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Chevron Environmental Management Company

First Semi-Annual 2009 Groundwater Monitoring Report and Geochemical Parameter Monitoring Results

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

August 25, 2009

ARCADIS

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First Semi-Annual 2009 Groundwater Monitoring Report and Geochemical Parameter Monitoring Results

Former Texaco Facility
306443

Introduction

On behalf of Chevron Environmental Management Company (Chevron), ARCADIS US, Inc. (ARCADIS), has prepared this report to document the first semi-annual 2009 groundwater sampling event and geochemical parameter monitoring results for former Chevron facility 306443 (the site) located at Gate 28, West Ramp at Fairbanks International Airport in Fairbanks, Alaska. The site location and surrounding area are shown on **Figure 1**. This report summarizes the groundwater sampling events conducted by ARCADIS on April 21 and 22, 2009. Work was conducted under the direction of a "qualified person" as defined in 18 Alaska Administrative Code (AAC) 75.990 (100), and 18 AAC 78.995 (118).

Site History and Background

The site facility lease included Parcel A and Parcel B of FIA Block 1, Lot 8, located at 5245 Airport Road. The site is currently owned by the Alaska Department of Transportation and Public Facilities (ADOT&PF) which is leasing Block 1, Lot 8 to Frontier Flying. Frontier Flying has been leasing Lot 8 since April 2003; previously Frontier Flying subleased Lot 8 from Falcon Properties. Nearby properties include the ADOT&PF airport maintenance and Alaska Rescue Fire Fighting (ARFF) facility across Brumbaugh Avenue to the northeast, and Northern Air Cargo (NAC) adjacent to the southwest.

Unocal formerly subleased a portion (Parcels A and B) of Lot 8 from Trans-Arctic Airlines and operated a fuel distribution facility that provided aviation gasoline and Jet-A fuel to airplanes at FIA. Parcel A was a rectangular piece of land, 100 feet in length and 50 feet in width, running northwest to southeast approximately 20 feet inside the northeastern lot boundary. Parcel B was a circular parcel of land adjacent to the southeasterly property line of Lot 8 and having a diameter of 200 feet (**Figure 2**). Parcel A and Parcel B are presently being used only for periodic vehicle storage, with the exception of the northwest corner of Parcel A. Frontier maintains a 12,000-gallon Jet-A fuel aboveground storage tank (AST) within the asphalt cutout near the northwest corner of Parcel A. It is unclear if the AST is within the boundaries of former Parcel A; however, the AST is on the gravel that was exposed during the removal of Unocal's fuel distribution system. Due to the airport development since the decommissioning of the Unocal facilities, the boundaries of Parcels A and B's boundaries are difficult to define.

In October 1991, Dames & Moore observed and monitored the removal of four 10,000-gallon underground storage tanks (USTs), two pump islands and associated piping, as reported in "Site Assessment Report for Underground Storage Tank Closure, CEM Leasing, Inc., Fairbanks, Alaska," dated December 17, 1991. The USTs were seated in sandy gravel, covered with 3 feet of silty sand, and capped with asphalt/concrete. Excavation and removal of the underground piping included two 5-foot deep by 4-foot wide trenches.

The UST excavation was approximately 65 feet by 40 feet and averaged 10 feet in depth. The four USTs were "free of dents and holes and appeared to be in good condition," according to Dames & Moore. Groundwater was encountered in the excavation; no free product was observed. Several samples had concentrations of diesel-range organics (DRO), and benzene, toluene, ethylbenzene, and total xylenes (BTEX), and gasoline-range organics (GRO) that were greater than Alaska Department of Environmental Conservation (ADEC) cleanup levels. Approximately 1,200 cubic yards of soil were excavated during UST and pipeline removal. Soil suspected of containing hydrocarbon impact was used to backfill the excavation. A layer of visqueen was placed over the impacted soil, and clean imported fill was used to restore the excavation area to original grade. GeoEngineers installed nine groundwater monitoring wells in September 2003; GEI-1 through GEI-9. During recent light non-aqueous phase liquid (LNAPL) gauging activities on September 10, 2008, LNAPL was detected in GEI-5 at a thickness of 0.34 feet. Hydrocarbon Identification (HCID) of free product collected from groundwater monitoring well GEI-5 indicated concentrations of aliphatic and aromatic hydrocarbons in the jet fuel range (C10-C16). Current site activities include semi-annual groundwater monitoring and semi-annual to monthly LNAPL gauging and removal.

In 2008, ARCADIS conducted further delineation of soil and groundwater impacts at the site; five monitoring wells (MW-1 through MW-5) and twelve soil borings (SB-1 through SB-10, SB-12, and SB-13) were installed onsite. Soil borings SB-1 through SB-5 were installed in Parcel A in a down-gradient direction from the former ASTs. Soil borings SB-6 through SB-10, SB-12, and SB-13 were installed in Parcel B at locations in cross- and down-gradient directions of the former USTs. Monitoring wells MW-1, MW-3, and MW-5 were installed in a down gradient direction relative to Parcels A and B, and MW-2 and MW-4 were installed in an up-gradient direction relative to these two parcels. Recovery well RW-1 was installed at a location north of GEI-1 and for future pilot testing and/or LNAPL recovery.

Groundwater Monitoring Methods

Groundwater Gauging Methods

On April 21, 2009, fourteen site monitoring wells and one recovery well were gauged with an oil/water interface probe to determine depth to water (and to ascertain if light non-aqueous phase liquid [LNAPL] was present). LNAPL was detected in monitoring wells GEI-3, GEI-5, and GEI-7 during gauging activities in April 2009. On April 21, a blockage was encountered during gauging activities in monitoring well GEI-6 at a depth of 11.5 feet below top of casing (btoc). Monitoring wells GEI-1, GEI-2, GEI-9, MW-2, MW-4, and recovery well RW-1 were inaccessible due to snow piles and/or standing water atop of the wells.

Non-disposable groundwater monitoring equipment was decontaminated prior to and after each use with a detergent solution and rinsed in potable water.

Groundwater Sampling Methods

First semi-annual 2009 groundwater and geochemical parameter monitoring was conducted on April 22, 2009. Groundwater samples were collected using disposable Teflon® tubing with an In-Situ 9500® meter, a flow-through cell and a peristaltic pump. Geochemical parameters measured include dissolved oxygen (DO), oxidation-reduction potential (ORP), conductivity, pH, and temperature. Groundwater was purged until geochemical parameters stabilized to within ten percent of the value for pH, DO, and ORP, to within three percent of the value for conductivity, and to within one percent of the value for turbidity. These parameters were recorded on low-flow field data sheets presented in **Appendix A**. Groundwater samples were labeled, stored in a cooler packed with ice and submitted to Test America located in Bothell, Washington under proper chain-of-custody procedures. Groundwater samples were analyzed in the field and/or submitted to the analytical laboratory for one or more of the following analyses:

- Gasoline range organics (GRO) by method AK101
- Diesel range organics (DRO) by method AK102
- Residual range organics (RRO) by method AK103
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA method 8021B
- Ethylene dibromide (EDB) by EPA method 8011
- Polynuclear Aromatic Hydrocarbons (PAHs) by EPA method 8270 GC/MS-SIM
- Total alkalinity by EPA method 310.1

- Sulfate by EPA method 300.0
- Nitrate as nitrogen by EPA method 300.0 and colorimetric (Hach) field kit
- Ferrous Iron by colorimetric (Hach) field kit
- Methane by EPA Method 8015

Groundwater Monitoring Results

Groundwater Elevation and Flow Direction

Depth to groundwater during the April 2009 event ranged from 10.65 feet below top of casing (btoc) in monitoring well GEI-4 to 11.69 feet btoc in monitoring well MW-3. Groundwater elevations ranged from 421.20 feet above sea level (asl) in monitoring wells MW-3 to 421.25 feet asl in monitoring wells MW-1 and MW-5. Due to the presence of LNAPL, groundwater elevations recorded in monitoring wells GEI-3, GEI-5, and GEI-7 were corrected using the following formula:

Corrected Groundwater Elevation =
(Top of Casing – Depth to Water) + (LNAPL Thickness x Specific Gravity of LNAPL (0.82))

Based on the water levels measured during the April 2009 sampling event, the general groundwater flow direction at the site is to the west (summarized in **Table1** and shown on **Figure 2**). Due to GEI well elevations surveyed to an arbitrary temporary benchmark; a potentiometric surface map could not be developed in conjunction with the MW wells surveyed to OPUS EPOCH 2003 datum.

Groundwater Analytical Results

The groundwater sample collected during the first semi-annual event in April 2009 contained concentrations of GRO greater than the ADEC groundwater cleanup level (GCL) (2,200 micrograms per liter [µg/L]) in monitoring well MW-1at 2,260 µg/L.

Groundwater samples contained concentrations of DRO greater than the ADEC GCL (1,500 µg/L) in monitoring wells GEI-4, GEI-8, MW-1, MW-3, and MW-5 ranging from 1,600 µg/L in the groundwater sample collected from MW-3 to 20,700 µg/L in the groundwater sample collected from MW-1.

RRO and Benzene were detected above the ADEC GCL of 1,100 µg/L and 5 µg/L in the groundwater sample collected from MW-1 at concentrations of 1,190 µg/L and 42.2 µg/L, respectively.

The groundwater samples collected during the first semi-annual 2009 groundwater monitoring event did not contain concentrations of toluene, ethylbenzene, total xylenes, lead, EDB, or PAHs above cleanup levels.

Analytical results obtained from the first semi-annual 2009 groundwater monitoring event are summarized in **Table 2, Table 3, Table 4** and are shown on **Figure 3**.

Natural Attenuation Trends and Monitoring

A two-tiered approach was used for analysis of the groundwater monitoring data to help determine the potential for bioremediation according to the recommended analysis in *Remediation of Ground Water by Natural Attenuation at Petroleum Release Sites* (ASTM, 2004). Tier one data analysis consists of evaluating historical constituents of concern (COC) concentrations and historical trends. Historical data were analyzed for evidence that the plume is expanding, stable, or shrinking. Tier two data consist of geochemical parameter analysis and evaluation of the distribution of the parameters inside and outside the COC plume. These data are used to determine the potential for and extent of biodegradation occurring in the subsurface.

Tier One – Historical Concentration Trends and Plume Stability

A review of current and historical analytical data and groundwater elevation data was conducted to determine the stability of the COC plume. Historical DRO and benzene concentrations in groundwater are shown on **Figure 4 through Figure 7**. In order to show a more representative analytical figure for the current DRO and benzene concentrations in groundwater data from the September 2008 event was used. Time series plots were created for GRO, DRO, and benzene. The plots are included in **Appendix B**.

In general, hydrocarbon concentrations have remained relatively stable in the plume monitoring wells since 2004.

Tier Two – Geochemical Parameter Analytical Results

During the first-semiannual 2009 monitoring event, both petroleum hydrocarbons and geochemical parameters were monitored to help determine if groundwater conditions are consistent with those generally observed at sites where aerobic or anaerobic biodegradation is occurring. The distribution of electron acceptors (DO, nitrate, sulfate) and their byproducts (methane, ferrous iron) with respect to the extent of detected BTEX, GRO and DRO concentrations can indicate microbial activity within the plume.

Unfortunately, a concise analysis of biodegradation could not be assessed due to the presence of LNAPL observed on-site; and the lack of geochemical parameter data obtained from monitoring wells that were inaccessible due to snow and/or standing water atop of the wells.

Laboratory Data Quality Assurance Summary

As required by ADEC (Technical Memorandum 06-002, dated August 20, 2008), ARCADIS completed a laboratory data review checklist for the Test America report during the first semi-annual 2009 reporting period. The laboratory report is included as **Appendix C** and data review checklist is included as **Appendix D**. The following quality assurance (QA) summary describes six parameters, related to the quality and usability of the data presented in this report.

Precision

The data meet precision objectives for laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) relative percent differences (RPDs).

Accuracy

The data meet accuracy objectives as indicated by the laboratory quality control samples, which were within method/laboratory limits. Analytes were not detected in the trip blanks submitted with the groundwater samples. The LCS percent recovery for AK 102 was 71.8% for QC Batch 9D23045.

Representativeness

The data appear to be representative of site conditions and are generally consistent with historical groundwater monitoring results and expected impacts to groundwater.

Comparability

The laboratory results are presented in the same units as previous reports to allow comparison.

Completeness

The results appear to be valid and usable, and thus, the laboratory results have 100% completeness.

Sensitivity

The sensitivity of the analyses was adequate for the samples as the detection limits were less than the ADEC GCLs for compounds which were not detected.

Conclusions and Recommendations

The groundwater elevation data collected during April 2009 indicate groundwater flow direction and gradient are generally consistent with historical data. In addition, the analytical results of the April 2009 groundwater sampling events are generally consistent with previous events.

Based on the lack of geochemical parameter data obtained and the presence of LNAPL observed at the site, ARCADIS could not determine if biodegradation is currently occurring within the hydrocarbon plume during the first semi-annual 2009 groundwater event. ARCADIS will continue to sample on a semi-annual basis using low-flow monitoring techniques. Intrinsic bioremediation parameters will not be monitored again until LNAPL is no longer present.

Second semi-annual 2009 groundwater sampling will be conducted in September 2009 by ARCADIS. If you have any questions or would like to discuss this further, please contact Greg Montgomery at 206.726.4742.

References

ASTM Standard E1943-98, 2004. *Standard Guide for Remediation of Ground Water by Natural Attenuation at Petroleum Release Sites*. ASTM International, West Conshohocken, PA. DOI:10.1520/E1943-98R04.

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Tables

Table 1
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)
GEI-1	99.87	09/04/03	6.32	--	--	93.55
		04/24/04	Well buried under snow/ice			
		09/16/04	8.56	--	--	91.31
		04/21/05	Well buried under snow/ice			
		09/30/05	8.17	--	--	91.70
		04/19/06	Well buried under snow/ice			
		09/21/06	9.04	--	--	90.83
		04/03/07	11.35	11.08	0.27	88.74
		09/29/07	8.60	8.54	0.06	91.32
		10/15/07	10.35	9.94	0.41	89.86
		11/19/07	10.91	10.78	0.13	89.07
		03/29/08	Well buried under snow/ice			
		06/25/08	9.35	--	--	90.52
		07/14/08	8.22	--	--	91.65
		08/06/08	5.83	--	--	94.04
		09/10/08	8.22	8.20	0.02	91.67
		11/24/08	**9.88**	**--**	**--**	**89.99**
		12/18/08	**10.06**	**--**	**--**	**89.81**
		01/27/09	**10.73**	**10.70**	**0.03**	**89.16**
		02/20/09	**11.18**	**10.98**	**0.20**	**88.85**
		04/21/09	**Well buried under snow/ice**			
GEI-2	99.79	09/04/03	6.19	--	--	93.60
		04/24/04	Well buried under snow/ice			
		09/16/04	8.47	--	--	91.32
		04/21/05	Well buried under snow/ice			
		09/30/05	7.76	--	--	92.03
		04/19/06	Well buried under snow/ice			
		09/21/06	9.01	--	--	90.78
		04/03/07	Well Dry			
		09/29/07	8.57	--	--	91.22
		03/29/08	10.22	--	--	89.57
		09/10/08	8.18	--	--	91.61
		04/21/09	**Well under water**			
GEI-3	99.73	09/04/03	6.14	--	--	93.59
		04/24/04	9.49	--	--	90.24
		09/16/04	8.38	--	--	91.35
		04/21/05	9.84	--	--	89.89
		09/30/05	7.67	--	--	92.06
		04/19/06	11.28	10.75	0.53	88.88
		09/21/06	8.91	--	--	90.82
		04/03/07	10.80	10.78	0.02	88.95
		09/29/07	8.47	--	--	91.26
		03/29/08	10.15	--	--	89.58
		09/10/08	8.08	--	--	91.65
		04/21/09	**11.11**	**10.89**	**0.22**	**88.80**

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Groundwater Elevation Data

Former Chevron Facility 306443
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Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)
GEI-4	99.66	09/04/03	6.12	--	--	93.54
		04/24/04	9.52	--	--	90.14
		09/16/04	8.41	--	--	91.25
		04/21/05	9.83	--	--	89.83
		09/30/05	7.69	--	--	91.97
		04/19/06	10.90	--	--	88.76
		09/21/06	8.91	--	--	90.75
		04/03/07	10.98	--	--	88.68
		09/29/07	8.44	--	--	91.22
		03/29/08	10.08	--	--	89.58
		09/10/08	8.03	--	--	91.63
		04/21/09	**10.65**	--	--	**89.01**
GEI-5	99.88	09/04/03	8.28	5.97	2.31	93.49
		04/24/04	10.11	9.71	0.40	90.09
		09/16/04	10.40	8.21	2.19	91.28
		04/21/05	10.49	10.06	0.43	89.74
		09/30/05	7.95	--	--	91.97
		04/19/06	11.75	11.01	0.74	88.74
		09/21/06	10.09	9.01	1.08	90.68
		04/03/07	11.70	11.23	0.47	88.57
		09/29/07	9.22	8.72	0.50	91.07
		03/29/08	10.67	10.45	0.22	89.39
		09/10/08	8.71	8.37	0.34	91.45
		11/24/08	**10.08**	**--**	**--**	**89.80**
		12/18/08	**10.29**	**--**	**--**	**89.59**
		01/27/09	**11.26**	**10.94**	**0.32**	**88.88**
		02/20/09	**11.65**	**11.21**	**0.44**	**88.59**
		04/21/09	**11.44**	**11.02**	**0.42**	**88.78**
GEI-6	99.95	09/04/03	6.47	--	--	93.48
		04/24/04	9.95	--	--	90.00
		09/16/04	8.83	--	--	91.12
		04/21/05	10.28	--	--	89.67
		09/30/05	8.24	--	--	91.71
		04/19/06	Well buried under snow/ice			
		09/21/06	9.30	9.30	<0.1	90.65
		04/03/07	Well Dry			
		09/29/07	9.10	8.81	0.29	91.09
		10/15/07	10.70	10.26	0.44	89.61
		11/19/07	11.04	10.71	0.33	89.18
		03/29/08	10.61	10.60	0.01	89.35
		06/25/08	9.58	--	--	90.37
		07/14/08	8.51	--	--	91.44
		08/06/08	6.44	6.08	0.36	93.81
		09/10/08	9.25	8.41	0.84	91.39
		11/24/08	**10.30**	**10.22**	**0.08**	**89.72**
		12/18/08	**10.52**	**10.38**	**0.14**	**89.54**
		01/27/09	**11.10**	**10.96**	**0.14**	**88.96**
		02/20/09	**11.10**	**--**	**--**	**88.85**
		04/21/09	**Well blocked at 11.5' below TOC**			

Table 1
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)
GEI-7	99.44	09/04/03	5.92	--	--	93.52
		04/24/04	9.49	--	--	89.95
		09/16/04	8.36	--	--	91.08
		04/21/05	9.95	--	--	89.49
		09/30/05	7.74	--	--	91.70
		04/19/06	11.04	--	--	88.40
		09/21/06	9.06	--	--	90.38
		04/03/07	11.21	--	--	88.23
		09/29/07	8.59	--	--	90.85
		03/29/08	10.28	10.26	0.02	89.18
		09/10/08	8.21	--	--	91.23
		04/21/09	**10.90**	**10.86**	**0.04**	**88.57**
GEI-8	100.01	09/04/03	6.48	--	--	93.53
		04/24/04	9.94	--	--	90.07
		09/16/04	8.84	--	--	91.17
		04/21/05	10.31	--	--	89.70
		09/30/05	8.18	--	--	91.83
		04/19/06	11.47	--	--	88.54
		09/21/06	9.48	--	--	90.53
		04/03/07	11.63	--	--	88.38
		09/29/07	9.08	--	--	90.93
		03/29/08	10.77	--	--	89.24
		09/10/08	8.72	8.70	0.02	91.31
		11/24/08	**10.36**	**--**	**--**	**89.65**
		12/18/08	**10.55**	**--**	**--**	**89.46**
		01/27/09	**11.24**	**--**	**--**	**88.77**
		02/20/09	**11.55**	**--**	**--**	**88.46**
		04/21/09	**11.50**	**--**	**--**	**88.51**
GEI-9	100.02	09/04/03	6.42	--	--	93.60
		04/24/04	9.82	--	--	90.20
		09/16/04	8.21	--	--	91.81
		04/21/05	Well buried under snow/ice			
		09/30/05	8.14	--	--	91.88
		04/19/06	Well buried under snow/ice			
		09/21/06	9.31	--	--	90.71
		04/03/07	11.39	--	--	88.63
		09/29/07	8.91	--	--	91.11
		03/29/08	10.73	10.65	0.08	89.36
		09/10/08	8.63	--	--	91.39
		04/21/09	**Well buried under snow/ice**			

Table 1
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)
MW-1	432.51	09/10/08	8.65	--	--	423.86
		04/21/09	**11.26**	**--**	**--**	**421.25**
MW-2	431.79	09/10/08	7.75	--	--	424.04
		04/21/09	**Well under water**			
MW-3	432.89	09/10/08	9.00	--	--	423.89
		04/21/09	**11.69**	**--**	**--**	**421.20**
MW-4	432.29	09/10/08	8.26	--	--	424.03
		04/21/09	**Well buried under snow/ice**			
MW-5	432.76	09/10/08	8.81	--	--	423.95
		04/21/09	**11.51**	**--**	**--**	**421.25**
RW-1	432.30	09/10/08	8.30	--	--	424.00
		04/21/09	**Well buried under snow/ice**			

Notes:

LNAPL = Light non-aqeous phase liquid

Groundwater elevations were corrected due to the presence of LNAPL in well. Specific gravity of 0.82 was used for the LNAPL (Jet-A Fuel).

Bold text indicates most recent sampling event.

TOC = top of casing.

"--" = not applicable.

Table 2
Groundwater Analytical Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Date Sampled	GRO	DRO	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	Lead	EDB
GCL:		***2,200***	***1,500***	***1,100***	***5***	***1,000***	***700***	***10,000***	***15***	***0.05***
GEI-1	04/24/04	Well buried by snow/ice								
	09/16/04	1,760	151,000	--	7.05	1.83	47.9	251	--	--
	09/16/04[D]	--	--	--	5.40	2.02	42.2	233	--	--
	04/21/05	Well buried by snow/ice								
	09/30/05	2,270	327,000	<3,970	5.52	0.945	36.6	208	--	--
	04/19/06	Well buried by snow/ice								
	09/21/06	1,300	690,000	<9,800	10.0	0.8	22	140	--	--
	04/03/07	LNAPL Present - Well not sampled								
	09/29/07	LNAPL Present - Well not sampled								
	03/29/08	Well buried by snow/ice								
	09/10/08	LNAPL Present - Well not sampled								
	04/22/09	**Well buried under snow/ice**								
GEI-2	04/24/04	Well buried by snow/ice								
	09/16/04	76.6	1,430	--	2.53	0.547	<0.500	1.81	--	--
	04/21/05	Well buried by snow/ice								
	09/30/05	65.6	885	<391	<0.500	<0.500	<0.500	<1.50	--	--
	04/19/06	Well buried by snow/ice								
	09/21/06	56.0	1,500	430	<0.5	<0.500	<0.500	<1.50	--	--
	04/03/07	Well dry - Not sampled								
	09/29/07	30	--	--	<1.00	<1.00	<1.00	<2.00	--	--
	03/29/08	<50.0	--[3]	--[3]	<0.500	<0.500	<0.500	<1.00	--	--
	09/10/08	52[4]	5,300[5]	<743	0.225	<0.500	1.16	<1.00	<1.00	--
	04/22/09	**Well under water**								
GEI-3	04/24/04	1,330	21,000	--	<5.00	<5.00	13.9	59.8	--	--
	09/16/04	310	18,300	--	1.26	<0.500	8.27	14.9	--	--
	04/21/05	464	22,900	--	<0.500	<0.500	6.24	14.6	--	--
	09/30/05	450	33,300	625	<0.500	<0.500	3.45	10.6	--	--
	04/19/06	LNAPL Present - Well not sampled								
	09/21/06	500	29,000	<480	<0.600	<0.500	7.7	25.0	--	--
	04/03/07	LNAPL Present - Well not sampled								
	09/29/07	700	65,000	<2,100	<5.00	<5.00	<5.00	<20	--	--
	03/29/08	492	47,100[2]	863	<0.500	<0.500	5.01	16.0	--	--
	09/10/08	374[4]	22,400[6]	<3,750	<1.00	<2.50	7.06	13.7	<1.00	--
	04/22/09	**LNAPL Present - Well not sampled**								
GEI-4	04/24/04	1,270	43,600	--	<5.00	<5.00	14.6	57.2	--	--
	09/16/04	638	36,200	--	15.0	0.675	21.8	35.7	--	--
	04/21/05	570	37,500	--	35.4	1.27	17.7	40.1	--	--
	09/30/05	1,030	122,000	<4,100	7.47	4.88	25.1	58.7	--	--
	04/19/06	879	17,800	<391	7.58	<0.500	21.8	27.9	<1.00	--
	09/21/06	630	12,000	<480	24.0	0.5	25	43	--	--
	04/03/07	300	2,000	<40	5.0	<1.00	9	8.0	--	--
	09/29/07	1,400	43,000	<2,000	20	1.00	20	40	--	--
	03/29/08	255[1]	11,300[2]	<735	2.17	<0.500	4.16	9.20	--	--
	09/10/08	889[4]	32,300[5]	<3,750	53.2	2.42	37.9	71.0	<1.00	--
	04/22/09	**229[1]**	**2,840[5]**	**<721**	**2.90**	**<0.500**	**4.50**	**7.64**	**<1.00[7]**	**<0.01**
GEI-5	04/24/04	LNAPL Present - Well not sampled								
	09/16/04	LNAPL Present - Well not sampled								
	04/21/05	LNAPL Present - Well not sampled								
	09/30/05	2,530	671,000	<8,700	12.4	<0.500	107	326	--	--
	04/19/06	LNAPL Present - Well not sampled								
	09/21/06	LNAPL Present - Well not sampled								
	04/03/07	LNAPL Present - Well not sampled								
	09/29/07	LNAPL Present - Well not sampled								
	03/29/08	68.1	1,860[2]	<708	<0.500	<0.500	<0.500	1.78		--
	09/10/08	LNAPL Present - Well not sampled								
	04/22/09	**LNAPL Present - Well not sampled**								

Table 2
Groundwater Analytical Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Date Sampled	GRO	DRO	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	Lead	EDB
GCL:		***2,200***	***1,500***	***1,100***	***5***	***1,000***	***700***	***10,000***	***15***	***0.05***
GEI-6	04/24/04	2,930	168,000	--	8.17	<5.00	59.6	145	--	--
	09/16/04	1,880	39,600	--	7.80	1.57	23.8	75.0	--	--
	04/21/05	1,290	25,300	--	15.7	<0.500	57.1	134	--	--
	09/30/05	2,220	120,000	<4,770	14.8	<0.500	20.8	107	--	--
	04/19/06	Well buried by snow/ice								
	09/21/06	LNAPL Present - Well not sampled								
	04/03/07	Well Dry - Not sampled								
	09/29/07	LNAPL Present - Well not sampled								
	03/29/08	1,170 [1]	334,000 [2]	904	8.41	<2.50	33.8	128	58.8	--
	09/10/08	LNAPL Present - Well not sampled								
	04/22/09	**Well blocked at 11.5' below TOC**								
GEI-7	04/24/04	2,440	43,200	--	6.97	<5.00	7.58	20.0	--	--
	09/16/04	363	5,660	--	<0.500	1.34	8.89	14.2	--	--
	04/21/05	1,080	13,600	--	32.6	2.52	64.6	92.0	--	--
	09/30/05	226	6,700	<397	<0.500	<0.500	3.68	4.72	--	--
	04/19/06	934	25,200	<856	37.9	4.11	77.8	103	<1.00	--
	09/21/06	470	4,100	<98	1.2	<0.5	14	15	--	--
	04/03/07	2,200	12,000	<980	50	4	90	200	--	--
	04/03/07[D]	2,200	12,000	<980	40	4	90	200	--	--
	09/29/07	1,500	130,000	<2,000	<5	<5	<10	<20	27.9	--
	09/29/07[D]	900	92,000	<2,000	<5	<5	<10	<20	--	--
	03/29/08	1,630 [1]	44,200	1,320	31.1	<5.00	90.5	147	--	--
	03/29/08[D]	1,630	51,400	1,470	26.8	<5.00	85.2	131	--	--
	09/10/08	352 [4]	15,200 [5]	<833	<1.00	<2.50	10.7	8.02	<1.00	--
	04/22/09	**LNAPL Present - Well not sampled**								
GEI-8	04/24/04	<500	7,390	--	<5.00	<5.00	11.7	30.4	--	--
	09/16/04	82	8,690	--	<0.500	<0.500	0.520	1.12	--	--
	04/21/05	54.3	1,460	--	<0.500	<0.500	<0.500	<1.50	--	--
	04/21/05[D]	<50	--	--	<0.500	<0.500	<0.500	<1.50	--	--
	09/30/05	<50	4,970	<397	<0.500	<0.500	<0.500	<1.50	--	--
	04/19/06	<50	1,480	<400	<0.500	<0.500	<0.500	<1.50	--	--
	04/19/06[D]	78.0	--	--	<0.500	<0.500	<0.500	<1.50	<1.00	--
	09/21/06	40.0	1,800	<160	<0.5	<0.5	<0.5	<1.5	--	--
	04/03/07	60	910	360	<1.0	<1.0	<1.0	<2.0	--	--
	09/29/07	80	4,400	<200	<1.0	<1.0	<1.0	<2.0	--	--
	03/29/08	62.0 [1]	2,830 [2]	<758	<0.500	<0.500	<0.500	1.94	--	--
	09/10/08	LNAPL Present - Well not sampled								
	04/22/09	**66.6 [1]**	**1,810 [9]**	**818 [9]**	**<0.200**	**<0.500**	**<0.500**	**<1.00**	**<1.00 [7]**	**<0.01**
GEI-9	04/24/04	8,370	33,700	--	9.53	<5.00	113	321	--	--
	09/16/04	1,350	77,400	--	17.3	<0.500	58.3	57.5	--	--
	04/21/05	Well buried by snow/ice								
	09/30/05	838	50,900	<443	16.2	<0.500	55.4	82.3	--	--
	04/19/06	Well buried by snow/ice								
	09/21/06	1,200	95,000	<1,900	23.0	<0.5	52	80	36.5	--
	09/21/06[D]	1,300	43,000	<980	22.0	<0.5	50	75	--	--
	04/03/07	1,600	9,700	<400	6.0	<1.0	40	80	0.62	--
	09/29/07	1,800	680,000	<20,000	10.0	<5.00	40	70	29.8	--
	03/29/08	1,690 [1]	111,000 [2]	839	7.23	<5.00	25.1	85.5	89.4	--
	09/10/08	1,510 [4]	118,000 [6]	<8,330	9.04	<5.00	29.3	63.1	<1.00	--
	9/10/08 [D]	1,150 [4]	191,000 [5]	<7,500	9.18	<5.00	25.0	56.1	<1.00	--
	04/22/09	**Well buried under snow/ice**								

Table 2
Groundwater Analytical Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Date Sampled	GRO	DRO	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	Lead	EDB
GCL:		***2,200***	***1,500***	***1,100***	***5***	***1,000***	***700***	***10,000***	***15***	***0.05***
MW-1	09/10/08	2,000 [4]	10,900 [5]	<743	27.4	<0.500	99.8	163	<1.00	--
	04/22/09	**2,260 [1]**	**20,700 [5]**	**1,190 [8]**	**42.2**	**0.566**	**84.3**	**236**	**<1.00 [7]**	**<0.01**
MW-2	09/10/08	<50.0	208 [6]	<743	<0.20	<0.500	<0.50	<1.00	<1.00	--
		Well buried under snow/ice								
MW-3	09/10/08	144 [4]	2,800 [5]	<743	0.263	<0.500	0.687	1.56	<1.00	--
	04/22/09	**96.4 [1]**	**1,600 [5]**	**<728**	**0.210**	**<0.500**	**1.09**	**1.81**	**<1.00 [7]**	**<0.01**
MW-4	09/10/08	<50.0	150 [6]	<743	<0.20	<0.500	<0.50	<1.00	<1.00	--
		Well buried under snow/ice								
MW-5	09/10/08	89.1 [4]	2,240 [5]	<743	0.378	<0.500	2.42	3.28	<1.00	--
	04/22/09	**254 [1]**	**4,230 [5]**	**<728**	**0.590**	**<0.500**	**6.95**	**5.14**	**<1.00 [7]**	**<0.01**
	04/2209 [D]	**248 [1]**	**4,150 [5]**	**<721**	**0.593**	**<0.500**	**6.82**	**4.90**	**<1.00 [7]**	**<0.01**

Notes:
All results are reported in micrograms per liter (ug/l).
GCL = ADEC 18 AAC 75 Groundwater Cleanup Level.
[D] - duplicate of preceding sample.
-- = sample was not analyzed for this compound.
< = result did not exceed indicated method reporting limit; an elevated reporting limit indicates sample was diluted.
Highlighted cell= exceeds GCL.
Bold Type indicates most recent sampling event.
[1] Detected hydrocarbons in the gasoline range appear to be due to overlap of diesel range hydrocarbons.
[2] Hydrocarbon pattern most closely resembles kerosene.
[3] Insufficient water to collect sample.
[4] Does not match typical pattern.
[5] Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel.
[6] The chromatographic pattern is not consistent with diesel fuel.
[7] Sample filtered in lab.
[8] The heavy oil range organics present are due to hydrocarbons eluting primarily in the diesel range.
[9] Hydrocarbon pattern most closely resembles a blend of Weathered Diesel and Transformer Oil.

Table 3
Groundwater Polynuclear Aromatic Hydrocarbons Analytical Data

Former Chevron Facility 306443 Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well ID	Date Sampled	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) flouranthene	Benzo (a) pyrene	Indeno (1, 2, 3 - cd) pyrene	Dibenz (a,h) anthracene	Benzo (g, h, i) perylene	1-Methylnaphthalene	2-Methylnaphthalene
ADEC Groundwater Cleanup Levels[1]		730	2,200	2,200	1,500	11,000	11,000	1,500	1,100	1.2	120	1.2	12	0.2	1.2	0.12	1,100	150	150
GEI-1	04/22/09	Well buried under snow/ice																	
GEI-2	04/22/09	Well under water																	
GEI-3	04/22/09	LNAPL present - well not sampled																	
GEI-4	04/22/09	2.12	<0.0962	0.240	0.290	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	1.84	<0.0962
GEI-5	04/22/09	LNAPL present - well not sampled																	
GEI-6	04/22/09	Well blocked at 11.5' feet below TOC																	
GEI-7	04/22/09	LNAPL present - well not sampled																	
GEI-8	04/22/09	0.196	<0.100	<0.100	0.148	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.916	0.424
GEI-9	04/22/09	Well buried under snow/ice																	
MW-1	04/22/09	187	<0.962	<0.962	1.06	<0.962	<0.962	<0.962	<0.962	<0.962	<0.962	<0.962	<0.962	<0.962	<0.962	<0.962	<0.962	97.4	113
MW-2	04/22/09	Well buried under snow/ice																	
MW-3	04/22/09	0.983	<0.0943	<0.0943	0.121	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	<0.0943	3.41	0.804
MW-4	04/22/09	Well buried under snow/ice																	
MW-5	04/22/09	5.09	<0.0962	0.169	0.279	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	5.79	<0.0962
	04/22/09 [D]	4.26	<0.0952	0.152	0.257	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	5.08	<0.0952

Notes:

All results are reported in micrograms per liter (µg/L)

[D] = duplicate of the preceding sample.

Highlighted values indicate an exceedance of the respective GCL.

Bold type indicates most recent sampling event.

<1 = result did not exceed indicated method reporting limit: an elevated reporting limit indicates sample was diluted.

-- = sample was not analyzed for this compound

[1] ADEC Groundwater Cleanup Levels per 18 AAC 75.345, Table C, Register 188, October 9, 2008.

Table 4

Geochemical Parameter Monitoring Results

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

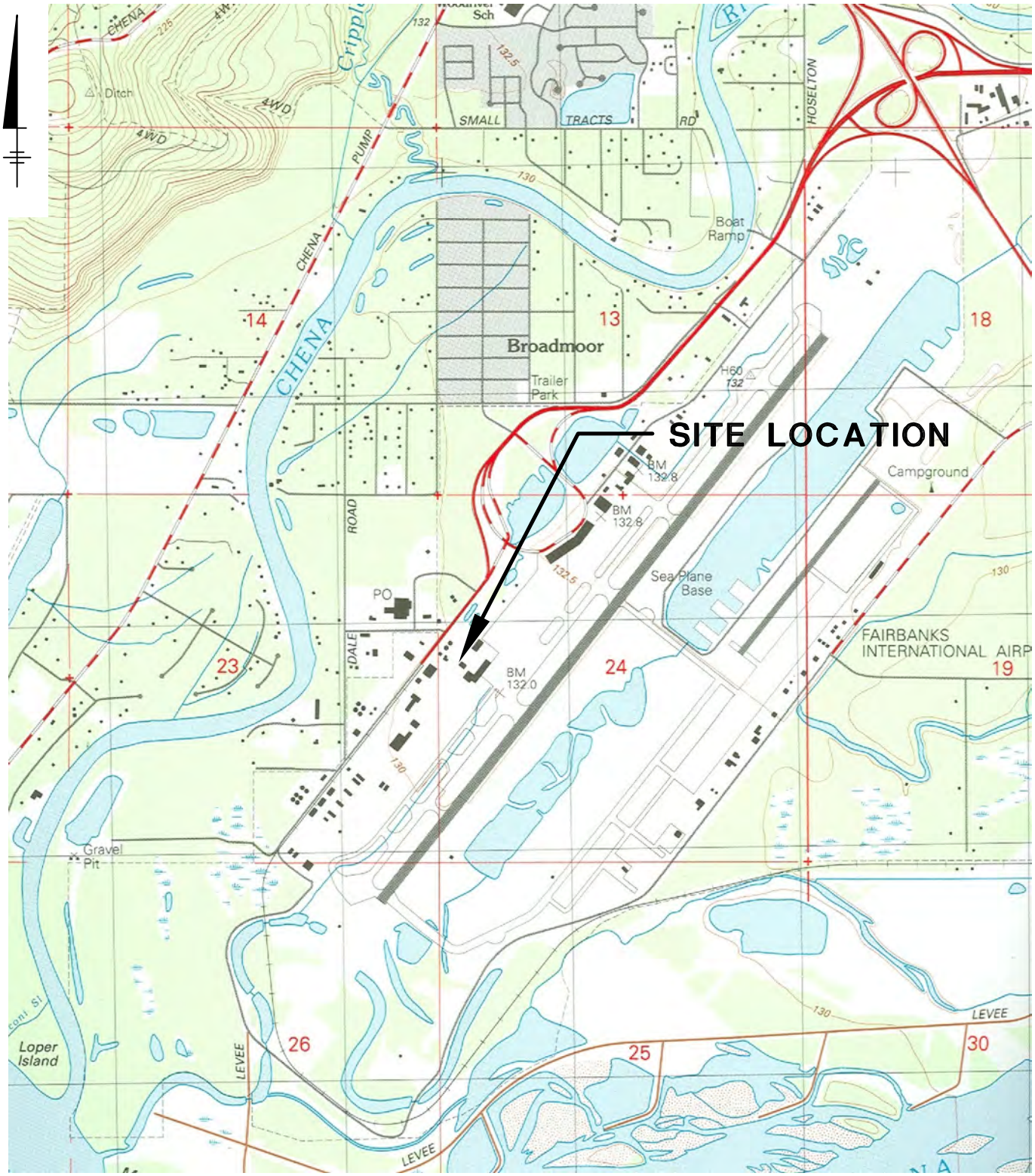
Relative Location	Monitoring Well ID	Date Sampled	DO (mg/L)[1]	ORP (mV)[1]	Total Alkalinity (mg/L as $CaCO_3$)[2]	Sulfate (mg/L)[3]	Nitrate as Nitrogen (mg/L)[3]	Methane (mg/L)[4]	Ferrous Iron (mg/L)[5]	Nitrate by Field Measurement (mg/L)[5]
Cross gradient	**GEI-4**	04/22/09	0.56	-80.61	349	6.22	<0.20	1.95 [6]	4.0	0.0
Within Plume Close to Source	**GEI-8**	04/22/09	0.60	-93.16	588	7.40	<0.20	0.468	6.2	0.0
Cross gradient	**MW-1**	04/22/09	0.32	-108.16	540	<0.40	<0.20	16.5 [6]	5.6	0.0
Down gradient	**MW-3**	04/22/09	1.07	-108.06	338	8.24	<0.20 [7]	1.05 [6]	3.0	0.0
Down gradient	**MW-5**	04/22/09	0.31	-84.71	438	6.88	<0.20 [7]	1.2 [6]	5.0	0.0
Down gradient	**MW-5 [D]**	04/22/09	--	--	429	6.84	<0.20 [7]	0.832	--	--

[1]: DO and ORP measured using an In-Situ® 9500 and flow through cell instrument.
[2]: Total alkalinity analyzed using EPA method 310.1.
[3]: Sulfate and nitrate as nitrogen analyzed by EPA method 300.0.
[4]: Methane analyzed using GC/FID.
[5]: Ferrous iron and nitrate field measurement analyzed using a Hach field kit.
[6]: Sample required dilution due to high concentrations of target analyte.
[7]: The holding time was not met.

DO = Dissolved oxygen
ORP = Oxidation-reduction potential
"<" = Indicates analyte not detected above MRL
"--" = Indicates analyte was not sampled or analyzed for
[D] Duplicate
mV = millivolts
MRL = Method reporting limit
$CaCO_3$ = Calcium carbonate
EPA = Environemental Protection Agency
mg/L = milligrams per liter
µg/L = micrograms per liter
ADEC = Alaska Department of Environmental Conservation

ARCADIS

Figures



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE: FAIRBANKS (D-2) SW, AK., 1992, FAIRBANKS NORTH STAR BOROUGH, SECTION: 24, TOWNSHIP: 1S, RANGE: 2W

0 2000' 4000'

APPROXIMATE GRAPHIC SCALE

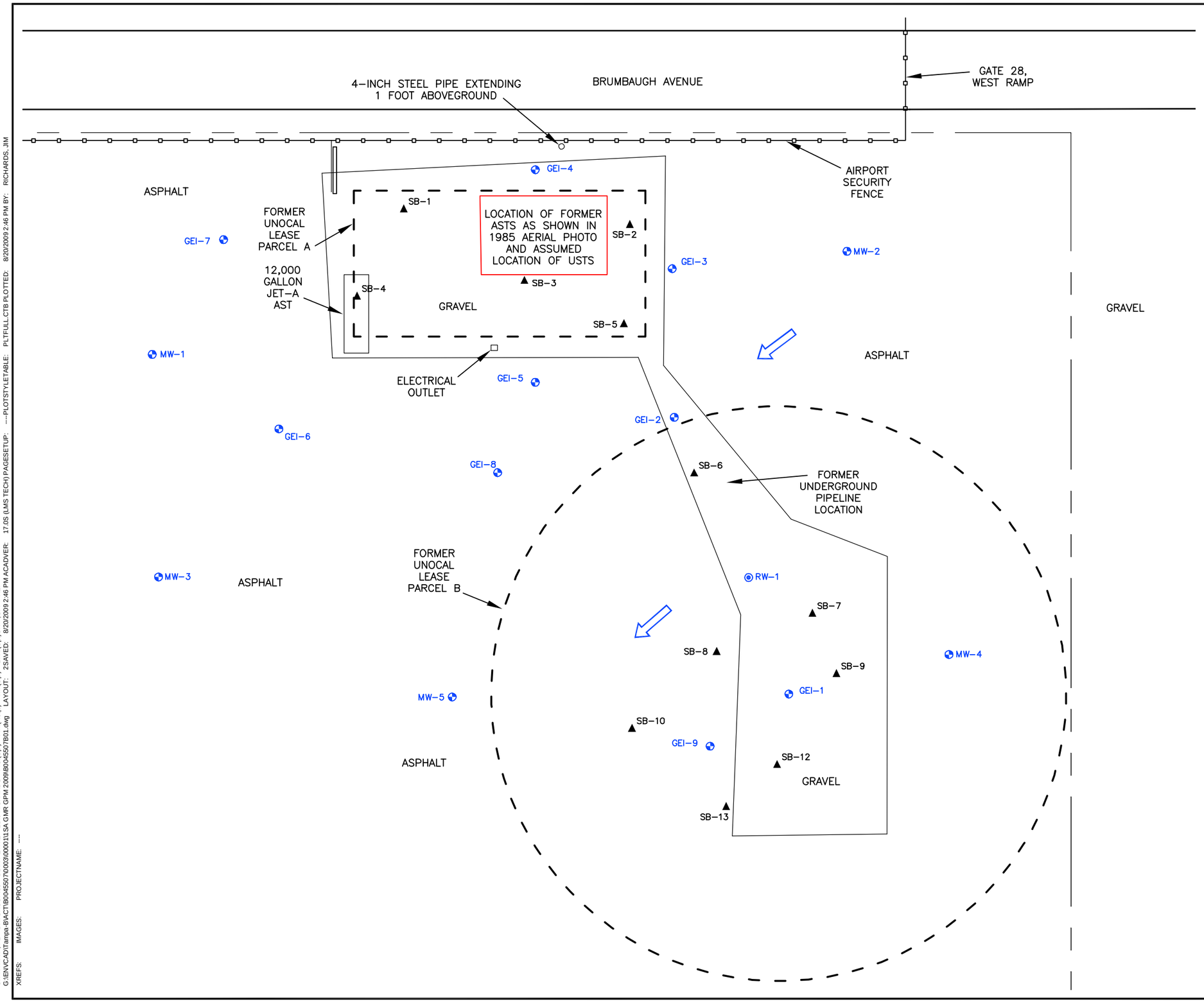
CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
FIRST SEMI-ANNUAL 2009 GROUNDWATER MONITORING REPORT AND GEOCHEMICAL MONITORING RESULTS

SITE LOCATION MAP

ARCADIS

FIGURE 1

CITY:TMAPA,FL DIV/GROUP:85 DB:JAR LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Tampa-BVAC\TB004550703000301\SA GMR GPM 2009\B004550703N01.dwg LAYOUT: 1 SAVED: 8/14/2009 1:22 PM ACADVER: 17.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 8/20/2009 2:46 PM BY: RICHARDS, JIM
XREFS: IMAGES: PROJECTNAME: ---
ALASKA.jpg
FAIRBANKS-SW.jpg



LEGEND

- MONITORING WELL
- RECOVERY WELL
- SOIL BORING
- APPARENT DIRECTION OF GROUNDWATER FLOW

Notes:
GEI well elevations are relative to an arbitrary temporary benchmark.

0 30' 60'
GRAPHIC SCALE

SOURCE: Base map provided by GEOENGINEERS. Map date 5/15/05, full scale. Base map updated with survey information by "McLane Consulting, Inc.", Date 8/31/08, Vertical Datum: NAVD88. Survey datum source: OPUS EPOCH 2003.

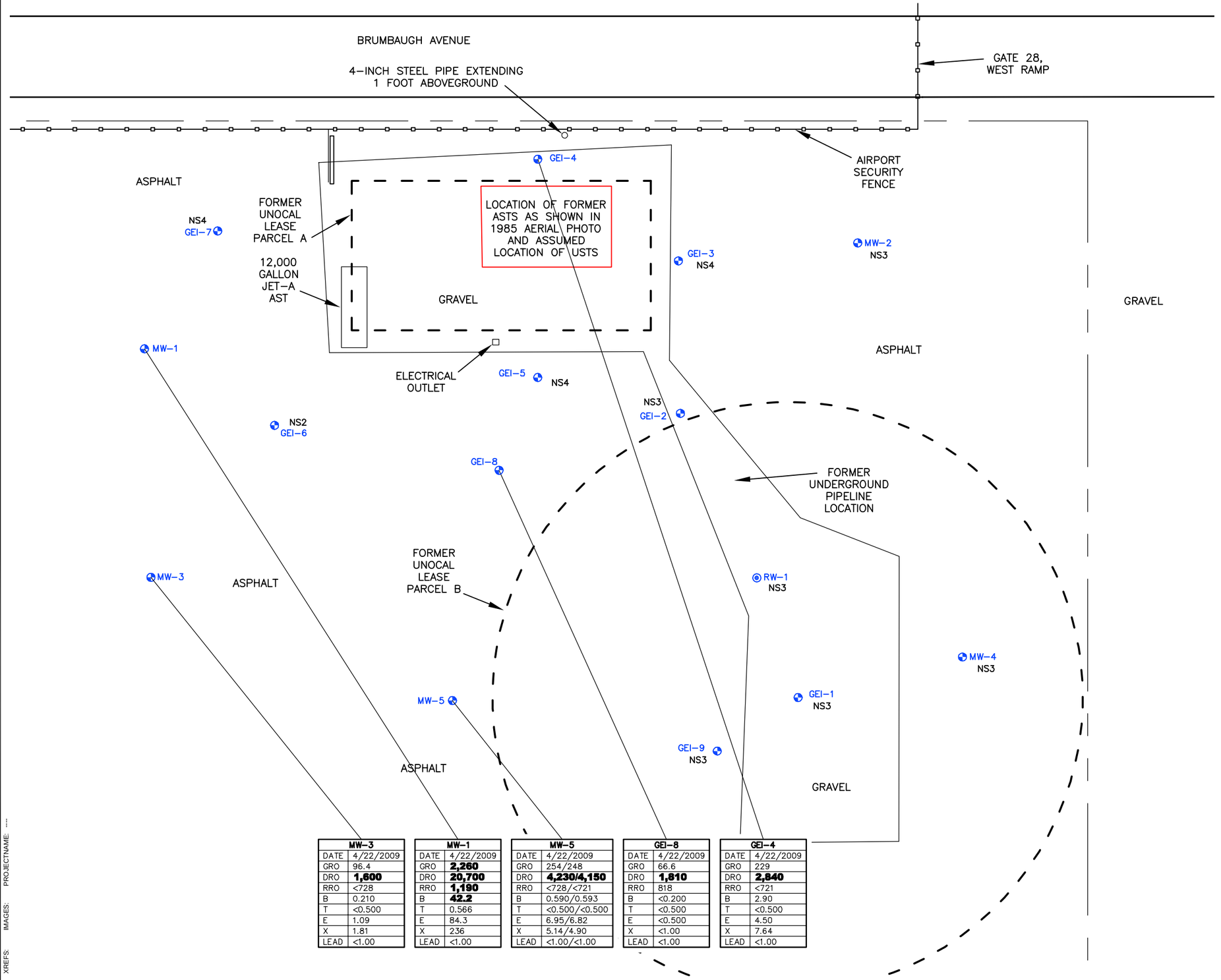
CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
FIRST SEMI-ANNUAL 2009 GROUNDWATER MONITORING REPORT AND GEOCHEMICAL MONITORING RESULTS

SITE MAP

ARCADIS

FIGURE 2

CITY:TMA-A,FL DIV/GROUP:85 DB:R PETRIE LD:J RICHARDS PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Tampa-BVACTIB\004550700030000\11\SA GMR GPM 2009\B004550700311SA GMR GPM 2009B01.dwg LAYOUT: 2SAVED: 8/20/2009 2:46 PM ACADVER: 17.0S (LMS TECH) PAGESETUP: ---PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 8/20/2009 2:46 PM BY: RICHARDS, JIM
XREFS: IMAGES: PROJECTNAME: ---



MW–3	
DATE	4/22/2009
GRO	96.4
DRO	**1,600**
RRO	<728
B	0.210
T	<0.500
E	1.09
X	1.81
LEAD	<1.00

MW–1	
DATE	4/22/2009
GRO	**2,260**
DRO	**20,700**
RRO	**1,190**
B	**42.2**
T	0.566
E	84.3
X	236
LEAD	<1.00

MW–5	
DATE	4/22/2009
GRO	254/248
DRO	**4,230/4,150**
RRO	<728/<721
B	0.590/0.593
T	<0.500/<0.500
E	6.95/6.82
X	5.14/4.90
LEAD	<1.00/<1.00

GEI–8	
DATE	4/22/2009
GRO	66.6
DRO	**1,810**
RRO	818
B	<0.200
T	<0.500
E	<0.500
X	<1.00
LEAD	<1.00

GEI–4	
DATE	4/22/2009
GRO	229
DRO	**2,840**
RRO	<721
B	2.90
T	<0.500
E	4.50
X	7.64
LEAD	<1.00

LEGEND

- MONITORING WELL
- RECOVERY WELL

SAMPLE LOCATION	
DATE	SAMPLE DATE
GRO	GASOLINE RANGE ORGANICS
DRO	DIESEL RANGE ORGANICS
RRO	RESIDUAL RANGE ORGANICS
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	XYLENES
LEAD	LEAD

RESULTS REPORTED IN MICROGRAMS PER LITER (µg/L)

NS3 = NOT SAMPLED, SEE NOTE BELOW

BOLD CELL = EXCEEDS GROUNDWATER CLEANUP LEVEL (GCL)

29.3/25.0 = DUPLICATE SAMPLE COLLECTED

LNAPL = LIQUID NON–AQUEOUD PHASE LIQUID

Notes:
1. GEI well elevations are relative to an arbitrary temporary benchmark.
2. GEI–6 well blocked at 11.5 feet below top of casing, well not sampled.
3. The well could not be sampled due to snow/ice or standing water over top of well.
4. Could not be sampled due to the presence of LNAPL

0 30’ 60’

GRAPHIC SCALE

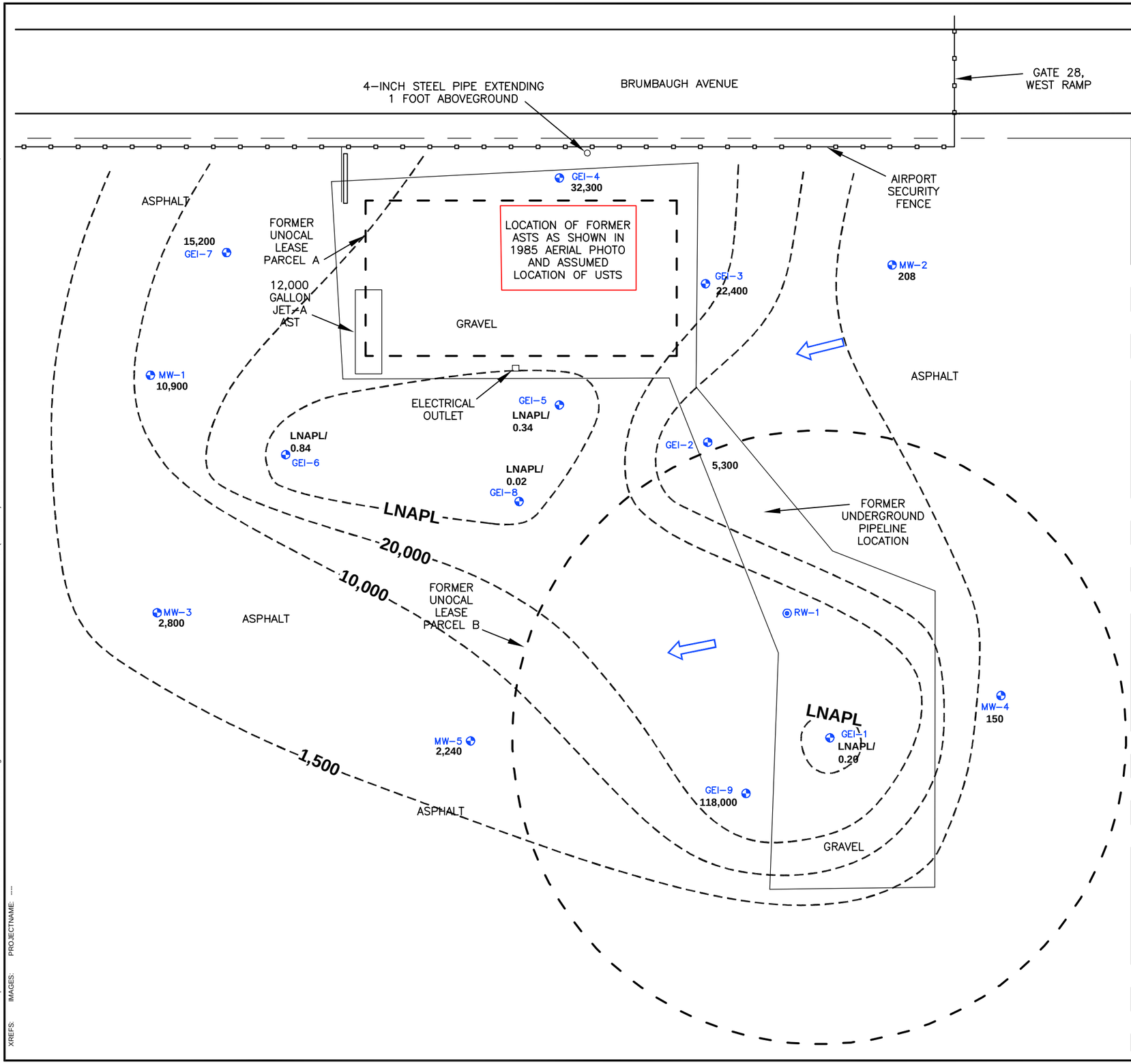
SOURCE: Base map provided by GEOENGINEERS. Map date 5/15/05, full scale. Base map updated with survey information by ”McLane Consulting, Inc.”, Date 8/31/08, Vertical Datum: NAVD88. Survey datum source: OPUS EPOCH 2003.

CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
2008 SITE ASSESSMENT AND SECOND SEMI-ANNUAL GROUNDWATER MONITORING REPORT

GROUNDWATER ANALYTICAL SUMMARY MAP - APRIL 22, 2009

ARCADIS

FIGURE 3



LEGEND

- MONITORING WELL
- RECOVERY WELL
- **27.4** DRO CONCENTRATION (µg/L)
- **<0.20** LABORATORY REPORTED AS NON DETECTION LIMIT
- INFERRED CONTOUR INTERVAL
- **LNAPL/0.2** THICKNESS OF LNAPL (FEET)
- APPARENT DIRECTION OF GROUNDWATER FLOW
- **LNAPL** LIGHT NON–AQUEOUS PHASE LIQUID (LNAPL)
- µg/L MICROGRAMS PER LITER
- 1,500 µg/L ADEC GROUNDWATER CLEANUP LEVEL FOR DRO

Notes:
GEI well elevations are relative to an arbitrary temporary benchmark.

0 30' 60'
GRAPHIC SCALE

SOURCE: Base map provided by GEOENGINEERS. Map date 5/15/05, full scale. Base map updated with survey information by "McLane Consulting, Inc.", Date 8/31/08, Vertical Datum: NAVD88. Survey datum source: OPUS EPOCH 2003.

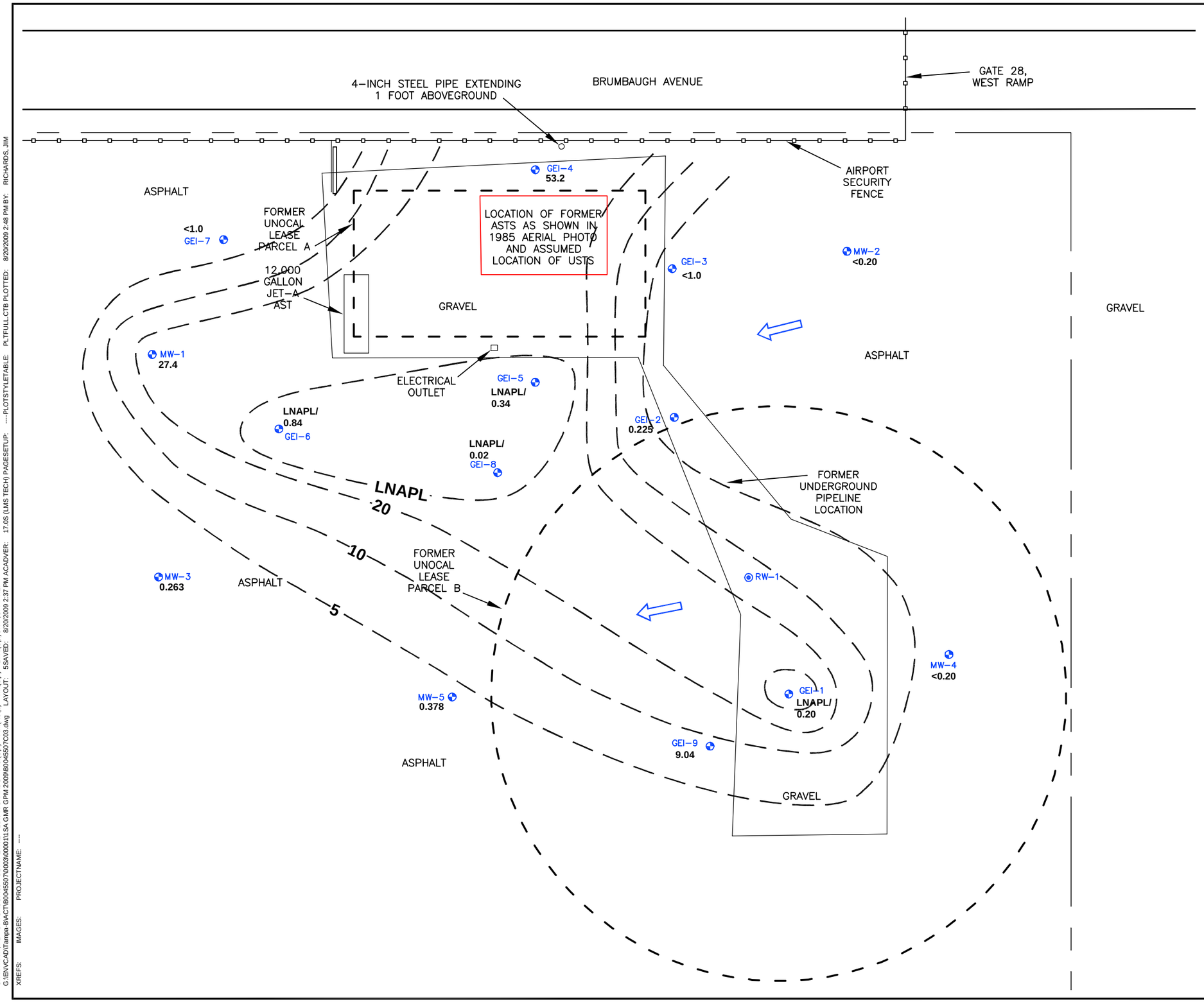
CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
FIRST SEMI-ANNUAL 2009 GROUNDWATER MONITORING REPORT AND GEOCHEMICAL MONITORING RESULTS

DRO CONCENTRATION IN GROUNDWATER SEPTEMBER 10, 2008

ARCADIS

FIGURE **4**

CITY:TMA-A,FL DIV/GROUP:85 DB:R PETRIE LD:J RICHARDS PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Tampa-BVACT\B0\045507\0003\000011\SA GMR GPM 2009\B004550702.dwg LAYOUT: 4SAVED: 8/20/2009 2:47 PM ACADVER: 17.0S (LMS TECH)
XREFS: IMAGES: PROJECTNAME: ---
PLTFULL.CTB PLOTTED: 8/20/2009 2:47 PM BY: RICHARDS, JIM
---PLOTSTYLETABLE:



LEGEND

- MONITORING WELL
- RECOVERY WELL
- **27.4** BENZENE CONCENTRATION (µg/L)
- **<0.20** LABORATORY REPORTED AS NON DETECTION LIMIT
- INFERRED CONTOUR INTERVAL
- **LNAPL/0.2** THICKNESS OF LNAPL (FEET)
- APPARENT DIRECTION OF GROUNDWATER FLOW
- **LNAPL** LIGHT NON–AQUEOUS PHASE LIQUID (LNAPL)
- µg/L MICROGRAMS PER LITER
- 5 µg/L ADEC GROUNDWATER CLEANUP LEVEL FOR BENZENE

Notes:
GEI well elevations are relative to an arbitrary temporary benchmark.

0 30' 60'
GRAPHIC SCALE

SOURCE: Base map provided by GEOENGINEERS. Map date 5/15/05, full scale. Base map updated with survey information by "McLane Consulting, Inc.", Date 8/31/08, Vertical Datum: NAVD88. Survey datum source: OPUS EPOCH 2003.

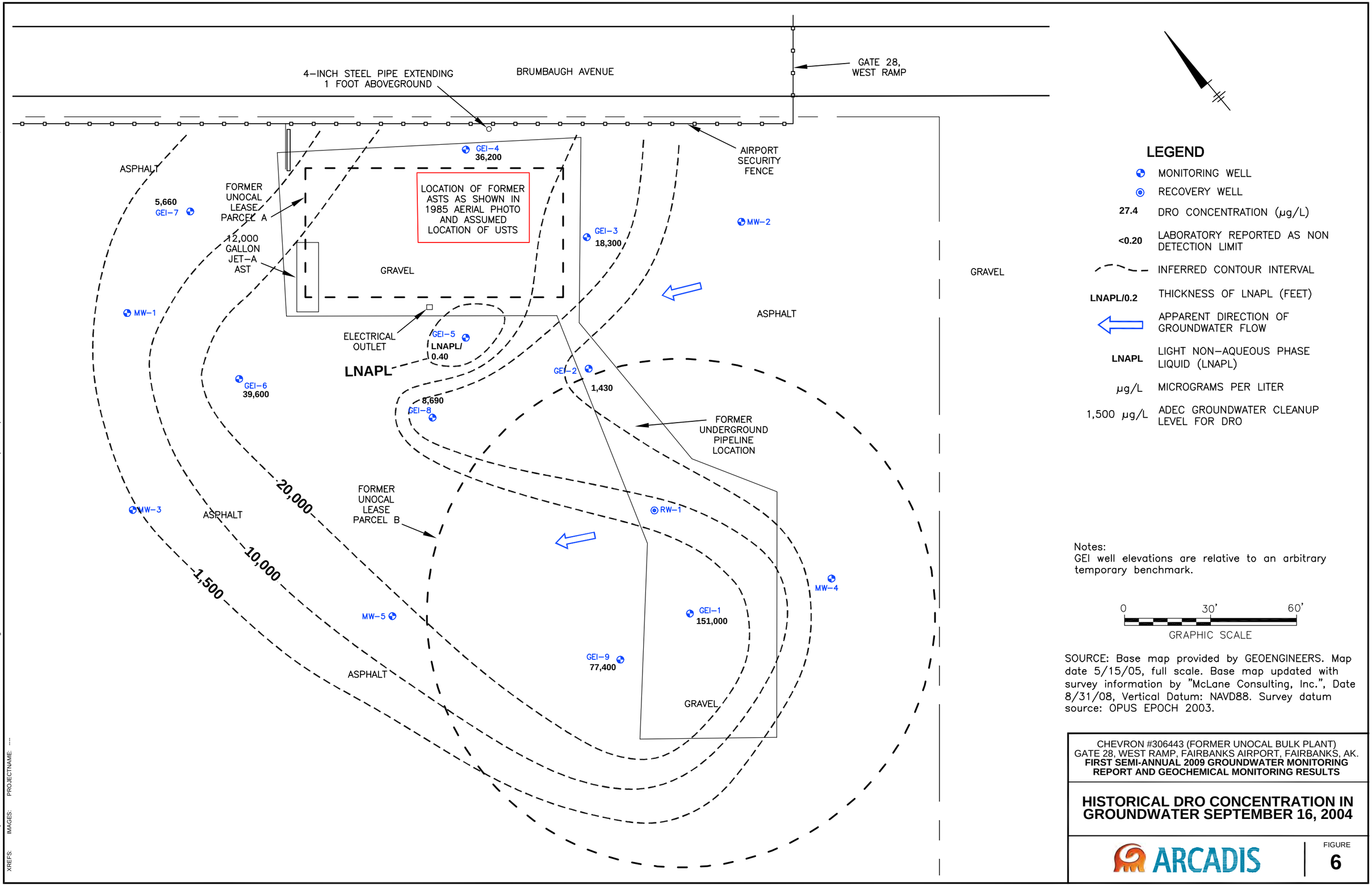
CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
FIRST SEMI-ANNUAL 2009 GROUNDWATER MONITORING REPORT AND GEOCHEMICAL MONITORING RESULTS

BENZENE CONCENTRATION IN GROUNDWATER SEPTEMBER 10, 2008

ARCADIS

FIGURE **5**

CITY:TMA-A,FL DIV/GROUP:85 DB:R PETRIE LD:J RICHARDS PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Tampa-BVACT\B0045507\0003\0001\1SA GMR GPM 2009\B0045507C03.dwg LAYOUT: 5SAVED: 8/20/2009 2:37 PM ACADVER: 17.0S (LMS TECH) PAGESETUP:
XREFS: IMAGES: PROJECTNAME: ---
PLTFULL.CTB PLOTTED: 8/20/2009 2:48 PM BY: RICHARDS, JIM
---PLOTSTYLETABLE:



LEGEND

- MONITORING WELL
- RECOVERY WELL
- 27.4 — DRO CONCENTRATION (µg/L)
- <0.20 — LABORATORY REPORTED AS NON DETECTION LIMIT
- INFERRED CONTOUR INTERVAL
- LNAPL/0.2 — THICKNESS OF LNAPL (FEET)
- APPARENT DIRECTION OF GROUNDWATER FLOW
- LNAPL — LIGHT NON–AQUEOUS PHASE LIQUID (LNAPL)
- µg/L — MICROGRAMS PER LITER
- 1,500 µg/L — ADEC GROUNDWATER CLEANUP LEVEL FOR DRO

Notes:
GEI well elevations are relative to an arbitrary temporary benchmark.

0 30’ 60’
GRAPHIC SCALE

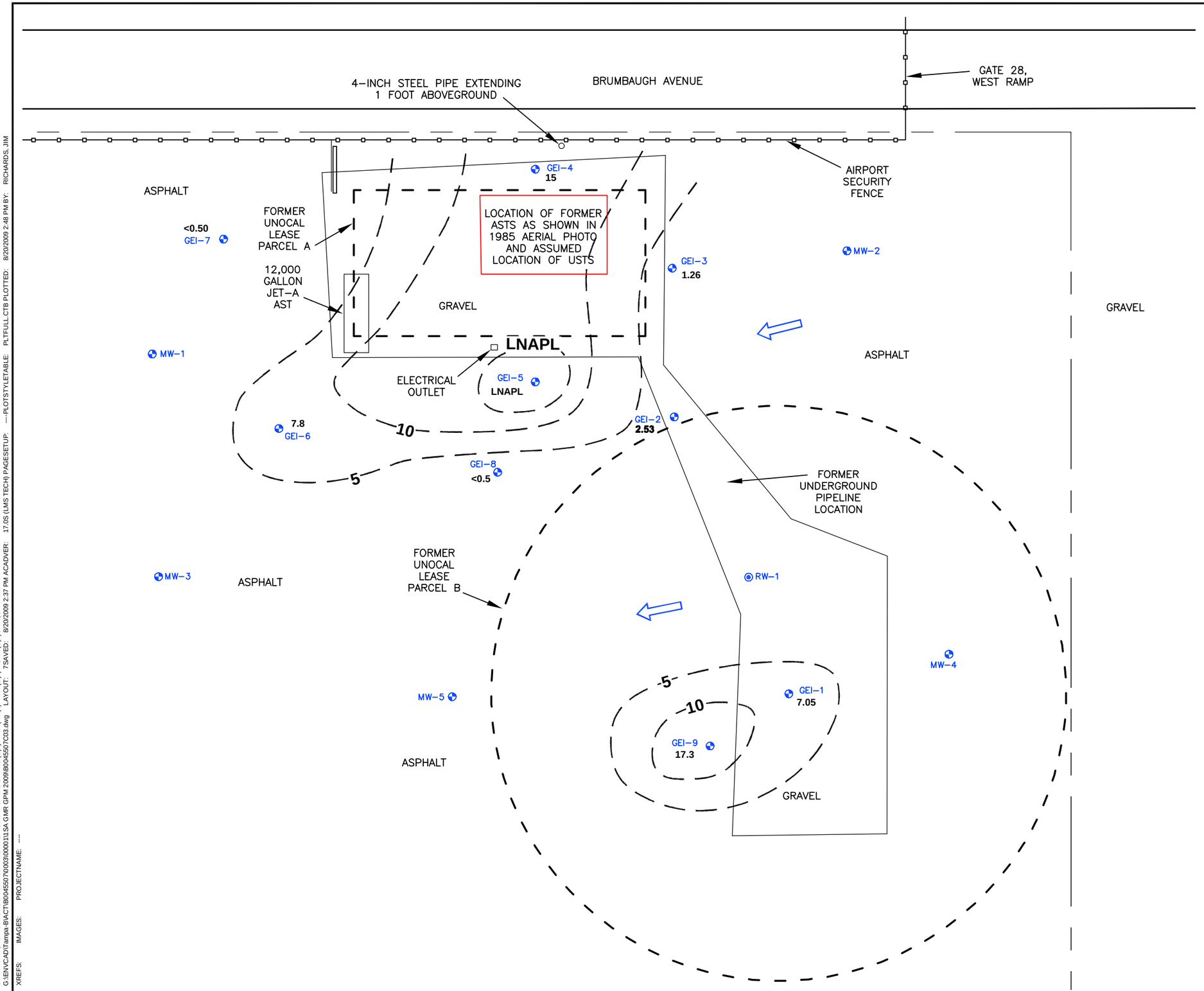
SOURCE: Base map provided by GEOENGINEERS. Map date 5/15/05, full scale. Base map updated with survey information by "McLane Consulting, Inc.", Date 8/31/08, Vertical Datum: NAVD88. Survey datum source: OPUS EPOCH 2003.

CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
FIRST SEMI-ANNUAL 2009 GROUNDWATER MONITORING REPORT AND GEOCHEMICAL MONITORING RESULTS

HISTORICAL DRO CONCENTRATION IN GROUNDWATER SEPTEMBER 16, 2004

ARCADIS

FIGURE 6



LEGEND

- MONITORING WELL
- RECOVERY WELL
- **27.4** BENZENE CONCENTRATION (µg/L)
- **<0.20** LABORATORY REPORTED AS NON DETECTION LIMIT
- INFERRED CONTOUR INTERVAL
- **LNAPL/0.2** THICKNESS OF LNAPL (FEET)
- APPARENT DIRECTION OF GROUNDWATER FLOW
- **LNAPL** LIGHT NON–AQUEOUS PHASE LIQUID (LNAPL)
- µg/L MICROGRAMS PER LITER
- 5 µg/L ADEC GROUNDWATER CLEANUP LEVEL FOR BENZENE

Notes:
GEI well elevations are relative to an arbitrary temporary benchmark.

0 30’ 60’
GRAPHIC SCALE

SOURCE: Base map provided by GEOENGINEERS. Map date 5/15/05, full scale. Base map updated with survey information by "McLane Consulting, Inc.", Date 8/31/08, Vertical Datum: NAVD88. Survey datum source: OPUS EPOCH 2003.

CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
FIRST SEMI-ANNUAL 2009 GROUNDWATER MONITORING REPORT AND GEOCHEMICAL MONITORING RESULTS

HISTORICAL BENZENE CONCENTRATION IN GROUNDWATER SEPTEMBER 16, 2004

ARCADIS

FIGURE
7

CITY:TMA-A, FL DIV/GROUP:85 DB:R PETRIE LD:J RICHARDS PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Tampa-BVACT\B0045507\0003\00011\SA GMR GPM 2009\B0045507C03.dwg LAYOUT: 7SAVED: 8/20/2009 2:37 PM ACADVER: 17.0S (LMS TECH) PAGESETUP:
XREFS: IMAGES: PROJECTNAME: ---
PLTFULL.CTB PLOTTED: 8/20/2009 2:48 PM BY: RICHARDS, JIM
---PLOTSTYLETABLE:

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Appendix A

Low-Flow Sampling Field Data Sheets

ARCADIS

Troll 9000 Low-Flow System
04/22/09 ISI Low-Flow Log

Project Information:

Operator Name	MS & DB
Company Name	ARCADIS
Project Name	FIA Unocal
Site Name	306443

Pump Information:

Pump Model/Type	geopump
Tubing Type	Teflon-lined polyethylene
Tubing Diameter	0.07 [cm]
Tubing Length	39.37 [m]
Pump placement from TOC	6.56 [m]

Well Information:

Well Id	GEI-4
Well diameter	0.79 [cm]
Well total depth	41.34 [m]
Depth to top of screen	0 [m]
Screen length	0 [cm]
Depth to Water	34.94 [m]

Pumping information:

Final pumping rate	250 [mL/min]
Flowcell volume	653.56 [mL]
Calculated Sample Rate	157 [sec]
Sample rate	190 [sec]
Stabilized drawdown	0 [cm]

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.1	+/-1 +/-3 %	+/-1 +/-10 %	+/-1 +/-10 %	+/-1 +/-10 %
Last 5 Readings	16:15:53	3.50	6.81	393.22	1.47	0.64	-66.97
	16:19:05	3.49	6.78	404.70	1.83	0.63	-70.70
	16:22:17	3.46	6.79	410.76	1.41	0.62	-74.52
	16:25:27	3.48	6.83	417.66	1.37	0.59	-77.60
	16:28:38	3.49	6.83	423.08	1.68	0.56	-80.61
Variance in last 3 readings	16:22:17	-0.03	0.02	6.06	-0.42	0.00	-3.82
	16:25:27	0.02	0.03	6.90	-0.04	-0.04	-3.09
	16:28:38	0.01	0.00	5.43	0.32	-0.02	-3.00

Notes: Sample Time 1635

ARCADIS

Troll 9000 Low-Flow System
04/22/09 ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	MS & DB	Pump Model/Type	geopump
Company Name	ARCADIS	Tubing Type	Teflon-lined polyethylene
Project Name	FIA Unocal	Tubing Diameter	0.07 [cm]
Site Name	306443	Tubing Length	55.77 [m]
		Pump placement from TOC	16.4 [m]

Well Information:		**Pumping information:**	
Well Id	GEI-8	Final pumping rate	250 [mL/min]
Well diameter	0.79 [cm]	Flowcell volume	675.88 [mL]
Well total depth	42.95 [m]	Calculated Sample Rate	163 [sec]
Depth to top of screen	0 [m]	Sample rate	190 [sec]
Screen length	0 [cm]	Stabilized drawdown	0 [cm]
Depth to Water	37.73 [m]		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.1	+/-1 +/-3 %	+/-1 +/-10 %	+/-1 +/-10 %	+/-1 +/-10 %
Last 5 Readings	14:30:18	4.09	6.93	500.00	4.89	0.94	-87.85
	14:33:29	4.50	6.94	487.06	3.32	0.85	-89.89
	14:36:41	4.61	6.93	502.51	2.07	0.76	-91.24
	14:39:52	4.57	6.95	504.66	1.54	0.70	-92.20
	14:43:03	4.55	6.94	513.64	0.98	0.60	-93.16
Variance in last 3 readings	14:36:41	0.11	-0.01	15.45	-1.25	-0.09	-1.35
	14:39:52	-0.04	0.02	2.15	-0.52	-0.06	-0.96
	14:43:03	-0.02	0.00	8.98	-0.56	-0.09	-0.96

Notes: Sample Time 1450

ARCADIS

Troll 9000 | Low-Flow System
04/22/09 | ISI Low-Flow Log

Project Information:

Operator Name	MS & DB
Company Name	ARCADIS
Project Name	FIA Unocal
Site Name	306443

Pump Information:

Pump Model/Type	geopump
Tubing Type	Teflon-lined polyethylene
Tubing Diameter	0.07 [cm]
Tubing Length	55.77 [m]
Pump placement from TOC	16.4 [m]

Well Information:

Well Id	MW-1
Well diameter	0.79 [cm]
Well total depth	62.17 [m]
Depth to top of screen	0 [m]
Screen length	0 [cm]
Depth to Water	36.94 [m]

Pumping information:

Final pumping rate	250 [mL/min]
Flowcell volume	675.88 [mL]
Calculated Sample Rate	163 [sec]
Sample rate	190 [sec]
Stabilized drawdown	0 [cm]

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.1	+/-1 +/-3 %	+/-1 +/-10 %	+/-1 +/-10 %	+/-1 +/-10 %
Last 5 Readings	11:25:47	3.21	6.83	443.29	11.22	0.64	-101.99
	11:28:59	3.20	6.84	449.18	7.08	0.54	-104.02
	11:32:11	3.18	6.85	454.67	4.56	0.49	-105.53
	11:35:22	3.18	6.85	457.61	4.24	0.37	-106.95
	11:38:32	3.15	6.86	459.69	3.06	0.32	-108.16
Variance in last 3 readings	11:32:11	-0.02	0.01	5.50	-2.52	-0.05	-1.51
	11:35:22	-0.01	0.01	2.93	-0.32	-0.12	-1.42
	11:38:32	-0.03	0.01	2.08	-1.18	-0.05	-1.21

Notes: Sample Time 1145

ARCADIS

Troll 9000 Low-Flow System
04/22/09 ISI Low-Flow Log

Project Information:

Operator Name	MS & DB
Company Name	ARCADIS
Project Name	FIA Unocal
Site Name	306443

Pump Information:

Pump Model/Type	geopump
Tubing Type	Teflon-lined polyethylene
Tubing Diameter	0.07 [cm]
Tubing Length	42.65 [m]
Pump placement from TOC	6.56 [m]

Well Information:

Well Id	MW-3
Well diameter	0.79 [cm]
Well total depth	59.61 [m]
Depth to top of screen	0 [m]
Screen length	0 [cm]
Depth to Water	38.35 [m]

Pumping information:

Final pumping rate	250 [mL/min]
Flowcell volume	658.02 [mL]
Calculated Sample Rate	158 [sec]
Sample rate	190 [sec]
Stabilized drawdown	0 [cm]

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.1	+/-1 +/-3 %	+/-1 +/-10 %	+/-1 +/-10 %	+/-1 +/-10 %
Last 5 Readings	10:24:50	2.72	6.97	353.18	13.64	0.99	-102.12
	10:28:02	2.61	6.97	354.05	13.27	0.83	-104.48
	10:31:14	2.63	6.99	351.39	7.99	0.89	-105.90
	10:34:25	2.61	6.98	350.24	8.37	1.24	-107.19
	10:37:35	2.60	6.99	350.80	4.28	1.07	-108.06
Variance in last 3 readings	10:31:14	0.02	0.02	-2.66	-5.28	0.05	-1.42
	10:34:25	-0.02	-0.01	-1.15	0.38	0.35	-1.29
	10:37:35	-0.01	0.01	0.56	-4.09	-0.17	-0.86

Notes: Sample Time 1040

ARCADIS

Troll 9000 Low-Flow System
04/22/09 ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	MS & DB	Pump Model/Type	geopump
Company Name	ARCADIS	Tubing Type	Teflon-lined polyethylene
Project Name	FIA Unocal	Tubing Diameter	0.07 [cm]
Site Name	306443	Tubing Length	42.65 [m]
		Pump placement from TOC	6.56 [m]

Well Information:		**Pumping information:**	
Well Id	MW-5	Final pumping rate	250 [mL/min]
Well diameter	0.79 [cm]	Flowcell volume	658.02 [mL]
Well total depth	63.81 [m]	Calculated Sample Rate	158 [sec]
Depth to top of screen	0 [m]	Sample rate	180 [sec]
Screen length	0 [cm]	Stabilized drawdown	0 [cm]
Depth to Water	37.76 [m]		

Low-Flow Sampling Stabilization Summary

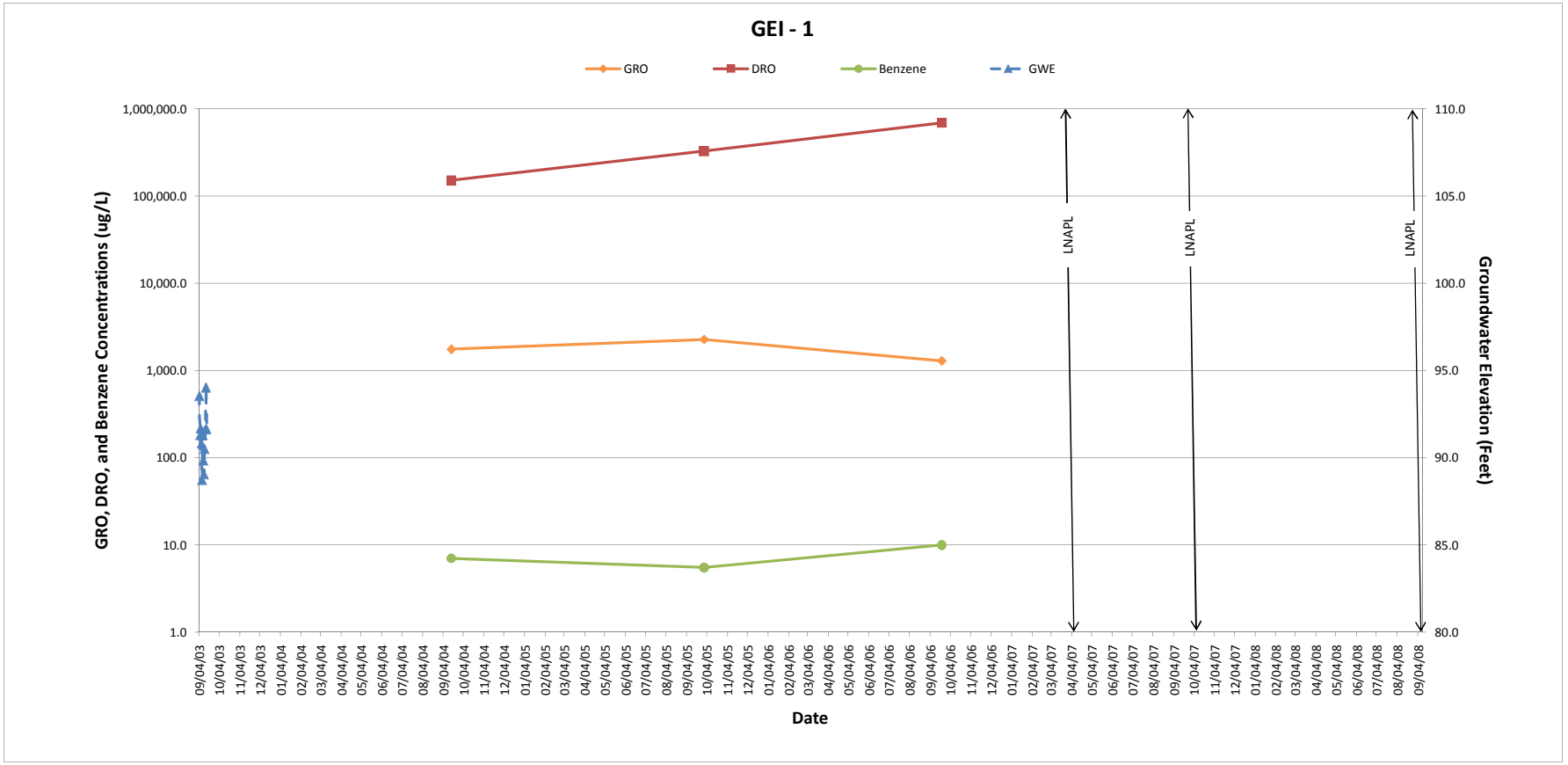
	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.1	+/-1 +/-3 %	+/-1 +/-10 %	+/-1 +/-10 %	+/-1 +/-10 %
Last 5 Readings	9:07:37	2.58	6.74	549.36	17.40	0.43	-72.72
	9:10:37	2.53	6.75	547.38	8.72	0.39	-76.85
	9:13:38	2.55	6.77	546.29	7.56	0.37	-80.41
	9:16:39	2.55	6.77	545.67	4.59	0.34	-82.82
	9:19:40	2.55	6.78	544.72	4.77	0.31	-84.71
Variance in last 3 readings	9:13:38	0.02	0.02	-1.10	-1.16	-0.01	-3.57
	9:16:39	0.00	0.01	-0.62	-2.97	-0.03	-2.41
	9:19:40	-0.01	0.01	-0.94	0.18	-0.03	-1.89

Notes: Sample Time 0920
BD-1 @ 0600

ARCADIS

Appendix B

Monitoring Well Historical Analytical Data and Groundwater Elevation Trends



LEGEND:

GRO = Gasoline Range Organics
DRO = Diesel Range Organics
GWE = Groundwater Elevation
ug/L = Micrograms per Liter
LNAPL = Light Non-Aqueous Phase Liquids

NOTES:

1.) If a concentration was not detected, one-half of the method reporting limit was used.
2.) If the presence of LNAPL was ≥0.02 feet, no groundwater sample was collected.

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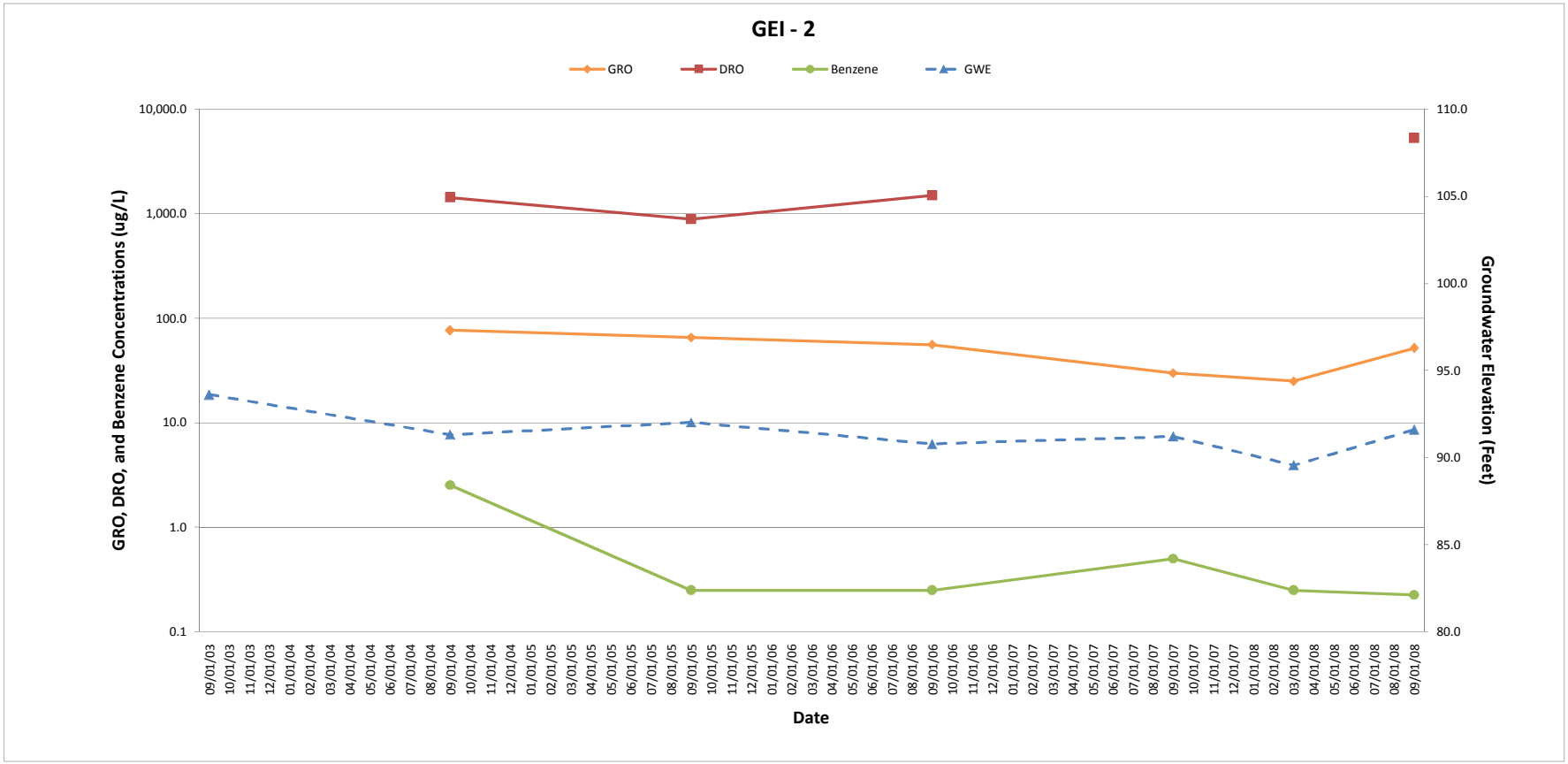
Gate 28, Bk 1, Lot 8, West Ramp, Fairbanks International Airport, Fairbanks, Alaska
First Semi-Annual 2009 Groundwater Monitoring Report and Geochemical Parameter Monitoring Results

Historical GRO, DRO, and Benzene Concentration Trend Data for GEI-1

ARCADIS
Infrastructure, environment, facilities

FIGURE
B-1



LEGEND:

GRO = Gasoline Range Organics
DRO = Diesel Range Organics
GWE = Groundwater Elevation
ug/L = Micrograms per Liter

NOTES:

1.) If a concentration was not detected, one-half of the method reporting limit was used.

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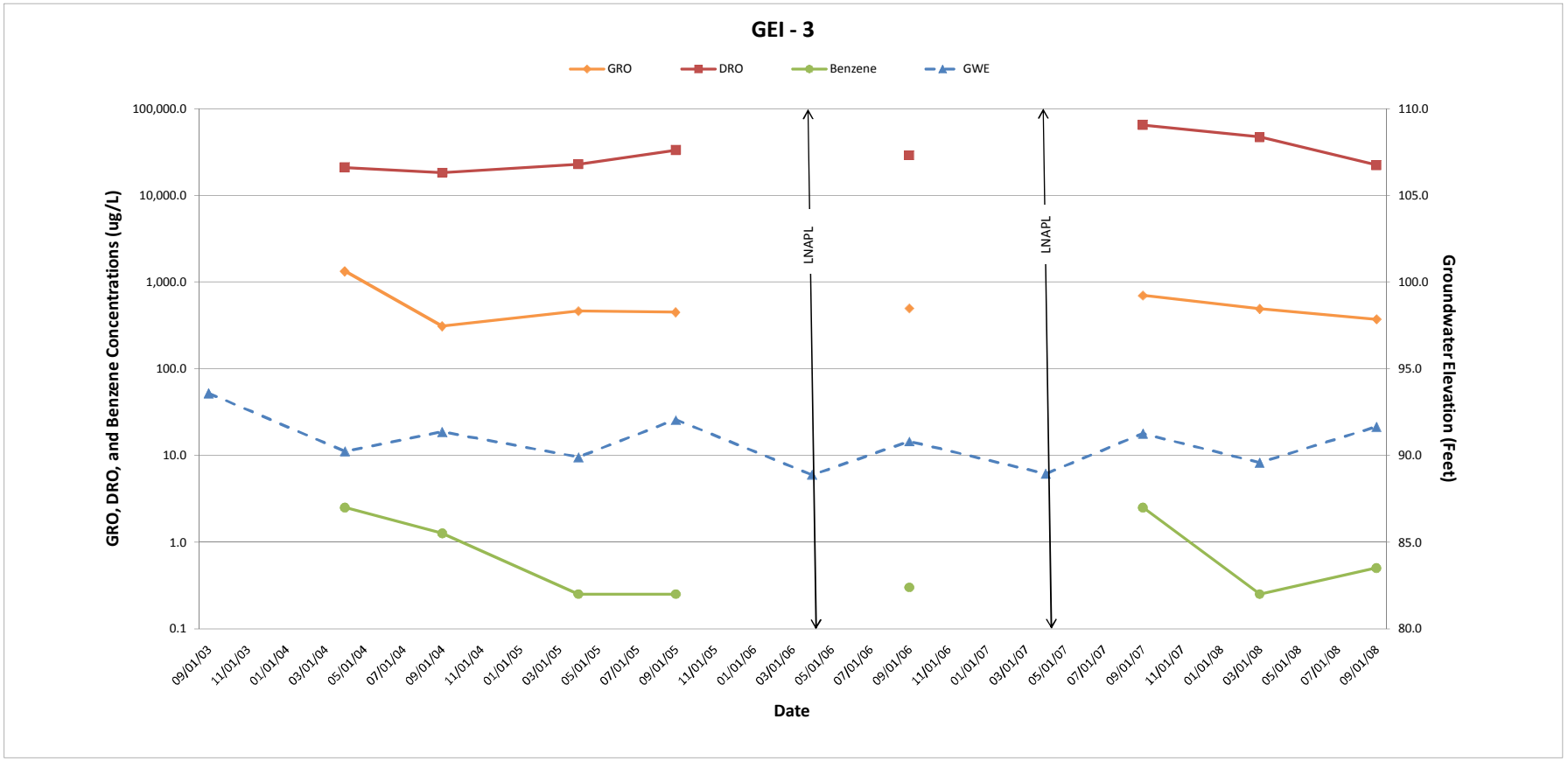
Historical GRO, DRO, and Benzene Concentration Trend Data for GEI-2

ARCADIS
Infrastructure, environment, facilities

FIGURE
B-2



LEGEND:

GRO = Gasoline Range Organics
DRO = Diesel Range Organics
GWE = Groundwater Elevation
ug/L = Micrograms per Liter
LNAPL = Light Non-Aqueous Phase Liquids

NOTES:

1.) If a concentration was not detected, one-half of the method reporting limit was used.
2.) If the presence of LNAPL was ≥0.02 feet, no groundwater sample was collected.

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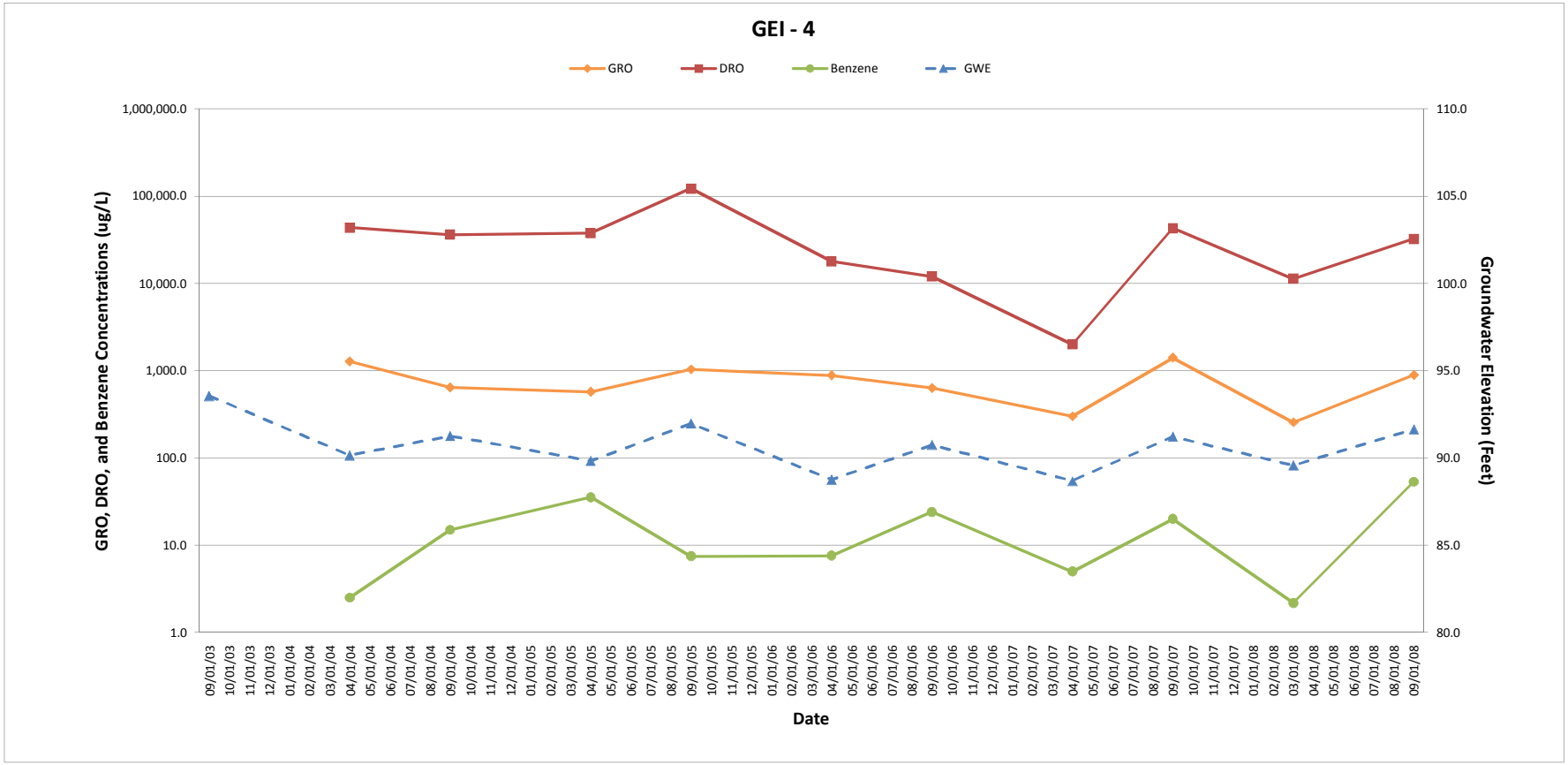
First Semi-Annual 2009 Groundwater Monitoring Report and Geochemical Parameter Monitoring Results

Historical GRO, DRO, and Benzene Concentration Trend Data for GEI-3

ARCADIS
Infrastructure, environment, facilities

FIGURE
B-3



LEGEND:

GRO = Gasoline Range Organics
DRO = Diesel Range Organics
GWE = Groundwater Elevation
ug/L = Micrograms per Liter

NOTES:

1.) If a concentration was not detected, one-half of the method reporting limit was used.

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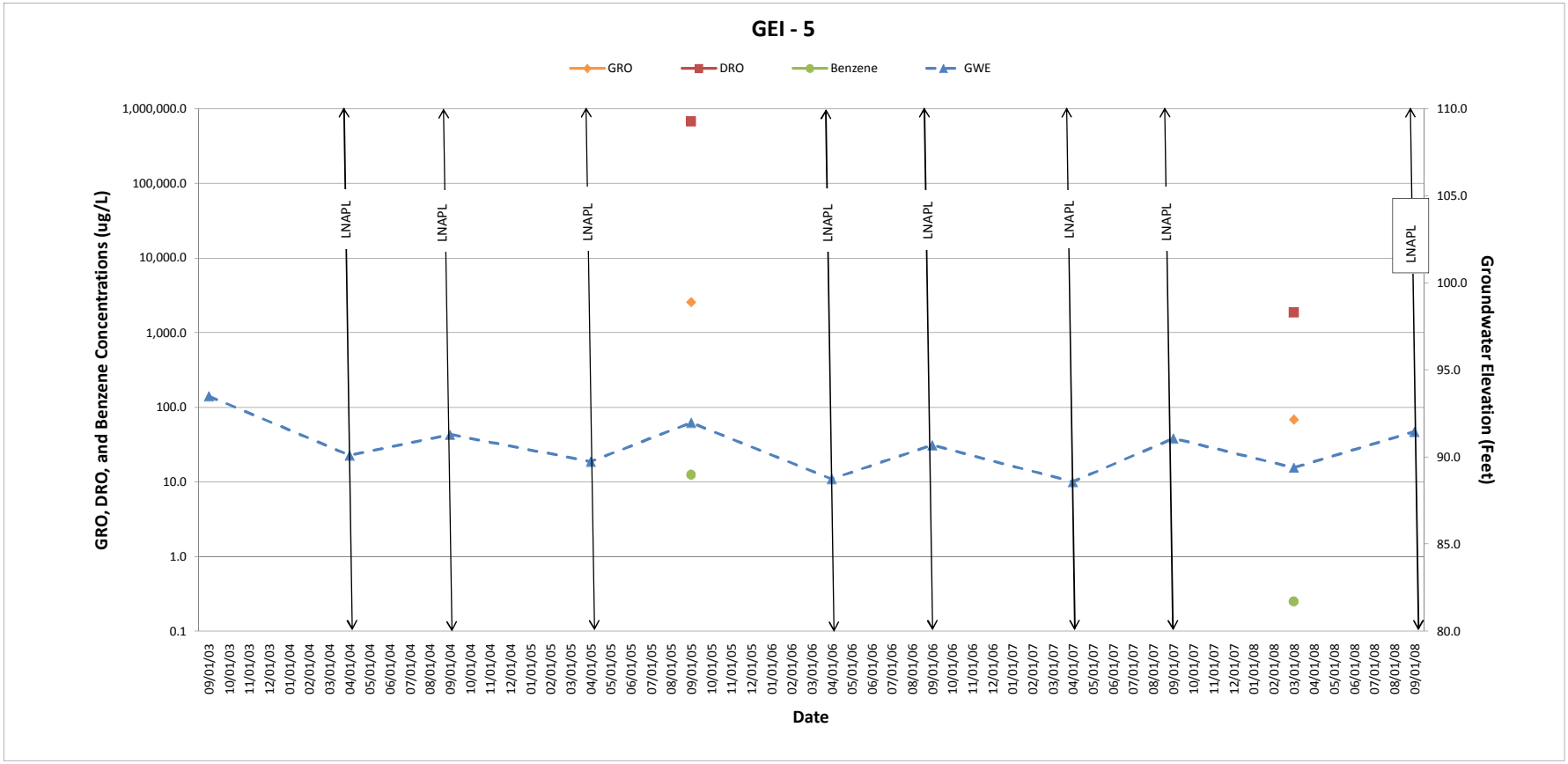
First Semi-Annual 2009 Groundwater Monitoring Report and Geochemical Parameter Monitoring Results

Historical GRO, DRO, and Benzene Concentration Trend Data for GEI-4

ARCADIS
Infrastructure, environment, facilities

FIGURE
B-4



LEGEND:

GRO = Gasoline Range Organics
DRO = Diesel Range Organics
GWE = Groundwater Elevation
ug/L = Micrograms per Liter
LNAPL = Light Non-Aqueous Phase Liquids

NOTES:

1.) If a concentration was not detected, one-half of the method reporting limit was used.
2.) If the presence of LNAPL was ≥0.02 feet, no groundwater sample was collected.

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Historical GRO, DRO, and Benzene Concentration Trend Data for GEI-5

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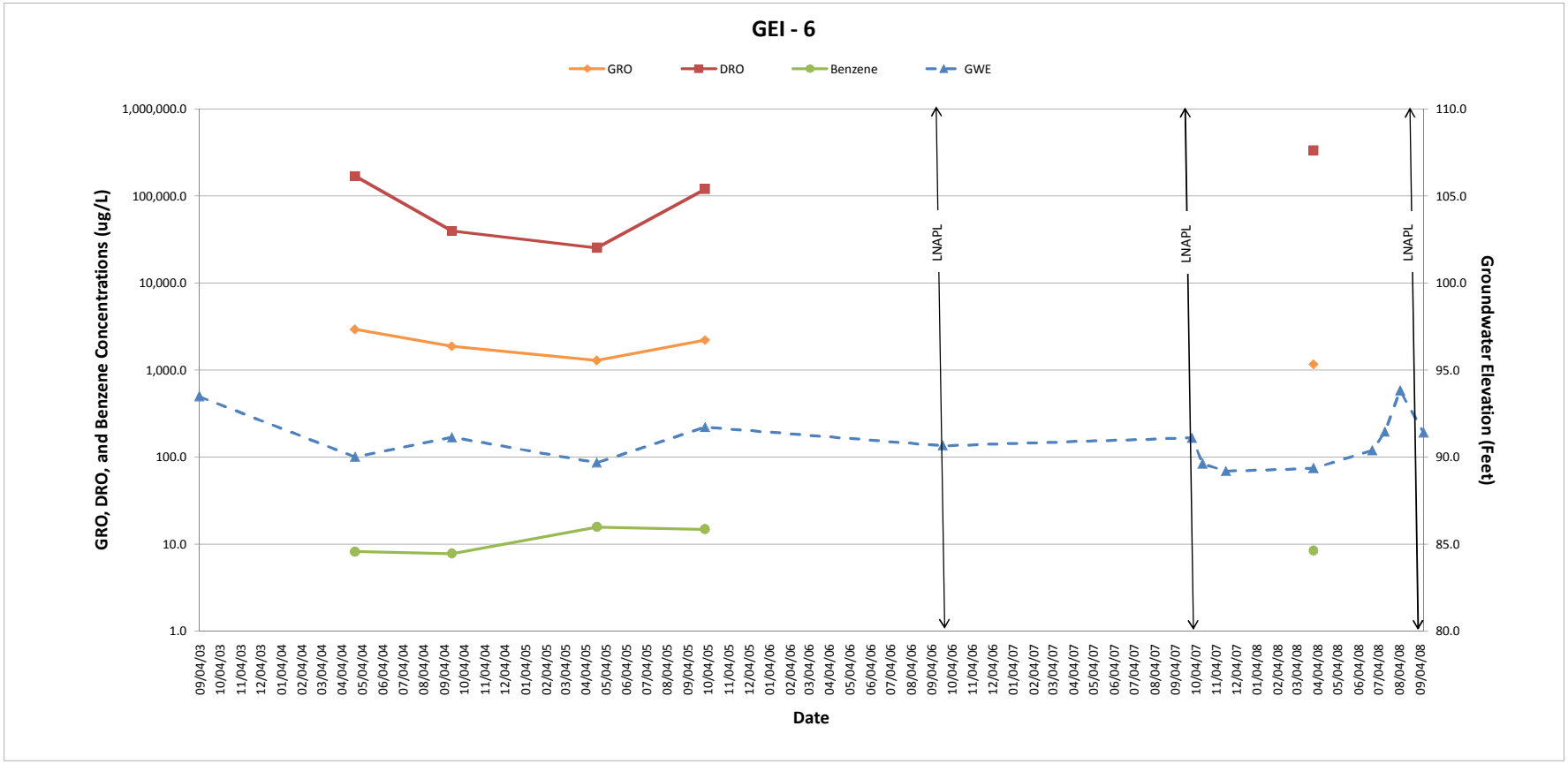
Infrastructure, environment, facilities

FIGURE
B-5



LEGEND:

GRO = Gasoline Range Organics
DRO = Diesel Range Organics
GWE = Groundwater Elevation
ug/L = Micrograms per Liter
LNAPL = Light Non-Aqueous Phase Liquids

NOTES:

1.) If a concentration was not detected, one-half of the method reporting limit was used.
2.) If the presence of LNAPL was ≥0.02 feet, no groundwater sample was collected.

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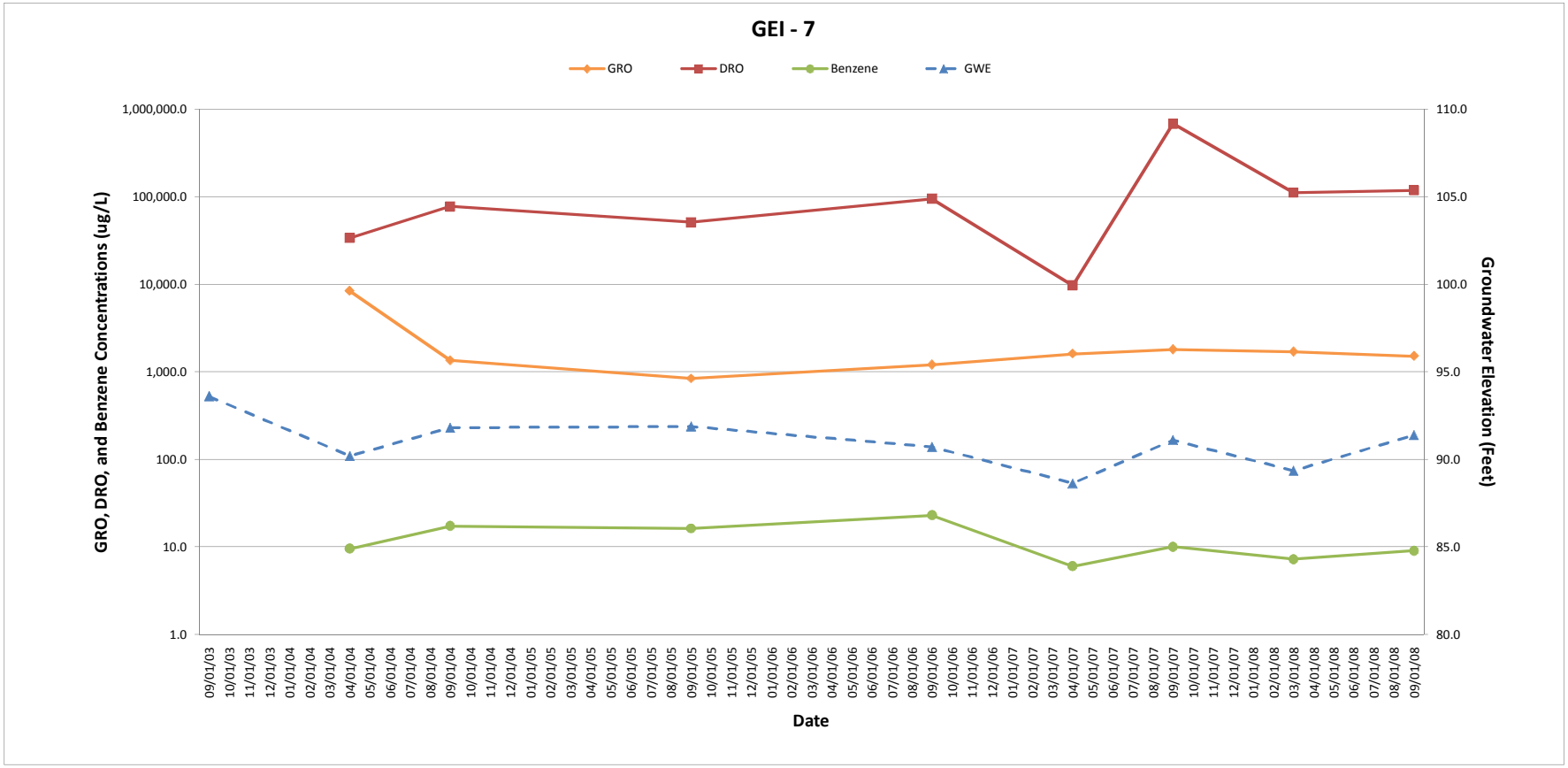
Historical GRO, DRO, and Benzene Concentration Trend Data for GEI-6

ARCADIS
Infrastructure, environment, facilities

FIGURE
B-6



LEGEND:

GRO = Gasoline Range Organics
DRO = Diesel Range Organics
GWE = Groundwater Elevation
ug/L = Micrograms per Liter

NOTES:

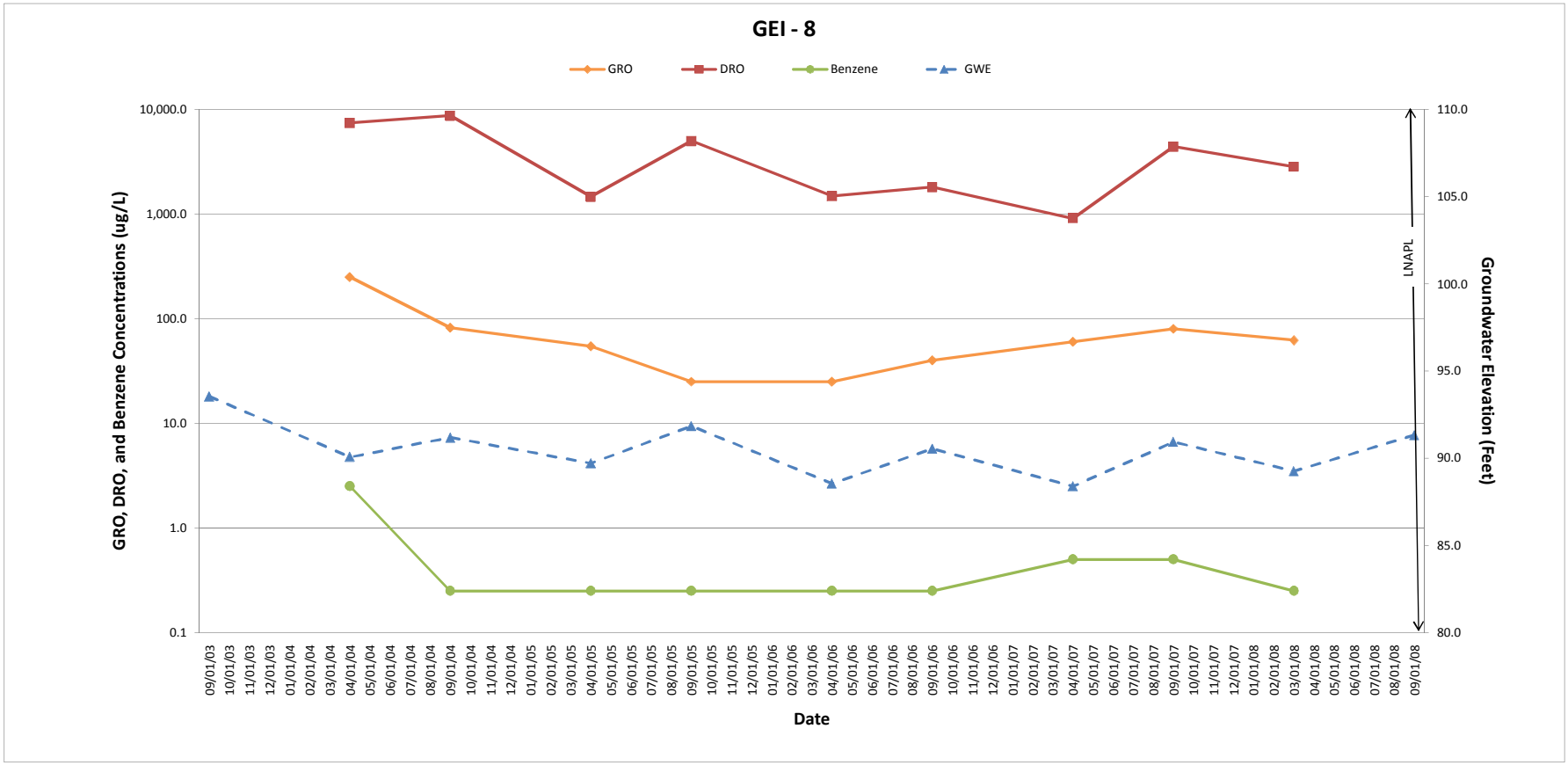
1.) If a concentration was not detected, one-half of the method reporting limit was used.

Former Chevron Facility #306443
Gate 28, Blk 1, Lot 8, West Ramp, Fairbanks International Airport, Fairbanks, Alaska
First Semi-Annual 2009 Groundwater Monitoring Report and Geochemical Parameter Monitoring Results

Historical GRO, DRO, and Benzene Concentration Trend Data for GEI-7

ARCADIS
Infrastructure, environment, facilities

FIGURE
B-7



LEGEND:

GRO = Gasoline Range Organics
DRO = Diesel Range Organics
GWE = Groundwater Elevation
ug/L = Micrograms per Liter
LNAPL = Light Non-Aqueous Phase Liquids

NOTES:

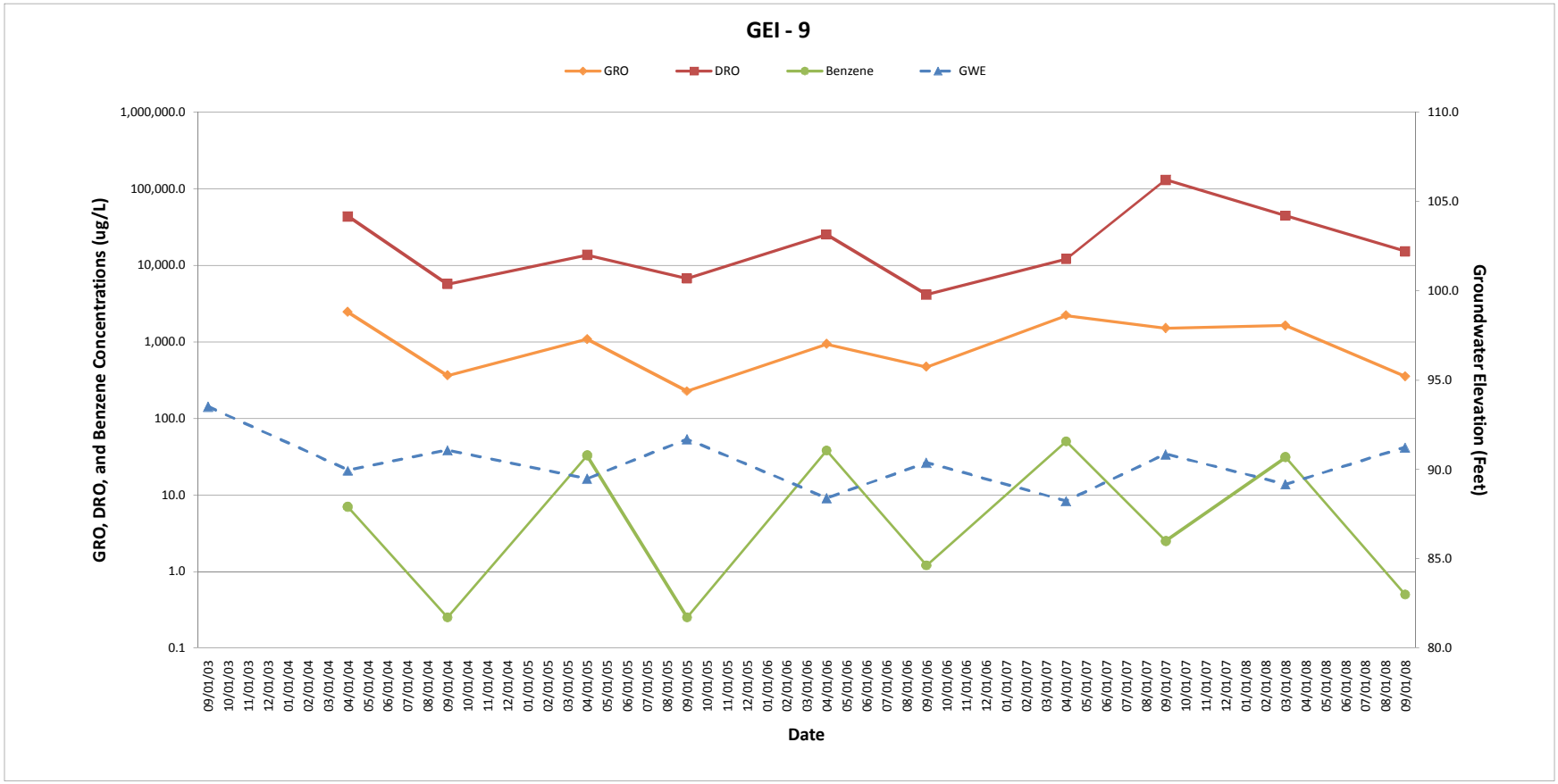
1.) If a concentration was not detected, one-half of the method reporting limit was used.
2.) If the presence of LNAPL was ≥0.02 feet, no groundwater sample was collected.

Former Chevron Facility #306443
Gate 28, Blk 1, Lot 8, West Ramp, Fairbanks International Airport, Fairbanks, Alaska
First Semi-Annual 2009 Groundwater Monitoring Report and Geochemical Parameter Monitoring Results

Historical GRO, DRO, and Benzene Concentration Trend Data for GEI-8

ARCADIS
Infrastructure, environment, facilities

FIGURE
B-8



LEGEND:

GRO = Gasoline Range Organics
DRO = Diesel Range Organics
GWE = Groundwater Elevation
ug/L = Micrograms per Liter

NOTES:

1.) If a concentration was not detected, one-half of the method reporting limit was used.

Former Chevron Facility #306443
Gate 28, Blk 1, Lot 8, West Ramp, Fairbanks International Airport, Fairbanks, Alaska
First Semi-Annual 2009 Groundwater Monitoring Report and Geochemical Parameter Monitoring Results

Historical GRO, DRO, and Benzene Concentration Trend Data GEI-9

ARCADIS
Infrastructure, environment, facilities

FIGURE
B-9

ARCADIS

Appendix C

Laboratory Analytical Reports

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400
BOTHELL, WA 98011-8244
PH: (425) 420.9200 FAX: (425) 420.9210
CS Approval Number: UST-067

May 12, 2009

Greg Montgomery
Arcadis, Geraghty, & Miller - Seattle
2300 Eastlake Avenue East, Suite 200
Seattle, WA/USA 98102

RE: 306443 (FIA)

Enclosed are the results of analyses for samples received by the laboratory on 04/24/09 10:00. The following list is a summary of the Work Orders contained in this report, generated on 05/12/09 11:39.

If you have any questions concerning this report, please feel free to contact me.

Work Order	Project	ProjectNumber
BSD0272	306443 (FIA)	Chevron Alaska Sampling

TestAmerica Seattle

Curtis D. Armstrong, Project Manager

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SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400
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PH: (425) 420.9200 FAX: (425) 420.9210
CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	BSD0272-01	Water	04/22/09 11:45	04/24/09 10:00
MW-3	BSD0272-02	Water	04/22/09 10:40	04/24/09 10:00
MW-5	BSD0272-03	Water	04/22/09 09:20	04/24/09 10:00
GEI-4	BSD0272-04	Water	04/22/09 16:35	04/24/09 10:00
GEI-8	BSD0272-05	Water	04/22/09 14:50	04/24/09 10:00
BD-1	BSD0272-06	Water	04/22/09 06:00	04/24/09 10:00
Trip Blank	BSD0272-07	Water	04/22/09 17:00	04/24/09 10:00

TestAmerica Seattle

Curtis D. Armstrong, Project Manager

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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/EPA 8021B

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-01 (MW-1)		**Water**				**Sampled: 04/22/09 11:45**					
Gasoline Range Hydrocarbons	AK 101	**2260**	-----	50.0	ug/l	1x	9D24029	04/24/09 16:34	04/25/09 10:32	VM	**Q8**
Benzene	"	**42.2**	-----	0.200	"	"	"	"	"	VM	
Toluene	"	**0.566**	-----	0.500	"	"	"	"	"	VM	
Ethylbenzene	"	**84.3**	-----	0.500	"	"	"	"	"	VM	
Xylenes (total)	"	**236**	-----	1.00	"	"	"	"	"	VM	
Surrogate(s): 4-BFB (FID)			*223%*		*50 - 150 %*	"			"		***ZX***
4-BFB (PID)			*152%*		*80 - 130 %*	"			"		***ZX***
BSD0272-02 (MW-3)		**Water**				**Sampled: 04/22/09 10:40**					
Gasoline Range Hydrocarbons	AK 101	**96.4**	-----	50.0	ug/l	1x	9D24029	04/24/09 16:34	04/24/09 21:59	VM	**Q8**
Benzene	"	**0.210**	-----	0.200	"	"	"	"	"	VM	
Toluene	"	ND	-----	0.500	"	"	"	"	"	VM	
Ethylbenzene	"	**1.09**	-----	0.500	"	"	"	"	"	VM	
Xylenes (total)	"	**1.81**	-----	1.00	"	"	"	"	"	VM	
Surrogate(s): 4-BFB (FID)			*101%*		*50 - 150 %*	"			"		
4-BFB (PID)			*103%*		*80 - 130 %*	"			"		
BSD0272-03 (MW-5)		**Water**				**Sampled: 04/22/09 09:20**					
Gasoline Range Hydrocarbons	AK 101	**254**	-----	50.0	ug/l	1x	9D24029	04/24/09 16:34	04/24/09 23:05	VM	**Q8**
Benzene	"	**0.590**	-----	0.200	"	"	"	"	"	VM	
Toluene	"	ND	-----	0.500	"	"	"	"	"	VM	
Ethylbenzene	"	**6.95**	-----	0.500	"	"	"	"	"	VM	
Xylenes (total)	"	**5.14**	-----	1.00	"	"	"	"	"	VM	
Surrogate(s): 4-BFB (FID)			*121%*		*50 - 150 %*	"			"		
4-BFB (PID)			*110%*		*80 - 130 %*	"			"		
BSD0272-04 (GEI-4)		**Water**				**Sampled: 04/22/09 16:35**					
Gasoline Range Hydrocarbons	AK 101	**229**	-----	50.0	ug/l	1x	9D24029	04/24/09 16:34	04/25/09 10:00	VM	**Q8**
Benzene	"	**2.90**	-----	0.200	"	"	"	"	"	VM	
Toluene	"	ND	-----	0.500	"	"	"	"	"	VM	
Ethylbenzene	"	**4.50**	-----	0.500	"	"	"	"	"	VM	
Xylenes (total)	"	**7.64**	-----	1.00	"	"	"	"	"	VM	
Surrogate(s): 4-BFB (FID)			*121%*		*50 - 150 %*	"			"		
4-BFB (PID)			*117%*		*80 - 130 %*	"			"		

TestAmerica Seattle

Curtis D. Armstrong, Project Manager

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SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400
BOTHELL, WA 98011-8244
PH: (425) 420.9200 FAX: (425) 420.9210
CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/EPA 8021B

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-05 (GEI-8)			**Water**				**Sampled: 04/22/09 14:50**				
Gasoline Range Hydrocarbons	AK 101	**66.6**	-----	50.0	ug/l	1x	9D24029	04/24/09 16:34	04/25/09 06:43	VM	**Q8**
Benzene	"	ND	-----	0.200	"	"	"	"	"	VM	
Toluene	"	ND	-----	0.500	"	"	"	"	"	VM	
Ethylbenzene	"	ND	-----	0.500	"	"	"	"	"	VM	
Xylenes (total)	"	ND	-----	1.00	"	"	"	"	"	VM	
Surrogate(s): 4-BFB (FID)			*91.5%*		*50 - 150 %*	"				"	
4-BFB (PID)			*101%*		*80 - 130 %*	"				"	
BSD0272-06 (BD-1)			**Water**				**Sampled: 04/22/09 06:00**				
Gasoline Range Hydrocarbons	AK 101	**248**	-----	50.0	ug/l	1x	9D24029	04/24/09 16:34	04/25/09 06:11	VM	**Q8**
Benzene	"	**0.593**	-----	0.200	"	"	"	"	"	VM	
Toluene	"	ND	-----	0.500	"	"	"	"	"	VM	
Ethylbenzene	"	**6.82**	-----	0.500	"	"	"	"	"	VM	
Xylenes (total)	"	**4.90**	-----	1.00	"	"	"	"	"	VM	
Surrogate(s): 4-BFB (FID)			*119%*		*50 - 150 %*	"				"	
4-BFB (PID)			*109%*		*80 - 130 %*	"				"	
BSD0272-07 (Trip Blank)			**Water**				**Sampled: 04/22/09 17:00**				
Gasoline Range Hydrocarbons	AK 101	ND	-----	50.0	ug/l	1x	9D24029	04/24/09 16:34	04/25/09 05:38	VM	
Benzene	"	ND	-----	0.200	"	"	"	"	"	VM	
Toluene	"	ND	-----	0.500	"	"	"	"	"	VM	
Ethylbenzene	"	ND	-----	0.500	"	"	"	"	"	VM	
Xylenes (total)	"	ND	-----	1.00	"	"	"	"	"	VM	
Surrogate(s): 4-BFB (FID)			*86.7%*		*50 - 150 %*	"				"	
4-BFB (PID)			*99.5%*		*80 - 130 %*	"				"	

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Curtis D. Armstrong, Project Manager

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SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400
BOTHELL, WA 98011-8244
PH: (425) 420.9200 FAX: (425) 420.9210
CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Diesel Hydrocarbons (C10-C25) and Heavy Oil (C25-C36) by AK102 and AK103

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-01 (MW-1)			**Water**				**Sampled: 04/22/09 11:45**				
Residual Range Organics	AK102_103	**1.19**	-----	0.728	mg/l	1x	9D23045	04/24/09 18:34	04/28/09 02:51	WAS	**Q7**
Surrogate(s): 2-FBP			*140%*		*50 - 150 %*	"			"		
Octacosane			*109%*		*50 - 150 %*	"			"		
BSD0272-01RE1 (MW-1)			**Water**				**Sampled: 04/22/09 11:45**				
Diesel Range Hydrocarbons	AK102_103	**20.7**	-----	0.490	mg/l	5x	9D28028	04/28/09 13:16	04/29/09 22:01	CMS	**Q12**
Surrogate(s): 2-FBP			*110%*		*50 - 150 %*	"			"		
Octacosane			*95.4%*		*50 - 150 %*	"			"		
BSD0272-02 (MW-3)			**Water**				**Sampled: 04/22/09 10:40**				
Residual Range Organics	AK102_103	ND	-----	0.728	mg/l	1x	9D23045	04/24/09 18:34	04/28/09 03:13	WAS	
Surrogate(s): 2-FBP			*79.3%*		*50 - 150 %*	"			"		
Octacosane			*96.3%*		*50 - 150 %*	"			"		
BSD0272-02RE1 (MW-3)			**Water**				**Sampled: 04/22/09 10:40**				
Diesel Range Hydrocarbons	AK102_103	**1.60**	-----	0.0971	mg/l	1x	9D28028	04/28/09 13:16	04/29/09 22:22	CMS	**Q12**
Surrogate(s): 2-FBP			*88.1%*		*50 - 150 %*	"			"		
Octacosane			*101%*		*50 - 150 %*	"			"		
BSD0272-03 (MW-5)			**Water**				**Sampled: 04/22/09 09:20**				
Residual Range Organics	AK102_103	ND	-----	0.728	mg/l	1x	9D23045	04/24/09 18:34	04/28/09 05:01	WAS	
Surrogate(s): 2-FBP			*85.5%*		*50 - 150 %*	"			"		
Octacosane			*98.5%*		*50 - 150 %*	"			"		
BSD0272-03RE1 (MW-5)			**Water**				**Sampled: 04/22/09 09:20**				
Diesel Range Hydrocarbons	AK102_103	**4.23**	-----	0.0971	mg/l	1x	9D28028	04/28/09 13:16	04/29/09 23:50	CMS	**Q12**
Surrogate(s): 2-FBP			*99.8%*		*50 - 150 %*	"			"		
Octacosane			*113%*		*50 - 150 %*	"			"		
BSD0272-04 (GEI-4)			**Water**				**Sampled: 04/22/09 16:35**				
Residual Range Organics	AK102_103	ND	-----	0.721	mg/l	1x	9D23045	04/24/09 18:34	04/28/09 05:23	WAS	
Surrogate(s): 2-FBP			*95.1%*		*50 - 150 %*	"			"		
Octacosane			*96.8%*		*50 - 150 %*	"			"		

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Curtis D. Armstrong, Project Manager

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BOTHELL, WA 98011-8244
PH: (425) 420.9200 FAX: (425) 420.9210
CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Diesel Hydrocarbons (C10-C25) and Heavy Oil (C25-C36) by AK102 and AK103

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-04RE1 (GEI-4)			**Water**				**Sampled: 04/22/09 16:35**				
Diesel Range Hydrocarbons	AK102_103	**2.84**	-----	0.0971	mg/l	1x	9D28028	04/28/09 13:16	04/30/09 00:11	CMS	**Q12**
Surrogate(s): 2-FBP			*98.5%*		*50 - 150 %*	"			"		
Octacosane			*97.6%*		*50 - 150 %*	"			"		
BSD0272-05 (GEI-8)			**Water**				**Sampled: 04/22/09 14:50**				
Residual Range Organics	AK102_103	**0.818**	-----	0.728	mg/l	1x	9D23045	04/24/09 18:34	04/28/09 05:44	WAS	**Q10**
Surrogate(s): 2-FBP			*84.6%*		*50 - 150 %*	"			"		
Octacosane			*94.2%*		*50 - 150 %*	"			"		
BSD0272-05RE1 (GEI-8)			**Water**				**Sampled: 04/22/09 14:50**				
Diesel Range Hydrocarbons	AK102_103	**1.81**	-----	0.0971	mg/l	1x	9D28028	04/28/09 13:16	04/30/09 00:33	CMS	**Q10**
Surrogate(s): 2-FBP			*98.6%*		*50 - 150 %*	"			"		
Octacosane			*96.7%*		*50 - 150 %*	"			"		
BSD0272-06 (BD-1)			**Water**				**Sampled: 04/22/09 06:00**				
Residual Range Organics	AK102_103	ND	-----	0.721	mg/l	1x	9D23045	04/24/09 18:34	04/28/09 06:06	WAS	
Surrogate(s): 2-FBP			*77.0%*		*50 - 150 %*	"			"		
Octacosane			*95.4%*		*50 - 150 %*	"			"		
BSD0272-06RE1 (BD-1)			**Water**				**Sampled: 04/22/09 06:00**				
Diesel Range Hydrocarbons	AK102_103	**4.15**	-----	0.0962	mg/l	1x	9D28028	04/28/09 13:16	04/30/09 00:55	CMS	**Q12**
Surrogate(s): 2-FBP			*92.5%*		*50 - 150 %*	"			"		
Octacosane			*96.0%*		*50 - 150 %*	"			"		

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Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Dissolved Metals by EPA 200 Series Methods

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-01 (MW-1)			**Water**			**Sampled: 04/22/09 11:45**					**P7**
Lead	EPA 200.8 - Diss	ND	-----	0.00100	mg/l	1x	9D27011	04/27/09 07:40	04/27/09 15:42	SA	
BSD0272-02 (MW-3)			**Water**			**Sampled: 04/22/09 10:40**					**P7**
Lead	EPA 200.8 - Diss	ND	-----	0.00100	mg/l	1x	9D27011	04/27/09 07:40	04/27/09 15:48	SA	
BSD0272-03 (MW-5)			**Water**			**Sampled: 04/22/09 09:20**					**P7**
Lead	EPA 200.8 - Diss	ND	-----	0.00100	mg/l	1x	9D27011	04/27/09 07:40	04/27/09 15:54	SA	
BSD0272-04 (GEI-4)			**Water**			**Sampled: 04/22/09 16:35**					**P7**
Lead	EPA 200.8 - Diss	ND	-----	0.00100	mg/l	1x	9D27011	04/27/09 07:40	04/27/09 16:01	SA	
BSD0272-05 (GEI-8)			**Water**			**Sampled: 04/22/09 14:50**					**P7**
Lead	EPA 200.8 - Diss	ND	-----	0.00100	mg/l	1x	9D27011	04/27/09 07:40	04/27/09 16:07	SA	
BSD0272-06 (BD-1)			**Water**			**Sampled: 04/22/09 06:00**					**P7**
Lead	EPA 200.8 - Diss	ND	-----	0.00100	mg/l	1x	9D27011	04/27/09 07:40	04/27/09 16:13	SA	

TestAmerica Seattle

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Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

EDB and DBCP by EPA Method 8011

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-01 (MW-1)			**Water**			**Sampled: 04/22/09 11:45**					
1,2-Dibromoethane (EDB) [2C]	EPA 8011M	ND	-----	0.010	ug/l	1x	9D27012	04/27/09 08:08	05/04/09 13:20	mam	
BSD0272-02 (MW-3)			**Water**			**Sampled: 04/22/09 10:40**					
1,2-Dibromoethane (EDB) [2C]	EPA 8011M	ND	-----	0.010	ug/l	1x	9D27012	04/27/09 08:08	05/04/09 13:42	mam	
BSD0272-03 (MW-5)			**Water**			**Sampled: 04/22/09 09:20**					
1,2-Dibromoethane (EDB) [2C]	EPA 8011M	ND	-----	0.010	ug/l	1x	9D27012	04/27/09 08:08	05/04/09 14:04	mam	
BSD0272-04 (GEI-4)			**Water**			**Sampled: 04/22/09 16:35**					
1,2-Dibromoethane (EDB) [2C]	EPA 8011M	ND	-----	0.010	ug/l	1x	9D27012	04/27/09 08:08	05/04/09 14:25	mam	
BSD0272-05 (GEI-8)			**Water**			**Sampled: 04/22/09 14:50**					
1,2-Dibromoethane (EDB) [2C]	EPA 8011M	ND	-----	0.010	ug/l	1x	9D27012	04/27/09 08:08	05/04/09 14:47	mam	
BSD0272-06 (BD-1)			**Water**			**Sampled: 04/22/09 06:00**					
1,2-Dibromoethane (EDB) [2C]	EPA 8011M	ND	-----	0.010	ug/l	1x	9D27012	04/27/09 08:08	05/04/09 15:09	mam	

TestAmerica Seattle

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BOTHELL, WA 98011-8244
PH: (425) 420.9200 FAX: (425) 420.9210
CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-01 (MW-1)		**Water**				**Sampled: 04/22/09 11:45**					
Acenaphthene	EPA 8270C-SIM	ND	-----	0.962	ug/l	10x	9D24028	04/24/09 16:16	04/29/09 15:07	BAT	
Acenaphthylene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Anthracene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Benzo (a) anthracene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Benzo (a) pyrene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Benzo (b) fluoranthene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Benzo (k) fluoranthene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Benzo (ghi) perylene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Chrysene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Dibenz (a,h) anthracene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Fluoranthene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Fluorene	"	**1.06**	-----	0.962	"	"	"	"	"	BAT	
Indeno (1,2,3-cd) pyrene	"	ND	-----	0.962	"	"	"	"	"	BAT	
1-Methylnaphthalene	"	**97.4**	-----	0.962	"	"	"	"	"	BAT	
2-Methylnaphthalene	"	**113**	-----	0.962	"	"	"	"	"	BAT	
Naphthalene	"	**187**	-----	0.962	"	"	"	"	"	BAT	
Phenanthrene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Pyrene	"	ND	-----	0.962	"	"	"	"	"	BAT	
Surrogate(s): p-Terphenyl-d14		*41.8%*		*15 - 125 %*	"				"		
BSD0272-02 (MW-3)		**Water**				**Sampled: 04/22/09 10:40**					
Acenaphthene	EPA 8270C-SIM	ND	-----	0.0943	ug/l	1x	9D24028	04/24/09 16:16	04/29/09 17:41	BAT	
Acenaphthylene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
Anthracene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
Benzo (a) anthracene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
Benzo (a) pyrene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
Benzo (b) fluoranthene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
Benzo (k) fluoranthene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
Benzo (ghi) perylene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
Chrysene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
Dibenz (a,h) anthracene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
Fluoranthene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
Fluorene	"	**0.121**	-----	0.0943	"	"	"	"	"	BAT	
Indeno (1,2,3-cd) pyrene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
1-Methylnaphthalene	"	**3.41**	-----	0.0943	"	"	"	"	"	BAT	
2-Methylnaphthalene	"	**0.804**	-----	0.0943	"	"	"	"	"	BAT	
Naphthalene	"	**0.983**	-----	0.0943	"	"	"	"	"	BAT	

TestAmerica Seattle

Curtis D. Armstrong, Project Manager

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SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400
BOTHELL, WA 98011-8244
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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-02 (MW-3)		**Water**				**Sampled: 04/22/09 10:40**					
Phenanthrene	EPA 8270C-SIM	ND	-----	0.0943	ug/l	1x	9D24028	04/24/09 16:16	04/29/09 17:41	BAT	
Pyrene	"	ND	-----	0.0943	"	"	"	"	"	BAT	
Surrogate(s): p-Terphenyl-d14		*45.9%*		*15 - 125 %*		"			"		
BSD0272-03 (MW-5)		**Water**				**Sampled: 04/22/09 09:20**					
Acenaphthene	EPA 8270C-SIM	**0.169**	-----	0.0962	ug/l	1x	9D24028	04/24/09 16:16	04/29/09 18:07	BAT	
Acenaphthylene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Anthracene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Benzo (a) anthracene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Benzo (a) pyrene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Benzo (b) fluoranthene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Benzo (k) fluoranthene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Benzo (ghi) perylene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Chrysene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Dibenz (a,h) anthracene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Fluoranthene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Fluorene	"	**0.279**	-----	0.0962	"	"	"	"	"	BAT	
Indeno (1,2,3-cd) pyrene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
1-Methylnaphthalene	"	**5.79**	-----	0.0962	"	"	"	"	"	BAT	
2-Methylnaphthalene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Naphthalene	"	**5.09**	-----	0.0962	"	"	"	"	"	BAT	
Phenanthrene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Pyrene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Surrogate(s): p-Terphenyl-d14		*49.6%*		*15 - 125 %*		"			"		
BSD0272-04 (GEI-4)		**Water**				**Sampled: 04/22/09 16:35**					
Acenaphthene	EPA 8270C-SIM	**0.240**	-----	0.0962	ug/l	1x	9D24028	04/24/09 16:16	04/29/09 16:24	BAT	
Acenaphthylene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Anthracene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Benzo (a) anthracene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Benzo (a) pyrene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Benzo (b) fluoranthene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Benzo (k) fluoranthene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Benzo (ghi) perylene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Chrysene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Dibenz (a,h) anthracene	"	ND	-----	0.0962	"	"	"	"	"	BAT	

TestAmerica Seattle

Curtis D. Armstrong, Project Manager

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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-04 (GEI-4)		**Water**				**Sampled: 04/22/09 16:35**					
Fluoranthene	EPA 8270C-SIM	ND	-----	0.0962	ug/l	1x	9D24028	04/24/09 16:16	04/29/09 16:24	BAT	
Fluorene	"	**0.290**	-----	0.0962	"	"	"	"	"	BAT	
Indeno (1,2,3-cd) pyrene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
1-Methylnaphthalene	"	**1.84**	-----	0.0962	"	"	"	"	"	BAT	
2-Methylnaphthalene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Naphthalene	"	**2.12**	-----	0.0962	"	"	"	"	"	BAT	
Phenanthrene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Pyrene	"	ND	-----	0.0962	"	"	"	"	"	BAT	
Surrogate(s): p-Terphenyl-d14			*43.9%*		*15 - 125 %*	"			"		
BSD0272-05 (GEI-8)		**Water**				**Sampled: 04/22/09 14:50**					
Acenaphthene	EPA 8270C-SIM	ND	-----	0.100	ug/l	1x	9D24028	04/24/09 16:16	04/29/09 16:50	BAT	
Acenaphthylene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Anthracene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Benzo (a) anthracene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Benzo (a) pyrene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Benzo (b) fluoranthene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Benzo (k) fluoranthene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Benzo (ghi) perylene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Chrysene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Dibenz (a,h) anthracene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Fluoranthene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Fluorene	"	**0.148**	-----	0.100	"	"	"	"	"	BAT	
Indeno (1,2,3-cd) pyrene	"	ND	-----	0.100	"	"	"	"	"	BAT	
1-Methylnaphthalene	"	**0.916**	-----	0.100	"	"	"	"	"	BAT	
2-Methylnaphthalene	"	**0.424**	-----	0.100	"	"	"	"	"	BAT	
Naphthalene	"	**0.196**	-----	0.100	"	"	"	"	"	BAT	
Phenanthrene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Pyrene	"	ND	-----	0.100	"	"	"	"	"	BAT	
Surrogate(s): p-Terphenyl-d14			*46.4%*		*15 - 125 %*	"			"		

TestAmerica Seattle

Curtis D. Armstrong, Project Manager

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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-06 (BD-1)		**Water**				**Sampled: 04/22/09 06:00**					
Acenaphthene	EPA 8270C-SIM	**0.152**	-----	0.0952	ug/l	1x	9D24028	04/24/09 16:16	04/29/09 17:16	BAT	
Acenaphthylene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Anthracene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Benzo (a) anthracene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Benzo (a) pyrene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Benzo (b) fluoranthene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Benzo (k) fluoranthene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Benzo (ghi) perylene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Chrysene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Dibenz (a,h) anthracene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Fluoranthene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Fluorene	"	**0.257**	-----	0.0952	"	"	"	"	"	BAT	
Indeno (1,2,3-cd) pyrene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
1-Methylnaphthalene	"	**5.08**	-----	0.0952	"	"	"	"	"	BAT	
2-Methylnaphthalene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Naphthalene	"	**4.26**	-----	0.0952	"	"	"	"	"	BAT	
Phenanthrene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Pyrene	"	ND	-----	0.0952	"	"	"	"	"	BAT	
Surrogate(s): p-Terphenyl-d14		*43.1%*		*15 - 125 %*	"				"		

TestAmerica Seattle

Curtis D. Armstrong, Project Manager

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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Conventional Chemistry Parameters by APHA/EPA Methods

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-01 (MW-1)			**Water**			**Sampled: 04/22/09 11:45**					
Total Alkalinity	EPA 310.1	**540**	-----	5.00	mg/L as CaCO3	1x	9D30052	04/30/09 15:35	04/30/09 17:28	PT	
BSD0272-02 (MW-3)			**Water**			**Sampled: 04/22/09 10:40**					
Total Alkalinity	EPA 310.1	**338**	-----	5.00	mg/L as CaCO3	1x	9D30052	04/30/09 15:35	04/30/09 17:28	PT	
BSD0272-03 (MW-5)			**Water**			**Sampled: 04/22/09 09:20**					
Total Alkalinity	EPA 310.1	**438**	-----	5.00	mg/L as CaCO3	1x	9D30052	04/30/09 15:35	04/30/09 17:28	PT	
BSD0272-04 (GEI-4)			**Water**			**Sampled: 04/22/09 16:35**					
Total Alkalinity	EPA 310.1	**349**	-----	5.00	mg/L as CaCO3	1x	9D30052	04/30/09 15:35	04/30/09 17:28	PT	
BSD0272-05 (GEI-8)			**Water**			**Sampled: 04/22/09 14:50**					
Total Alkalinity	EPA 310.1	**588**	-----	5.00	mg/L as CaCO3	1x	9D30052	04/30/09 15:35	04/30/09 17:28	PT	
BSD0272-06 (BD-1)			**Water**			**Sampled: 04/22/09 06:00**					
Total Alkalinity	EPA 310.1	**429**	-----	5.00	mg/L as CaCO3	1x	9D30052	04/30/09 15:35	04/30/09 17:28	PT	

TestAmerica Seattle

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Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery

Report Created: 05/12/09 11:39

Anions by EPA Method 300.0

TestAmerica Seattle

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-01 (MW-1)			**Water**			**Sampled: 04/22/09 11:45**					
Nitrate-Nitrogen	EPA 300.0	ND	-----	0.200	mg/l as N	1x	9D27018	04/24/09 11:00	04/24/09 11:55	LSB	
Sulfate	"	ND	-----	0.400	mg/l	"	"	"	"	LSB	
BSD0272-02 (MW-3)			**Water**			**Sampled: 04/22/09 10:40**					
Nitrate-Nitrogen	EPA 300.0	ND	-----	0.200	mg/l as N	1x	9D27018	04/24/09 11:00	04/24/09 13:14	LSB	**H3**
Sulfate	"	**8.24**	-----	0.400	mg/l	"	"	"	"	LSB	
BSD0272-03 (MW-5)			**Water**			**Sampled: 04/22/09 09:20**					
Nitrate-Nitrogen	EPA 300.0	ND	-----	0.200	mg/l as N	1x	9D27018	04/24/09 11:00	04/24/09 12:58	LSB	**H3**
Sulfate	"	**6.88**	-----	0.400	mg/l	"	"	"	"	LSB	
BSD0272-04 (GEI-4)			**Water**			**Sampled: 04/22/09 16:35**					
Nitrate-Nitrogen	EPA 300.0	ND	-----	0.200	mg/l as N	1x	9D27018	04/24/09 11:00	04/24/09 12:27	LSB	
Sulfate	"	**6.22**	-----	0.400	mg/l	"	"	"	"	LSB	
BSD0272-05 (GEI-8)			**Water**			**Sampled: 04/22/09 14:50**					
Nitrate-Nitrogen	EPA 300.0	ND	-----	0.200	mg/l as N	1x	9D27018	04/24/09 11:00	04/24/09 12:11	LSB	
Sulfate	"	**7.40**	-----	0.400	mg/l	"	"	"	"	LSB	
BSD0272-06 (BD-1)			**Water**			**Sampled: 04/22/09 06:00**					
Nitrate-Nitrogen	EPA 300.0	ND	-----	0.200	mg/l as N	1x	9D27018	04/24/09 11:00	04/24/09 12:42	LSB	**H3**
Sulfate	"	**6.84**	-----	0.400	mg/l	"	"	"	"	LSB	

TestAmerica Seattle

Curtis D. Armstrong, Project Manager

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2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Hydrocarbons by GC/FID Headspace

TestAmerica Anchorage

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Analyst	Notes
BSD0272-01 (MW-1)			**Water**			**Sampled: 04/22/09 11:45**					
Methane	GC/FID	**16500**	-----	52.0	ug/l	43.3x	9050001	05/01/09 08:21	05/01/09 12:20	DS	**RL7**
BSD0272-02 (MW-3)			**Water**			**Sampled: 04/22/09 10:40**					
Methane	GC/FID	**1050**	-----	52.0	ug/l	43.3x	9050001	05/01/09 08:21	05/01/09 12:24	DS	**RL7**
BSD0272-03 (MW-5)			**Water**			**Sampled: 04/22/09 09:20**					
Methane	GC/FID	**1200**	-----	52.0	ug/l	43.3x	9050001	05/01/09 08:21	05/01/09 12:27	DS	**RL7**
BSD0272-04 (GEI-4)			**Water**			**Sampled: 04/22/09 16:35**					
Methane	GC/FID	**1950**	-----	52.0	ug/l	43.3x	9050001	05/01/09 08:21	05/01/09 12:38	DS	**RL7**
BSD0272-05 (GEI-8)			**Water**			**Sampled: 04/22/09 14:50**					
Methane	GC/FID	**468**	-----	1.20	ug/l	1x	9050001	05/01/09 08:21	05/01/09 12:50	DS	
BSD0272-06 (BD-1)			**Water**			**Sampled: 04/22/09 06:00**					
Methane	GC/FID	**832**	-----	1.20	ug/l	1x	9050001	05/01/09 08:21	05/01/09 12:54	DS	

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Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/EPA 8021B - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 9D24029 **Water Preparation Method: EPA 5030B (P/T)**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9D24029-BLK1)							**Extracted: 04/24/09 16:34**							
Gasoline Range Hydrocarbons	AK 101	ND	---	50.0	ug/l	1x	--	--	--	--	--	--	04/24/09 19:15	
Benzene	"	ND	---	0.200	"	"	--	--	--	--	--	--	"	
Toluene	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Ethylbenzene	"	ND	---	0.500	"	"	--	--	--	--	--	--	"	
Xylenes (total)	"	ND	---	1.00	"	"	--	--	--	--	--	--	"	
Surrogate(s): 4-BFB (FID)		*Recovery: 88.1%*			*Limits: 50-150%*	"							*04/24/09 19:15*	
4-BFB (PID)		*99.5%*			*80-130%*	"							"	
LCS (9D24029-BS1)							**Extracted: 04/24/09 16:34**							
Gasoline Range Hydrocarbons	AK 101	982	---	50.0	ug/l	1x	--	1000	98.2%	(60-120)	--	--	04/24/09 19:48	
Surrogate(s): 4-BFB (FID)		*Recovery: 96.8%*			*Limits: 60-120%*	"							*04/24/09 19:48*	
LCS (9D24029-BS2)							**Extracted: 04/24/09 16:34**							
Benzene	AK 101	32.1	---	0.200	ug/l	1x	--	30.0	107%	(80-125)	--	--	04/24/09 20:54	
Toluene	"	29.2	---	0.500	"	"	--	"	97.4%	(80-120)	--	--	"	
Ethylbenzene	"	30.5	---	0.500	"	"	--	"	102%	(80-125)	--	--	"	
Xylenes (total)	"	90.7	---	1.00	"	"	--	90.0	101%	(75-120)	--	--	"	
Surrogate(s): 4-BFB (PID)		*Recovery: 101%*			*Limits: 80-130%*	"							*04/24/09 20:54*	
LCS Dup (9D24029-BSD1)							**Extracted: 04/24/09 16:34**							
Gasoline Range Hydrocarbons	AK 101	1020	---	50.0	ug/l	1x	--	1000	102%	(60-120)	3.47%	(20)	04/24/09 20:21	
Surrogate(s): 4-BFB (FID)		*Recovery: 97.7%*			*Limits: 60-120%*	"							*04/24/09 20:21*	
LCS Dup (9D24029-BSD2)							**Extracted: 04/24/09 16:34**							
Benzene	AK 101	33.1	---	0.200	ug/l	1x	--	30.0	110%	(80-125)	2.87%	(20)	04/24/09 21:27	
Toluene	"	29.6	---	0.500	"	"	--	"	98.7%	(80-120)	1.32%	"	"	
Ethylbenzene	"	31.2	---	0.500	"	"	--	"	104%	(80-125)	2.30%	"	"	
Xylenes (total)	"	92.8	---	1.00	"	"	--	90.0	103%	(75-120)	2.31%	"	"	
Surrogate(s): 4-BFB (PID)		*Recovery: 100%*			*Limits: 80-130%*	"							*04/24/09 21:27*	
Duplicate (9D24029-DUP1)							**QC Source: BSD0272-02**						**Extracted: 04/24/09 16:34**	
Gasoline Range Hydrocarbons	AK 101	93.2	---	50.0	ug/l	1x	96.4	--	--	--	3.30%	(20)	04/24/09 22:32	Q8
Benzene	"	ND	---	0.200	"	"	0.210	--	--	--	--	(25)	"	
Toluene	"	ND	---	0.500	"	"	ND	--	--	--	NR	"	"	
Ethylbenzene	"	0.960	---	0.500	"	"	1.09	--	--	--	13.0%	"	"	
Xylenes (total)	"	1.50	---	1.00	"	"	1.81	--	--	--	18.4%	"	"	
Surrogate(s): 4-BFB (FID)		*Recovery: 102%*			*Limits: 50-150%*	"							*04/24/09 22:32*	
4-BFB (PID)		*103%*			*80-130%*	"							"	

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Curtis D. Armstrong, Project Manager

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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/EPA 8021B - Laboratory Quality Control Results

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QC Batch: 9D24029 **Water Preparation Method: EPA 5030B (P/T)**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (9D24029-DUP2)				**QC Source: BSD0272-03**					**Extracted: 04/24/09 16:34**					
Gasoline Range Hydrocarbons	AK 101	241	---	50.0	ug/l	1x	254	--	--	--	5.17%	(20)	04/24/09 23:38	Q8
Benzene	"	0.580	---	0.200	"	"	0.590	--	--	--	1.71%	(25)	"	
Toluene	"	ND	---	0.500	"	"	ND	--	--	--	NR	"	"	
Ethylbenzene	"	6.88	---	0.500	"	"	6.95	--	--	--	1.03%	"	"	
Xylenes (total)	"	4.99	---	1.00	"	"	5.14	--	--	--	2.90%	"	"	
Surrogate(s): 4-BFB (FID)		*Recovery: 119%*		*Limits: 50-150%*		"							*04/24/09 23:38*	
4-BFB (PID)			*112%*		*80-130%*	"							"	
Matrix Spike (9D24029-MS1)				**QC Source: BSD0272-02**					**Extracted: 04/24/09 16:34**					
Gasoline Range Hydrocarbons	AK 101	1060	---	50.0	ug/l	1x	96.4	1000	96.6%	(60-130)	--	--	04/25/09 00:11	
Surrogate(s): 4-BFB (FID)		*Recovery: 103%*		*Limits: 50-150%*		"							*04/25/09 00:11*	
Matrix Spike (9D24029-MS2)				**QC Source: BSD0272-03**					**Extracted: 04/24/09 16:34**					
Benzene	AK 101	35.5	---	0.200	ug/l	1x	0.590	30.0	117%	(60-135)	--	--	04/25/09 07:16	
Toluene	"	30.7	---	0.500	"	"	ND	"	102%	(65-135)	--	--	"	
Ethylbenzene	"	40.1	---	0.500	"	"	6.95	"	110%	"	--	--	"	
Xylenes (total)	"	101	---	1.00	"	"	5.14	90.0	107%	(65-130)	--	--	"	
Surrogate(s): 4-BFB (PID)		*Recovery: 110%*		*Limits: 80-130%*		"							*04/25/09 07:16*	

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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Diesel Hydrocarbons (C10-C25) and Heavy Oil (C25-C36) by AK102 and AK103 - Laboratory Quality Control Results

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QC Batch: 9D23045 **Water Preparation Method: EPA 3520C**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9D23045-BLK1)							**Extracted: 04/23/09 18:34**							
Diesel Range Hydrocarbons	AK102_103	ND	---	0.100	mg/l	1x	--	--	--	--	--	--	04/27/09 18:50	
Residual Range Organics	"	ND	---	0.750	"	"	--	--	--	--	--	--	"	
Surrogate(s): 2-FBP		*Recovery: 80.9%*			*Limits: 50-150%*	"							*04/27/09 18:50*	
Octacosane		*97.1%*			*50-150%*	"							"	
LCS (9D23045-BS1)							**Extracted: 04/23/09 18:34**							
Diesel Range Hydrocarbons	AK102_103	1.44	---	0.100	mg/l	1x	--	2.00	71.8%	(75-125)	--	--	04/27/09 19:12	L2, MNR1
Residual Range Organics	"	1.39	---	0.750	"	"	--	"	69.7%	(60-120)	--	--	"	MNR1
Surrogate(s): 2-FBP		*Recovery: 72.2%*			*Limits: 60-120%*	"							*04/27/09 19:12*	*MNR1*
Octacosane		*77.6%*			*60-120%*	"							"	*MNR1*
LCS Dup (9D23045-BSD1)							**Extracted: 04/23/09 18:34**							
Diesel Range Hydrocarbons	AK102_103	1.53	---	0.100	mg/l	1x	--	2.00	76.5%	(75-125)	6.35%	(20)	04/27/09 19:57	
Residual Range Organics	"	1.51	---	0.750	"	"	--	"	75.6%	(60-120)	8.15%	"	"	
Surrogate(s): 2-FBP		*Recovery: 69.0%*			*Limits: 60-120%*	"							*04/27/09 19:57*	
Octacosane		*71.5%*			*60-120%*	"							"	

QC Batch: 9D28028 **Water Preparation Method: EPA 3520C**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9D28028-BLK1)							**Extracted: 04/28/09 13:16**							
Diesel Range Hydrocarbons	AK102_103	ND	---	0.100	mg/l	1x	--	--	--	--	--	--	04/29/09 19:05	
Residual Range Organics	"	ND	---	0.750	"	"	--	--	--	--	--	--	"	
Surrogate(s): 2-FBP		*Recovery: 81.4%*			*Limits: 50-150%*	"							*04/29/09 19:05*	
Octacosane		*86.9%*			*50-150%*	"							"	
LCS (9D28028-BS1)							**Extracted: 04/28/09 13:16**							
Diesel Range Hydrocarbons	AK102_103	1.98	---	0.100	mg/l	1x	--	2.00	99.0%	(75-125)	--	--	04/29/09 19:27	MNR1
Residual Range Organics	"	1.93	---	0.750	"	"	--	"	96.5%	(60-120)	--	--	"	MNR1
Surrogate(s): 2-FBP		*Recovery: 89.4%*			*Limits: 60-120%*	"							*04/29/09 19:27*	*MNR1*
Octacosane		*99.8%*			*60-120%*	"							"	*MNR1*
LCS Dup (9D28028-BSD1)							**Extracted: 04/28/09 13:16**							
Diesel Range Hydrocarbons	AK102_103	1.86	---	0.100	mg/l	1x	--	2.00	93.1%	(75-125)	6.17%	(20)	04/29/09 19:49	
Residual Range Organics	"	1.80	---	0.750	"	"	--	"	89.9%	(60-120)	7.06%	"	"	
Surrogate(s): 2-FBP		*Recovery: 85.3%*			*Limits: 60-120%*	"							*04/29/09 19:49*	
Octacosane		*92.1%*			*60-120%*	"							"	

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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Dissolved Metals by EPA 200 Series Methods - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 9D27011 **Water Preparation Method: EPA 3005A**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9D27011-BLK1)								**Extracted: 04/27/09 07:40**						
Lead	EPA 200.8 - Diss	ND	---	0.00100	mg/l	1x	--	--	--	--	--	--	04/27/09 14:57	
LCS (9D27011-BS1)								**Extracted: 04/27/09 07:40**						
Lead	EPA 200.8 - Diss	0.205	---	0.00100	mg/l	1x	--	0.200	103%	(85-115)	--	--	04/27/09 14:19	
Duplicate (9D27011-DUP1)						**QC Source: BSD0253-01**			**Extracted: 04/27/09 07:40**					
Lead	EPA 200.8 - Diss	ND	---	0.00100	mg/l	1x	ND	--	--	--	NR	(20)	04/27/09 14:38	
Matrix Spike (9D27011-MS1)						**QC Source: BSD0253-01**			**Extracted: 04/27/09 07:40**					
Lead	EPA 200.8 - Diss	0.105	---	0.00100	mg/l	1x	ND	0.100	105%	(75-125)	--	--	04/27/09 14:26	
Matrix Spike (9D27011-MS2)						**QC Source: BSD0253-02**			**Extracted: 04/27/09 07:40**					
Lead	EPA 200.8 - Diss	0.106	---	0.00100	mg/l	1x	ND	0.100	105%	(75-125)	--	--	04/27/09 14:32	

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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

EDB and DBCP by EPA Method 8011 - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 9D27012 **Water Preparation Method: Solvent Extraction**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9D27012-BLK1)								**Extracted: 04/27/09 08:08**						
1,2-Dibromoethane (EDB) [2C]	EPA 8011M	ND	---	0.010	ug/l	1x	--	--	--	--	--	--	05/04/09 12:15	
LCS (9D27012-BS1)								**Extracted: 04/27/09 08:08**						
1,2-Dibromoethane (EDB) [2C]	EPA 8011M	0.046	---	0.010	ug/l	1x	--	0.0500	91.2%	(60-140)	--	--	05/04/09 12:37	
LCS Dup (9D27012-BSD1)								**Extracted: 04/27/09 08:08**						
1,2-Dibromoethane (EDB) [2C]	EPA 8011M	0.049	---	0.010	ug/l	1x	--	0.0500	97.7%	(60-140)	6.92%	(20)	05/04/09 12:59	

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Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 9D24028 **Water Preparation Method: EPA 3520C**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9D24028-BLK1)									**Extracted: 04/24/09 16:16**					
Acenaphthene	EPA 8270C-SIM	ND	---	0.100	ug/l	1x	--	--	--	--	--	--	04/28/09 16:11	
Acenaphthylene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Anthracene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Benzo (a) anthracene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Benzo (a) pyrene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Benzo (b) fluoranthene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Benzo (k) fluoranthene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Benzo (ghi) perylene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Chrysene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Dibenz (a,h) anthracene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Fluoranthene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Fluorene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Indeno (1,2,3-cd) pyrene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
1-Methylnaphthalene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
2-Methylnaphthalene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Naphthalene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Phenanthrene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Pyrene	"	ND	---	0.100	"	"	--	--	--	--	--	--	"	
Surrogate(s): p-Terphenyl-d14		*Recovery: 53.9%*			*Limits: 15-125%*	"							*04/28/09 16:11*	
LCS (9D24028-BS1)									**Extracted: 04/24/09 16:16**					
Acenaphthene	EPA 8270C-SIM	15.0	---	0.100	ug/l	1x	--	20.0	74.8%	(62-120)	--	--	04/28/09 17:14	
Acenaphthylene	"	17.9	---	0.100	"	"	--	"	89.5%	(67-135)	--	--	"	
Anthracene	"	20.2	---	0.100	"	"	--	"	101%	(66-146)	--	--	"	
Benzo (a) anthracene	"	15.5	---	0.100	"	"	--	"	77.4%	(57-143)	--	--	"	
Benzo (a) pyrene	"	16.0	---	0.100	"	"	--	"	79.9%	(63-130)	--	--	"	
Benzo (b) fluoranthene	"	15.2	---	0.100	"	"	--	"	76.2%	(66-139)	--	--	"	
Benzo (k) fluoranthene	"	14.8	---	0.100	"	"	--	"	74.2%	(63-137)	--	--	"	
Benzo (ghi) perylene	"	14.6	---	0.100	"	"	--	"	72.8%	(42-138)	--	--	"	
Chrysene	"	18.0	---	0.100	"	"	--	"	90.0%	(70-135)	--	--	"	
Dibenz (a,h) anthracene	"	15.4	---	0.100	"	"	--	"	77.1%	(53-145)	--	--	"	
Fluoranthene	"	17.7	---	0.100	"	"	--	"	88.3%	(73-142)	--	--	"	
Fluorene	"	17.7	---	0.100	"	"	--	"	88.6%	(64-136)	--	--	"	
Indeno (1,2,3-cd) pyrene	"	14.6	---	0.100	"	"	--	"	73.2%	(52-136)	--	--	"	
1-Methylnaphthalene	"	13.1	---	0.100	"	"	--	"	65.6%	(46-120)	--	--	"	
2-Methylnaphthalene	"	12.2	---	0.100	"	"	--	"	61.0%	(43-122)	--	--	"	
Naphthalene	"	12.5	---	0.100	"	"	--	"	62.3%	(50-128)	--	--	"	
Phenanthrene	"	16.5	---	0.100	"	"	--	"	82.3%	(63-127)	--	--	"	

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2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 9D24028 **Water Preparation Method: EPA 3520C**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (9D24028-BS1)													**Extracted: 04/24/09 16:16**	
Pyrene	EPA 8270C-SIM	13.3	---	0.100	ug/l	1x	--	20.0	66.4%	(57-136)	--	--	04/28/09 17:14	
Surrogate(s): p-Terphenyl-d14		*Recovery: 51.6%*			*Limits: 15-125%*	"							*04/28/09 17:14*	
Matrix Spike (9D24028-MS1)					**QC Source: BSD0258-08**								**Extracted: 04/24/09 16:16**	
Acenaphthene	EPA 8270C-SIM	15.1	---	0.0971	ug/l	1x	ND	19.4	77.5%	(59-130)	--	--	04/28/09 17:40	
Acenaphthylene	"	17.8	---	0.0971	"	"	ND	"	91.6%	(66-136)	--	--	"	
Anthracene	"	19.3	---	0.0971	"	"	ND	"	99.5%	(65-147)	--	--	"	
Benzo (a) anthracene	"	14.3	---	0.0971	"	"	ND	"	73.9%	(40-144)	--	--	"	
Benzo (a) pyrene	"	14.7	---	0.0971	"	"	ND	"	75.5%	(37-131)	--	--	"	
Benzo (b) fluoranthene	"	15.2	---	0.0971	"	"	ND	"	78.4%	(39-150)	--	--	"	
Benzo (k) fluoranthene	"	14.2	---	0.0971	"	"	ND	"	73.4%	(35-147)	--	--	"	
Benzo (ghi) perylene	"	13.1	---	0.0971	"	"	ND	"	67.5%	(36-139)	--	--	"	
Chrysene	"	16.8	---	0.0971	"	"	ND	"	86.7%	(42-137)	--	--	"	
Dibenz (a,h) anthracene	"	13.8	---	0.0971	"	"	ND	"	71.1%	(40-146)	--	--	"	
Fluoranthene	"	16.2	---	0.0971	"	"	ND	"	83.6%	(57-143)	--	--	"	
Fluorene	"	17.2	---	0.0971	"	"	ND	"	88.8%	(63-137)	--	--	"	
Indeno (1,2,3-cd) pyrene	"	13.1	---	0.0971	"	"	ND	"	67.6%	(39-137)	--	--	"	
1-Methylnaphthalene	"	14.7	---	0.0971	"	"	ND	"	75.7%	(40-150)	--	--	"	
2-Methylnaphthalene	"	13.6	---	0.0971	"	"	ND	"	70.2%	(42-137)	--	--	"	
Naphthalene	"	14.2	---	0.0971	"	"	ND	"	73.2%	(49-129)	--	--	"	
Phenanthrene	"	15.7	---	0.0971	"	"	ND	"	81.1%	(40-150)	--	--	"	
Pyrene	"	13.4	---	0.0971	"	"	ND	"	69.0%	(50-140)	--	--	"	
Surrogate(s): p-Terphenyl-d14		*Recovery: 46.8%*			*Limits: 15-125%*	"							*04/28/09 17:40*	
Matrix Spike Dup (9D24028-MSD1)					**QC Source: BSD0258-08**								**Extracted: 04/24/09 16:16**	
Acenaphthene	EPA 8270C-SIM	14.4	---	0.100	ug/l	1x	ND	20.0	72.1%	(59-130)	4.32%	(40)	04/28/09 18:06	
Acenaphthylene	"	17.1	---	0.100	"	"	ND	"	85.6%	(66-136)	3.80%	"	"	
Anthracene	"	19.0	---	0.100	"	"	ND	"	94.9%	(65-147)	1.81%	"	"	
Benzo (a) anthracene	"	13.9	---	0.100	"	"	ND	"	69.7%	(40-144)	2.80%	"	"	
Benzo (a) pyrene	"	14.8	---	0.100	"	"	ND	"	73.8%	(37-131)	0.651%	"	"	
Benzo (b) fluoranthene	"	14.0	---	0.100	"	"	ND	"	70.0%	(39-150)	8.32%	"	"	
Benzo (k) fluoranthene	"	14.0	---	0.100	"	"	ND	"	70.0%	(35-147)	1.73%	"	"	
Benzo (ghi) perylene	"	12.8	---	0.100	"	"	ND	"	64.2%	(36-139)	1.95%	"	"	
Chrysene	"	16.5	---	0.100	"	"	ND	"	82.7%	(42-137)	1.74%	"	"	
Dibenz (a,h) anthracene	"	13.7	---	0.100	"	"	ND	"	68.5%	(40-146)	0.797%	"	"	
Fluoranthene	"	16.4	---	0.100	"	"	ND	"	81.8%	(57-143)	0.768%	"	"	
Fluorene	"	16.7	---	0.100	"	"	ND	"	83.3%	(63-137)	3.46%	"	"	
Indeno (1,2,3-cd) pyrene	"	13.0	---	0.100	"	"	ND	"	65.0%	(39-137)	0.891%	"	"	

TestAmerica Seattle

Curtis D. Armstrong, Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SEATTLE, WA 11720 NORTH CREEK PKWY N, SUITE 400
BOTHELL, WA 98011-8244
PH: (425) 420.9200 FAX: (425) 420.9210
CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Polynuclear Aromatic Hydrocarbons by GC/MS-SIM - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 9D24028 **Water Preparation Method: EPA 3520C**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike Dup (9D24028-MSD1)					**QC Source: BSD0258-08**				**Extracted: 04/24/09 16:16**					
1-Methylnaphthalene	EPA 8270C-SIM	13.8	---	0.100	ug/l	1x	ND	20.0	69.2%	(40-150)	6.10%	(40)	04/28/09 18:06	
2-Methylnaphthalene	"	12.8	---	0.100	"	"	ND	"	63.9%	(42-137)	6.39%	"	"	
Naphthalene	"	13.1	---	0.100	"	"	ND	"	65.6%	(49-129)	8.02%	"	"	
Phenanthrene	"	15.6	---	0.100	"	"	ND	"	78.2%	(40-150)	0.648%	"	"	
Pyrene	"	12.8	---	0.100	"	"	ND	"	63.8%	(50-140)	4.98%	"	"	
Surrogate(s): p-Terphenyl-d14		*Recovery: 44.8%*			*Limits: 15-125%*	"							*04/28/09 18:06*	

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Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Conventional Chemistry Parameters by APHA/EPA Methods - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 9D30052 **Water Preparation Method: General Preparation**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9D30052-BLK1)									**Extracted: 04/30/09 15:35**					
Total Alkalinity	EPA 310.1	ND	---	5.00	mg/L as CaCO3	1x	--	--	--	--	--	--	04/30/09 17:28	
LCS (9D30052-BS1)									**Extracted: 04/30/09 15:35**					
Total Alkalinity	EPA 310.1	52.1	---	5.00	mg/L as CaCO3	1x	--	50.0	104%	(90-110)	--	--	04/30/09 17:28	
Duplicate (9D30052-DUP1)					**QC Source: BSD0272-06**				**Extracted: 04/30/09 15:35**					
Total Alkalinity	EPA 310.1	443	---	5.00	mg/L as CaCO3	1x	429	--	--	--	3.07%	(20)	04/30/09 17:28	

TestAmerica Seattle

Curtis D. Armstrong, Project Manager

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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Anions by EPA Method 300.0 - Laboratory Quality Control Results

TestAmerica Seattle

QC Batch: 9D27018 **Water Preparation Method: General Preparation**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9D27018-BLK1)								**Extracted: 04/24/09 11:00**						
Nitrate-Nitrogen	EPA 300.0	ND	---	0.200	mg/l as N	1x	--	--	--	--	--	--	04/24/09 14:01	
Sulfate	"	ND	---	0.400	mg/l	"	--	--	--	--	--	--	"	
LCS (9D27018-BS1)								**Extracted: 04/24/09 11:00**						
Nitrate-Nitrogen	EPA 300.0	1.00	---	0.200	mg/l as N	1x	--	1.00	100%	(90-110)	--	--	04/24/09 14:16	
Sulfate	"	5.91	---	0.400	mg/l	"	--	6.00	98.5%	"	--	--	"	
Duplicate (9D27018-DUP1)					**QC Source: BSD0272-04**				**Extracted: 04/24/09 11:00**					
Nitrate-Nitrogen	EPA 300.0	ND	---	0.200	mg/l as N	1x	ND	--	--	--	NR	(20)	04/24/09 13:45	
Sulfate	"	6.19	---	0.400	mg/l	"	6.22	--	--	--	0.483%	"	"	
Matrix Spike (9D27018-MS1)					**QC Source: BSD0272-04**				**Extracted: 04/24/09 11:00**					
Nitrate-Nitrogen	EPA 300.0	1.01	---	0.200	mg/l as N	1x	ND	1.00	101%	(60-120)	--	--	04/24/09 13:29	
Sulfate	"	12.3	---	0.400	mg/l	"	6.22	6.00	101%	(80-120)	--	--	"	

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Curtis D. Armstrong, Project Manager

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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Hydrocarbons by GC/FID Headspace - Laboratory Quality Control Results

TestAmerica Anchorage

QC Batch: 9050001 **Water Preparation Method: RSK 175**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (9050001-BLK1)								**Extracted: 05/01/09 08:21**						
Methane	GC/FID	ND	---	1.20	ug/l	1x	--	--	--	--	--	--	05/01/09 10:10	
LCS (9050001-BS1)								**Extracted: 05/01/09 08:21**						
Methane	GC/FID	57.5	---	1.20	ug/l	1x	--	56.3	102%	(85-115)	--	--	05/01/09 10:00	
LCS Dup (9050001-BSD1)								**Extracted: 05/01/09 08:21**						
Methane	GC/FID	52.8	---	1.20	ug/l	1x	--	56.3	93.8%	(85-115)	8.48%	(25)	05/01/09 10:05	
Duplicate (9050001-DUP1)					**QC Source: ASD0041-01**			**Extracted: 05/01/09 08:21**						
Methane	GC/FID	657	---	1.20	ug/l	1x	609	--	--	--	7.50%	(20)	05/01/09 10:20	

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CS Approval Number: UST-067

Arcadis, Geraghty, & Miller - Seattle	Project Name:	**306443 (FIA)**	
2300 Eastlake Avenue East, Suite 200	Project Number:	Chevron Alaska Sampling	Report Created:
Seattle, WA/USA 98102	Project Manager:	Greg Montgomery	05/12/09 11:39

Notes and Definitions

Report Specific Notes:

H3	-	Sample was received and analyzed past holding time.
L2	-	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
MNR1	-	There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
P7	-	Sample filtered in lab.
Q10	-	Hydrocarbon pattern most closely resembles a blend of Weathered Diesel and Transformer Oil.
Q12	-	Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference.
Q7	-	The heavy oil range organics present are due to hydrocarbons eluting primarily in the diesel range.
Q8	-	Detected hydrocarbons in the gasoline range appear to be due to overlap of diesel range hydrocarbons.
RL7	-	Sample required dilution due to high concentrations of target analyte.
ZX	-	Due to sample matrix effects, the surrogate recovery was outside the acceptance limits.

Laboratory Reporting Conventions:

DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
NR/NA	-	Not Reported / Not Available
dry	-	Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
wet	-	Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
RPD	-	RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
MRL	-	METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
MDL*	-	METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
Dil	-	Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
Reporting Limits	-	Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.
Electronic Signature	-	Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy.* Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica Seattle

Curtis D. Armstrong, Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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9405 SW Nimbus Ave,Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: BSD0272

CLIENT: Chevron

INVOICE TO: Chevron EMC

REPORT TO: ARCADIS
ADDRESS: 2300 Eastlake Ave. E, Suite 200
Seattle, WA 98102
PHONE: 206-726-4742 FAX: 206-325-8218

P.O. NUMBER: NWRTB-0306443-1-LAB

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: [10] STD. [7] [5] [4] [3] [2] [1] [<1]

Petroleum Hydrocarbon Analyses: [5] STD. [4] [3] [2] [1] [<1]

[OTHER] Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PROJECT NAME: FIA Unocal
PROJECT NUMBER: 306443
SAMPLED BY: MS/DB

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	BETX 8021	GRO AK101	DRO AK102	RRO AK103	Lead 200.8	PAHs 8270SIM	Total Alk. 310.1	Sulfate 300.0	Nitrate as Nitrogen 300.0	Methane SD15M	EDB 8011	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
			HCl HCl HCl HCl — — — — — HCl —	REQUESTED ANALYSES														
1	MW-1	4/22/09 / 1145		X	X	X	X	X	X	X	X	X	X	X	W	13	—	-01
2	MW-3	4/22/09 / 1040		X	X	X	X	X	X	X	X	X	X	X	W	13	—	-02
3	MW-5	4/22/09 / 0920		X	X	X	X	X	X	X	X	X	X	X	W	13	—	-03
4	GEI-4	4/22/09 / 1635		X	X	X	X	X	X	X	X	X	X	X	W	13	—	-04
5	GEI-8	4/22/09 / 1450		X	X	X	X	X	X	X	X	X	X	X	W	13	—	-05
6	BD-1	4/22/09 / 0600		X	X	X	X	X	X	X	X	X	X	X	W	13	—	-06
7	Trip Blank	— / —		X	X										O	2	—	-07
8																		
9																		
10																		

RELEASED BY: [signature]
PRINT NAME: Michael Strickler FIRM: ARCADIS DATE: 4/23/09 TIME: 0800

RECEIVED BY: Cathy Gamble
PRINT NAME: Cathy Gamble FIRM: TA-Sea DATE: 4/24/09 TIME: 10:00

RELEASED BY:
PRINT NAME: FIRM: DATE: TIME:

RECEIVED BY:
PRINT NAME: FIRM: DATE: TIME:

ADDITIONAL REMARKS: If sufficient volume, analyze MW-1, MW-3, MW-5, GEI-4, GEI-8 and BD-1 for VOCs by 8260B.

TEMP: 4.1

PAGE 1 OF 1

TAL-1000(0408)

DW/CS

TAT: _____ Paperwork to PM – Date:_____ Time:_____ Non-Conformances?

Page Time & Initials:_____ Circle Y or N

(If Y, see other side)

TEST AMERICA SAMPLE RECEIPT CHECKLIST

Received By: (applies to temp at receipt)	**Logged-in By:**	**Unpacked/ Labeled by:**	**Label Review by:**	***Cooler ID:*** _____
Date: 4/24	Date: 04.24	Date: 4/24/09	Date_____	Work Order No. BSD0272
Time: 10:00	Time: 1329	Time: 1500	Time:_____	Client: _____
Initials: CC	Initials: CW	Initials: [illegible]	Initials:_____	Project: _____

Container Type:
- ✓ Cooler
- ____ Box
- ____ None/Other _____

COC Seals: ?
- ✓ Ship Container
- ____ On Bottles
- ____ None

Sign By: [illegible]
Date: 4/24

Packing Material:
- ✓ Bubble Bags
- ____ Foam Packs
- ____ None/Other _____
- ____ Styrofoam

Refrigerant:
- ____ Gel Ice Pack _____
- ✓ Loose Ice _____
- ____ None/Other _____

Soil Stir Bars/Encores:
Placed in freezer #46:
Y or N or (NA)
Initial/date/time_____

Received Via: Bill#:
- ✓ Fed Ex
- ____ UPS
- ____ DHL
- ____ Senvoy
- ____ GS
- ____ Client
- ____ TA Courier
- ____ Mid Valley
- ____ TDP
- ____ Other_____

Cooler Temperature (*IR*): ____°C Plastic Glass (Frozen filters, Tedlars and aqueous Metals exempt)
(circle one)

Temperature Blank? _____°C or NA comments _____ Trip Blank? (Y) or N or NA

3.1, 4.1, 1.9, 0.0, 1.7

BP, OPLC,ARCO-Temperature monitoring every 15 minutes:
(initial/date/time):_____
Comments:_____

Sample Containers:		ID			ID
Intact?	(Y) or N	_____	Metals Preserved?	Y or N or (NA)	_____
Provided by TA?	(Y) or N	_____	Client QAPP Preserved?	Y or N or (NA)	_____
Correct Type?	(Y) or N	_____	Adequate Volume? (for tests requested)	(Y) or N	_____
#Containers match COC?	(Y) or N	_____	Water VOAs: Headspace?	(Y) or N or NA	_____
IDs/time/date match COC?	(Y) or N	_____	Comments:		
Hold Times in hold?	(Y) or N	_____			

Many bubbles

PROJECT MANAGEMENT

Is the Chain of Custody complete? Y or N If N, circle the items that were incomplete

Comments,Problems_____

_____

_____

_____

Total access set up? Y or N

ARCADIS

Appendix D

ADEC Data Review Checklists

Laboratory Data Review Checklist

Completed by:	J. Russell Greisler
Title:	Scientist II
Date:	7/16/09
CS Report Name:	First Semi-annual 2009 Groundwater Monitoring Report and Geochemical Parameter Monitoring Results
Report Date:	7/16/09
Consultant Firm:	ARCADIS
Laboratory Name:	Test America
Laboratory Report Number:	BSD0272
ADEC File Number:	100.26.040
ADEC RecKey Number:	1992310003501

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   ◉ Yes ○ No Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   ○ Yes ○ No Comments:

   N/A

2. Chain of Custody (COC)

   a. COC information completed, signed, and dated (including released/received by)?

   ◉ Yes ○ No Comments:

   b. Correct analyses requested?

   ◉ Yes ○ No Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?

☉ Yes ○ No Comments:

4.1° Celsius

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

☉ Yes ○ No Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

☉ Yes ○ No Comments:

Samples received intact

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

○ Yes ○ No Comments:

N/A

e. Data quality or usability affected? Explain.

Comments:

N/A

4. Case Narrative

a. Present and understandable?

☉ Yes ○ No Comments:

b. Discrepancies, errors or QC failures identified by the lab?

○ Yes ☉ No Comments:

c. Were all corrective actions documented?

○ Yes ○ No Comments:

N/A

d. What is the effect on data quality/usability according to the case narrative?

Comments:

N/A

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

☉ Yes ○ No Comments:

b. All applicable holding times met?

○ Yes ☉ No Comments:

Holding time for nitrate analysis was not met for samples MW-3 and MW-5.

c. All soils reported on a dry weight basis?

○ Yes ○ No Comments:

N/A

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

☉ Yes ○ No Comments:

e. Data quality or usability affected?

Comments:

N/A

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

☉ Yes ○ No Comments:

ii. All method blank results less than PQL?

☉ Yes ○ No Comments:

iii. If above PQL, what samples are affected?

Comments:

N/A

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No Comments:

N/A

v. Data quality or usability affected? Explain.

Comments:

N/A

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

☑ Yes ☐ No Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

☑ Yes ☐ No Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

☐ Yes ☑ No Comments:

The LCS percent recovery for AK102 was 71.8%. (QC Batch 9D23045)

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

☑ Yes ☐ No Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

N/A

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☑ Yes ☐ No Comments:

N/A

vii. Data quality or usability affected? (Use comment box to explain)

Comments:

N/A

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

☉ Yes ○ No Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

☉ Yes ○ No Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

○ Yes ○ No Comments:

N/A

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

N/A

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): <u>Water and Soil</u>

i. One trip blank reported per matrix, analysis and cooler?

○ Yes ○ No Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

○ Yes ○ No Comments:

iii. All results less than PQL?

○ Yes ○ No Comments:

iv. If above PQL, what samples are affected?

Comments:

N/A

v. Data quality or usability affected? Explain.

Comments:

N/A

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

◉ Yes ○ No Comments:

ii. Submitted blind to lab?

○ Yes ○ No Comments:

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

◉ Yes ○ No Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

N/A

f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below.)

☐ Yes ☐ No ☒ Not Applicable

i. All results less than PQL?

☐ Yes ☐ No Comments:

N/A

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? Explain.

Comments:

N/A

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

☐ Yes ☐ No Comments:

N/A