

MEMORANDUM

Project No.: 090066-004-07

January 3, 2013

To: Steven Rowe, Darigold, Inc.

From: Dave Heffner, PE
Associate Remediation Engineer

Re: **November 2012 Round of Post-Removal-Action Groundwater Monitoring,
Rainier Avenue Facility**

In July/August 2011, soil impacted by petroleum hydrocarbons and the gasoline additive methyl tertiary-butyl ether (MTBE) was excavated from the North Yard of the dairy-processing facility located at 4058 Rainier Avenue South in Seattle, Washington (Figure 1). The contaminant source is attributed to former underground storage tanks (USTs) and associated piping at the property. The removal action was conducted on behalf of Darigold, Inc. (Darigold), as an independent cleanup action under the Washington Model Toxics Control Act (MTCA; WAC 173-340-515).

Groundwater monitoring has been conducted periodically at the site since 2004, after nine monitoring wells (MW01 through MW09) were installed as part of an environmental investigation in January of that year. Additional wells were installed during subsequent investigations, and a total of 22 wells (MW01 through MW21 and PE01) were being monitored in early 2011. Seven of these wells (MW02, MW03, MW04, MW07, MW10, MW11, and PE01), located in the immediate vicinity of the planned excavation, were decommissioned prior to removal action construction, and seven replacement wells (MW22 through MW28) were installed in late August 2011, at the conclusion of construction. Figure 2 shows the locations of both existing and decommissioned monitoring wells. Well decommissioning and installation activities associated with the removal action are documented in *Aspect, 2011*. Results of previous groundwater monitoring rounds are documented in *SES, 2012* and *Aspect, 2012*.

This technical memorandum documents the fourth (November 2012) round of post-removal-action groundwater monitoring. The first two rounds (in August and November 2011) were conducted on a quarterly basis (i.e., three months apart), consistent with the preconstruction frequency. For the third and fourth post-removal-action rounds, monitoring frequency was changed to semi-annually.

November 2012 Groundwater Monitoring

On November 29, 2012, depth-to-groundwater was measured in all site wells. Groundwater elevations were then calculated by subtracting the depth-to-groundwater measurements from the top-of-casing elevations. Calculated groundwater elevations are provided in Table 1, and inferred groundwater elevation contours are illustrated on Figure 2. Subsequent to depth measurements, groundwater samples were collected for laboratory analysis from twelve wells (identified in Table 2). Prior to sampling, each well was purged at less than 0.5 liter per minute using a peristaltic pump with dedicated tubing. During purging, field parameters including temperature, specific conductance,

January 3, 2013

dissolved oxygen, pH, and oxidation/reduction potential (ORP) were monitored until they stabilized. All purge water was drummed for future disposal.

Once field parameters stabilized, laboratory-supplied sample containers were filled directly from the pump discharge tubing using the same pumping flow rate. Samples were immediately stored in a cooler with ice packs to maintain their temperature at or below 4°C. The cooler was transported under chain-of-custody protocols to Friedman and Bruya, Inc., in Seattle. The water samples were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), and MTBE by EPA Method 8260 modified, for gasoline-range total petroleum hydrocarbons (TPH) by Method NWTPH-Gx, and for diesel- and motor oil-range TPH by Method NWTPH-Dx. Sample extracts were passed through a silica gel column prior to analysis.

Groundwater quality results are summarized in Table 2 along with the results of the first three post-removal-action monitoring rounds. Table 2 also lists MTCA Method A groundwater cleanup levels, which are applicable to this site. The laboratory report for the current round is included as Appendix A.

Concentration Trends

Groundwater quality data from the four post-removal-action monitoring rounds completed to date indicate the following:

- The benzene concentration in on-property well MW28 has decreased in each of the four post-removal-action monitoring rounds, and is now below the MTCA Method A cleanup level for that compound. **Concentrations of petroleum hydrocarbons (BTEX and TPH in the gasoline, diesel, and motor oil ranges) are now below Method A cleanup levels in all on-property monitoring wells.**
- MW12 is the only off-property monitoring well still exhibiting petroleum hydrocarbon concentrations above Method A cleanup levels, including those for benzene and TPH in the gasoline and diesel ranges. Benzene concentrations are clearly decreasing in this well; however, the two TPH ranges do not exhibit a declining trend over the four post-removal-action monitoring rounds.
- MTBE concentrations exceed the Method A cleanup level for that compound in on-property wells MW01, MW05, and MW24 through MW27, and in off-property wells MW12 and MW13. Most of these wells exhibit declining concentration trends over the four post-removal-action monitoring rounds (see Table 2). An MTBE concentration of 340 µg/L was detected in well MW25, the highest detection in the current round. This is higher than the concentration measured in that well in the previous round (May 2012), but considerably lower than those measured in the first two post-removal-action rounds (August and November 2011).

January 3, 2013

References

- Aspect, 2011, Soil Removal Action, Rainier Avenue Facility Remediation, December 8, 2011.
- Aspect, 2012, Memorandum to S. Rowe, Darigold, Inc., Re: May/June 2012 Round of Post-Removal-Action Groundwater Monitoring, Rainier Avenue Facility, August 13, 2012.
- SES, 2012, Letter to S. Rowe, Darigold, Inc., Subject: 2011 Semi-Annual Groundwater Performance Monitoring Report, Darigold, Inc. Rainier Avenue Facility, 4058 Rainier Avenue South, February 2, 2012.

Limitations

Work for this project was performed and this memorandum prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of Darigold for specific application to the referenced property. This memorandum does not represent a legal opinion. No other warranty, expressed or implied, is made.

Attachments

- Table 1 – Post-Removal-Action Groundwater Elevations
Table 2 – Summary of Post-Removal-Action Groundwater Quality Data
Figure 1 – Site Location Map
Figure 2 – Well Location Map and Groundwater Elevation Contours on November 29, 2012
Appendix A – Laboratory Report

V:\090066 Darigold\Rainier Avenue Facility\Deliverables\GW Monitoring\Nov 2012 Round\Memo_jan13.doc

Table 1 - Post-Removal-Action Groundwater Elevations

Darigold Rainier Avenue Facility 090066

Well ID:	MW01	MW05	MW06	MW08	MW09	MW12	MW13	MW14	MW15	MW16	MW17	MW18	MW19	MW20	MW21	MW22	MW23	MW24	MW25	MW26	MW27	MW28
Installation Date:	May04	May04	May04	May04	May04	Feb08	Feb08	Jan08	Jan08	Jan08	Jan08	Aug08	Oct09	Oct09	Oct09	Aug11	Aug11	Aug11	Aug11	Aug11	Aug11	Aug11
TOC Elevation:	89.15	90.75	91.65	92.17	94.58	89.32	89.34	81.99	82.00	81.88	81.88	91.13	88.93	88.70	88.70	92.07	92.67	91.05	89.81	89.13	89.28	89.88
Date of Measurement	Groundwater Elevation																					
08/29/11	81.51	81.76	81.57	81.07	81.52	81.78	81.56	79.75	79.77	79.74	79.78	81.69	80.63	80.72	83.70	82.56	81.60	81.59	81.60	81.60	80.66	81.58
11/21/11	81.63	80.95	81.53	81.13	82.68	81.88	81.92	79.99	79.91	80.84	80.03	81.80	81.12	81.17	84.02	82.67	81.67	81.67	81.68	81.68	82.16	81.68
05/22/12	82.19	82.46	82.33	80.08	83.26	82.47	82.63	80.47	80.55	81.07	81.01	NM	82.04	81.90	83.84	83.26	82.27	82.26	82.26	82.25	82.75	82.26
06/25/12	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	82.02	NM	NM	NM	NM	NM
11/29/12	82.22	82.69	82.45	81.65	83.02	82.82	82.43	80.39	80.47	81.05	80.78	82.31	83.41	82.72	84.24	83.01	82.32	82.35	82.36	82.37	82.73	82.36

NM not measured

TOC top of well casing

Notes:

- 1) Elevations are in units of feet, and are relative to an arbitrary site datum designated 100.00 feet.
- 2) For all wells except MW14 through MW17, TOC and groundwater elevations are derived from well surveys performed by Aspect Consulting in September 2011, relative to SoundEarth's measured TOC elevation of 89.15 feet for MW01.
- 3) TOC and groundwater elevations for monitoring wells MW14 through MW17 are assumed accurate to within 0.1 feet, and assume design basement Finish Floor Elevation of 34.1 feet, per James M. Klontz Architects Sheet A-6 dated October 8, 1986.
- 4) For groundwater elevations prior to the Summer 2011 soil removal action, see *SoundEarth Strategies, 2012*.

Table 2 - Summary of Post-Removal-Action Groundwater Quality Data

Darigold Rainier Avenue Facility 090066

Well ID	Date Sampled	Total Petroleum Hydrocarbon (TPH)			BTEX Compounds				MTBE
		Gasoline-Range	Diesel-Range	Motor Oil-Range	Benzene	Toluene	Ethyl-benzene	Total Xylenes	
MW01	08/29/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	80
	11/21/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	78
	05/22/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	66
	11/29/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	62
MW05	08/30/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	58
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	45
	05/22/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	33
	11/29/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	23
MW06	08/30/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	4.9
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	3.2
	11/29/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	2.8
MW08	08/30/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1.3
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	05/22/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	2.2
MW09	08/29/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	11/21/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
MW12	08/30/11	13,000	1,500 x	250 U	1,500	1 U	1,400	1,200	170
	11/22/11	7,700	1,600 x	250 U	1,000	100 U	800	410	100
	05/22/12	12,000	1,400 x	250 U	1,000	1 U	1,200	990	100
	11/29/12	9,000	2,700 x	250 U	650	1 U	530	280	59
MW13	08/29/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	6.5
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	21
	05/22/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	8.9
	11/29/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	26
MW14	08/30/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	11/29/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
MW15	08/30/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
MW16	08/30/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
MW17	08/30/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
MW18	08/29/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	11/21/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
MW19	08/29/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
MW20	08/30/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
MW21	08/30/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	11/21/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
MW22	08/29/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1.0
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	05/22/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
MW23	08/30/11	29,000	2,100 x	250 U	1,600	2,400	1,800	9,600	6.6
	11/22/11	6,800	840 x	250 U	1,800	370	3,100	9,500	100 U
	05/22/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
	06/25/12	100 U	--	--	3.1	1 U	6.4	7.7	--
	11/29/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	1 U
MW24	08/30/11	100 U	50 U	250 U	5.3	1 U	1 U	3.3	190
	11/22/11	100 U	50 U	250 U	5.6	10 U	10 U	30 U	160
	05/22/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	200
	11/29/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	34
MW25	08/30/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	490
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	680
	05/22/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	200
	11/29/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	340
MW26	08/30/11	260	50 U	250 U	77	1 U	1 U	3 U	670
	11/21/11	100 U	50 U	250 U	1.7	1 U	1 U	3 U	510
	05/22/12	100 U	50 U	250 U	3.3	1 U	1 U	3 U	540
	11/29/12	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	270
MW27	08/30/11	100 U	--	--	0.48	1 U	1 U	3 U	100
	11/22/11	100 U	50 U	250 U	0.35 U	1 U	1 U	3 U	93
	11/29/12	100 U	--	--	0.35 U	1 U	1 U	3 U	35
MW28	08/30/11	350	240 x	250 U	27	43	9.3	46	4.5
	11/21/11	480	180 x	250 U	24	37	8.4	44	3.5
	05/22/12	290	380 x	320	11	19	5.3	26	7.6
	11/29/12	230	180 x	250 U	4.3	9.1	2.7	15	9.2
Method A Cleanup Levels		800	500	500	5	1,000	700	1,000	20

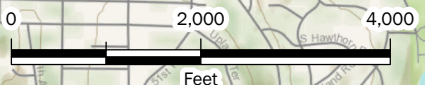
-- Not analyzed U Not detected at specified reporting limit
 MTBE Methyl tertiary-butyl ether x The pattern of peaks present is not indicative of diesel fuel.

Notes:

- 1) All concentrations are in micrograms per liter (µg/L). Bolded concentrations exceed Washington State Model Toxics Control Act (MTCA) Method A groundwater cleanup levels.
- 2) For groundwater chemistry data prior to the Summer 2011 soil removal action, see *SoundEarth Strategies, 2012*.



Property Location



Site Location Map

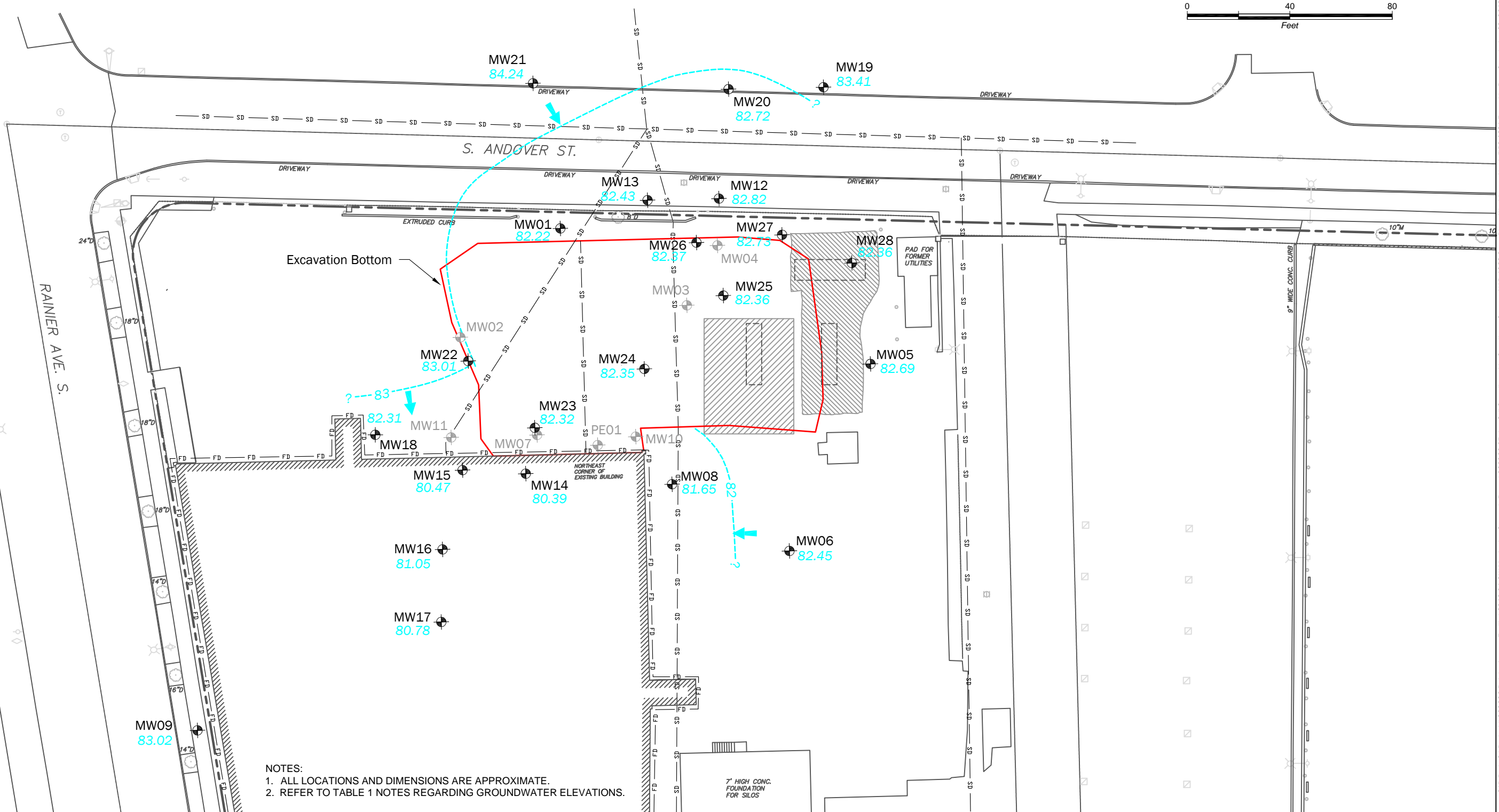
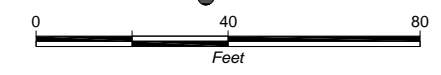
Darigold - Rainier Avenue Facility
Seattle, Washington



AUG-2012
PROJECT NO.
090066

By:
SCC
REV BY:
SCC

FIGURE NO.
1



NOTES:
 1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
 2. REFER TO TABLE 1 NOTES REGARDING GROUNDWATER ELEVATIONS.

LEGEND

- APPROXIMATE GROUNDWATER FLOW DIRECTIONS
- GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER ELEVATION (NOVEMBER 29, 2012)
- MONITORING WELL LOCATION (ASPECT, AUGUST 2011)

UTILITIES

- MW01 MONITORING WELL LOCATION (SES, 2004-2009)
- MW7 MONITORING WELL LOCATION (DECOMMISSIONED)
- FOOTING DRAIN
- STORM DRAIN

- FORMER UST
- APPROXIMATE FORMER UST EXCAVATION (SES, 2004)
- APPROXIMATE FORMER UST EXCAVATION (SD&C, 1998)

Well Location Map and Groundwater Elevation Contours on November 29, 2012

Darigold-Rainier Avenue Facility
Seattle, Washington



DEC-2012
PROJECT NO.
090066

BY:
MV/SCC
REV BY:
SCC

FIGURE NO.
2

APPENDIX A

Laboratory Report

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

December 13, 2012

Dave Heffner, Project Manager
Aspect Consulting, LLC
401 2nd Ave S, Suite 201
Seattle, WA 98104

Dear Mr. Heffner:

Included are the results from the testing of material submitted on November 30, 2012 from the Darigold, PO 090066, F&BI 211492 project. There are 27 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: data@aspectconsulting.com, Parker Wittman
ASP1213R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 30, 2012 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Darigold, PO 090066, F&BI 211492 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
211492-01	MW-01-112912
211492-02	MW-05-112912
211492-03	MW-06-112912
211492-04	MW-12-112912
211492-05	MW-13-112912
211492-06	MW-14-112912
211492-07	MW-25-112912
211492-08	MW-24-112912
211492-09	MW-23-112912
211492-10	MW-26-112912
211492-11	MW-27-112912
211492-12	MW-28-112912

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/12
Date Received: 11/30/12
Project: Darigold, PO 090066, F&BI 211492
Date Extracted: 11/30/12
Date Analyzed: 12/01/12

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
MW-01-112912 211492-01	<100	101
MW-05-112912 211492-02	<100	101
MW-06-112912 211492-03	<100	101
MW-12-112912 211492-04 1/10	9,000	91
MW-13-112912 211492-05	<100	104
MW-14-112912 211492-06	<100	101
MW-25-112912 211492-07	<100	99
MW-24-112912 211492-08	<100	102
MW-23-112912 211492-09	<100	96
MW-26-112912 211492-10	<100	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/12

Date Received: 11/30/12

Project: Darigold, PO 090066, F&BI 211492

Date Extracted: 11/30/12

Date Analyzed: 12/01/12

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

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
MW-27-112912 211492-11	<100	98
MW-28-112912 211492-12	230	102
Method Blank 02-2205 MB	<100	116

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/12
 Date Received: 11/30/12
 Project: Darigold, PO 090066, F&BI 211492
 Date Extracted: 12/03/12
 Date Analyzed: 12/09/12 and 12/10/12

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
 FOR TOTAL PETROLEUM HYDROCARBONS AS
 DIESEL AND MOTOR OIL
 USING METHOD NWTPH-Dx
 Sample Extracts Passed Through a
 Silica Gel Column Prior to Analysis
 Results Reported as ug/L (ppb)**

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 47-140)
MW-01-112912 211492-01	<50	<250	107
MW-05-112912 211492-02	<50	<250	113
MW-06-112912 211492-03	<50	<250	97
MW-12-112912 211492-04	2,700 x	<250	100
MW-13-112912 211492-05	<50	<250	112
MW-14-112912 211492-06	<50	<250	108
MW-25-112912 211492-07	<50	<250	110
MW-24-112912 211492-08	<50	<250	109
MW-23-112912 211492-09	<50	<250	108

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/12
Date Received: 11/30/12
Project: Darigold, PO 090066, F&BI 211492
Date Extracted: 12/03/12
Date Analyzed: 12/09/12 and 12/10/12

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx
Sample Extracts Passed Through a
Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)**

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 47-140)
MW-26-112912 211492-10	<50	<250	107
MW-28-112912 211492-12	180 x	<250	100
Method Blank 02-2221 MB	<50	<250	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-01-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/05/12	Lab ID:	211492-01
Date Analyzed:	12/05/12	Data File:	120518.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	62
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-05-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/05/12	Lab ID:	211492-02
Date Analyzed:	12/05/12	Data File:	120519.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	23
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-06-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/05/12	Lab ID:	211492-03
Date Analyzed:	12/05/12	Data File:	120520.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	2.8
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-12-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/05/12	Lab ID:	211492-04
Date Analyzed:	12/06/12	Data File:	120530.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	59
Benzene	590 ve
Toluene	<1
Ethylbenzene	430 ve
m,p-Xylene	280
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-12-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/04/12	Lab ID:	211492-04 1/10
Date Analyzed:	12/04/12	Data File:	120429.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	62
Benzene	650
Toluene	<10
Ethylbenzene	530
m,p-Xylene	310
o-Xylene	<10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-13-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/04/12	Lab ID:	211492-05
Date Analyzed:	12/04/12	Data File:	120426.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	26
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-14-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/05/12	Lab ID:	211492-06
Date Analyzed:	12/05/12	Data File:	120521.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-25-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/05/12	Lab ID:	211492-07
Date Analyzed:	12/06/12	Data File:	120531.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	320 ve
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-25-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/04/12	Lab ID:	211492-07 1/10
Date Analyzed:	12/04/12	Data File:	120430.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	340
Benzene	<3.5
Toluene	<10
Ethylbenzene	<10
m,p-Xylene	<20
o-Xylene	<10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-24-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/05/12	Lab ID:	211492-08
Date Analyzed:	12/06/12	Data File:	120532.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	34
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-23-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/04/12	Lab ID:	211492-09
Date Analyzed:	12/04/12	Data File:	120427.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-26-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/05/12	Lab ID:	211492-10
Date Analyzed:	12/06/12	Data File:	120533.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	270 ve
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-26-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/05/12	Lab ID:	211492-10 1/10
Date Analyzed:	12/05/12	Data File:	120515.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	270
Benzene	<3.5
Toluene	<10
Ethylbenzene	<10
m,p-Xylene	<20
o-Xylene	<10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-27-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/05/12	Lab ID:	211492-11
Date Analyzed:	12/05/12	Data File:	120522.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	35
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-28-112912	Client:	Aspect Consulting, LLC
Date Received:	11/30/12	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/04/12	Lab ID:	211492-12
Date Analyzed:	12/04/12	Data File:	120428.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	9.2
Benzene	4.3
Toluene	9.1
Ethylbenzene	2.7
m,p-Xylene	8.5
o-Xylene	6.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/04/12	Lab ID:	02-2157 mb
Date Analyzed:	12/04/12	Data File:	120409.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Darigold, PO 090066, F&BI 211492
Date Extracted:	12/05/12	Lab ID:	02-2160 mb
Date Analyzed:	12/05/12	Data File:	120510.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/12

Date Received: 11/30/12

Project: Darigold, PO 090066, F&BI 211492

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

Laboratory Code: 211495-08 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	105	70-119

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/12

Date Received: 11/30/12

Project: Darigold, PO 090066, F&BI 211492

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-Dx**

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	102	103	61-133	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/12

Date Received: 11/30/12

Project: Darigold, PO 090066, F&BI 211492

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260C**

Laboratory Code: 211492-09 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	
				Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	93	73-123
Benzene	ug/L (ppb)	50	<0.35	94	80-108
Toluene	ug/L (ppb)	50	<1	96	77-113
Ethylbenzene	ug/L (ppb)	50	<1	96	71-120
m,p-Xylene	ug/L (ppb)	100	<2	97	81-112
o-Xylene	ug/L (ppb)	50	<1	97	82-112

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent		Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	96	95	79-117	1
Benzene	ug/L (ppb)	50	95	94	81-108	1
Toluene	ug/L (ppb)	50	98	98	83-108	0
Ethylbenzene	ug/L (ppb)	50	98	97	84-110	1
m,p-Xylene	ug/L (ppb)	100	99	99	84-112	0
o-Xylene	ug/L (ppb)	50	99	99	82-113	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/12

Date Received: 11/30/12

Project: Darigold, PO 090066, F&BI 211492

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260C**

Laboratory Code: 211492-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance
				Recovery MS	Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	96	73-123
Benzene	ug/L (ppb)	50	<0.35	97	80-108
Toluene	ug/L (ppb)	50	<1	98	77-113
Ethylbenzene	ug/L (ppb)	50	<1	98	71-120
m,p-Xylene	ug/L (ppb)	100	<2	100	81-112
o-Xylene	ug/L (ppb)	50	<1	99	82-112

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	95	93	79-117	2
Benzene	ug/L (ppb)	50	96	94	81-108	2
Toluene	ug/L (ppb)	50	99	94	83-108	5
Ethylbenzene	ug/L (ppb)	50	98	96	84-110	2
m,p-Xylene	ug/L (ppb)	100	100	97	84-112	3
o-Xylene	ug/L (ppb)	50	100	98	82-113	2

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.

A1 - More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

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

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

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

j - The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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 in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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.

211492
 SAMPLE CHAIN OF CUSTODY ME 11-30-12 W4/boy 2

Send Report To Dave Heffner
 Company Aspect Consulting
 Address 701 2nd Ave S, Ste 201
 City, State, ZIP Seattle, WA 98104
 Phone # _____ Fax # _____

SAMPLERS (signature) Jane B
 PROJECT NAME NO. Darigold
 PO # 090066
 REMARKS *Dx silica gel cleanup

Page # 1 of 2
 TURNOAROUND TIME
 Standard (2 Weeks)
 RUSH
 Rush charges authorized by: _____
 SAMPLE DISPOSAL
 Dispose after 30 days
 Return samples
 Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes		
						TPH-Diesel *	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	BTEX-MTBE by 8260C			
MW-01-112912	01G	11/29/12	1553	Water	7	X	X						X		
MW-05-112912	02		1215		7	X	X						X		
MW-00-112912	03		1100		7	X	X						X		
MW-12-112912	04		1555		7	X	X						X		
MW-13-112912	05		1625		7	X	X						X		
MW-14-112912	06		1300		7	X	X						X		
MW-25-112912	07		1345		7	X	X						X		
MW-24-112912	08		1420		7	X	X						X		
MW-23-112912	09		1515		7	X	X						X		
MW-26-112912	10		1422		7	X	X						X		

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044
 FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	JANE BEAN	ASPECT	11/30/12	10:00 AM
<u>[Signature]</u>	JANE BEAN	FEB	11/30	10 AM
Received by:		Samples received at	<u>4</u>	<u>00</u>

