews the analytical results for soil samples collected at the former Tiger Oil site at West Nob Hill Boulevard and 24th Avenue in Yakima, Washington. The samples were collected in March and April 2015.

Friedman and Bruya, Inc. (FBI) in Seattle, Washington, performed the analyses. FBI report numbers 503341, 503342, 503366, 503385, 503386, 503448, 503580, 503581, 504024, 504060, 504135, 504136, 504167, 504184, 504267, 504268, 504291 504314, 504374, and 504405 were reviewed. Not all analyses were performed on all samples submitted to the laboratory. The analyses reviewed listed below.

Analysis	Reference
BTEX	USEPA 8021B
Diesel and Heavy Oil	NWTPH-Dx
Gasoline	NWTPH-Gx
Hydrocarbon Identification	NWTPH-HCID
TCLP and Total Metals	USEPA 1311/ 200.8
Volatile Organic Compounds	USEPA 8260C

BTEX = benzene, toluene, ethylbenzene, xylenes.

HCID = Hydrocarbon Identification.

NWTPH = Northwest Total Petroleum Hydrocarbons.

TCLP = toxicity characteristic leaching procedure.

USEPA = U.S. Environmental Protection Agency.

## DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA; 2014a,b) and appropriate laboratory and method-specific guidelines (FBI, 2014; USEPA, 1986).

Data validation procedures were modified, as appropriate, to accommodate quality-control requirements for methods not specifically addressed by the functional guidelines (e.g., NWTPH-Dx).

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

# HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

#### Holding Times

Extractions and analyses were performed within the recommended holding time criteria.

R:\0818.02 City of Yakima\Report\01\_2015.06.17 Completion Report\Appendix E - Laboratory Reports and

### Preservation and Sample Storage

In report 504405, the laboratory indicated that samples arrived at 0°C. This exceedance is considered minor; thus, no results were qualified. All remaining samples were preserved and stored appropriately.

## BLANKS

### Method Blanks

Laboratory method blank analyses were performed at the required frequencies. All laboratory method blanks results were non-detect for target analytes.

#### Trip Blanks

No trip blanks were collected for any reports.

### Continuing Calibration Blanks

Continuing calibration blank results were not reported for this sampling event.

### Equipment Rinsate Blanks

Equipment rinsate blanks were not required for this sampling event.

## SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples. The laboratory appropriately documented and qualified surrogate outliers. For samples with surrogate outliers, associated batch quality assurance/quality control were within acceptance limits. The reviewer took no action based on surrogate percent recoveries that were outside acceptance limits because of dilutions necessary to quantify high concentrations of target analytes present in the samples.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike/matrix spike duplicate (MS/MSD) results are used to evaluate laboratory precision and accuracy. All MS/MSD samples were extracted and analyzed at the required frequency. MS/MSD results were not always reported for NWTPH analytes. MS/MSD results are not required by NWTPH methods. All reported MS/MSD results were within acceptance limits for percent recovery and relative percent difference (RPD).

## LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. Laboratory duplicate results were reported for some analytes. All reported results were with acceptable limits for RPD.

# LABORATORY CONTROL SAMPLE RESULTS

A laboratory control sample (LCS) is spiked with target analytes to provide information on laboratory precision and accuracy. LCS samples were extracted and analyzed at the required frequency.

In report 503385, the USEPA Method 8260C LCS result for cis-1,2-dichloroethene exceeded the upper acceptance criteria. Sample results were all non-detect for cis-1,2-dichloroethene; thus no results were qualified.

All remaining recoveries were within acceptance limits for percent recovery.

## FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. A field duplicate associated with report 504314 was submitted and analyzed (BH-34-S-14.0/BH-34-S-DUP). An additional field duplicate was submitted with report 503581 and analyzed (BH-10-S-14.0/BH-10-DUP). A third field duplicate was submitted and analyzed with report 504136 (SP-05-S-01/SP-05-S-DUP). MFA uses acceptance criteria of 100 percent RPD for results that are less than five times the method reporting limit (MRL), or 50 percent RPD for results that are greater than five times the MRL. Non-detect data are not usually used in the evaluation of field duplicate results; however, in report 503581 the USEPA 8021B ethylbenzene field duplicate result for BH-10-DUP was approximately 400 times the reporting limit; thus, the reviewer qualified the results as follows:

Report	Sample	Component	Original Result (mg/kg)	Field Duplicate Result (mg/kg)	RPD
503581	BH-10-S-14.0	Ethylbenzene	0.1 U	0.1 UJ	199%
503581	BH-10-DUP	Ethylbenzene	41	41 J	17770

J = estimated.

mg/kg = milligrams per kilogram.

U = not detected.

All remaining results were within acceptance limits for RPD.

# REPORTING LIMITS

FBI used routine reporting limits for non-detect results, except when samples required dilutions because of high analyte concentration and/or matrix interferences.

# DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies. In report 504405, the chain of custody (COC) does not have a "Relinquished by" signature. No update is necessary.

In report 503366, 8260 volumes were requested on the COC. In the lab report, only BTEX analytes were reported. The reviewer confirmed with the sampler that the correct analytes (BTEX only) were reported; no update is necessary.

No additional issues were found.

FBI. 2014. Quality assurance manual. Friedman and Bruya, Inc., Seattle, Washington.

- USEPA. 1986. Test methods for evaluating solid waste: physical/chemical methods. EPA-530/SW-846. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. September (revision 6, February 2007).
- USEPA. 2014a. USEPA contract laboratory program, national functional guidelines for inorganic superfund data review. EPA 540/R-013/001. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. August.
- USEPA. 2014b. USEPA contract laboratory program, national functional guidelines for Superfund organic methods data review. EPA 540/R-014/002. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. August.
## APPENDIX F AS-BUILT SURVEY





# APPENDIX G

PRELIMINARY SOURCE EVALUATION AND CLEAN SOIL STATEMENT





May 5, 2015

RE: Tiger Oil 24th & Nob Hill

To Whom It May Concern:

We here at Anderson Rock & Demolition Pits, believe our products to be free of any contaminants of any kind.

Thank you

Wendy McConnell - Office Manager

Anderson Rock & Demolition Pits

41 Rocky Top Road • Yakima, WA 98908

Bus. 509-965-3621 • Fax 509-965-8656 E-mail: andersonrock1@live.com • www.andersonrock.com



Lynn Peterson Secretary of Transportation State Materials Laboratory PO Box 47365 Olympia, WA 98504-7365 360-709-5400 / FAX: 360-709-5585 TTY: 1-800-833-6388 www.wsdot.wa.gov

December 4, 2013

Ron Anderson Anderson Rock & Demolition Pits 41 Rocky Top Road Yakima, WA 98908 (509) 965-3621

Re: Preliminary Source Evaluation, ASA2013125

Dear Mr. Anderson:

This letter is to inform you that preliminary testing for Mineral Aggregate applications has been completed on the sample taken from the site designated as QS-E-344, also known as Anderson Pit, in Yakima County, Washington. The sample tested passed the requirements for the Riprap, Quarry Spalls and Rock for Rock Wall applications as indicated in Section 9-13 of the Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction (2012).

The enclosed Aggregate Source Approval (ASA) Report lists specific approved uses for the aggregate from this site. The Aggregate Source Approval database is available on the Internet at: http://www.wsdot.wa.gov/biz/mats/asa/asaSearch.cfm

The reports and all backup data will remain on file at the WSDOT Materials Laboratory. If there are any questions concerning this matter, please contact Garrett Webster at (360) 709-5442.

Sincereky RobAMoloho

Materials Quality Assurance Engineer

RM: gsw Enclosure

cc via e-mail: K. Williams - Construction Materials Engineer

B. Briggs - Assistant Construction Materials Engineer - Admin

M. Polodna - Structural Materials Engineer

P. Gonseth - South Central Region Materials Engineer

R. Anderson – Anderson Rock & Demolition Pits

(andersonrock1@live.com)



#### WSDOT MATERIALS LAB

#### 12/04/2013

#### Aggregate Source Approval Report

Owner: Anderson Rock and Demolit	ion Pits	Aggregate Source: QS-E-344 Known as: Anderson Pit				
Lessee:	A 7170 0175					
Located in: SW1/4 NW1/4 Section I	0 113N R1/E	County: Yak	ama			
Remarks: Results for Riprap, Quarry Sj 2.927, Abs(%): 1.33, LA: 16	oalls and Rock for , Deg: 75. Expires	Rock Wall: B 12/04/2014	ulk Sp. G (SSD): 2.855 (gsw)	, Bulk Sp G: 2.817, App Sp G:		
Pit Run Materials: At the discretion of the Project Engin material does in fact meet the specifi	eer, preliminary sample cation for the intended	es for Gradation a use:	and Sand Equivalent tests may	y be performed to determine If the		
Backfill for Rock Wall	Backfill for Sand Dra	ns Bedding Material for Rigid Pipe				
Bedding Material for Thermoplastic Pipe	Blending Sand	Foundation Material for Classes A, B or G				
Gravel Backfill for Drains and Drywells	Gravel Backfill for Fo	oundation Class B	Gravel Backfill for Pip	e Zone Bedding		
Gravel Backfill for Walls	Gravel Borrow		Sand Drainage Blank	et		
Select or Common Borrow						
No Preliminary Tests are required to	be performed by the S	tate Materials La	b			
Gravel Base:	Test Date:	÷	Expiration Date:			
Drainage:	R Value:		Swell Pressure:			
Mineral Agg. and Surfacing:	Annarent So. G.:	est Date: 04/18/	/2011 Expiration	n Date: 04/18/2016 Bulk Sp. G.:		
Deg: 76	LA: 17					
Currently approved as a source of ac ATB	igregate for: Ballast		BST Crushed Cover S	Stone		
BST Crushed Screenings	Crushed Surfacing I	Base Course	Crushed Surfacing Ke	ay Stone		
Crushed Surfacing Top Course	Gravel Backfill for F	oundation Class A	HMA Other Courses			
HMA Wearing Course	Maintenance Rock		Permeable Ballast			
Acceptance tests need to be perform	ed as necessary.					
Portland Cement Concrete Aggre	gates: Te	est Date:	Expiration Date:	and a second		
ASR - 14 Day :	ASR - One Year:	C	CA Absorption:	CCA Sp.G:		
FCA Absorption:	FCA Organics:	F	CA Sp. G:	LA:		
Contact the Regional Materials Office	e to request PRELIMINA	RY SAMPLES De	acquired. Evaluation and appr	oval of this site as a source of		
Playan and Quarry Snalls:	Te	st Date:	Expiration Date:			
which and Analis shalls		- 61-71	1994 - 1997 - 199			
Please see Remarks for Riprap and (	Quarry Spalls results.					
Contact the Regional Materials Offic AND QUARRY SPALLS is required pri	e to request PRELIMINA or to use.	RY SAMPLES be	acquired. Evaluation and appr	roval of this site as a source of RIP RAP		
Distribution: Physical Testing	Project Engineer	Region	n Operations Region Ma	aterials		
Aggregate Source Approval Syst	om					
and the Article of States and States						

Aggregate Source Approval Report



### WSDOT MATERIALS LAB

12/22/2014

#### Aggregate Source Approval Report

Lessee: Located in: SW1/4 NW1/4 Section	tion Pits Aggreg Known 10 T13N R17E County	Aggregate Source: QS-E-344 Known as: Anderson Pit County: Yakima				
Remarks: Results for Riprap, Quarry 5 Sp G: 2.923, Abs(%): 1.50	Spalls and Rock for Rock V , LA: 16, Deg: 72. Expires	Vall: Bulk Sp. G (SSD): 2.842 Bulk Sp G:2.800, App 12/22/2015 (MEJ)				
Pit Run Materials: At the discretion of the Project Engir material does in fact meet the specif	neer, preliminary samples for Grad Tration for the intended use:	ation and Sand Equivalent tests may be performed to determine if the				
Backfill for Rock Wall	Backfill for Sand Drains	Bedding Material for Rigid Pipe				
Bedding Material for Thermoplastic Pipe	Foundation Material for Classes A, E	sses A, B or C Gravel Backfill for Drains and Drywells				
Gravel Backfill for Foundation Class B	Gravel Backfill for Pipe Zone Beddin	e Bedding Gravel Backfill for Walls				
Gravel Borrow	Sand Drainage Blanket	Select or Common Borrow				
No Preliminary Tests are required to	be performed by the State Materi	als Lab				
Gravel Base:	Test Date:	Expiration Date: Swell Pressure:				
Contact the Regional Materials Office GRAVEL BASE is required prior to us	e to request PRELIMINARY SAMPLE e.	S be acquired. Evaluation and approval of this site as a source of				
Mineral Agg. and Surfacing: Absorption: Deg: 76	Test Date: ( Apparent Sp. G,: LA: 17	04/18/2011. Expiration Date: 04/18/2016 Bulk Sp. G. (SSD): 2.882 Bulk Sp. G.:				
Currently approved as a source of a ATB	ggregate for: Ballast	BST Crushed Cover Stone				
BST Crushed Screenings	Crushed Surfacing Base Course	Crushed Surfacing Key Stone				
Crushed Surfacing Top Course	Gravel Backfill for Foundation Class	A HMA Other Courses				
Giusieu Guitaong Top Goulae	Maintonanco Book	Demochic Dollard				
HMA Wearing Course	Maintenance Nock	Permeable ballast				
HMA Wearing Course Acceptance tests need to be perform	ned as necessary.					
HMA Wearing Course Acceptance tests need to be perform Portland Cement Concrete Aggre	ned as necessary.	Expiration Date:				
HMA Wearing Course Acceptance tests need to be perform Portland Cement Concrete Aggre ASR - 14 Day :	agates: Test Date; ASR - One Year:	Expiration Date: CCA Absorption: CCA Sp.G:				
HMA Wearing Course Acceptance tests need to be perform Portland Cement Concrete Aggre ASR - 14 Day : FCA Absorption: Mortar Strength:	agates: Test Date; ASR - One Year: FCA Organics: Petrographic Analysis:	Expiration Date: CCA Absorption: FCA Sp. G: LA:				
HMA Wearing Course Acceptance tests need to be perform <b>Portland Cement Concrete Aggre</b> ASR - 14 Day : FCA Absorption: Mortar Strength:	agates: Test Date; ASR - One Year: FCA Organics: Petrographic Analysis:	Expiration Date: CCA Absorption: FCA Sp. G: LA:				
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HMA Wearing Course Acceptance tests need to be perform <b>Portland Cement Concrete Aggre</b> ASR - 14 Day : FCA Absorption: Mortar Strength: Contact the Regional Materials Offic AGGREGATES for PCC is required pr <b>Riprap and Quarry Spalis:</b>	and as necessary. agates: Test Date: ASR - One Year: FCA Organics: Petrographic Analysis: e to request PRELIMINARY SAMPLE ior to use. Test Date:	Expiration Date: CCA Absorption: FCA Sp. G: ES be acquired. Evaluation and approval of this site as a source of Expiration Date:				
HMA Wearing Course Acceptance tests need to be perform <b>Portland Cement Concrete Aggre</b> ASR - 14 Day : FCA Absorption: Mortar Strength: Contact the Regional Materials Offic AGGREGATES for PCC is required pr <b>Riprap and Quarry Spalls:</b> Please see Remarks for Riprap and 1	e to request PRELIMINARY SAMPLE ior to use. Test Date: Petrographic Analysis: Test Date: Quarry Spalls results.	Expiration Date: CCA Absorption: FCA Sp. G: ES be acquired, Evaluation and approval of this site as a source of Expiration Date:				
HMA Wearing Course Acceptance tests need to be perform <b>Portland Cement Concrete Aggre</b> ASR - 14 Day : FCA Absorption: Mortar Strength: Contact the Regional Materials Offic AGGREGATES for PCC is required pr <b>Riprap and Quarry Spalis:</b> Please see Remarks for Riprap and I Contact the Regional Materials Offic RAP AND QUARRY SPALLS is required	e to request PRELIMINARY SAMPLE Quarry Spalls results. e to request PRELIMINARY SAMPLE	Expiration Date: CCA Absorption: FCA Sp. G: ES be acquired. Evaluation and approval of this site as a source of Expiration Date: ES be acquired. Evaluation and approval of this site as a source of RIP				
HMA Wearing Course Acceptance tests need to be perform Portland Cement Concrete Aggre ASR - 14 Day : FGA Absorption: Mortar Strength: Contact the Regional Materials Offic AGGREGATES for PCC is required pr Riprap and Quarry Spalls: Please see Remarks for Riprap and I Contact the Regional Materials Offic RAP AND QUARRY SPALLS is required Distribution: Physical Testing	e to request PRELIMINARY SAMPLE ior to use. Quarry Spalls results. e to request PRELIMINARY SAMPLE project Engineer	Expiration Date: CCA Absorption: CCA Sp.G: FCA Sp. G: LA: ES be acquired. Evaluation and approval of this site as a source of Expiration Date: ES be acquired. Evaluation and approval of this site as a source of RIP Region Operations Region Materials				

http://www.wsdot.wa.gov/biz/mats/ASA/ASAReport.cfm?prefix=E&pit\_no=344

# APPENDIX H

UNDERGROUND INJECTION CONTROL PROGRAM DOCUMENTATION





#### STATE OF WASHINGTON DEPARTMENT OF ECOLOGY

PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000 711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

June 8, 2015

Mr. Brett Sheffield City of Yakima 129 N. 2<sup>nd</sup> Street Yakima, WA 98901

RE: Registration with the Underground Injection Control (UIC) Program, Former Tiger Oil Site, 2312 West Nob Hill Blvd., Yakima, WA

Dear Mr. Sheffield:

This letter is to acknowledge receipt of your registration form to register the above-mentioned site with the UIC program. The UIC wells are rule authorized and do not need a State Waste Discharge Permit to operate. The UIC site number is 32803.

The City of Yakima is working with Ecology's Toxic Cleanup Program under a Model Toxic Control Program (MTCA) Consent Decree, MTCA 02-2-00956, to remediate the contamination at the site. Remediation projects under a MTCA legal agreement have to meet the substantive requirements of other laws which groundwater protection is one. Meeting the substantive requirements will fulfill the groundwater protection requirement of the UIC Program.

Please refer to the UIC site number in all correspondence concerning this site. Also contact us if the property owner changes or the use of the well.

Please call me at (360) 407-6143 if you have any questions. Additional information can also be found at our website http://www.ecy.wa.gov/programs/wq/grndwtr/uic/index.html.

Sincerely,

Maryolkinsen

Mary Shaleen-Hansen UIC Coordinator Water Quality Program

### **APPENDIX I** MONITORING WELL CONSTRUCTION LOGS



				Geologic			Borehole Log/Well Construction		
	Mau	Maul Foster & Alongi, Inc. Project Number		er	Well Number	Sheet			
	Proj Proj Star Drill Gec San	ect Name ect Location t/End Date er/Equipment logist/Engineer nple Method	Image: Constraint of the second system       0818.02.01         It Name       Tiger Oil - West Nob Hill Blvd.         It Location       2312 West Nob Hill Blvd., Yakima, Washington         End Date       5/26/15 to 5/26/15         //Equipment       Holt Drilling/Hollow Stem Auger         gist/Engineer       C. Wise         le Method       None		TOC Elevation (fe Surface Elevation Northing Easting Hole Depth Outer Hole Diam	et) 1089.05 (feet) 1089.4 456449.8 1630364.6 20.0-feet 4-inch			
	S)	Well	Sa Sa	ample Data		0	Soil Descriptio	n	
	Depth (feet, BG	Details	Interval Percent Recovery Collection Method	א שק א א א א א א א א א א א א א א א א א א	Blows/6"	Lithologic Column			
WPROJECTS\0818.02.01\YMW-1 TO YMW-3.GPJ 6/15/15	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20						<ul> <li>0.0 to 0.3 feet: ASPHALT; black; dry.</li> <li>0.3 to 1.0 feet: GRAVEL (GW); gray; angular; 60% gravel, fine, angula</li> <li>1.0 to 13.0 feet: GRAVELLY SAND W brown; 15% fines; 60% sand, fine fine, angular; dry to moist. (FILL)</li> <li>13.0 to 20.0 feet: SILTY SAND (SM); very fine to fine, subangular to ar hydrocarbon-like odor; moist.</li> <li>13.0 to 20.0 feet: SILTY SAND (SM); very fine to fine, subangular to ar hydrocarbon-like odor; moist.</li> </ul>	(FILL) 10% fines; 30% sand, coarse, r, dry. (FILL) /ITH SILT (SW-SM); reddish to coarse, angular; 25% gravel, blue gray; 40% fines; 60% sand, ngular; soft; very strong	
GBLWC W:\GINT\GIN	NOTE	<b>ES:</b> No samples c	ollected.						

				Geologic			Borehole Log/Well Construction		
	Mau	I Foster &	Alongi, Inc.	Project Number		per	Well Number	Sheet	
-	Proj Proj Star Drillo Geo Sarr	0818.02.01       Project Name     Tiger Oil - West Nob Hill Blvd.       Project Location     2312 West Nob Hill Blvd., Yakima, Washington       Start/End Date     5/26/15 to 5/26/15       Driller/Equipment     Holt Drilling/Hollow Stem Auger       Geologist/Engineer     C. Wise       Sample Method     None		TOC Elevation (fe Surface Elevation Northing Easting Hole Depth Outer Hole Diam	et) 1090.86 (feet) 1091.2 456406.2 1630317.0 20.0-feet 4-inch				
		Well	~ \$	ample Data			Soil Descriptio		
	Depth (feet, BGS	Details	Interval Percent Recovery Collection	Name (Type)	Blows/6"	Lithologic Column			
INTWPROJECTS\0818.02.01\YMW-1 TO YMW-3.GPJ 6/15/15	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20						<ul> <li>0.0 to 0.3 feet: ASPHALT; black; dry.</li> <li>0.3 to 1.0 feet: GRAVEL (GW); gray; angular; 60% gravel, fine, angula</li> <li>1.0 to 13.5 feet: GRAVELLY SAND W brown; 15% fines; 60% sand, fine fine, angular; dry to moist. (FILL)</li> <li>14.0 to 20.0 feet: SILTY SAND (SM); very fine to fine, subangular to ar hydrocarbon-like odor; moist.</li> </ul>	(FILL) 10% fines; 30% sand, coarse, r; dry. (FILL) //TH SILT (SW-SM); reddish to coarse, angular; 25% gravel, blue gray; 40% fines; 60% sand, ngular; soft; very strong	
GBLWC W:\GINT\	NOTE	<b>:S:</b> No samples c	ollected.						

				Geologic			eologic	Borehole Log/Well Construction		
	Mau	I Foster &	Alongi, Inc.		Project Number		er	Well Number	Sheet	
-	Proje Proje Star Drille Geo Sarr	O818.02.01       Project Name     Tiger Oil - West Nob Hill Blvd.       Project Location     2312 West Nob Hill Blvd., Yakima, Washington       Start/End Date     5/26/15 to 5/26/15       Driller/Equipment     Holt Drilling/Hollow Stem Auger       Geologist/Engineer     C. Wise       Sample Method     None		TOC Elevation (fe Surface Elevation Northing Easting Hole Depth Outer Hole Diam	et) 1089.53 (feet) 1090.2 456487.7 1630317.4 20.0-feet 4-inch					
ł	S)	Well		Sample	Data			Soil Descriptio	n	
	Depth (feet, BG)	Details	Interval Percent Recovery Collection	Number	Name (Type)	Blows/6"	Lithologic Column			
NTWPROJECTS/0818.02.011YMW-1 TO YMW-3.GPJ 6/15/15	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$							<ul> <li>0.0 to 0.5 feet: GRAVEL (GP); reddisi coarse; dry. (FILL)</li> <li>0.5 to 14.0 feet: GRAVELLY SAND W brown; 15% fines; 55% sand, fine angular; 30% gravel, fine, subang (FILL)</li> <li>14.0 to 20.0 feet: SILTY SAND (SM); very fine to fine, subangular to an hydrocarbon-like odor; moist.</li> </ul>	h gray; 100% gravel, angular, /ITH SILT (SW-SM); reddish blue gray; 40% fines; 60% sand, gular; soft; very strong	
GBLWC W:\GINT\C	NOTE	<b>:S:</b> No samples c	ollected.							