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Alameda County
Environmental Health

Project No.
7828.000.001

September 21, 2012

Dilan Roe
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Subject: Jordan Ranch Parcel H (Case # R00002918)
Dublin, California

WORKPLAN FOR GROUNDWATER ASSESSMENT

Dear Ms. Roe:

On behalf of BJP-ROF Jordan Ranch, LLC, we prepared this workplan to assess the current extent of groundwater impacts at the former underground storage tank (UST) site, located within the Jordan Ranch Parcel H (Figure 1). The purpose of the groundwater assessment is to address data gaps associated with the inferred limits of the groundwater plume and a limited assessment of the vertical distribution of contaminant concentrations in the variable perched groundwater lenses.

SOIL BORINGS

Soil borings will be advanced at 14 locations within the existing monitoring well network, crossgradient of the monitoring well network, and downgradient of the monitoring well network (Figure 2). Twelve of the fourteen soil borings will be advanced to a maximum depth of 30 feet below ground surface (bgs), which is consistent with the maximum depth of the existing monitoring wells. Two of the fourteen borings, located in the vicinity of the proposed extraction trench and MW-2, will be advanced to shallower depths, based on the depth of groundwater observed in the soil cores. At these two locations, discrete zone groundwater samples will be collected, as discussed in the following section.

The soil borings will be advanced with a direct push Geoprobe® drill rig using the dual tube method. The dual tube method utilizes inner and outer direct push casings which are advanced concurrently. Soil cores are collected in the inner casing, and the outer casing remains in the ground while the inner casing is extracted to yield the soil core. This method prevents sloughing of surface soil into the borehole, and also seals off shallower water bearing zones during discrete zone groundwater sampling. Upon completion, the borings will be grouted in accordance with a site specific permit from Zone 7 Water Agency.

GRAB GROUNDWATER AND SOIL SAMPLING

We will collect grab groundwater samples at each of the 14 soil boring locations. Additionally, soil cores from the proposed boring located 10 feet from previous boring B-10 will be screened with a

photoionization detector (PID) and two soil samples from this boring will be selected for laboratory analysis based on the greatest PID readings. Potential soil impacts will be assessed at this proposed boring location in response to previously noted soil impacts in borings B-9 and B-10.

Previous subsurface investigations at the Site noted only minimal presence of groundwater. It is anticipated that the feasibility of grab groundwater sampling will be limited by the relatively low volume of groundwater. To ensure that there will be adequate groundwater for sampling, the depth interval for the grab groundwater samples at 12 of the 14 boring locations, will extend to 30 feet, which is generally consistent with the screen interval of the existing monitoring wells. Similar to the monitoring wells, at some locations the 12 borings may intercept multiple groundwater lenses, which will provide an aggregate of the contaminant concentrations in the various groundwater lenses.

Once soil cores have been collected and logged to a maximum depth of 30 feet at the 12 locations, a temporary ¾-inch diameter PVC casing will be inserted into the outer direct push casing. The PVC will be screened from 15 to 30 feet. The direct push casing will then be extracted while the PVC casing is left in the ground. Before the last section of direct push casing is extracted, a foam disc will be inserted around the top of the PVC casing at a depth of approximately 5 feet, and then the final section of drill casing will be extracted. The foam disc will prevent surface soil slough from falling to the bottom of the boring and coming into contact with groundwater.

To gain a better understanding of the vertical distribution of groundwater impacts, we will attempt to collect discrete zone grab groundwater samples from two borings located near the proposed extraction trench and MW-2, depending on the volume of groundwater available for sampling. As we are logging soil cores from these areas, we will select two borings where we identify water bearing lenses between 12 and 17 feet, and 25 and 30 feet. At these two locations, upon identifying the groundwater bearing lenses, the outer direct push casing will be extracted approximately 5 feet and the remaining casing will be left in the ground, creating a void space for groundwater sampling, while sealing off the upper zones.

It is our opinion that the maximum groundwater sample depth of 30 feet is appropriate to complete the site conceptual model (SCM) for the following reasons: 1) the specific gravity of petroleum hydrocarbons is less than water, which limits the downward migration of petroleum hydrocarbon impacts in the subsurface. 2) the maximum depth to groundwater recorded at the site is 18.6 feet. 3) the California Code of Regulations Title 23, Division 3, Chapter 16, Article 4, Section 2649 allows monitoring wells at petroleum hydrocarbon sites to be installed a minimum of 15 feet below the base of the UST and we would expect that the base of the former UST was no greater than 10 feet.

We will use a stainless steel bailer to collect groundwater from the borings. At 12 of the borings, the bailer will be inserted into the screened PVC casing and at the two remaining borings, the bailer will be inserted into the drill casing and a groundwater sample will be obtained from the void space below the drill casing. At each location the groundwater samples will be transferred to

five VOAs preserved with hydrochloric acid. The stainless steel bailer and drill casing will be decontaminated with alconox and water in between borings. The groundwater and soil samples will be labeled with a sample ID, date and time of collection, and placed in a cooler for transport to the laboratory. The groundwater and soil samples will be submitted to a State certified laboratory for analysis of total petroleum hydrocarbons as gasoline (TPHg), diesel (TPHd), and volatile organic compounds (VOCs) by EPA Test Method 8260B.

REPORTING

The data collected from the proposed groundwater assessment will be incorporated into the revised SCM and presented in the Final Interim Remedial Action Workplan. The report will include updated analytical tables and refined groundwater plume contours based on the new data from the proposed groundwater assessment. The report will be submitted electronically to ACEH and the California State Water Resources Control Board (SWRCB) GeoTracker website.

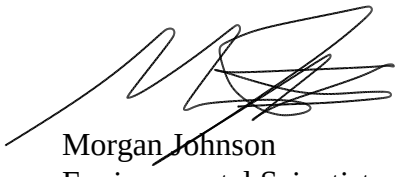
SCHEDULE

We are tentatively scheduled to perform the soil borings during the week of October 1, 2012. Laboratory results will be requested on a 5 day turnaround time. We anticipate that the Interim Remedial Action Workplan will be submitted by October 26, 2012.

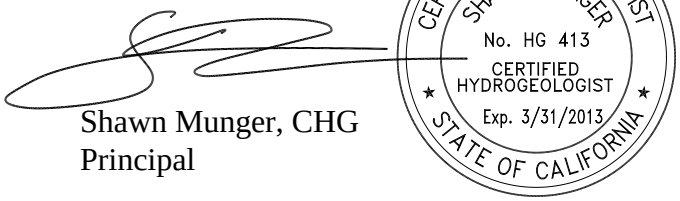
If you have any questions regarding this workplan, please do not hesitate to contact us.

Sincerely,

ENGEO Incorporated



Morgan Johnson
Environmental Scientist



Shawn Munger, CHG
Principal

Attachments: Figure 1 – Site Vicinity Map
Figure 2 – Proposed Boring Locations

Copies: Mr. Ravi Nandwana, BJP-ROF Jordan Ranch, LLC
Mr. Kevin Fryer, BJP-ROF Jordan Ranch, LLC

N

0 FEET 2000

0 METERS 1000

BASE MAP SOURCE: GOOGLE EARTH

ENGEO Expect Excellence

VICINITY MAP

JORDAN RANCH - PARCEL H

DUBLIN, CALIFORNIA

PROJECT NO.: 7828.000.001			FIGURE NO. 1
DATE: AS SHOWN			
DRAWN BY: SRP	CHECKED BY: SM		

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ORIGINAL FIGURE PRINTED IN COLOR

NG-6

<50 | <50 | <0.5 | <5
TP-1

<50 | <50 | <0.5 | <0.5
MW-1

B-6

FORMER UST

B-7

<50 | 250,000 | 15,000 | 1,200
NG-5

B-5

B-4

LATERAL LIMITS OF IMPACTED SOIL EXCAVATION

FORMER UST

B-9 B-8

B-10

NG-1

<50 | 190,000 | 10,000 | 17,000

B-11

B-3

NG-2

<50 | 160,000 | 16,300 | 14,000

NG-3

A B

B-2

<50 | 120,000 | 6,300 | 460

B-1

2,200 | 45,000 | 940 | 290

NG-4

MW-5

<50 | 79,000 | 15,000 | 1,800

GROUNDWATER EXTRACTION TRENCH 50' x 4' x 25'

1,200 | 15,000 | 78 | 260
MW-2

TP-2

<50 | <50 | <0.5 | <5

POND

<50 | <50 | <0.5 | <0.5
MW-3
(MISSING)

TPHg 100 ug/l CONTOUR
BENZENE 1 ug/l CONTOUR

<50 | <50 | <0.5 | <0.5
TP-3

<50 | <50 | <0.5 | 14
MW-4

MTBE 13 ug/l CONTOUR

?

<50 | <50 | <0.5 | <1
NG-8

<50 | <50 | <0.5 | <1
NG-9

EXPLANATION

MW-5 — WELL CONCENTRATIONS REPORTED FOR JULY 2012. MW-3 IS REPORTED FOR AUGUST 2010

NG-5 — APPROXIMATE LOCATION OF GRAB GROUNDWATER SAMPLE (NEM, 2006)

TP-3 — APPROXIMATE LOCATION OF GRAB GROUNDWATER SAMPLE (ICES, 2006)

B-11 — APPROXIMATE LOCATION OF SOIL BORING

APPROXIMATE LOCATION OF PROPOSED GRAB GROUNDWATER SAMPLE

APPROXIMATE LOCATION OF PROPOSED SOIL AND GRAB GROUNDWATER SAMPLE

X | X | X | X

- METHYL TERT-BUTYL ETHER (MTBE) CONCENTRATION
- BENZENE CONCENTRATION
- TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (TPHg)
- TOTAL PETROLEUM HYDROCARBONS AS DIESEL (TPHd)

ALL REPORTED IN MICROGRAMS PER LITER (ug/l)

N

0 FEET 20
0 METERS 10

BASE MAP SOURCE: GOOGLE EARTH

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PROPOSED BORING LOCATIONS

JORDAN RANCH - PARCEL H

DUBLIN, CALIFORNIA

PROJECT NO.: 7828.000.001

SCALE: AS SHOWN

DRAWN BY: SRP CHECKED BY: SM

FIGURE NO. 3

G:\Drafting\DRAFTING2_Dwg\7828\000\SoilGasAssessment-ParcelH\Phase 5\Remediation\7828000001-ParcelH-3-CumulativeGW_AnalyticalData--0912.dwg Plot Date: 9-20-12 spatters

ORIGINAL FIGURE PRINTED IN COLOR

September 21, 2012

Subject: Jordan Ranch Property – Former Leaking Underground Storage Tank
Dublin, California

PERJURY STATEMENT

"I declare, that to the best of my knowledge at the present time, the information and/or recommendations contained in the attached document are true and correct."

Submitted by Responsible Party:

ROBERT RADANOVICH
BJP-ROF Jordan Ranch, LLC
5000 Hopyard Road, #170
Pleasanton, CA 94588