Bioremediation Data Report
In Situ Enhanced Natural Attenuation of Petroleum
Ken's Auto Wash
Ellensburg, Washington

Prepared for
Ken's Auto

May 16, 2012
7168-09

HARTCROWSER

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BIOREMEDIATION DATA REPORT
IN SITU ENHANCED NATURAL ATTENUATION OF PETROLEUM
KEN'S AUTO WASH
ELLENSBURG, WASHINGTON

1.0 INTRODUCTION

This report was prepared on behalf of Mr. Ken Peterson and presents a summary of the *in situ* bioremediation injection program and groundwater monitoring at the Ken's Auto Wash site, located at 1013 East University Way in Ellensburg, Washington (Figure 1). The goal of this work is to accelerate biological degradation of residual gasoline-range hydrocarbons (TPH-G) in the former source area and reduce the likelihood of future groundwater concentration exceedances above the Washington State Model Toxics Control Act (MTCA) Method A cleanup levels (Chapter 173-340 WAC). The work performed was generally consistent with the scope outlined in our June 3, 2010, proposal and is in conformance with an Agreed Order with the Washington State Department of Ecology (Ecology) under MTCA (RCW 70.105D.040[5]).

A related site cleanup objective is to obtain a favorable regulatory opinion letter from Ecology at the completion of remediation and monitoring. Ideally, this would be in the form of a No Further Action (NFA) determination, but an NFA will require demonstration that residual soil contamination is not impacting groundwater quality relative to applicable MTCA Method A cleanup levels. A favorable Ecology opinion letter would also facilitate down-ranking of the MTCA site risk level.

2.0 PROJECT BACKGROUND

The site is affected by a petroleum hydrocarbon release discovered during UST tightness testing in 1996 (Figure 2). Corrective actions were taken at that time, and the site USTs were subsequently removed in April 2005, as documented in the June 7, 2005, Gasoline UST Closure Report. Petroleum-impacted soil was removed downgradient of the UST area in October and November 2000, but a small volume of affected soil remained because of infrastructure limitations at the site, as shown on Figure 2.

During the soil removal, oxygen-releasing compound (ORC) was added to the excavation backfill to promote biodegradation of residual petroleum hydrocarbons. ORC was also injected downgradient of the petroleum hydrocarbon-affected groundwater in February 2005, as documented in the

April 6, 2005, Supplemental Strataprobe Exploration Report. Although concentrations of TPH in groundwater continued to slowly decrease following UST removal, soil removal, and ORC injection, TPH-G concentrations in groundwater downgradient of the residual source area periodically exceed the MTCA Method A cleanup limit.

Remedial alternatives were presented and evaluated in a Remedial Investigation and Feasibility Study (RI/FS) completed in November 2006. The RI/FS addressed requirements of an Agreed Order issued by Ecology for site cleanup assessment following a MTCA site hazard ranking of 2. Remedial technologies evaluated in the RI/FS were based on results of site investigation, soil cleanup, and monitoring efforts through 2006.

Following Ecology's review of the RI/FS, monitored natural attenuation with free product removal was selected as the preferred RI/FS remedial alternative. Monitored natural attenuation is a process where hydrocarbon-degrading microbes that occur naturally in soil degrade petroleum hydrocarbons. Appreciable free product has not been identified at the site since 2004, so current remedial actions do not include free product removal. Site monitoring continues in accordance with the selected FS alternative. Table 1 outlines the past and current groundwater monitoring schedule. Ecology has not required any additional actions besides the monitored natural attenuation.

Petroleum-impacted soil remains downgradient of the former USTs beneath the sidewalk and portions of East University Way (Figure 2). According to groundwater elevation and TPH-G concentration data, most of the residual contamination is located in two areas: in unexcavated soil between MW-4 and MW-14, and near the top of the smear zone under the street and sidewalk north of MW-6. This remaining source material likely contributes to periodic exceedances of MTCA Method A cleanup criteria for TPH-G in groundwater near wells MW-14 and MW-6.

Natural attenuation appears to be progressing at the site within the relatively long-term, expected time frame. During natural attenuation, hydrocarbon-degrading microbes oxidize and metabolize petroleum hydrocarbons using electron acceptors such as dissolved oxygen, nitrate, ferric iron, manganese, sulfate, and carbon dioxide. Groundwater monitoring data indicate that dissolved oxygen, nitrate, and ferric iron are being used as electron acceptors; however, natural attenuation is limited by the slow groundwater transport of these acceptors from upgradient areas.

3.0 ENHANCED BIOREMEDIATION PROGRAM

The enhanced bioremediation program introduced remediation amendments over a series of three injection events to accelerate natural attenuation already occurring at the site. The contaminant degradation process is termed "anaerobic oxidation." These amendments included PetroBac™, OxEA-aq, and Ivey-Sol (Appendix A.) PetroBac is a liquid provided by ETEC, LLC, and contains a blend of hydrocarbon-degrading microbes (bioaugmentation) and a surfactant. Patent-pending OxEA-aq™ is a dry powder provided by Bioremediation Specialists, LLC, and contains a blend of highly soluble electron acceptors (oxidants) and macro-, and micro-nutrients. Patented Ivey-Sol is a liquid provided by Ivey International and is a highly concentrated, biodegradable, non-ionic surfactant to improve amendment distribution and enhance desorption of TPH-G from soil for microbe consumption.

The bioremediation program is based on site-specific conditions. These conditions include:

- The nature of the contaminant (TPH-G and aromatic hydrocarbons);
- The estimated mass of residual petroleum;
- The target soil matrix (silty sand to sandy gravel with areas of gravel backfill);
- Contaminant distribution (localized to shallow source area); and
- The availability of existing infrastructure (monitoring wells and air sparge line).

3.1 Amendment Injection Activities

Amendment distribution was achieved by injecting multiple amendments into multiple locations. Table 2 summarizes the three injection events for the bioremediation program, which occurred on January 31, May 3, and November 30, 2011. A total of 15 gallons of PetroBac, 1,750 pounds of OxEA-aq, and 7.25 gallons of Ivey Sol were injected. Conservative tracers were introduced into MW-4 (sodium bromide) and MW-3 (sodium chloride) during the first injection to track groundwater movement, flux, and amendment use. The injection strategy achieved passive, aqueous-phase transport of supplemental electron acceptors across the plume.

Our bioremediation design assumed access to the horizontal air sparge line, located immediately south of MW-14, in order to deliver amendments laterally across the area of highest residual contamination. Unfortunately, the access port to the air sparge line could not be located, so monitoring wells were used to inject amendments.

3.2 Injection Methodology

Amendment injections occurred in a prescribed sequence to achieve the goals of treatment traceability and amendment contact with residual contamination. All injections used municipal tap water to dilute and dissolve amendments. Field methods for injection protocols are provided in Appendix A.

During the first injection, conservative tracer solutions were introduced first. Twenty-five pounds of sodium chloride in 35.5 gallons of tap water was introduced into MW-3, followed by 25 gallons of tap water to flush the tracer out of the well. Fifteen pounds of sodium bromide in 17.5 gallons of tap water was introduced into MW-4R, followed by a 17.5 gallon tap water chase. Following the tracer injection, PetroBac was diluted to a 1:20 ratio in tap water and injected into MW-4R, MW-6, and MW-14. Wells MW-2, MW-3, MW-4R, MW-5, MW-6, and MW-14 then received the prescribed OxEA mass by dissolving the amendment at a rate of approximately one pound of OxEA to one gallon of tap water to make a master working solution. Master working solution was prepared in batches up to 55 gallons. This master solution was then injected into each location and chased with 9 gallons of tap water for each gallon of master working solution introduced.

Subsequent injections introduced OxEA-aq and Ivey Sol only. The OxEA-aq injection methodology for the second and third injection events followed the same master working solution method. For wells receiving Ivey Sol, the Ivey Sol was added full-strength to the first batch of master working solution. Subsequent master working solution was then injected (as required) and followed by the same 9 gallons of tap water per gallon of master working solution ratio.

4.0 GROUNDWATER MONITORING

Quarterly groundwater monitoring events were completed on May 2 and July 27, 2011, to monitor treatment progress in selected wells. Annual sampling was completed on November 2, 2011, for all monitoring wells. The post-injection monitoring event was completed on February 13, 2012, to monitor treatment progress in selected wells. Groundwater was sampled prior to any injection activities using low-flow sampling methods (Appendix A). Table 3 provides the groundwater monitoring schedule during the bioremediation program.

4.1 Groundwater Elevation Measurements

Table 4 presents the measured depth to groundwater from the top of the well casing and the calculated groundwater elevations. Groundwater levels were

monitored during the quarterly events in selected wells and in all nine wells during the annual event. The groundwater elevation trends show higher elevations in the late winter and spring months and lower elevations in the summer and fall months.

Figure 3 illustrates the groundwater elevation and interpolated groundwater elevation contours based on measurements taken in November 2011. The contours indicate that the groundwater gradient continues to be toward the southwest, which is also consistent with historical observations. The November 2011 groundwater elevations were consistent with the November 2010 elevations, but show a 0.4- to 0.8-foot decrease in elevation compared to the October 2009 elevations. These fluctuations likely represent the natural annual variability in groundwater table elevations.

4.2 Groundwater Sampling

Monitoring included sampling groundwater from up to nine monitoring wells (Figure 2) for analysis of one or more of the following:

- TPH-G by Ecology Method NWTPH-G;
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021B;
- Nitrogen as nitrate, sulfate, bromide, and chloride by EPA Method 300.0; and/or
- Total lead by EPA Method 6020.

In addition, ferrous iron was measured in the field using a Hach color disc. Nitrate, nitrite, and ammonia were measured in the field using colorimetric strips. These field measurements were used to evaluate and modify the injection schedule during the bioremediation program.

Analytical results are summarized in Table 5 for TPH-G, BTEX, and total and dissolved lead. Table 6 presents analytical data for field testing and other inorganic ions. Table 7 documents the observed thickness of free product from previous monitoring events. No free product has been observed since 2004, before removal of the USTs and ORC injection in 2005. Figures 4 and 5 illustrate the occurrence of TPH-G and benzene in groundwater, respectively. Figures 6 and 7 illustrate the long-term trends in TPH-G and benzene concentrations in groundwater, respectively. Chemical quality review and laboratory reports are provided in Appendix B.

5.0 ENHANCED BIOREMEDIATION PERFORMANCE

Bioremediation performance was assessed by reviewing tracer (sodium bromide and sodium chloride), oxidant loading (nitrate and sulfate), TPH-G, and BTEX data. Additional processes, including surfactant- and microbial-induced TPH-G mobilization and the preferential degradation of BTEX constituents by microbes, are assessed below.

5.1 Tracer Results

Tracer data was largely unsuccessful in distinguishing groundwater flow and direction. Only a small increase in bromide concentrations was noted during the monitoring program and did not trace well through the aquifer. Bromide was not detected near MW-4R in July 2011 and was never detected at the anticipated concentration in MW-14.

Chloride data does not present a compelling or consistent picture, either. Various elevated chloride concentrations were observed, including the May 2011 data from MW-6 (83.0 mg/L) and November 2011 data from MW-12 (493 mg/L). While the data is generally consistent with groundwater flow paths, the results may be biased due to the City of Ellensburg's use of sodium chloride for road de-icing. Therefore, overall tracer data is not considered reliable for assessment.

5.2 Oxidant Results

A more reliable method for assessing oxidant distribution is by monitoring concentrations of nitrate and sulfate, the primary bioremediation oxidants in OxEA-aq. Of these oxidants, nitrate tends to be consumed first and sulfate consumed last. Although both oxidants are typically used together, the rate of nitrate consumption is faster. Injected oxidants are typically first used by microbes to consume volatile fatty acids (partially degraded petroleum), then aromatics (BTEX), and then aliphatics (included in TPH-G analysis), providing a fairly predictable treatment process.

The presence of nitrate also induces the petroleum-degrading bacteria to produce natural surfactants. When OxEA-aq is combined with Ivey Sol surfactant, elevated nitrate concentrations are associated with much higher dissolved aromatic and TPH-G concentrations than the normal site environment. This is evident in the oxidant loading plots presented on Figures 8 and 9, where higher oxidant loading is directly associated with increases in TPH-G concentrations.

Preinjection groundwater monitoring showed nitrate concentrations up to 7.14 mg/L (MW-12, May 2007), but concentrations typically remained below 1 mg/L along the core plume axis. After OxEA-aq injections, elevated nitrate concentrations were noted in all injection wells. The most notable increases occurred during February 2012 in MW-14 (99.0 mg/L) and MW-4R (74.9 mg/L). As nitrate is used rapidly by petroleum-degrading microbes, including those provided in PetroBac, the continued presence of nitrate three months after the last injection in November 2011 suggests that much less petroleum is present in the soil matrix between these wells.

As sulfate tends to be used more slowly than nitrate, elevated sulfate concentrations can indicate amendment movement. For example, July 2011 groundwater samples from MW-14 did not contain nitrate, only elevated concentrations of sulfate (550 mg/L), confirming that amendment was being used along the plume axis 3 months after the May 2011 injection event. The origin of this sulfate is likely to be upgradient from MW-4R. A higher concentration of sulfate was noted in February 2012, 3 months after the heaviest amendment application (300 pounds) in MW-4R, supporting this conclusion.

Elevated sulfate was also noted in downgradient MW-5 (21.7 mg/L) and MW-12 (60.3 mg/L) during November 2011. The high sulfate concentration noted in MW-12 was concurrent with the high chloride concentration (493 mg/L), supporting the conclusion that groundwater flow from near MW-3 may have a more westerly component that previously estimated and with groundwater velocities greater than 1 foot per day. Elevated sulfate concentrations were not noted in downgradient monitoring wells MW-13 or MW-15, suggesting that amendment from the January 2011 MW-2 and MW-6 injections had been fully consumed before reaching MW-13.

5.3 Petroleum Hydrocarbon Results

Amendment injections typically mobilize and degrade aromatic BTEX constituents first, based on their higher solubility compared to aliphatic hydrocarbons and greater energy yield to the microbes when metabolized. The noteworthy absence of benzene during this process strongly supports the conclusion that little benzene, if any, remains in site soils.

In MW-14, February 2012 concentrations of ethylbenzene (1.8 µg/L) and total xylene (8.6 µg/L) were much lower compared to preinjection October 2009 results under comparable TPH-G concentrations. This supports the conclusion that significant aromatic and total petroleum degradation has occurred near MW-14. The elevated February 2012 petroleum results in MW-14 are likely directly linked to heavy surfactant and OxEA-aq application in MW-4R during

November 2011, effectively "wringing" the soil of remaining petroleum for microbe consumption. As shown on Figure 8, the previous inverse relationship between groundwater elevation and TPH-G concentrations stopped after amendment additions began. Instead, oxidant/amendment concentrations became a much more reliable predictor of TPH-G concentration trends. As oxidant/amendment concentrations drop, we anticipate that TPH-G concentrations will concurrently drop, as they did in MW-14 during November 2011. There is a good chance that the eventual TPH-G drop is likely to be maintained below the cleanup level.

Significant mobilization of petroleum from the soil is also evident in the July 2011 analytical results for MW-4R. This well had been generally non-detect for BTEX and TPH-G since October 2005. Relatively high concentrations of TPH-G (980 µg/L) and toluene (250 µg/L) occurred 6 months after injections into upgradient MW-3, demonstrating the ability of the surfactants to dissolve petroleum into groundwater for microbe consumption. The net effect is to sharply blunt any subsequent groundwater concentration rebounds following the eventual reduction in microbial activity and surfactant biodegradation. Reducing soil-bound petroleum also allows the natural oxidants, which fuel the natural attenuation process, to penetrate deeper into the plume and degrade residual petroleum in downgradient areas more rapidly.

The February 2012 groundwater data from MW-6 is very encouraging in the context of this remediation process. While groundwater TPH-G concentrations spiked above the cleanup level (1,600 µg/L), there is a notable lack of benzene, ethylbenzene, and xylene compared to June 2008 results collected under steady-state conditions and comparable TPH-G concentrations (1,550 µg/L). The February 2012 TPH-G spike is likely associated with the injections into either MW-2 or MW-14 during November 2011. The amendment source and treated zone is uncertain, given the absence of prior, comparable response in MW-6 to MW-14 injections. As shown on Figure 9, the previous pattern of higher water levels concurrent with TPH-G spikes in MW-6 was not as prevalent during periods of oxidant loading.

6.0 CONCLUSION AND RECOMMENDATIONS

Based on the data collected through February 2012, substantial petroleum destruction has occurred within the treatment zone. Although residual petroleum mass was aggressively mobilized from the soil matrix, few BTEX compounds remain. While MW-6 and MW-14 continue to have TPH-G concentrations above MTCA Method A cleanup levels, oxidants are still available for microbes to aggressively degrade dissolved petroleum. Data from

these wells are not likely to indicate steady-state concentrations for 6 months, but they should decline with lower oxidant availability and eventual surfactant biodegradation.

The injected bioremediation amendments do not appear to have migrated outside of the TPH-G plume footprint, as evidenced by data collected from MW-13. However, the presence of elevated chloride and sulfate in MW-12 suggests some component of groundwater flow from near MW-3 has a more westerly component than previously thought.

We recommend continued quarterly bioremediation performance sampling of MW-4R, MW-6, MW-13, and MW-14 through November 2012. Performance sampling includes analysis for TPH-G, VOCs, nitrate, and sulfate to assess oxidant consumption and final steady-state petroleum concentrations. This sampling is in addition to the normal annual monitoring, which should be held in November 2012. Depending on data through November 2012, the site may be ready for four quarters of compliance monitoring required for site closure.

7.0 LIMITATIONS

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

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Table 1 - Previous and Current Groundwater Monitoring Schedule

Well	Purpose	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
MW-2	Bound Plume - East	Quarterly [a]	Quarterly [a]	Biannual	[b]	Biannual [a]	Biannual [a]	[b]	Annual [a]	Quarterly [c]	Quarterly [d]
MW-3	Background	Quarterly [a]	Quarterly [a]	Biannual	[b]	Biannual [a]	Biannual [a]	[b]	Annual [a]	Quarterly [c]	Quarterly [d]
MW-4/4R	Source Area (Upgradient Edge)	Quarterly [a]	Quarterly [a]	Biannual	Biannual	Biannual [a]	Biannual [a]	Annual [a]	Annual [a]	Quarterly [c]	Quarterly [d]
MW-5	Bound Plume - West	Quarterly [a]	Quarterly [a]	Biannual	Biannual	Biannual [a]	Biannual [a]	Annual [a]	Annual [a]	Quarterly [c]	Quarterly [d]
MW-6	Plume Extent	Quarterly [a]	Quarterly [a]	Biannual	[b]	Biannual [a]	Biannual [a]	[b]	Annual [a]	Quarterly [c]	Quarterly [d]
MW-12	Bound Plume - Southwest	Quarterly [a]	Quarterly [a]	Biannual	Biannual	Biannual [a]	Biannual [a]	Annual [a]	Annual [a]	Quarterly [c]	Quarterly [d]
MW-13	Bound Plume - South	Quarterly [a]	Quarterly [a]	Biannual	[b]	Biannual [a]	Biannual [a]	[b]	Annual [a]	Quarterly [c]	Quarterly [d]
MW-14	Source Area	Quarterly [a]	Quarterly [a]	Biannual	Biannual	Biannual [a]	Biannual [a]	Annual [a]	Annual [a]	Quarterly [c]	Quarterly [d]
MW-15	Bound Plume - Southeast	Quarterly [a]	Quarterly [a]	Biannual	[b]	Biannual [a]	Biannual [a]	[b]	Annual [a]	Quarterly [c]	Quarterly [d]

Notes:

Biannual refers to twice yearly events targeted during spring (Q2) and fall (Q4). Biannual and annual monitoring schedules will be based on estimated seasonal high and low groundwater elevations.

Monitoring will include measurement of groundwater elevation and dissolved oxygen and collection of a groundwater sample for analysis by NWTPH-G/BTEX and total lead.

a Monitoring also includes collection of groundwater samples for analysis for nitrate/nitrite, sulfate, and ferrous iron for the indicated sampling events.

b Although not strictly required, wells MW-2, MW-3, MW-6, MW-13, and MW-15 were monitored and sampled during the fall of 2006 and 2009.

c Quarterly monitoring is part of the Bioremediation Work Plan, dated November 22, 2010.

d Quarterly monitoring is recommended.

Table 2 - Enhanced Bioremediation Injection Schedule

Injection Location	Event 1 January 31, 2011			Event 2 May 3, 2011		Event 4 November 30, 2011		**3-Event OxEA-aq Subtotal**
	OxEA-aq	PetroBac	Tracer	OxEA-aq	Ivey-sol	OxEA-aq	Ivey-sol	
MW-2	25 lbs					100 lbs	0.25 gal	**125 lbs**
MW-3	250 lbs		Cl 25 lbs	200 lbs				**450 lbs**
MW-4R	250 lbs	5 gal		125 lbs	2.0 gal	300 lbs	2.0 gal	**675 lbs**
MW-5	25 lbs							**25 lbs**
MW-6	50 lbs	5 gal		25 lbs	0.4 gal			**75 lbs**
MW-14	200 lbs	5 gal	Br 15 lbs	100 lbs	1.6 gal	100 lbs	1.0 gal	**400 lbs**
Event Total	800 lbs	15 gal	40 lbs	450 lbs	4.0 gal	500 lbs	3.25 gal	**1,750 lbs**

Notes:

PetroBac contains biodegradable surface-active agents and petroleum-degrading microbes to enhance amendment consumption and petroleum destruction.
OxEA-aq is a soluble blend of oxidants with macro- and micronutrients to enhance petroleum degradation.
Ivey-sol is a biodegradable, nonionic surfactant formulated to improve bioremediation of petroleum hydrocarbons.
Event 3 was a monitoring event and no injections were performed.
Table presents actual injection masses and was based on performance and monitoring results.
Br = Food-grade sodium bromide
Cl = Food-grade sodium chloride
lbs = pounds
gal = gallons

Table 3 - Enhanced Bioremediation Groundwater Monitoring Schedule

Monitoring Well	Baseline November 2010				Event 2 May 2011				Event 3 July 2011				Event 4 November 2011					Post-Injection Event February 2012			
	G	V	Ions	F	G	V	Ions	F/N	G	V	Ions	F/N	G	V	Ions	F	N	G	V	Ions	F/N
Injection Wells																					
MW-2	X	X	X	X									X	X	X	X					
MW-3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-4R	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-5	X	X	X	X									X	X	X	X					
MW-6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Downgradient Wells																					
MW-12	X	X	X	X									X	X	X	X					
MW-13	X	X	X	X			X	X			X	X	X	X	X	X	X			X	X
MW-15	X	X	X	X									X	X	X	X					

Notes:
Monitoring was performed before any injection activities.
G = Gasoline-range petroleum hydrocarbons by Ecology Method NWTPH-Gx.
V = Volatile organic compounds benzene, toluene, ethylbenzene, and xylene by EPA Method 8021B.
Ions = Nitrate as nitrogen, sulfate, bromide, and chloride by EPA Method 300.0.
F = Field kit testing of ferrous iron.
N = Field kit testing of nitrate.

Table 4 - Groundwater Elevation Data

Measured Depth to Groundwater in Feet

Well No.	8-Apr-96	5-Jan-98	5-Feb-98	5-Mar-98	6-Apr-98	5-May-98	5-Jun-98	6-Jul-98	5-Aug-98	4-Sep-98	5-Oct-98	5-Nov-98	29-Dec-99	21-Mar-00
MW-1	6.85	na	7.67	8.01	8.38	6.88	6.94	7.50	7.69	7.82	7.85	8.33	9.65	8.51
MW-14 (b)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	6.70	7.53	6.50	6.88	7.18	5.69	5.79	6.19	6.55	6.58	7.70	7.06	7.23	7.18
MW-3	8.08	8.42	7.65	8.01	8.17	6.71	7.50	7.42	7.51	7.66	7.80	8.28	8.41	8.29
MW-4	---	7.84	7.17	7.43	7.67	6.42	6.57	6.90	7.01	7.14	7.21	7.62	7.68	7.60
MW-4R (c)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	---	8.23	7.15	7.45	7.96	6.24	6.34	6.65	7.16	7.29	7.41	7.94	7.52	7.32
MW-6	---	9.70	8.67	9.13	9.46	8.14	8.21	8.66	8.87	9.01	9.05	9.51	8.60	8.36
MW-12	---	---	---	---	---	---	---	---	---	---	---	---	6.91	6.64
MW-13	---	---	---	---	---	---	---	---	---	---	---	---	5.42	5.33
MW-15	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Groundwater Elevation in Feet

Well No.	TOC Elev. (a)	8-Apr-96	5-Jan-98	5-Feb-98	5-Mar-98	6-Apr-98	5-May-98	5-Jun-98	6-Jul-98	5-Aug-98	4-Sep-98	5-Oct-98	5-Nov-98	29-Dec-99	21-Mar-00
MW-1	1588.38	1581.53	na	1580.71	1580.37	1580.00	1581.50	1581.44	1580.88	1580.69	1580.56	1580.53	1580.05	1578.73	1579.87
MW-14 (b)	1588.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	1588.92	1582.22	1581.39	1582.42	1582.04	1581.74	1583.23	1583.13	1582.73	1582.37	1582.34	1581.22	1581.86	1581.69	1581.74
MW-3	1591.43	1583.35	1583.01	1583.78	1583.42	1583.26	1584.72	1583.93	1584.01	1583.92	1583.77	1583.63	1583.15	1583.02	1583.14
MW-4	1589.50	---	1581.66	1582.33	1582.07	1581.83	1583.08	1582.93	1582.60	1582.49	1582.36	1582.29	1581.88	1581.82	1581.90
MW-4R (c)	1588.76	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	1587.75	---	1579.52	1580.60	1580.30	1579.79	1581.51	1581.41	1581.10	1580.59	1580.46	1580.34	1579.81	1580.23	1580.43
MW-6	1587.72	---	1578.02	1579.05	1578.59	1578.26	1579.58	1579.51	1579.06	1578.85	1578.71	1578.67	1578.21	1579.12	1579.36
MW-12	1585.41	---	---	---	---	---	---	---	---	---	---	---	---	1578.50	1578.77
MW-13	1582.45	---	---	---	---	---	---	---	---	---	---	---	---	1577.03	1577.12
MW-15	1588.39	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 4 - Groundwater Elevation Data

Measured Depth to Groundwater in Feet

Well No.	14-Jun-00	12-Sep-00	30-Jan-01	26-Apr-01	29-Jul-01	27-Oct-01	15-Nov-02	9-May-03	30-Sep-03	11-Dec-03	31-Mar-04	2-Jun-04	30-Sep-04	14-Dec-04
MW-1	7.08	7.85	---	---	---	---	---	---	---	---	---	---	---	---
MW-14 (b)	---	---	8.55	8.35	7.01	9.02	8.90	6.23	8.05	8.58	8.32	6.28	7.79	8.45
MW-2	6.10	6.70	7.54	7.11	6.23	7.64	7.61	5.95	6.81	7.03	7.05	5.94	6.69	7.07
MW-3	7.42	7.92	8.70	7.67	7.28	8.66	8.63	6.89	8.06	8.48	8.30	6.98	7.92	8.64
MW-4	6.80	7.23	8.08	7.85	6.93	8.09	8.04	6.71	7.65	7.81	7.70	6.62	7.44	7.86
MW-4R (c)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	6.25	6.87	na	7.98	6.29	7.97	8.05	6.19	7.55	7.83	7.59	6.14	---	9.21
MW-6	7.70	8.07	na	9.28	8.09	9.44	9.37	7.91	8.90	9.19	9.00	7.82	8.88	9.49
MW-12	6.05	6.36	na	7.30	6.38	7.13	7.52	6.50	7.25	7.38	7.18	6.40	7.31	7.81
MW-13	4.70	4.98	na	5.74	4.67	5.78	---	---	5.32	5.73	5.49	4.63	5.18	5.81
MW-15	---	---	9.23	8.83	7.59	9.30	9.08	7.38	8.55	8.67	8.85	7.31	8.33	9.20

Groundwater Elevation in Feet

Well No.	TOC Elev. (a)	14-Jun-00	12-Sep-00	30-Jan-01	26-Apr-01	29-Jul-01	27-Oct-01	15-Nov-02	9-May-03	30-Sep-03	11-Dec-03	31-Mar-04	2-Jun-04	30-Sep-04	14-Dec-04
MW-1	1588.38	1581.30	1580.53	---	---	---	---	---	---	---	---	---	---	---	---
MW-14 (b)	1588.4	---	---	1579.85	1580.05	1581.39	1579.38	1579.50	1582.17	1580.35	1579.82	1580.08	1582.12	1580.61	1579.95
MW-2	1588.92	1582.82	1582.22	1581.38	1581.81	1582.69	1581.28	1581.31	1582.97	1582.11	1581.89	1581.87	1582.98	1582.23	1581.85
MW-3	1591.43	1584.01	1583.51	1582.73	1583.76	1584.15	1582.77	1582.80	1584.54	1583.37	1582.95	1583.13	1584.45	1583.51	1582.79
MW-4	1589.50	1582.70	1582.27	1581.42	1581.65	1582.57	1581.41	1581.46	1582.79	1581.85	1581.69	1581.80	1582.88	1582.06	1581.64
MW-4R (c)	1588.76	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	1587.75	1581.50	1580.88	na	1579.77	1581.46	1579.78	1579.70	1581.56	1580.20	1579.92	1580.16	1581.61	---	1578.54
MW-6	1587.72	1580.02	1579.65	na	1578.44	1579.63	1578.28	1578.35	1579.81	1578.82	1578.53	1578.72	1579.90	1578.84	1578.23
MW-12	1585.41	1579.36	1579.05	na	1578.11	1579.03	1578.28	1577.89	1578.91	1578.16	1578.03	1578.23	1579.01	1578.10	1577.60
MW-13	1582.45	1577.75	1577.47	na	1576.71	1577.78	1576.67	---	---	1577.13	1576.72	1576.96	1577.82	1577.27	1576.64
MW-15	1588.39	---	---	1579.16	1579.56	1580.80	1579.09	1579.31	1581.01	1579.84	1579.72	1579.54	1581.08	1580.06	1579.19

Table 4 - Groundwater Elevation Data

Measured Depth to Groundwater in Feet

Well No.	4-Apr-05	6-Oct-05	28-Jun-06	13-Nov-06	25-May-07	8-Nov-07	4-Jun-08	21-Oct-08	14-Oct-09	15-Nov-10	2-May-11	27-Jul-11	2-Nov-11	13-Feb-12
MW-1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-14 (b)	8.63	7.83	6.15	7.57	5.23	8.04	5.20	7.57	7.20	8.11	5.88	6.57	7.91	7.35
MW-2	7.57	7.21	nm	7.01	5.56	7.18	5.46	6.80	6.77	7.23	nm	nm	7.20	nm
MW-3	8.80	8.37	nm	8.13	6.72	8.52	6.52	8.17	8.00	8.64	6.75	7.45	8.75	8.29
MW-4	8.02	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4R (c)	---	7.78	6.01	6.23	5.45	6.92	5.39	6.60	6.51	6.94	5.84	6.00	6.88	6.71
MW-5	8.32	7.73	6.38	7.32	5.83	7.97	5.82	7.40	7.12	7.99	nm	nm	7.79	nm
MW-6	9.78	9.14	nm	8.79	7.56	9.22	7.43	8.84	8.58	9.20	7.90	8.16	9.36	9.13
MW-12	7.89	7.51	6.90	7.20	6.41	7.62	6.30	7.30	7.16	7.63	nm	nm	7.61	nm
MW-13	5.16	5.56	nm	5.91	4.46	5.68	4.43	5.40	5.11	5.60	4.85	4.88	5.64	5.45
MW-15	9.40	8.02	nm	8.49	6.98	8.96	6.90	8.57	8.22	9.04	nm	nm	9.04	nm

Groundwater Elevation in Feet

Well No.	TOC Elev. (a)	4-Apr-05	6-Oct-05	28-Jun-06	13-Nov-06	25-May-07	8-Nov-07	4-Jun-08	21-Oct-08	14-Oct-09	15-Nov-10	2-May-11	27-Jul-11	2-Nov-11	13-Feb-12
MW-1	1588.38	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-14 (b)	1588.4	1579.77	1580.57	1582.25	1580.83	1583.17	1580.36	1583.20	1580.83	1581.20	1580.29	1582.52	1581.83	1580.49	1581.05
MW-2	1588.92	1581.35	1581.71	nm	1581.91	1583.36	1581.74	1583.46	1582.12	1582.15	1581.69	nm	nm	1581.72	nm
MW-3	1591.43	1582.63	1583.06	nm	1583.30	1584.71	1582.91	1584.91	1583.26	1583.43	1582.79	1584.68	1583.98	1582.68	1583.14
MW-4	1589.50	1581.48	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4R (c)	1588.76	---	1580.98	1582.75	1582.53	1583.31	1581.84	1583.37	1582.16	1582.25	1581.82	1582.92	1582.76	1581.88	1582.05
MW-5	1587.75	1579.43	1580.02	1581.37	1580.43	1581.92	1579.78	1581.93	1580.35	1580.63	1579.76	nm	nm	1579.96	nm
MW-6	1587.72	1577.94	1578.58	nm	1578.93	1580.16	1578.50	1580.29	1578.88	1579.14	1578.52	1579.82	1579.56	1578.36	1578.59
MW-12	1585.41	1577.52	1577.90	1578.51	1578.21	1579.00	1577.79	1579.11	1578.11	1578.25	1577.78	nm	nm	1577.80	nm
MW-13	1582.45	1577.29	1576.89	nm	1576.54	1577.99	1576.77	1578.02	1577.05	1577.34	1576.85	1577.60	1577.57	1576.81	1577.00
MW-15	1588.39	1578.99	1580.37	nm	1579.90	1581.41	1579.43	1581.49	1579.82	1580.17	1579.35	nm	nm	1579.35	nm

Notes:

(a) TOC Elevation = top of casing elevations are surveyed relative to Mean Sea Level by Sage Environmental. MW-12 and MW-13 were surveyed relative to existing well MW-1, and existing wells MW-5 and MW-6 were re-surveyed and corrected slightly.

(b) Well MW-1 replaced as well MW-14 by Hart Crowser and resurveyed following remediation work in November 2000.

(c) Well MW-4 was replaced as well MW-4R by Hart Crowser in October 2005 and resurveyed, following removal of the well during UST removal activities in April 2005.

--- Well not installed or not available as of date indicated.

nm Indicates well was not measured.

Table 5 - Summary of Groundwater Chemistry Data - TPH-G, BTEX, and Lead

Well ID	Date Sampled	Concentration in µg/L TPH-Gasoline	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead	Diss. Lead
MW-1	4/8/1996	**160,000**	**2,500**	**19,000**	**3,000**	**21,000**	**65**	--
	1/5/1998	--	--	--	--	--	--	--
	4/6/1998	**100,000**	**180**	260	**940**	**9,800**	**180**	--
	7/6/1998	**93,000**	**110**	200	**760**	**8,800**	**220**	--
	10/5/1998	--	--	--	--	--	--	--
	12/29/1999	**21,600**	**87.4**	47.7	657	**3,900**	--	**21.3**
	3/21/2000	**19,800**	**94.1**	59.6	479	**2,710**	--	**16.5**
	6/14/2000	**18,800**	**94.9**	26.4	471	**2,870**	--	8
	9/12/2000	**21,400**	**111**	35.1	496	**2,930**	--	6.54
MW-14	1/30/2001	**7,450**	**19.3**	14	424	673	--	--
(Replaces MW-1)	4/26/2001	**26,100**	**37.2**	29.7	580	**2,680**	--	--
	7/29/2001	**14,200**	**10.3**	14.2	318	**1,480**	--	--
	10/27/2001	**9,970**	**46.4**	4.55	187	707	--	--
	11/15/2002	**8,380**	**11**	2.5 U	122	357	--	--
	5/9/2003	**4,520**	2.62	0.5 U	0.775	172	5.33	--
	9/30/2003	**6,230** J	**11.7** J	1.61 J	151 J	369 J	4.56	--
	12/11/2003	**5,890**	**12.6**	5.0 U	5.0 U	271	12.4	--
	3/31/2004	**6,270**	**12.6**	5 U	80.4	168.4	4.85	--
	6/2/2004	**3,790** J	2.36 J	0.5 U	26.9 J	88.1 J	4.12	--
	9/30/2004	**5,700** J	**5.52**	2.5 U	82.1	256	4.29	--
	12/14/2004	**5,500** J	4.36	0.643	66.1	178	--	--
	4/4/2005	**8,100** J	**6.89**	0.746	75.8	221	--	--
	10/6/2005	**4,070** J	**7.85**	0.5 U	43.1	62.8	3.7	--
	6/28/2006	533	0.545	0.5 U	0.593	5.34	3.41	--
	11/13/2006	496	0.933	0.5 U	6.89	5.99	3.03	--
	5/25/2007	54	0.5 U	0.5 U	0.5 U	1 U	--	--
	11/7/2007	**3,050**	**7.6**	2.58	28.1	20	2.31	--
	6/4/2008	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	10/21/2008	**2,040**	4.76	0.5 U	16.6	15.1	1.85	--
	10/14/2009	**2,030**	12.2 U	0.844 U	18.9	33.8	2 U	--
	11/15/2010	**2,500**	0.25 U	1.0 UJ	7.6	10.7	1	--
	5/2/2011	**3,100**	1.0 U	1.7	1.4	1.3	--	--
	7/27/2011	**3,700**	1.0 U	1.2	3.0	2.8	--	--
	11/2/2011	**1,200**	0.25 U	0.3 U	3.4	1.8	2.0	--
	2/13/2012	**2,200**	0.25 U	0.25 U	1.8	8.6	--	--

Table 5 - Summary of Groundwater Chemistry Data - TPH-G, BTEX, and Lead

Well ID	Date Sampled	Concentration in µg/L TPH-Gasoline		Benzene		Toluene		Ethyl-benzene		Total Xylenes		Total Lead		Diss. Lead	
MW-2	4/8/1996	50	U	1	U	1	U	1	U	1	U	5	U	--	
	1/5/1998	50	U	1	U	1	U	1	U	1	U	15		5	U
	4/6/1998	50	U	1	U	1	U	1	U	1	U	5	U	--	
	7/6/1998	50	U	1	U	1	U	1	U	1	U	**21**		--	
	10/5/1998	50	U	1	U	1	U	1	U	1	U	**34**		--	
	12/29/1999	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	3/21/2000	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	6/14/2000	50	U	0.5	U	0.5	U	0.55		3.41		--		1	U
	9/12/2000	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	1/30/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	4/26/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	7/29/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	10/27/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	11/15/2002	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	5/9/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	9/30/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	2.61		--	
	12/11/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	3/31/2004	**13,000**		10	U	119		180		**2,541**	J	1	U	--	
	6/2/2004	**1,480**		2.10		0.5	U	0.5	U	11.0		1	U	--	
	9/30/2004	**1,290**	J	2.40		0.5	U	0.859		5.11		1	U	--	
	12/14/2004	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	4/4/2005	101		0.5	U	0.5	U	0.5	U	1	U	--		--	
	10/6/2005	160		0.741		0.5	U	0.5	U	1	U	1	U	--	
	6/28/2006	--		--		--		--		--		--		--	
	11/13/2006	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	5/25/2007	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	11/7/2007	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	6/4/2008	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	10/21/2008	50	U	0.5	U	0.5	U	0.5	U	1	U	**20.8**		--	
	10/14/2009	80	U	0.5	U	0.5	U	0.5	U	1	U	2	U	--	
	11/15/2010	100	U	0.25	U	0.5	U	0.25	U	0.75	U	1	U	--	
	11/2/2011	100	U	0.25	U	0.25	U	0.25	U	0.75	U	0.3		--	

Table 5 - Summary of Groundwater Chemistry Data - TPH-G, BTEX, and Lead

Well ID	Date Sampled	Concentration in µg/L											
		TPH-Gasoline		Benzene		Toluene		Ethyl-benzene		Total Xylenes		Total Lead		Diss. Lead	
MW-3	4/8/1996	50	U	1	U	1	U	1	U	1	U	5	U	--	
	1/5/1998	50	U	1	U	1	U	1	U	1	U	5	U	--	
	4/6/1998	50	U	1	U	1	U	1	U	1	U	5	U	--	
	7/6/1998	50	U	1	U	1	U	1	U	1	U	5	U	--	
	10/5/1998	50	U	1	U	1	U	1	U	1	U	3.8		--	
	12/29/1999	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	3/21/2000	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	6/14/2000	50	U	0.5	U	0.85		0.5	U	1	U	--		1	U
	9/12/2000	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	1/30/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	4/26/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	7/29/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	10/27/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	11/15/2002	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	5/9/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	9/30/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	12/11/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	3/31/2004	50	U	0.2	U	0.2	U	0.2	U	0.5	U	1	U	--	
	6/2/2004	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	9/30/2004	50	UJ	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	12/14/2004	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	4/4/2005	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	10/6/2005	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	6/28/2006	--		--		--		--		--		--		--	
	11/13/2006	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	5/25/2007	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	11/8/2007	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	6/4/2008	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	10/21/2008	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	10/14/2009	80	U	0.5	U	0.5	U	0.5	U	1	U	2	U	--	
	11/15/2010	100	U	0.25	U	0.5	U	0.25	U	0.75	U	1	U	--	
	5/2/2011	250	U	1.0	U	1.0	U	1.0	U	2.0	U	--		--	
	7/27/2011	250	U	1.0	U	1.0	U	1.0	U	2.0	U	--		--	
	11/2/2011	100	U	0.25	U	0.25	U	0.25	U	0.75	U	0.1	U	--	
	2/13/2012	100	U	0.25	U	0.25	U	0.25	U	0.75	U	--		--	

Table 5 - Summary of Groundwater Chemistry Data - TPH-G, BTEX, and Lead

Well ID	Date Sampled	Concentration in µg/L													
		TPH-Gasoline		Benzene		Toluene		Ethyl-benzene		Total Xylenes		Total Lead		Diss. Lead	
MW-4	1/5/1998	200		1	U	27		1		3		10		5	U
	4/6/1998	400		3		14		1		6		5	U	--	
	7/6/1998	50	U	1	U	3		1	U	1	U	5	U	--	
	10/5/1998	150		1	U	7		1	U	1	U	2		--	
	12/29/1999	301		**51.4**		32.5		0.5	U	6.08		--		1	U
	3/21/2000	414		**44.8**		28.2		1.92		3.2	U	--		1	U
	6/14/2000	439		**69.7**		4.91		2.01		6.8		--		1	U
	9/12/2000	101		4.49		0.5	U	0.5	U	0.5	U	--		1	U
	1/31/2001	182		2.22		1.17	U	0.5	U	1.33	U	--		--	
	4/26/2001	673		**8.79**		4.73		4.28		28.6		--		--	
	7/29/2001	402		**24.3**		16.3		2.84		14.8		--		--	
	10/27/2001	200		**24.9**		2.62		1.15		6.57		--		--	
	11/15/2002	75.6		0.858		0.5	U	0.5	U	1	U	--		--	
	5/9/2003	61.8		0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	9/30/2003	161		0.730		0.5	U	2.59		2.59		1	U	--	
	12/11/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	3.22		--	
	3/31/2004	267		**29.0**		1.43		1	U	2.94		1	U	--	
	6/2/2004	140		**46.4**		4.2		0.5	U	1	U	1	U	--	
	9/30/2004	88.7	J	0.5	U	0.5	U	1.83		1	U	1	U	--	
	12/14/2004	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
MW-4R	4/4/2005	112		1.93		0.5	U	0.5	U	1	U	--		--	
(Replaces MW-4)	10/6/2005	744		0.929		0.5	U	9.31		3.57		19		--	
	6/28/2006	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	11/13/2006	107		0.5	U	0.5	U	0.5	U	1	U	5.82		--	
	5/25/2007	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	11/7/2007	75.2		0.5	U	0.5	U	0.5	U	1	U	0.325		--	
	6/4/2008	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	10/21/2008	50	U	0.5	U	0.5	U	0.5	U	1	U	6.98		--	
	10/14/2009	80	U	0.5	U	0.5	U	0.5	U	1	U	2	U	--	
	11/15/2010	100	U	0.25	U	0.5	U	0.25	U	0.75	U	1	U	--	
	5/2/2011	250	U	1.0	U	1.6		1.0	U	2.0	U	--		--	
	7/27/2011	980		1.0	U	250		1.0	U	2.0	U	--		--	
	11/2/2011	100	U	0.25	U	14		0.25	U	0.75	U	0.1		--	
	2/13/2012	100	U	0.25	U	0.25	U	0.25	U	0.75	U	--		--	

Table 5 - Summary of Groundwater Chemistry Data - TPH-G, BTEX, and Lead

Well ID	Date Sampled	Concentration in µg/L TPH-Gasoline	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead	Diss. Lead
MW-5	1/5/1998	**6200**	1	57	3	160	5 U	--
	4/6/1998	**2800**	2	30	2	27	5 U	--
	7/6/1998	50 U	1 U	1 U	1 U	1 U	10	--
	10/5/1998	**4700**	2	39	16	94	7.4	--
	12/29/1999	779	2.96	0.69	9.03	27.4	--	1 U
	3/21/2000	519	0.5 U	13.9	4.95	3.6	--	1 U
	6/14/2000	708	3.45 U	1.17 U	1.08	1 U	--	1 U
	9/12/2000	50 U	0.5 U	0.5 U	0.5 U	1 U	--	1 U
	4/26/2001	**831**	**7.35**	0.516	15.3	1 U	--	--
	7/29/2001	53.8	0.5 U	0.5 U	0.5 U	1 U	--	--
	10/27/2001	552	3.29	0.5 U	1.28	1.58	--	--
	11/15/2002	108	0.5 U	0.5 U	0.5 U	0.5 U	--	--
	5/9/2003	78.7	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	9/30/2003	229	0.5 U	0.5 U	0.5 U	1.61	1 U	--
	12/11/2003	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	3/31/2004	53	0.2 U	0.2 U	0.2 U	0.5 U	1 U	--
	6/2/2004	92.8	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	12/14/2004	308	0.5 U	0.5 U	0.5 U	1 U	--	--
	4/4/2005	620	1.45	0.5 U	0.5 U	1.07	--	--
	10/6/2005	114	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	6/28/2006	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	11/13/2006	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	5/25/2007	50 U	0.5 U	0.5 U	0.5 U	1 U	--	--
	11/7/2007	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	6/4/2008	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	10/22/2008	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	10/15/2009	80 U	0.5 U	0.5 U	0.5 U	1 U	2 U	--
	11/15/2010	170	0.25 U	0.5 U	0.25 U	0.75 U	1 U	--
	11/2/2011	100 U	0.25 U	0.25 U	0.25 U	0.75 U	2.1	--

Table 5 - Summary of Groundwater Chemistry Data - TPH-G, BTEX, and Lead

Well ID	Date Sampled	Concentration in µg/L TPH-Gasoline	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead	Diss. Lead
MW-6	1/5/1998	**2,200**	**53**	17	9	93	5 U	--
	4/6/1998	**4,200**	**51**	16	25	110	5 U	--
	7/6/1998	**6,900**	**11**	19	1	510	11	--
	10/5/1998	**5,800**	**43**	22	48	240	12	--
	12/29/1999	**2,090**	**11.5**	2	35.1	65.1	--	1 U
	3/21/2000	**1,580**	0.75 U	14.3	28.7	61	--	1 U
	6/14/2000	**2,170**	**9.78**	1.03 U	33.1	101	--	1 U
	9/12/2000	**1,630**	**12.8**	1.2 U	27.9	75.7	--	1 U
	4/26/2001	**1,320**	**11.3**	0.906	1.41	3.37	--	--
	7/29/2001	**5,050**	**8.71**	4.99	189	536	--	--
	10/27/2001	**1,910**	**15.3**	0.786	1.67	5.49	--	--
	11/15/2002	**1,270**	**9.01**	0.5 U	0.594	1.85	--	--
	5/9/2003	**1,710**	1.79	0.5 U	1.29	21.2	1.29	--
	9/30/2003	**1,610**	**16.7**	2.50 U	2.91	7.96	1 U	--
	12/11/2003	624	**5.67**	0.50 U	0.737 J	2.19 J	1 U	--
	3/31/2004	**1,160**	0.520	0.2 U	0.350	0.5 U	1 U	--
	6/2/2004	**2,300** J	4.78 J	0.5 U	54.0 J	75.5 J	1.29	--
	9/30/2004	**1,150** J	**8.34** J	0.5 J	0.553 J	2.92 J	1 U	--
	12/14/2004	672	3.57	0.5 U	0.5 U	1.42	--	--
	4/4/2005 [b]	**1,010**	**5.91**	0.5 U	0.5 U	1.86 [c]	--	--
	10/6/2005	**1,380** J	**8.10**	0.5 U	0.632	1.94	1 U	--
	6/28/2006	--	--	--	--	--	--	--
	11/13/2006	**826**	3.3	0.5 U	0.5 U	1.89	1 U	--
	5/25/2007	**1,460**	0.5 U	0.5 U	25.6	1.22	--	--
	11/7/2007	729	3.53	0.5 U	0.5 U	1.69	1 U	--
	6/4/2008	**1,550**	1.93	0.5 U	30.8	2.78	1 U	--
	10/22/2008	**855**	3.1	0.5 U	0.933	3.37	1 U	--
	10/14/2009	501	7.59 U	0.5 U	1.18 U	1 U	2 U	--
	11/15/2010	450	0.25 U	0.49	0.25 U	0.75 U	1 U	--
	5/2/2011	490	1.0 U	1.0 U	1.0 U	2.0 U	--	--
	7/27/2011	610	1.0 U	1.0 U	1.0 U	2.0 U	--	--
	11/2/2011	590	0.25 U	0.25 U	0.25 U	0.75 U	4	--
	2/13/2012	**1,600**	0.25 U	0.25 U	0.25 U	1.5	--	--

Table 5 - Summary of Groundwater Chemistry Data - TPH-G, BTEX, and Lead

Well ID	Date Sampled	Concentration in µg/L											
		TPH-Gasoline		Benzene		Toluene		Ethyl-benzene		Total Xylenes		Total Lead		Diss. Lead	
MW-12	12/29/1999	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	3/21/2000	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	6/14/2000	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	9/12/2000	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	4/26/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	7/29/2001	50	U	0.5	U	0.5	U	1.74		4.83		--		--	
	10/27/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	11/15/2002	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	5/9/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	9/30/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	12/11/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	1.47		--	
	3/31/2004	50	U	0.2	U	0.2	U	0.2	U	0.5	U	1	U	--	
	6/2/2004	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	9/30/2004	50	UJ	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	12/14/2004	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	4/4/2005	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	10/12/2005	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	6/28/2006	50	U	0.5	U	0.5	U	0.5	U	1	U	2.98		--	
	11/13/2006	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	5/25/2007	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	11/8/2007	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	6/4/2008	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	10/22/2008	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	10/14/2009	80	U	0.5	U	0.5	U	0.5	U	1	U	2	U	--	
	11/15/2010	100	U	0.25	U	0.5	U	0.25	U	0.75	U	1	U	--	
	11/2/2011	100	U	0.25	U	0.25	U	0.25	U	0.75	U	0.1	U	--	
MW-13	12/29/99	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	3/21/2000	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	6/14/2000	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	9/12/2000	50	U	0.5	U	0.5	U	0.5	U	1	U	--		1	U
	4/26/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	7/29/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	10/27/2001	50	U	0.5	U	0.5	U	0.5	U	1	U	--		--	
	9/30/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	12/11/2003	50	U	0.5	U	0.5	U	0.5	U	1	U	1.56		--	
	3/31/2004	50	U	0.2	U	0.2	U	0.2	U	0.5	U	1	U	--	
	6/2/2004	50	U	0.5	U	0.5	U	0.5	U	1	U	1	U	--	
	9/30/2004	50	UJ	0.5	U	0.5	U	0.5	U	1	U	1	U	--	

Table 5 - Summary of Groundwater Chemistry Data - TPH-G, BTEX, and Lead

Well ID	Date Sampled	Concentration in µg/L TPH-Gasoline	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead	Diss. Lead
	12/14/2004	50 U	0.5 U	0.5 U	0.5 U	1 U	--	--
	4/4/2005	50 U	0.5 U	0.5 U	0.5 U	1 U	--	--
	10/6/2005	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	6/28/2006	--	--	--	--	--	--	--
	11/13/2006	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	5/25/2007	50 U	0.5 U	0.5 U	0.5 U	1 U	--	--
	11/8/2007	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	6/4/2008	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	10/22/2008	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	10/15/2009	80 U	0.5 U	0.5 U	0.5 U	1 U	2 U	--
	11/15/2010	100 U	0.25 U	0.5 U	0.25 U	0.75 U	1 U	--
	11/2/2011	100 U	0.25 U	0.25 U	0.25 U	0.75 U	0.2	--
MW-15	1/30/2001	161	1.53	0.5 U	0.5 U	1.18 U	--	--
	4/26/2001	50 U	0.5 U	0.5 U	0.5 U	1 U	--	--
	7/29/2001	50 U	0.5 U	0.5 U	0.5 U	1 U	--	--
	10/27/2001	50 U	0.5 U	0.5 U	0.5 U	1 U	--	--
	11/15/2002	50 U	0.5 U	0.5 U	0.5 U	1 U	--	--
	5/9/2003	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	9/30/2003	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	12/11/2003	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	3/31/2004	50 U	0.2 U	0.2 U	0.2 U	0.5 U	1 U	--
	6/2/2004	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	9/30/2004	50 UJ	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	12/14/2004	50 U	0.5 U	0.5 U	0.5 U	1 U	--	--
	4/4/2005	50 U	0.5 U	0.5 U	0.5 U	1 U	--	--
	10/6/2005	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	6/28/2006	--	--	--	--	--	--	--
	11/13/2006	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	5/25/2007	50 U	0.5 U	0.5 U	0.5 U	1 U	--	--
	11/7/2007	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	6/5/2008	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	10/22/2008	50 U	0.5 U	0.5 U	0.5 U	1 U	1 U	--
	10/14/2009	80 U	0.5 U	0.5 U	0.5 U	1 U	2 U	--
	11/15/2010	100 U	0.25 U	0.5 U	0.25 U	0.75 U	1 U	--
	11/2/2011	100 U	0.25 U	0.25 U	0.25 U	0.75 U	0.1 U	--
MTCA Method A Groundwater Cleanup Level		800/1,000 [a]	5	1000	700	1000	15	15

Table 5 - Summary of Groundwater Chemistry Data - TPH-G, BTEX, and Lead

Well ID	Date Sampled	Concentration in µg/L						
		TPH-Gasoline	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead	Diss. Lead

Notes:
Gasoline-range TPH analyzed by EPA Method 8015 prior to 1999. After that, analyzed by NWTPH-G; BTEX Analyzed by EPA Method 8021B
BTEX analyzed by EPA Method 8260B in March 2004.
Total and Dissolved Lead analyzed by EPA Method 6010 or 6020.
-- Not analyzed.
U = Not detected at specified reporting limit.
J = Estimated concentration.
Bolded concentrations exceed MTCA Method A cleanup levels.
Access to well MW-13 obstructed in November 2002 and May 2003.
Access to well MW-5 obstructed in September 2004.
Data from 1996 and 1998 collected by Sage Environmental.
Well MW-1 was removed during the October 2000 excavation. Wells MW-14 and MW-15 were installed in January 2001 after the excavation.
Well MW-4 was replaced as well MW-4R by Hart Crowser in October 2005, following removal of the well during UST removal activities in April 2005.
First dashed line indicates soil was excavated in November 2000.
Second dashed line indicates bioremediation amendments were injected in January 2011.
a) Cleanup level for TPH-G with/without detectable benzene
b) Values shown are the average of the results for the sample and its field duplicate.
c) The value is the result for the field duplicate. The result for the sample was ND (not detected at the detection limit of 1.0 µg/L).

Table 6 - Summary of Groundwater Chemistry Data - Other Compounds

		Field Test Results - Concentrations in mg/L					Concentration in mg/L					
Exploration	Date Sampled	Dissolved Oxygen	Ferrous Iron	Nitrite	Nitrate	Ammonia	Nitrate	Sulfate	Chloride	Bromide	Nitrite	Ferrous Iron
MW-1/MW-14	3/21/2000	0.6	--	--	--	--	--	--	--	--	--	--
	6/14/2000	1	--	--	--	--	--	--	--	--	--	--
	9/12/2000	0.4	--	--	--	--	--	--	--	--	--	--
	1/30/2001	2.4	--	--	--	--	--	--	--	--	--	--
	4/26/2001	--	--	--	--	--	--	--	--	--	--	--
	7/29/2001	2.3	--	--	--	--	--	--	--	--	--	--
	10/27/2001	0.8	--	--	--	--	--	--	--	--	--	--
	11/15/2002	--	--	--	--	--	--	--	--	--	--	--
	5/9/2003	1.2	--	--	--	--	--	--	--	--	--	--
	9/30/2003	0.29	--	--	--	--	0.349	0.400 U	--	--	0.200 U	1.6
	12/11/2003	3.2	--	--	--	--	0.200 U	1.14	--	--	0.200 U	4
	3/31/2004	0.12	--	--	--	--	0.200 U	1.08	--	--	0.200 U	5.2
	6/2/2004	0.02	--	--	--	--	0.200 U	4.24	--	--	0.200 U	7.2
	9/30/2004	0.11	--	--	--	--	0.200 U	0.635	--	--	0.200 U	5.6
	12/14/2004	0.07	--	--	--	--	0.200 U	0.400 U	--	--	0.200 U	6.3
	4/4/2005	--	--	--	--	--	0.200 U	0.464	--	--	0.200 U	4.82 J
	10/6/2005	--	--	--	--	--	0.200 U	0.400 U	--	--	0.200 U	9.74
	6/28/2006	0.6	--	--	--	--	0.556	13.4	--	--	0.400 U	0.25 U
	11/13/2006	0.39	3.5-3.75	--	--	--	0.200 U	1.4	--	--	0.200 U	2.16
	5/25/2007	3.47	ND	--	--	--	3.120	12.200	--	--	0.200 U	0.25 U
	11/7/2007	4.84	5.2	--	--	--	0.010 U	0.900	--	--	0.010 U	--
	6/4/2008	6.01	ND	--	--	--	1.870	9.970	--	--	0.200 U	--
	10/21/2008	5.09	2.9	--	--	--	0.200 U	0.680	--	--	0.200 U	--
	10/14/2009	0	3.6	--	--	--	0.90 UJ	1.2 U	--	--	1.6 J	--
	11/15/2010	0	5	--	--	--	0.1 U	0.4	--	--	--	--
	5/2/2011	0	0.8	4	100	6	63.2	541	35.1	0.2	--	--
	7/27/2011	0.16	1.9	0	10	6	0.1 U	550	40.2	1.0 U	--	--
	11/2/2011	0.86	2	ND	ND	0.75	0.1 U	63.6	17.2	0.8	--	--
	2/13/2012	2.41	2	5	160	2	99.0	671	208	0.2	--	--

Table 6 - Summary of Groundwater Chemistry Data - Other Compounds

		Field Test Results - Concentrations in mg/L					Concentration in mg/L					
Exploration	Date Sampled	Dissolved Oxygen	Ferrous Iron	Nitrite	Nitrate	Ammonia	Nitrate	Sulfate	Chloride	Bromide	Nitrite	Ferrous Iron
MW-2	3/21/2000	2.6	--	--	--	--	--	--	--	--	--	--
	6/14/2000	2.8	--	--	--	--	--	--	--	--	--	--
	9/12/2000	0.8	--	--	--	--	--	--	--	--	--	--
	1/30/2001	1.5	--	--	--	--	--	--	--	--	--	--
	4/26/2001	4.5	--	--	--	--	--	--	--	--	--	--
	7/29/2001	3.3	--	--	--	--	--	--	--	--	--	--
	10/27/2001	2	--	--	--	--	--	--	--	--	--	--
	11/15/2002	1.5	--	--	--	--	--	--	--	--	--	--
	5/9/2003	2.3	--	--	--	--	--	--	--	--	--	--
	9/30/2003	1.51	--	--	--	--	0.489	3.38	--	--	0.200 U	1.2
	12/11/2003	3.90	--	--	--	--	1.08	3.79	--	--	0.200 U	0.0
	3/31/2004	0.82	--	--	--	--	0.912	4.60	--	--	0.200 U	0.0
	6/2/2004	1.63	--	--	--	--	0.467	3.23	--	--	0.200 U	0.0
	9/30/2004	0.52	--	--	--	--	0.443	2.93	--	--	0.200 U	0.2
	12/14/2004	6.05	--	--	--	--	0.922	3.05	--	--	0.200 U	0.0
	4/4/2005	--	--	--	--	--	0.719	3.52	--	--	0.200 U	0.25 R
	10/6/2005	--	--	--	--	--	0.219	3.75	--	--	0.200 U	0.25 U
	6/28/2006	--	--	--	--	--	--	--	--	--	--	--
	11/13/2006	0.64	ND	--	--	--	0.410	5.26	--	--	0.200 U	0.25 U
	5/25/2007	7.11	ND	--	--	--	2.740	8.57	--	--	0.200 U	0.25 U
	11/7/2007	4.95	ND	--	--	--	0.275	4.32	--	--	0.010 U	--
	6/4/2008	4.6	ND	--	--	--	1.440	6.14	--	--	0.200 U	--
	10/21/2008	--	ND	--	--	--	0.200 U	3.21	--	--	0.200 U	--
	10/14/2009	0	ND	--	--	--	0.90 U	6.5	--	--	1.3 J	--
	11/15/2010	0.33	ND	--	--	--	0.3	3.9	--	--	--	--
	11/2/2011	1.08	ND	--	--	--	0.6	9.1	5.8	0.1 U	--	--

Table 6 - Summary of Groundwater Chemistry Data - Other Compounds

		Field Test Results - Concentrations in mg/L					Concentration in mg/L					
Exploration	Date Sampled	Dissolved Oxygen	Ferrous Iron	Nitrite	Nitrate	Ammonia	Nitrate	Sulfate	Chloride	Bromide	Nitrite	Ferrous Iron
MW-3	3/21/2000	2	--	--	--	--	--	--	--	--	--	--
	6/14/2000	2.1	--	--	--	--	--	--	--	--	--	--
	9/12/2000	1.4	--	--	--	--	--	--	--	--	--	--
	1/30/2001	2.7	--	--	--	--	--	--	--	--	--	--
	4/26/2001	1.8	--	--	--	--	--	--	--	--	--	--
	7/29/2001	4.4	--	--	--	--	--	--	--	--	--	--
	10/27/2001	2.3	--	--	--	--	--	--	--	--	--	--
	11/15/2002	2.1	--	--	--	--	--	--	--	--	--	--
	5/9/2003	2.7	--	--	--	--	--	--	--	--	--	--
	9/30/2003	0.44	--	--	--	--	0.228	4.39	--	--	0.200 U	0.0
	12/11/2003	3.20	--	--	--	--	0.200 U	4.79	--	--	0.200 U	0.0
	3/31/2004	1.59	--	--	--	--	0.812	5.53	--	--	0.200 U	0.0
	6/2/2004	0.89	--	--	--	--	0.816	5.61	--	--	0.200 U	0.0
	9/30/2004	0.54	--	--	--	--	0.253	4.43	--	--	0.200 U	0.0
	12/14/2004	2.10	--	--	--	--	0.206	4.69	--	--	0.200 U	0.0
	4/4/2005	--	--	--	--	--	0.358	4.23	--	--	0.200 U	0.25 R
	10/6/2005	--	--	--	--	--	0.200 U	3.67	--	--	0.200 U	0.25 U
	6/28/2006	--	--	--	--	--	--	--	--	--	--	--
	11/13/2006	1.19	ND	--	--	--	0.370	6.1	--	--	0.200 U	0.25 U
	5/25/2007	8.13	ND	--	--	--	1.520	6.43	--	--	0.200 U	0.25 U
	11/8/2007	5.15	ND	--	--	--	0.168	4.13	--	--	0.010 U	--
	6/4/2008	5.51	ND	--	--	--	0.920	4.59	--	--	0.200 U	--
	10/21/2008	8.29	ND	--	--	--	0.250	3.84	--	--	0.200 U	--
	10/14/2009	0.81	ND	--	--	--	0.90 UJ	3.2	--	--	1.3 J	--
	11/15/2010	1.86	ND	--	--	--	0.2	4.1	--	--	--	--
	5/2/2011	0	ND	2	10	1	3.4	12.4	36.0	0.1 U	--	--
	7/27/2011	0.06	0.6	2	10	1.5	1.8	21.6	12.6	0.1 U	--	--
	11/2/2011	0.9	1.5	ND	ND	1	0.1 U	24.0	9.5	0.1	--	--
	2/13/2012	2.14	ND	0.25	10	0.5	6.8	8.9	12.3	0.1 U	--	--

Table 6 - Summary of Groundwater Chemistry Data - Other Compounds

		Field Test Results - Concentrations in mg/L					Concentration in mg/L					
Exploration	Date Sampled	Dissolved Oxygen	Ferrous Iron	Nitrite	Nitrate	Ammonia	Nitrate	Sulfate	Chloride	Bromide	Nitrite	Ferrous Iron
MW-4	3/21/2000	0.6	--	--	--	--	--	--	--	--	--	--
	6/14/2000	1	--	--	--	--	--	--	--	--	--	--
	9/12/2000	0.4	--	--	--	--	--	--	--	--	--	--
	1/30/2001	2.4	--	--	--	--	--	--	--	--	--	--
	4/26/2001	--	--	--	--	--	--	--	--	--	--	--
	7/29/2001	2.3	--	--	--	--	--	--	--	--	--	--
	10/27/2001	0.8	--	--	--	--	--	--	--	--	--	--
	11/15/2002	--	--	--	--	--	--	--	--	--	--	--
	5/9/2003	1.2	--	--	--	--	--	--	--	--	--	--
	9/30/2003	0.12	--	--	--	--	0.200 U	4.57	--	--	0.200 U	1.4
	12/11/2003	1.40	--	--	--	--	1.05	15.3	--	--	0.200 U	0.5
	3/31/2004	0.11	--	--	--	--	0.200 U	7.41	--	--	0.200 U	5.4
	6/2/2004	0.03	--	--	--	--	0.200 U	8.32	--	--	0.200 U	5.2
	9/30/2004	0.06	--	--	--	--	0.200 U	4.91	--	--	0.200 U	3.8
	12/14/2004	0.12	--	--	--	--	0.200 U	5.13	--	--	0.200 U	2.0
	4/4/2005	--	--	--	--	--	0.200 U	5.79	--	--	0.200 U	3.47 J
MW-4R	10/6/2005	--	--	--	--	--	0.200 U	8.07	--	--	0.200 U	1.39
	6/28/2006	0.6	--	--	--	--	0.200 U	16	--	--	0.400 U	0.25 U
	11/13/2006	0.24	2.9-3.0	--	--	--	0.200 U	16.2	--	--	0.200 U	0.25 U
	5/25/2007	2.63	ND	--	--	--	2.290	17.6	--	--	0.200 U	0.25 U
	11/7/2007	4.78	3.7	--	--	--	0.031	10.3	--	--	0.010 U	--
	6/4/2008	3.87	ND	--	--	--	2.030	14.1	--	--	0.200 U	--
	10/21/2008	8.98	1.4	--	--	--	0.200 U	6.52	--	--	0.200 U	--
	10/14/2009	4.83	ND	--	--	--	0.90 UJ	5.9	--	--	1.7 J	--
	11/15/2010	0	2.2	--	--	--	0.1 U	7.3	--	--	--	--
	5/2/2011	0	2.4	5	20	2	18.7	78.9	30.8	8.6	--	--
	7/27/2011	0.14	2	ND	10	4	4.2	12.4	24.7	0.9	--	--
	11/2/2011	0.76	1.9	ND	ND	5	0.2	13.1	14.3	1.0	--	--
	2/13/2012	2.95	1.3	3	120	2	74.9	174	20.2	0.5	--	--

Table 6 - Summary of Groundwater Chemistry Data - Other Compounds

		Field Test Results - Concentrations in mg/L					Concentration in mg/L					
Exploration	Date Sampled	Dissolved Oxygen	Ferrous Iron	Nitrite	Nitrate	Ammonia	Nitrate	Sulfate	Chloride	Bromide	Nitrite	Ferrous Iron
MW-5	3/21/2000	0.6	--	--	--	--	--	--	--	--	--	--
	6/14/2000	0.7	--	--	--	--	--	--	--	--	--	--
	9/12/2000	0.6	--	--	--	--	--	--	--	--	--	--
	4/26/2001	0.8	--	--	--	--	--	--	--	--	--	--
	7/29/2001	3	--	--	--	--	--	--	--	--	--	--
	10/27/2001	0.9	--	--	--	--	--	--	--	--	--	--
	11/15/2002	0.7	--	--	--	--	--	--	--	--	--	--
	5/9/2003	1.2	--	--	--	--	--	--	--	--	--	--
	9/30/2003	0.30	--	--	--	--	0.200 U	8.61	--	--	0.200 U	1.8
	12/11/2003	1.30	--	--	--	--	0.200 U	6.85	--	--	0.200 U	0.0
	3/31/2004	0.42	--	--	--	--	1.32	16.1	--	--	0.200 U	0.0
	6/2/2004	0.20	--	--	--	--	1.36	11.7	--	--	0.200 U	0.0
	12/14/2004	0.49	--	--	--	--	0.200 U	7.57	--	--	0.200 U	2.95
	4/4/2005	--	--	--	--	--	0.200 U	9.92	--	--	0.200 U	3.06 J
	10/6/2005	--	--	--	--	--	0.200 U	9.50	--	--	0.200 U	0.25 U
	6/28/2006	2.4	--	--	--	--	2.59	16	--	--	0.400 U	0.25 U
	11/13/2006	3.6	ND	--	--	--	2.99	11.7	--	--	0.200 U	0.25 U
	5/25/2007	6.6	ND	--	--	--	3.400	19.9	--	--	0.200 U	0.25 U
	11/7/2007	5.18	ND	--	--	--	0.110	7.75	--	--	0.010 U	--
	6/4/2008	5.44	ND	--	--	--	1.730	11.8	--	--	0.200 U	--
	10/22/2008	6.75	ND	--	--	--	0.220	6.35	--	--	0.200 U	--
	10/15/2009	1.13	ND	--	--	--	0.90 U	5.2	--	--	1.5 J	--
	11/15/2010	0	ND	--	--	--	0.1	6.6	--	--	--	--
	11/2/2011	0.87	2	--	--	--	0.4	21.7	16.7	0.1	--	--

Table 6 - Summary of Groundwater Chemistry Data - Other Compounds

		Field Test Results - Concentrations in mg/L					Concentration in mg/L					
Exploration	Date Sampled	Dissolved Oxygen	Ferrous Iron	Nitrite	Nitrate	Ammonia	Nitrate	Sulfate	Chloride	Bromide	Nitrite	Ferrous Iron
MW-6	3/21/2000	1.8	--	--	--	--	--	--	--	--	--	--
	6/14/2000	0.5	--	--	--	--	--	--	--	--	--	--
	9/12/2000	0.5	--	--	--	--	--	--	--	--	--	--
	4/26/2001	--	--	--	--	--	--	--	--	--	--	--
	7/29/2001	2.6	--	--	--	--	--	--	--	--	--	--
	10/27/2001	0.7	--	--	--	--	--	--	--	--	--	--
	11/15/2002	0.6	--	--	--	--	--	--	--	--	--	--
	5/9/2003	1.8	--	--	--	--	--	--	--	--	--	--
	9/30/2003	0.12	--	--	--	--	0.200 U	0.400 U	--	--	0.200 U	2.2
	12/11/2003	1.50	--	--	--	--	0.200 U	0.685	--	--	0.200 U	3.8
	3/31/2004	0.15	--	--	--	--	0.200 U	3.02	--	--	0.200 U	3.4
	6/2/2004	0.09	--	--	--	--	0.200 U	0.557	--	--	0.200 U	5.2
	9/30/2004	0.12	--	--	--	--	0.200 U	0.400 U	--	--	0.200 U	6.4
	12/14/2004	0.42	--	--	--	--	0.200 U	0.400 U	--	--	0.200 U	3.2
	4/4/2005 [a]	--	--	--	--	--	0.200 U	3.19	--	--	0.200 U	9.33 J
	10/6/2005	--	--	--	--	--	0.200 U	0.400 U	--	--	0.200 U	9.33
	4/4/2005	--	--	--	--	--	0.200 U	3.20	--	--	0.200 U	9.53
Dup	4/4/2005	--	--	--	--	--	0.200 U	3.17	--	--	0.200 U	14.4
	6/28/2006	--	--	--	--	--	2.6	18.6	--	--	0.400 U	--
	11/13/2006	0.48	0.9-1.0	--	--	--	0.200 U	1.11	--	--	0.200 U	6.95
	5/25/2007	1.11	4.2	--	--	--	0.200 U	2.67	--	--	0.200 U	0.5 U
	11/7/2007	5.18	5.4	--	--	--	0.010 U	2.24	--	--	0.010 U	--
	6/4/2008	5.76	5.2	--	--	--	0.200 U	3.68	--	--	0.200 U	--
	10/22/2008	4.15	5.4	--	--	--	0.200 U	0.40 U	--	--	0.200 U	--
	10/14/2009	0	6.0	--	--	--	0.90 UJ	1.2 U			1.7 J	--
	11/15/2010	0	3.4	--	--	--	0.1 U	1.5			--	--
	5/2/2011	0	1	ND	10	0.5	2.6	79.6	83.0	0.3	--	--
	7/27/2011	0.48	2	ND	5	6	2.0 U	879	97.8	2.0 U	--	--
	11/2/2011	1.01	ND	ND	ND	5	0.1	14.8	25.1	0.2	--	--
	2/13/2012	2.62	1.6	3	15	2	3.1	68.0	25.7	0.1	--	--

Table 6 - Summary of Groundwater Chemistry Data - Other Compounds

		Field Test Results - Concentrations in mg/L					Concentration in mg/L					
Exploration	Date Sampled	Dissolved Oxygen	Ferrous Iron	Nitrite	Nitrate	Ammonia	Nitrate	Sulfate	Chloride	Bromide	Nitrite	Ferrous Iron
MW-12	3/21/2000	5	--	--	--	--	--	--	--	--	--	--
	6/14/2000	4.9	--	--	--	--	--	--	--	--	--	--
	9/12/2000	0.6	--	--	--	--	--	--	--	--	--	--
	4/26/2001	4	--	--	--	--	--	--	--	--	--	--
	7/29/2001	3	--	--	--	--	--	--	--	--	--	--
	10/27/2001	5.2	--	--	--	--	--	--	--	--	--	--
	11/15/2002	2.7	--	--	--	--	--	--	--	--	--	--
	5/9/2003	6	--	--	--	--	--	--	--	--	--	--
	9/30/2003	1.66	--	--	--	--	0.452	5.32	--	--	0.200 U	0.8
	12/11/2003	2.70	--	--	--	--	0.200 U	2.77	--	--	0.200 U	0.0
	3/31/2004	3.91	--	--	--	--	3.88	8.45	--	--	0.200 U	0.0
	6/2/2004	5.20	--	--	--	--	3.64	11.7	--	--	0.200 U	0.0
	9/30/2004	6	--	--	--	--	0.573	5.66	--	--	0.200 U	0.0
	12/14/2004	1.32	--	--	--	--	0.200 U	2.95	--	--	0.200 U	0.0
	4/4/2005	--	--	--	--	--	0.200 U	3.32	--	--	0.200 U	0.25 R
	10/12/2005	--	--	--	--	--	0.200 U	3.37	--	--	0.200 U	0.25 U
	6/28/2006	0.42	--	--	--	--	2.57	11.5	--	--	0.400 U	0.25 U
	11/13/2006	2.61	ND	--	--	--	0.590	6.89	--	--	0.200 U	0.25 U
	5/25/2007	6.71	ND	--	--	--	7.140	18.4	--	--	0.200 U	0.25 U
	11/8/2007	6.33	ND	--	--	--	0.121	11.5	--	--	0.010 U	--
	6/4/2008	9.5	ND	--	--	--	6.020	16.4	--	--	0.200 U	--
	10/22/2008	8.88	ND	--	--	--	0.330	10.1	--	--	0.200 U	--
	10/14/2009	2.23	ND	--	--	--	0.90 UJ	5.2	--	--	1.4 J	--
	11/15/2010	2.73	ND	--	--	--	0.2	13.4	--	--	--	--
	11/2/2011	3.01	ND	--	--	--	0.7	60.3	493	0.3	--	--

Table 6 - Summary of Groundwater Chemistry Data - Other Compounds

		Field Test Results - Concentrations in mg/L					Concentration in mg/L					
Exploration	Date Sampled	Dissolved Oxygen	Ferrous Iron	Nitrite	Nitrate	Ammonia	Nitrate	Sulfate	Chloride	Bromide	Nitrite	Ferrous Iron
MW-13	3/21/2000	4.6	--	--	--	--	--	--	--	--	--	--
	6/14/2000	1.5	--	--	--	--	--	--	--	--	--	--
	9/12/2000	3.3	--	--	--	--	--	--	--	--	--	--
	4/26/2001	5	--	--	--	--	--	--	--	--	--	--
	7/29/2001	3.8	--	--	--	--	--	--	--	--	--	--
	10/27/2001	3.4	--	--	--	--	--	--	--	--	--	--
	9/30/2003	3.04	--	--	--	--	0.455	4.91	--	--	0.200 U	--
	12/11/2003	6.70	--	--	--	--	0.477	5.56	--	--	0.200 U	0.0
	3/31/2004	4.87	--	--	--	--	1.60	8.04	--	--	0.200 U	0.0
	6/2/2004	1.85	--	--	--	--	1.05	6.52	--	--	0.200 U	0.0
	9/30/2004	2.69	--	--	--	--	0.496	4.49	--	--	0.200 U	0.0
	12/14/2004	5.57	--	--	--	--	0.412	5.10	--	--	0.200 U	0.0
	4/4/2005	--	--	--	--	--	0.582	4.99	--	--	0.200 U	0.547 J
	10/6/2005	--	--	--	--	--	0.348	3.68	--	--	0.200 U	0.25 U
	6/28/2006	--	--	--	--	--	--	--	--	--	--	--
	11/13/2006	3.49	ND	--	--	--	0.940	6.18	--	--	0.200 U	0.25 U
	5/25/2007	4.14	ND	--	--	--	1.670	7.57	--	--	0.200 U	0.25 U
	11/8/2007	6.93	ND	--	--	--	0.490	4.09	--	--	0.010 U	--
	6/4/2008	6.9	ND	--	--	--	1.280	5.51	--	--	0.200 U	--
	10/22/2008	9.35	ND	--	--	--	0.440	3.56	--	--	0.200 U	--
	10/15/2009	4.61	ND	--	--	--	0.90 U	3.3	--	--	1.2 J	--
	11/15/2010	4.38	ND	--	--	--	0.4	3.7	--	--	--	--
	5/2/2011	4.87	ND	ND	5	ND	2.4	7.3	20.7	0.1 U	--	--
	7/27/2011	1.47	ND	ND	10	0.25	1.3	5.8	9.4	0.1 U	--	--
	11/2/2011	5.11	ND	0.5	ND	ND	0.4	4.7	6.3	0.1	--	--
	2/13/2012	4.58	ND	ND	ND	ND	0.9	5.6	21.7	0.1 U	--	--

Table 6 - Summary of Groundwater Chemistry Data - Other Compounds

		Field Test Results - Concentrations in mg/L					Concentration in mg/L					
Exploration	Date Sampled	Dissolved Oxygen	Ferrous Iron	Nitrite	Nitrate	Ammonia	Nitrate	Sulfate	Chloride	Bromide	Nitrite	Ferrous Iron
MW-15	1/30/2001	1.3	--	--	--	--	--	--	--	--	--	--
	4/26/2001	--	--	--	--	--	--	--	--	--	--	--
	7/29/2001	2.6	--	--	--	--	--	--	--	--	--	--
	10/27/2001	1.4	--	--	--	--	--	--	--	--	--	--
	11/15/2002	0.8	--	--	--	--	--	--	--	--	--	--
	5/9/2003	1.5	--	--	--	--	--	--	--	--	--	--
	9/30/2003	0.56	--	--	--	--	0.282	5.02	--	--	0.200 U	2.6
	12/11/2003	2.80	--	--	--	--	0.415	8.52	--	--	0.200 U	0.0
	3/31/2004	0.88	--	--	--	--	0.200 U	8.42	--	--	0.200 U	0.0
	6/2/2004	0.40	--	--	--	--	1.67	8.32	--	--	0.200 U	0.0
	9/30/2004	0.33	--	--	--	--	0.429	4.56	--	--	0.200 U	0.0
	12/14/2004	1.40	--	--	--	--	0.200 U	6.68	--	--	0.200 U	0.0
	4/4/2005	--	--	--	--	--	0.200 U	7.45	--	--	0.200 U	0.254 J
	10/6/2005	--	--	--	--	--	0.340	4.14	--	--	0.200 U	0.25 U
	6/28/2006	--	--	--	--	--	--	--	--	--	--	--
	11/13/2006	1.06	ND	--	--	--	0.450	6.48	--	--	0.200 U	0.25 U
	5/25/2007	2.63	ND	--	--	--	3.070	10.4	--	--	0.200 U	0.25 U
	11/7/2007	5.66	ND	--	--	--	0.220	5.21	--	--	0.010 U	--
	6/5/2008	6.5	ND	--	--	--	2.010	8.02	--	--	0.200 U	--
	10/22/2008	5.61	ND	--	--	--	0.280	3.81	--	--	0.200 U	--
	10/14/2009	0	ND	--	--	--	0.90 UJ	3.1	--	--	1.2 J	--
	11/15/2010	0.67	ND	--	--	--	0.2	4.1	--	--	--	--
	11/2/2011	1.3	ND	--	--	--	0.4	6.0	8.7	0.1 U	--	--
MTCA Method A Cleanup Level							na	na	na	na	na	na

Notes:

Nitrate, sulfate, chloride, bromide, and nitrite analyzed by EPA Method 300.0.

MTBE, EDB, and EDC analyzed by EPA Method 8260B.

-- Not analyzed.

U = Not detected above specified reporting limit.

J = Estimated concentration.

R = Rejected concentration.

ND = Analyte not detected.

Bolded concentrations exceed MTCA Method A cleanup levels.

Table 6 - Summary of Groundwater Chemistry Data - Other Compounds

		Field Test Results - Concentrations in mg/L					Concentration in mg/L					
Exploration	Date Sampled	Dissolved Oxygen	Ferrous Iron	Nitrite	Nitrate	Ammonia	Nitrate	Sulfate	Chloride	Bromide	Nitrite	Ferrous Iron

a) Values shown are the average of the results for the sample and its field duplicate.

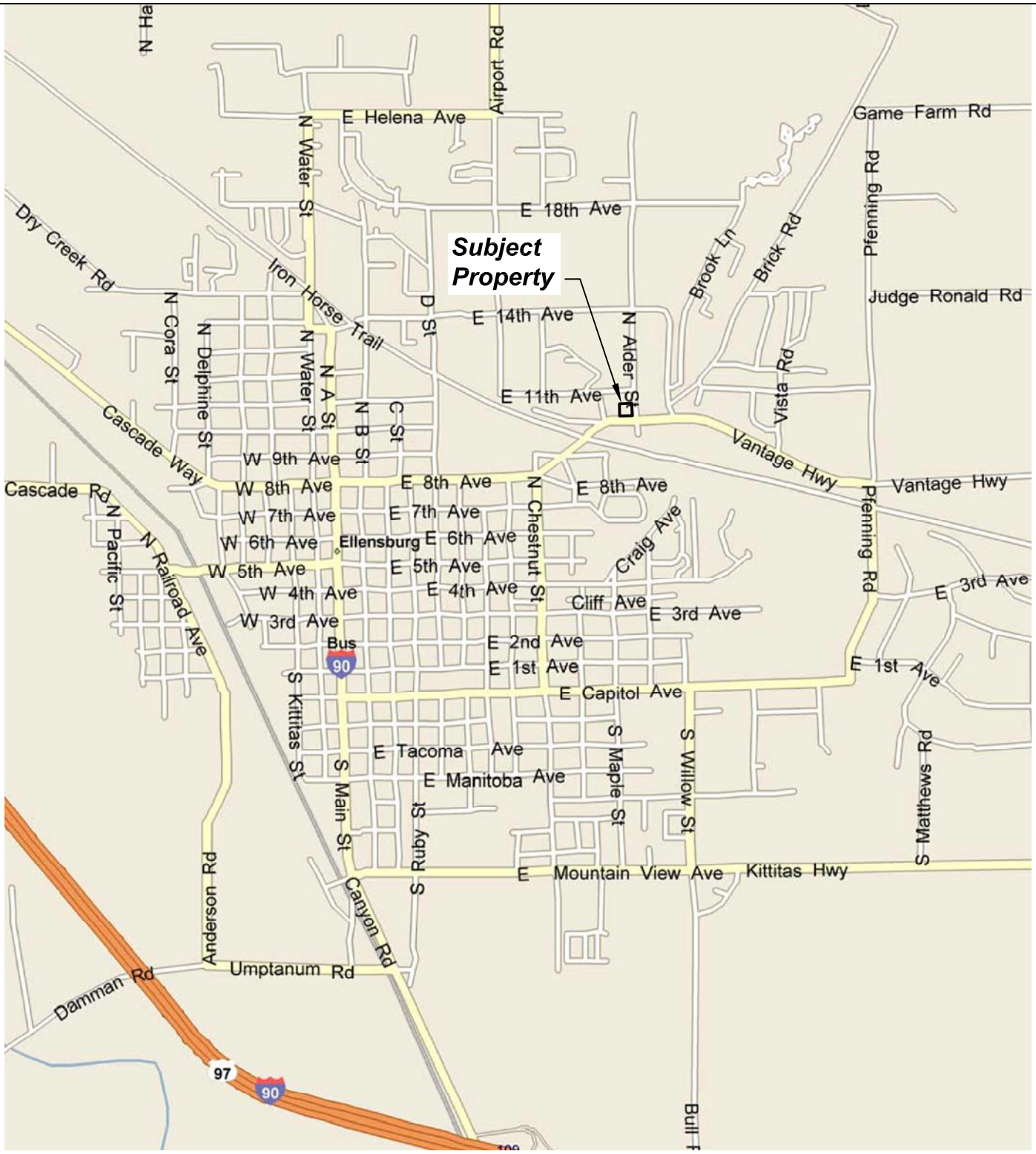
na = No MTCA Method A or B value available.

First dashed line indicates soil was excavated in November 2000.

Second dashed line indicates bioremediation amendments were injected in January 2011.

Table 7 - Measured Free Product Thickness in Well MW-1/MW-14

Date Measured	Product Thickness in Well in Inches	
4/8/1996	0	
4/6/1998	6	
10/5/1998	6	
12/29/1999	0.2	
3/21/2000	5	
6/14/2000	1	
9/12/2000	1	Hotspot Excavation
1/30/2001	0	
4/26/2001	0	
7/29/2001	0	
10/27/2001	4	
11/15/2002	3	
5/9/2003	0	
9/30/2003	0	
12/12/2003	1	
3/31/2004	1.80	
6/2/2004	0	
9/30/2004	0	
12/14/2004	0.18	UST Removal
4/4/2005	0	
10/6/2005	0	
6/28/2006	0	
5/25/2007	0	
11/7/2007	0	
6/4/2008	0	
10/21/2008	0	
10/14/2009	0	
11/15/2010	0	Bioremediation Injections
5/2/2011	0	
7/27/2011	0	
11/2/2011	0	
2/13/2012	0	



Note: Base map prepared from Microsoft Streets and Trips 2005.

0 2000 4000

Scale in Feet

WASHINGTON

N

Ken's Auto Wash
Ellensburg, Washington

Vicinity Map

7168-09 4/12

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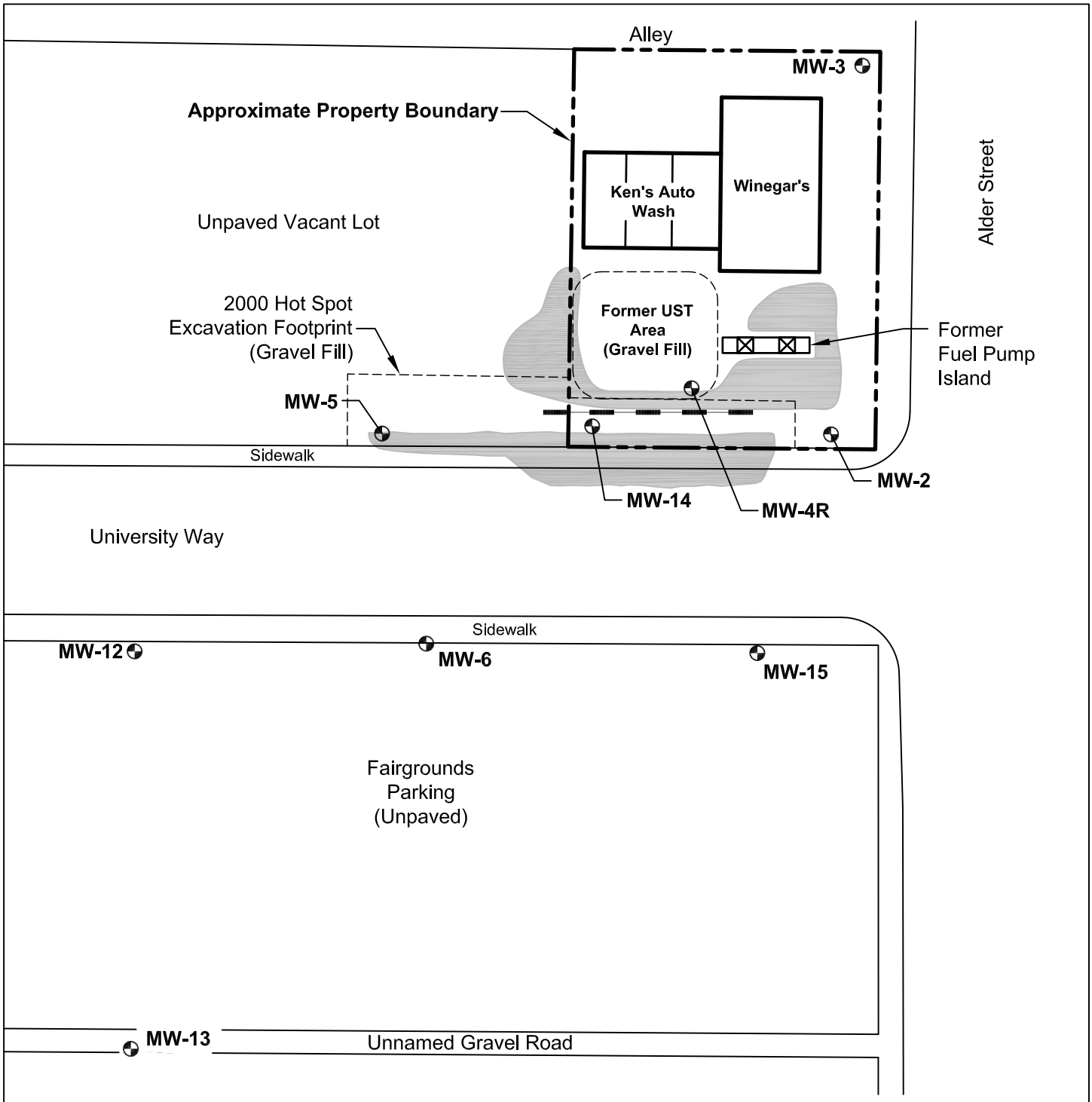
Figure 1

EAL 04/2/12 716809-001.dwg



Note: Base map prepared from drawing provided by Sage Earth Sciences titled "Proposed Addtional Monitoring Well and ORC Injections Locations," dated January 1998.

0 50 100
Scale in Feet

MW-6 Hart Crowser Monitoring Well Location and Number

Estimated Remaining Area with TPH-G and/or BTEX Concentrations above MTCA Method A Soil Cleanup Levels

Air Sparging Pipe (Not Located)

N

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Site and Well Location Plan

7168-09 4/12

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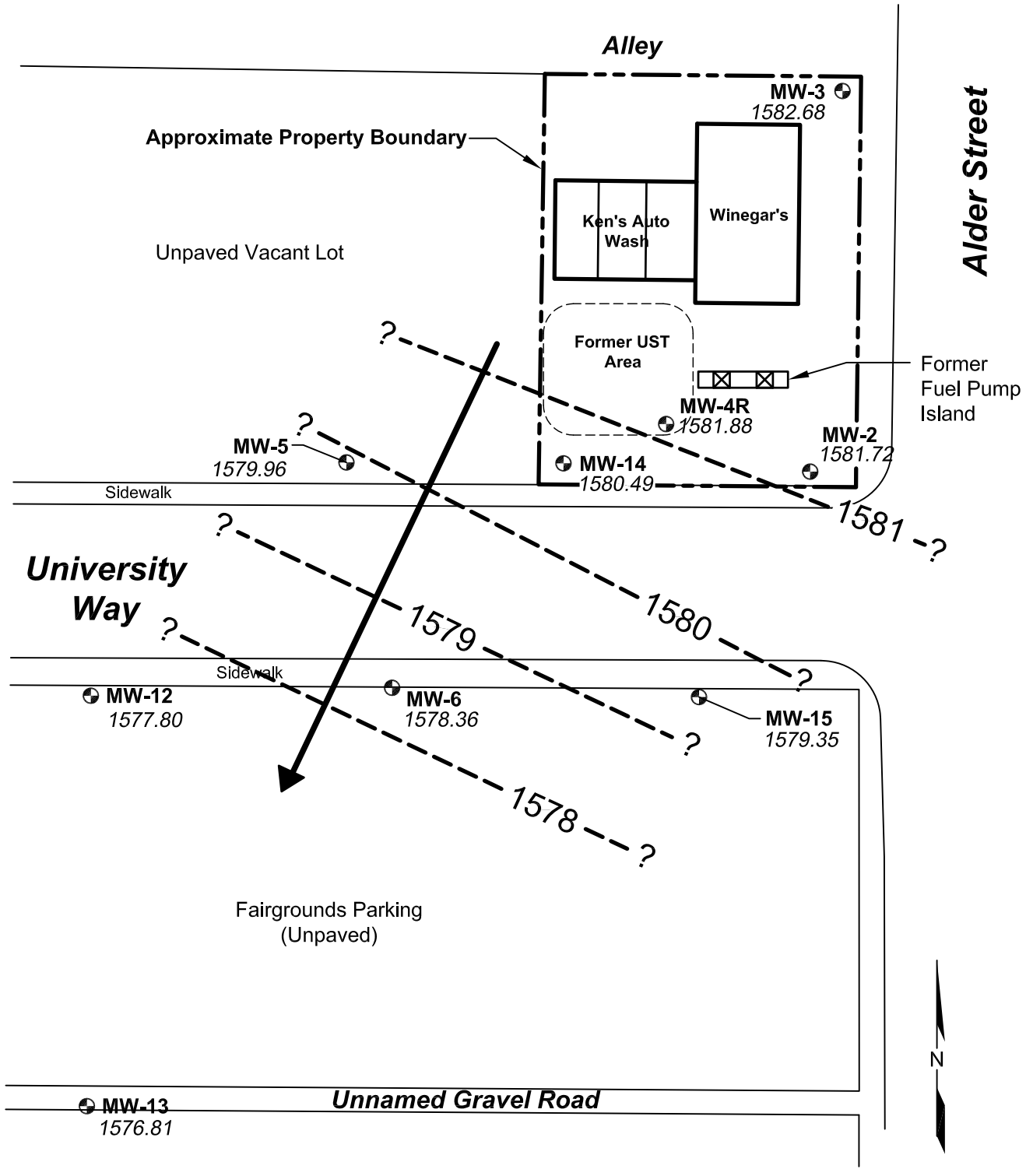
Figure
2

JAB 04/2/12 716809-002.dwg



Note: Elevation shown are in feet above Mean Sea Level.

0 50 100
Scale in Feet

MW-6	Monitoring Well Location and Number
1578.36	Groundwater Elevation in Feet
1580	Groundwater Elevation Contour in Feet
	Inferred Groundwater Flow Direction

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Groundwater Elevation Contour Map
November 2011

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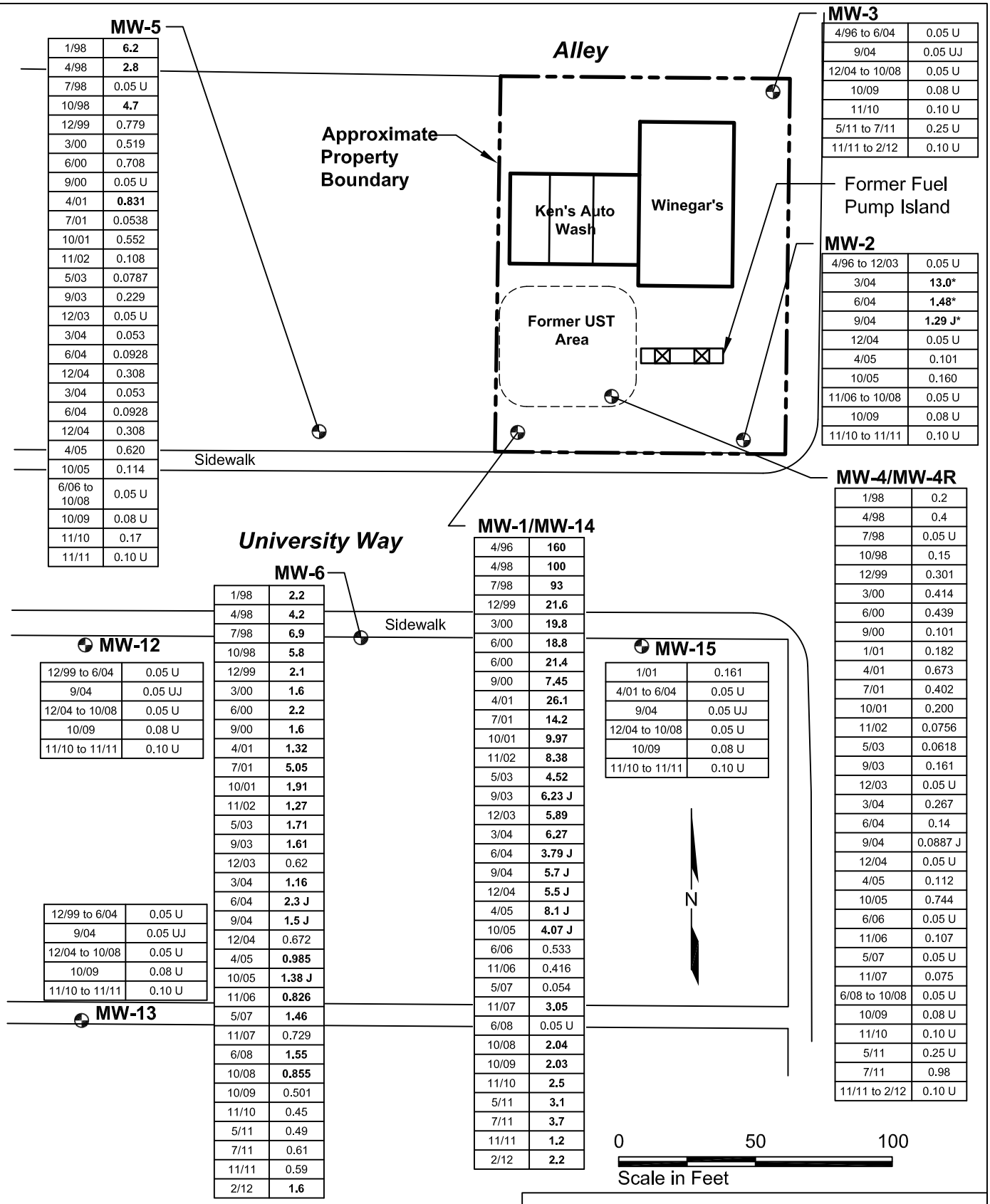
Figure
3

EAL 04/2/12 716809-003.dwg



MW-5

1/98	**6.2**
4/98	**2.8**
7/98	0.05 U
10/98	**4.7**
12/99	0.779
3/00	0.519
6/00	0.708
9/00	0.05 U
4/01	**0.831**
7/01	0.0538
10/01	0.552
11/02	0.108
5/03	0.0787
9/03	0.229
12/03	0.05 U
3/04	0.053
6/04	0.0928
12/04	0.308
3/04	0.053
6/04	0.0928
12/04	0.308
4/05	0.620
10/05	0.114
6/06 to 10/08	0.05 U
10/09	0.08 U
11/10	0.17
11/11	0.10 U

MW-3

4/96 to 6/04	0.05 U
9/04	0.05 UJ
12/04 to 10/08	0.05 U
10/09	0.08 U
11/10	0.10 U
5/11 to 7/11	0.25 U
11/11 to 2/12	0.10 U

MW-2

4/96 to 12/03	0.05 U
3/04	**13.0***
6/04	**1.48***
9/04	**1.29 J***
12/04	0.05 U
4/05	0.101
10/05	0.160
11/06 to 10/08	0.05 U
10/09	0.08 U
11/10 to 11/11	0.10 U

MW-4/MW-4R

1/98	0.2
4/98	0.4
7/98	0.05 U
10/98	0.15
12/99	0.301
3/00	0.414
6/00	0.439
9/00	0.101
1/01	0.182
4/01	0.673
7/01	0.402
10/01	0.200
11/02	0.0756
5/03	0.0618
9/03	0.161
12/03	0.05 U
3/04	0.267
6/04	0.14
9/04	0.0887 J
12/04	0.05 U
4/05	0.112
10/05	0.744
6/06	0.05 U
11/06	0.107
5/07	0.05 U
11/07	0.075
6/08 to 10/08	0.05 U
10/09	0.08 U
11/10	0.10 U
5/11	0.25 U
7/11	0.98
11/11 to 2/12	0.10 U

MW-6

1/98	**2.2**
4/98	**4.2**
7/98	**6.9**
10/98	**5.8**
12/99	**2.1**
3/00	**1.6**
6/00	**2.2**
9/00	**1.6**
4/01	**1.32**
7/01	**5.05**
10/01	**1.91**
11/02	**1.27**
5/03	**1.71**
9/03	**1.61**
12/03	0.62
3/04	**1.16**
6/04	**2.3 J**
9/04	**1.5 J**
12/04	0.672
4/05	**0.985**
10/05	**1.38 J**
11/06	**0.826**
5/07	**1.46**
11/07	0.729
6/08	**1.55**
10/08	**0.855**
10/09	0.501
11/10	0.45
5/11	0.49
7/11	0.61
11/11	0.59
2/12	**1.6**

MW-1/MW-14

4/96	**160**
4/98	**100**
7/98	**93**
12/99	**21.6**
3/00	**19.8**
6/00	**18.8**
6/00	**21.4**
9/00	**7.45**
4/01	**26.1**
7/01	**14.2**
10/01	**9.97**
11/02	**8.38**
5/03	**4.52**
9/03	**6.23 J**
12/03	**5.89**
3/04	**6.27**
6/04	**3.79 J**
9/04	**5.7 J**
12/04	**5.5 J**
4/05	**8.1 J**
10/05	**4.07 J**
6/06	0.533
11/06	0.416
5/07	0.054
11/07	**3.05**
6/08	0.05 U
10/08	**2.04**
10/09	**2.03**
11/10	**2.5**
5/11	**3.1**
7/11	**3.7**
11/11	**1.2**
2/12	**2.2**

MW-12

12/99 to 6/04	0.05 U
9/04	0.05 UJ
12/04 to 10/08	0.05 U
10/09	0.08 U
11/10 to 11/11	0.10 U

MW-15

1/01	0.161
4/01 to 6/04	0.05 U
9/04	0.05 UJ
12/04 to 10/08	0.05 U
10/09	0.08 U
11/10 to 11/11	0.10 U

MW-13

12/99 to 6/04	0.05 U
9/04	0.05 UJ
12/04 to 10/08	0.05 U
10/09	0.08 U
11/10 to 11/11	0.10 U

MW-6 Monitoring Well Location and Number

3/04 | 0.05 U

Month/Year of Sample Collection

Groundwater TPH-G Concentration in mg/L

Notes: Concentrations exceeding the cleanup level are shown in bold.
U = Not detected at specified detection limit
J = Estimated concentration
* = Previous inflow of minor TPH-contaminated water through MW-2 top of well casing suspected

Ken's Auto Wash
Ellensburg, Washington

TPH-G Occurrences in Groundwater

7168-09 4/12

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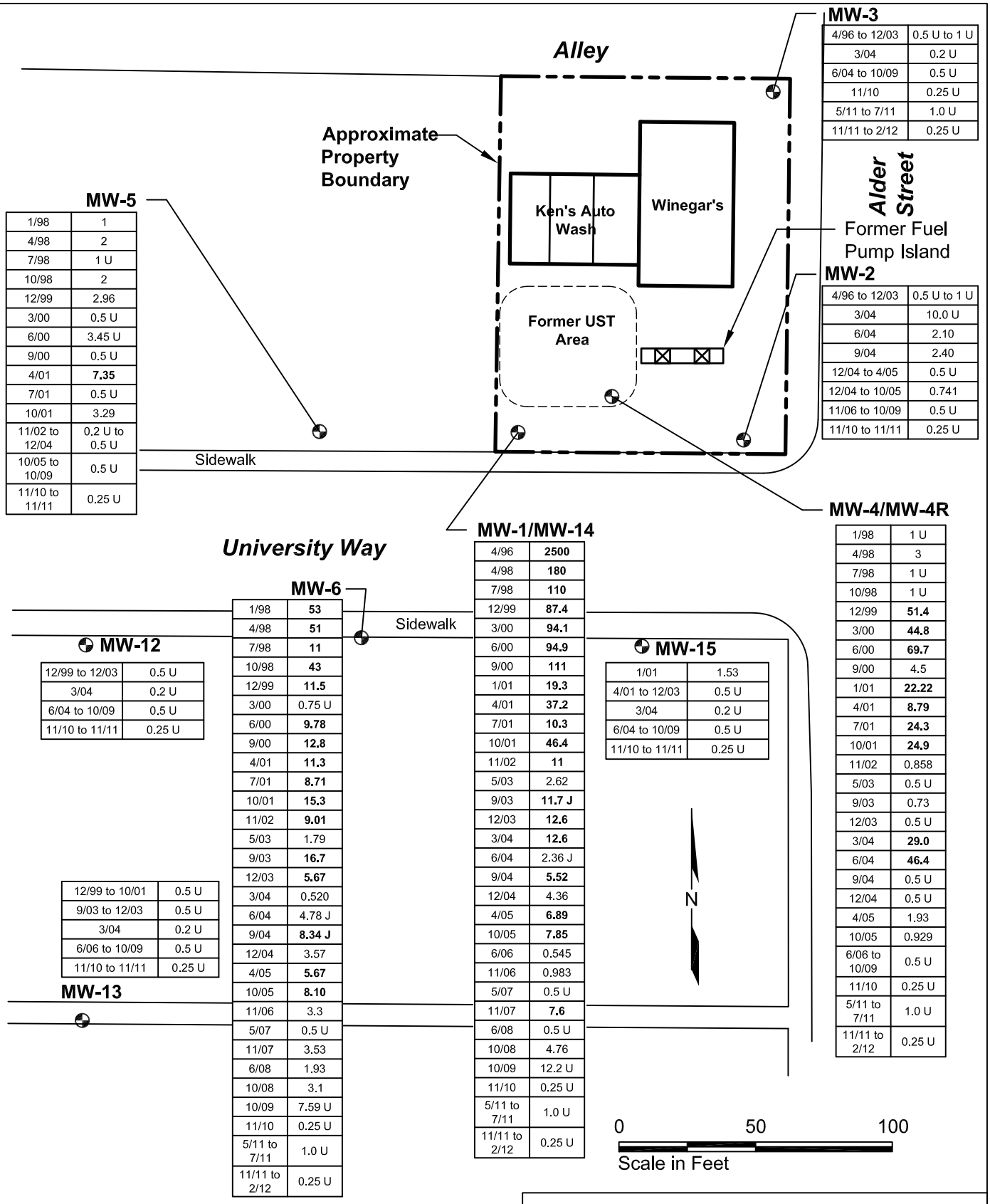
Figure 4

EAL 04/2/12 716809-004.dwg



MW-3

4/96 to 12/03	0.5 U to 1 U
3/04	0.2 U
6/04 to 10/09	0.5 U
11/10	0.25 U
5/11 to 7/11	1.0 U
11/11 to 2/12	0.25 U

MW-2

4/96 to 12/03	0.5 U to 1 U
3/04	10.0 U
6/04	2.10
9/04	2.40
12/04 to 4/05	0.5 U
12/04 to 10/05	0.741
11/06 to 10/09	0.5 U
11/10 to 11/11	0.25 U

MW-5

1/98	1
4/98	2
7/98	1 U
10/98	2
12/99	2.96
3/00	0.5 U
6/00	3.45 U
9/00	0.5 U
4/01	**7.35**
7/01	0.5 U
10/01	3.29
11/02 to 12/04	0.2 U to 0.5 U
10/05 to 10/09	0.5 U
11/10 to 11/11	0.25 U

MW-4/MW-4R

1/98	1 U
4/98	3
7/98	1 U
10/98	1 U
12/99	**51.4**
3/00	**44.8**
6/00	**69.7**
9/00	4.5
1/01	**22.22**
4/01	**8.79**
7/01	**24.3**
10/01	**24.9**
11/02	0.858
5/03	0.5 U
9/03	0.73
12/03	0.5 U
3/04	**29.0**
6/04	**46.4**
9/04	0.5 U
12/04	0.5 U
4/05	1.93
10/05	0.929
6/06 to 10/09	0.5 U
11/10	0.25 U
5/11 to 7/11	1.0 U
11/11 to 2/12	0.25 U

MW-1/MW-14

4/96	**2500**
4/98	**180**
7/98	**110**
12/99	**87.4**
3/00	**94.1**
6/00	**94.9**
9/00	**111**
1/01	**19.3**
4/01	**37.2**
7/01	**10.3**
10/01	**46.4**
11/02	**11**
5/03	2.62
9/03	**11.7 J**
12/03	**12.6**
3/04	**12.6**
6/04	2.36 J
9/04	**5.52**
12/04	4.36
4/05	**6.89**
10/05	**7.85**
6/06	0.545
11/06	0.983
5/07	0.5 U
11/07	**7.6**
6/08	0.5 U
10/08	4.76
10/09	12.2 U
11/10	0.25 U
5/11 to 7/11	1.0 U
11/11 to 2/12	0.25 U

MW-6

1/98	**53**
4/98	**51**
7/98	**11**
10/98	**43**
12/99	**11.5**
3/00	0.75 U
6/00	**9.78**
9/00	**12.8**
4/01	**11.3**
7/01	**8.71**
10/01	**15.3**
11/02	**9.01**
5/03	1.79
9/03	**16.7**
12/03	**5.67**
3/04	0.520
6/04	4.78 J
9/04	**8.34 J**
12/04	3.57
4/05	**5.67**
10/05	**8.10**
11/06	3.3
5/07	0.5 U
11/07	3.53
6/08	1.93
10/08	3.1
10/09	7.59 U
11/10	0.25 U
5/11 to 7/11	1.0 U
11/11 to 2/12	0.25 U

MW-12

12/99 to 12/03	0.5 U
3/04	0.2 U
6/04 to 10/09	0.5 U
11/10 to 11/11	0.25 U

MW-15

1/01	1.53
4/01 to 12/03	0.5 U
3/04	0.2 U
6/04 to 10/09	0.5 U
11/10 to 11/11	0.25 U

12/99 to 10/01	0.5 U
9/03 to 12/03	0.5 U
3/04	0.2 U
6/06 to 10/09	0.5 U
11/10 to 11/11	0.25 U

MW-13

MW-6 Monitoring Well Location and Number

3/04	0.5 U

Month/Year of Sample Collection

Groundwater Benzene Concentration in µg/L

Notes: Concentrations exceeding the cleanup level are shown in bold.
U = Not detected at specified detection limit.
J = Estimated concentration

Ken's Auto Wash
Ellensburg, Washington

Benzene Occurrences in Groundwater

7168-09 4/12

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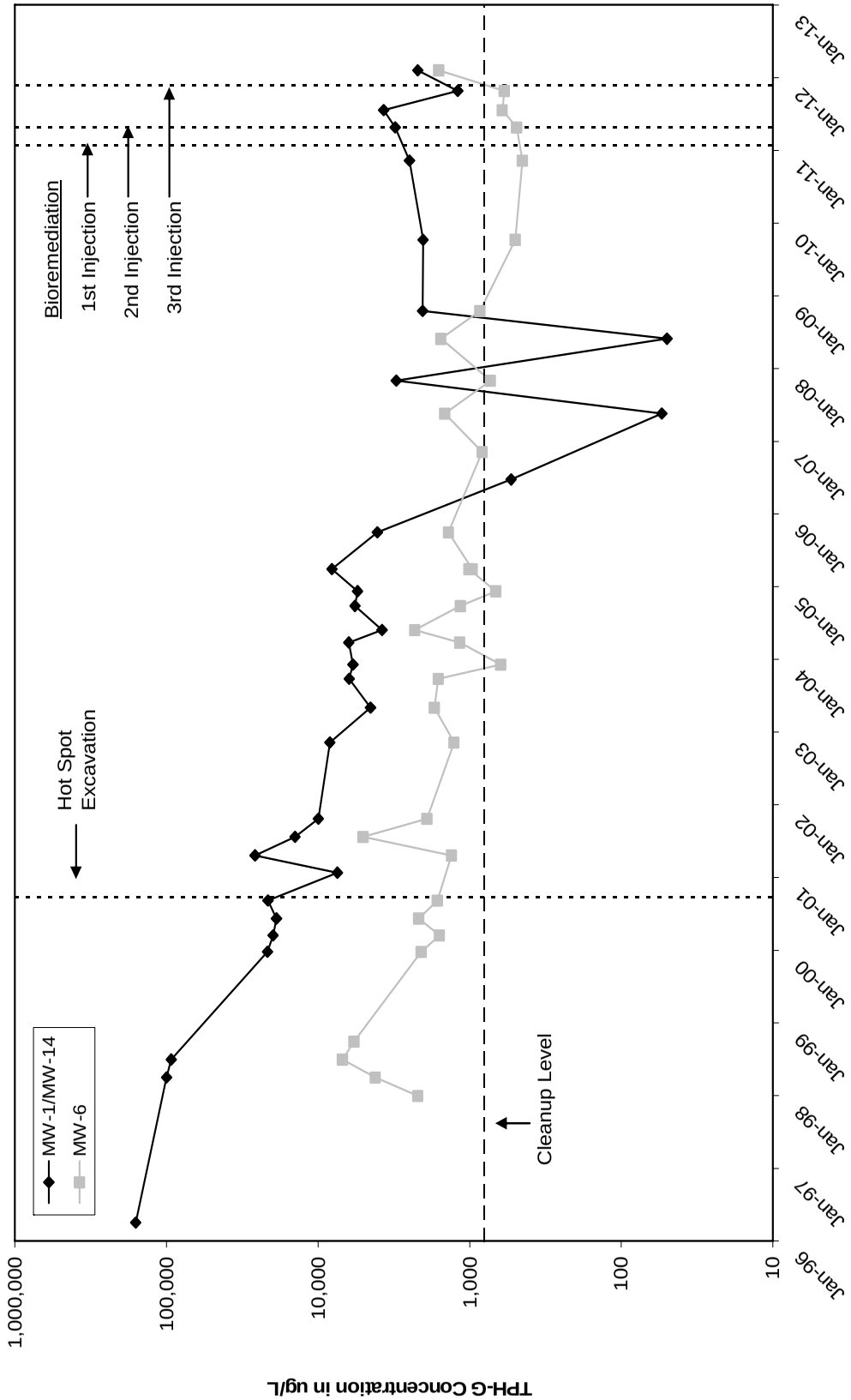
Figure 5

EAL 04/2/12 716809-005.dwg



Ken's Auto Wash
Ellensburg, Washington

Long-Term Trends in TPH-G Concentrations in Groundwater

7168-09 4/12

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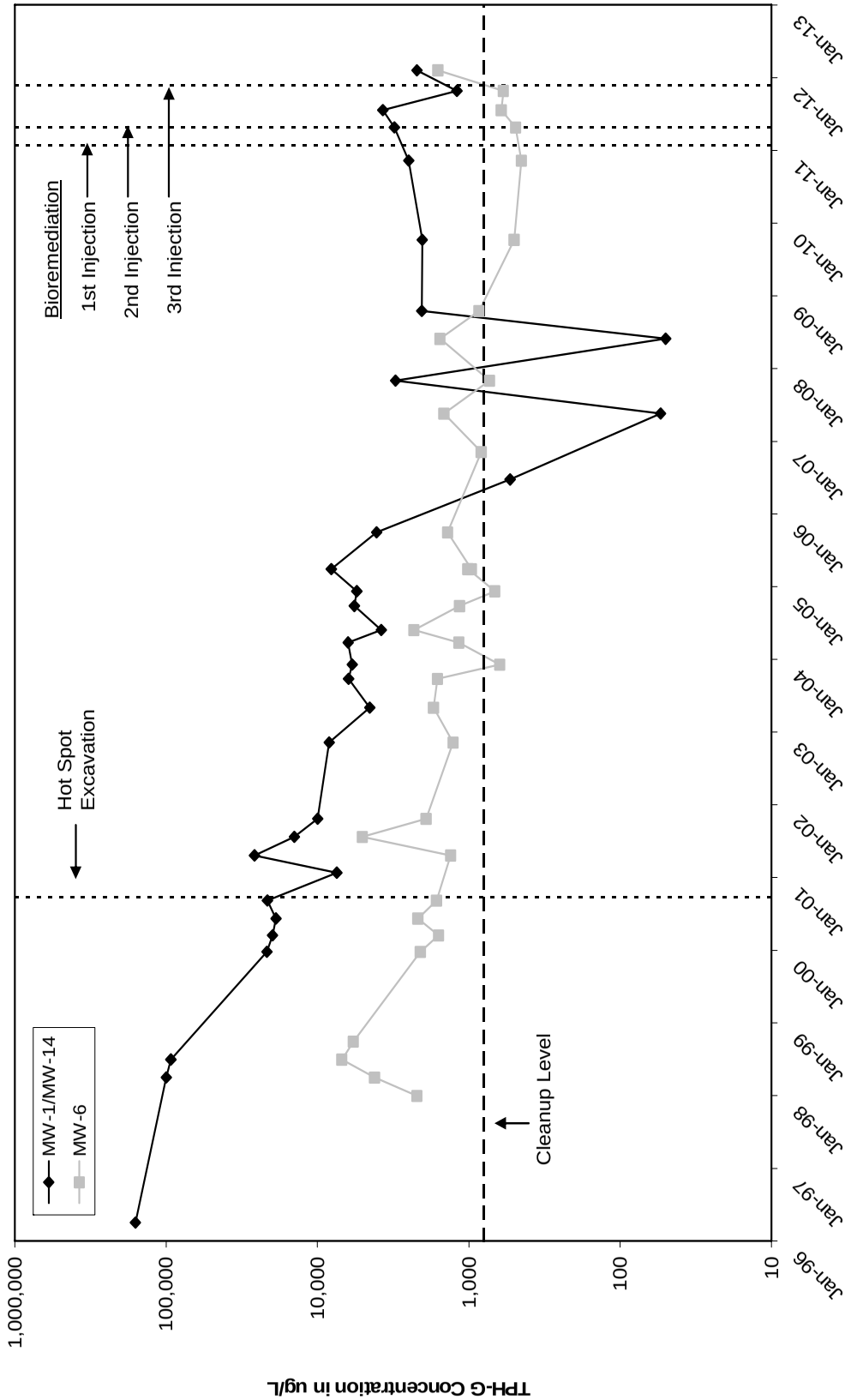
Figure

6

AJG 4/2/12 J:\Jobs\716809\Bioremediation Report\Figure 6-9.xls



Ken's Auto Wash
Ellensburg, Washington

Long-Term Trends in Benzene Concentrations in Groundwater

7168-09 4/12

HARTCROWSER

Figure 7

AJG 4/2/12 J:\Jobs\716809\Bioremediation Report\Figure 6-9.xls

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Ken's Auto Wash
Ellensburg, Washington

MW-14 Bioremediation Performance Profile

7168-09

4/12

Figure **8**

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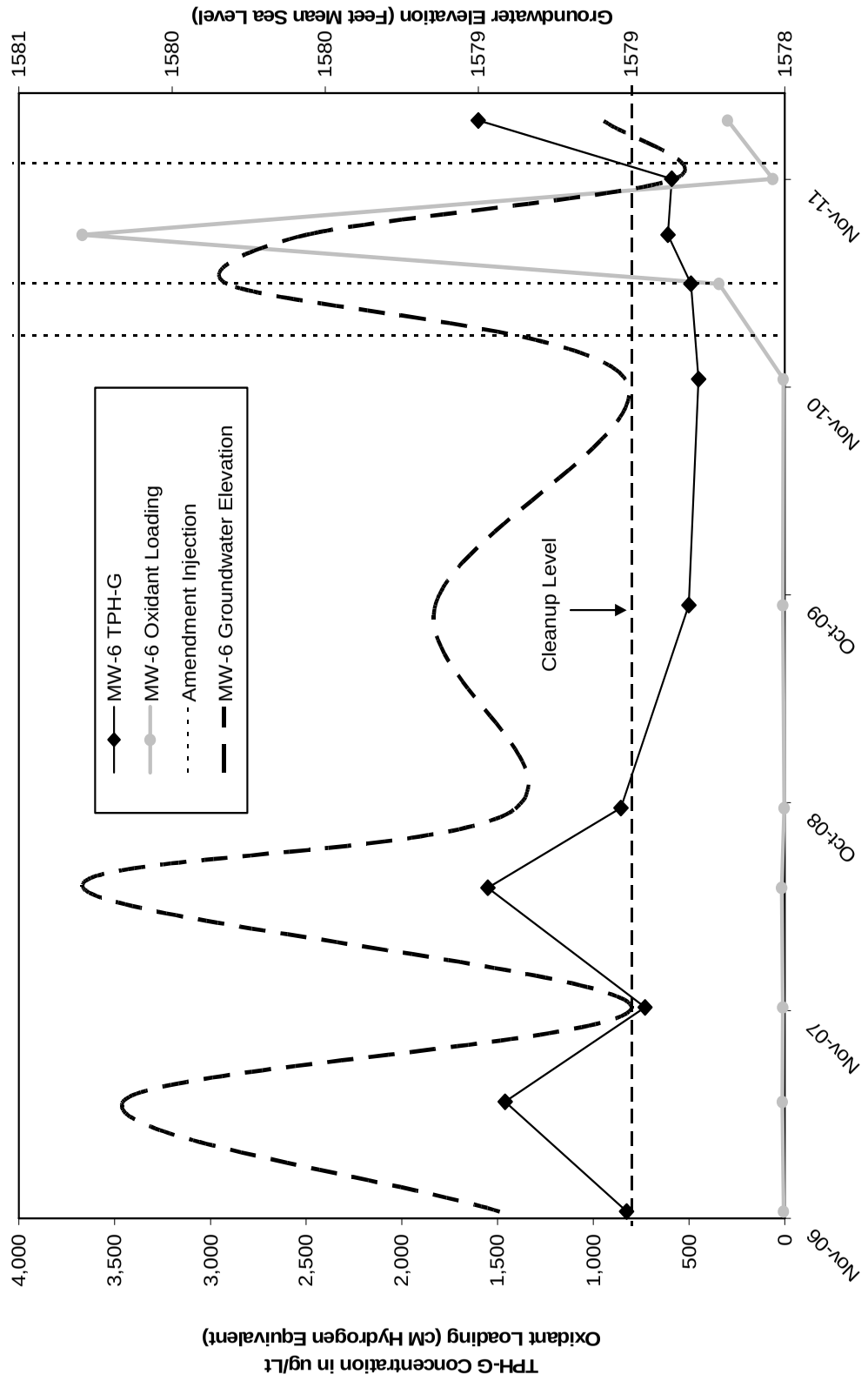

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MW-6 Bioremediation Performance Profile

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Figure **9**

AJG 4/2/12 J:\Jobs\716809\Bioremediation Report\Figure 6-9.xls

APPENDIX A
BIOREMEDIATION AMENDMENT DESCRIPTION AND FIELD METHODS

APPENDIX A
BIOREMEDIATION AMENDMENT DESCRIPTION AND FIELD METHODS

This appendix describes the field methods used during the enhanced bioremediation program and includes the amendment descriptions, injection field methods, and groundwater sampling methods.

AMENDMENT DESCRIPTIONS

A total of five amendments was introduced into the groundwater as part of the remedial approach: (1) sodium bromide groundwater tracer; (2) sodium chloride groundwater tracer; (3) PetroBac™, which is a combination of petroleum-degrading bacteria and surface-active agents designed to improve oxidant usage; (4) OxEA-aq™, which is a blend of natural microbial oxidants with macro- and micronutrients to enhance petroleum destruction; and (5) Ivey-sol® 103, which is a nonionic surfactant designed to improve bioremediation of TPH-G. The five amendments are summarized below.

Tracers. Conservative groundwater tracers were used to track groundwater flow, velocity, and effective amendment distribution. The tracers used include sodium bromide and sodium chloride salts.

PetroBac. ETEC, LLC of Portland, Oregon, manufactures and supplies the PetroBac amendment. PetroBac is a liquid containing multiple strains of proven hydrocarbon-degrading bacteria and a biodegradable surface-active agent. PetroBac was freshly batched by ETEC with a guaranteed active plate count of 10^8 colony-forming units per milliliter prior to injection. Fresh batching and plate count verification allows optimal activity. The biodegradable surface-active agent in PetroBac encourages the slow desorption of residual TPH-G from the soil matrix to improve petroleum degradation rates and overall oxidant consumption.

OxEA-aq. Bioremediation Specialists of Portland, Oregon, supplied the OxEA-aq amendment. OxEA-aq is a powder consisting of a highly soluble blend of nitrogen- and sulfur-based oxidants designed to enhance natural attenuation of petroleum by providing the same electron acceptors that existing site microbes are accustomed to using. The amendment also provides a diverse blend of both macro- and micronutrients to support the rapid development of these native bacteria to further enhance hydrocarbon destruction.

Ivey-sol 103. Ivey International Inc. manufacturers Ivey-sol 103 and was available through EnviroSupply & Service of Irvine, California. Ivey-sol 103 is a

liquid consisting of a patented, biodegradable, nonionic surfactant blend that selectively desorbs gasoline-range petroleum hydrocarbons to improve bioavailability and overall oxidant consumption.

INJECTION PROTOCOL

All injections were under pressure using municipal water pressure or a transfer pump. Pressures were monitored in-line near the wellhead and were limited to 15 pounds per square inch. This pressure preserves well seal integrity while pushing amendment into less-accessible pore spaces. Amendment was conveyed to each injection location using a flexible garden hose and a secured high-pressure Furnco compression fitting. In-line valves located up-flow of the pressure gauge was used to control flow rates and injection pressures. A flow meter was used to monitor overall injection volumes at each location.

During the injection events, groundwater levels were measured in selected wells to evaluate amendment distribution, overall rise in groundwater levels, and to indicate potential short circuiting of the injected amendments.

GROUNDWATER SAMPLING

Groundwater samples were collected from monitoring wells during the bioremediation program for chemical analysis (Table 3). One duplicate sample was collected for each analyte during the annual sampling event in November 2011.

Sampling Equipment

Equipment used for the collection of groundwater samples included:

- pH, specific conductivity, redox potential, and temperature meters;
- Solinst or equivalent water level indicator;
- Peristaltic pump with disposable polyethylene tubing;
- Laboratory-supplied pre-cleaned and preserved sample containers;
- Coolers with blue ice;
- Hach color disk and colorimetric strips for field testing; and
- Hart Crowser Sample Custody Record and Groundwater Sampling Data forms.

Sampling Procedures

After measuring the depth to groundwater, samples were collected from the wells using standard low-flow sampling techniques. Each well was purged until the field parameters of pH, temperature, and specific conductivity met the stability criteria (i.e., specific conductivity ±10 percent, pH ±0.1 pH units, and temperature ±0.1° C).

Following stabilization, field testing for ferrous iron, nitrate, nitrite, and ammonia was performed. Groundwater samples were collected for laboratory testing by directly filling pre-cleaned sample containers provided by the laboratory with disposable polyethylene tubing. The labeled sample containers were placed in coolers with ice.

Samples were transferred under chain of custody protocol to Analytical Resources, Inc. (ARI) in Tukwila, Washington, for laboratory analysis (Appendix B). We contracted with ARI in an effort to improve the previous laboratory's elevated reporting limits in October 2009.

INVESTIGATION-DERIVED WASTE (IDW) STORAGE AND DISPOSAL

The purge water produced from groundwater sampling was drummed on site pending receipt of chemical analysis results from the analytical laboratory and determination of appropriate disposal procedures. Drum disposition forms were filled out to record the number, contents, and location of the drums generated.

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APPENDIX B
CHEMICAL DATA QUALITY REVIEW AND LABORATORY REPORTS

APPENDIX B
CHEMICAL DATA QUALITY REVIEW AND LABORATORY REPORTS

CHEMICAL DATA QUALITY REVIEW

Groundwater samples were analyzed for the following:

- Gasoline-range hydrocarbons (Ecology method NWTPH-G);
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) (EPA Method 8021B); and
- Nitrate, sulfate, bromide, and chloride (EPA Method 300.0).

The November 2011 groundwater monitoring event also included the following analysis:

- Total lead (EPA Method 200.8)

The reported results and the associated quality assurance sample results were reviewed. The following criteria were evaluated in the standard data validation process:

- Holding times;
- Method blanks;
- Surrogate recoveries;
- Standard reference material (SRM) recovery (where applicable);
- Matrix spike and matrix spike duplicate recovery (MS/MSD);
- Laboratory control samples and laboratory control sample duplicate recovery (LCS/LCSD); and
- Laboratory duplicate, MS/MSD, and LCS/LCSD relative percent differences (RPDs).

May 2011 Samples

Five groundwater samples were collected on May 2, 2011. The samples were submitted to Analytical Resources, Inc. (ARI) in Tukwila, Washington, for chemical analysis.

The required holding times were met. No method blank contamination was detected. Surrogate, SRM, MS/MSD, and LCS/LCSD recoveries were within control limits. Laboratory duplicate, MS/MSD, and LCS/LCSD RPDs were acceptable.

The data are acceptable for use as reported.

July 2011 Samples

Five groundwater samples were collected on July 27, 2011. The samples were submitted to Analytical Resources, Inc. (ARI) in Tukwila, Washington, for chemical analysis.

The required holding times were met. No method blank or trip blank contamination was detected. Surrogate, SRM, MS/MSD, and LCS/LCSD recoveries were within control limits. Laboratory duplicate, MS/MSD, and LCS/LCSD RPDs were acceptable.

Sample Receiving Discrepancies: The chain of custody did not include the time when the samples were relinquished to the laboratory. The trip blank was not listed on the chain of custody. Sample results were not qualified due to these discrepancies.

The data are acceptable for use as reported.

November 2011 Samples

Nine groundwater samples, one field duplicate, and one trip blank were collected on November 2, 2011. These samples were submitted to Analytical Resources, Inc. (ARI) in Tukwila, Washington, for chemical analysis.

The required holding times were met for the analyses. No method blank or trip blank contamination was detected. Surrogate, MS/MSD, and LCS/LCSD recoveries were within laboratory control limits. Laboratory duplicate, field duplicate, MS/MSD, and LCS/LCSD RPDs were acceptable.

The data are acceptable for use as reported.

February 2012 Samples

Five groundwater samples and two trip blanks were collected on February 13, 2012. These samples were submitted to Analytical Resources, Inc. (ARI) in Tukwila, Washington, for chemical analysis.

The required holding times were met for the analyses. No method blank or trip blank contamination was detected. Surrogate, MS/MSD, and LCS/LCSD recoveries were within laboratory control limits. Laboratory duplicate, MS/MSD, and LCS/LCSD RPDs were acceptable.

One continuing calibration blank for chloride had a detection slightly above the reporting limit. The associated sample results for chloride were greater than ten times the amount in the blank, and no sample results were qualified.

The data are acceptable for use as reported.

L:\Jobs\716809\Bioremediation Report\Final\Bioremediation Report.doc

LABORATORY REPORTS

Analytical Resources, Incorporated
Analytical Chemists and Consultants

May 12, 2011

Angie Goodwin
Hart Crowser, Inc.
1700 Westlake Avenue N. Suite 200
Seattle, WA 98109-3256

RE: Client Project: 7168-09
ARI Job No.: SV27

Dear Angie;

Please find enclosed the original Chain-of-Custody (COC) records, sample receipt documentation, and the final data for samples from the project referenced above. Analytical Resources, Inc. (ARI) received five water samples on May 3, 2011. The samples were received in good condition with a cooler temperature of 3.9 °C.

The samples were analyzed for NWTPH-Gx plus BTEX and Anions, as requested on the COC.

There were no anomalies associated with the analyses of this sample.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
kellyb@arilabs.com
206/695-6211
Enclosures

cc: eFile SV27

KFB/kb

Sample Custody Record

1 of 1

Samples Shipped to: ARI

HARTCROWSER

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
Phone: 206-324-9530 FAX: 206-328-5581

JOB 7168-09 LAB NUMBER

PROJECT NAME KEN'S AUTO

HART CROWSER CONTACT ANGIE GOODWIN
206-826-4495

SAMPLED BY: ASK/BCP

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS: TPH-G/BTEX	REQUESTED ANALYSIS: NO3/SO4/Br/Cl	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	MW-3		5/2/11	1110	WATER	2	1	3	
	MW-4R			1250		2	1	3	
	MW-14			1335		2	1	3	
	MW-6			1518		2	1	3	
	MW-13			1625			1	1	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	5/3/11	SIGNATURE	5/3/11
PRINT NAME: ANDREW KAPAROS	TIME	PRINT NAME: Angie Goodwin	TIME
COMPANY: HART CROWSER	1530	COMPANY: HC	1530
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	5/3/11	SIGNATURE	5/3/11
PRINT NAME: Angie Goodwin	TIME	PRINT NAME: Jennifer Millsap	TIME
COMPANY: HC	1655	COMPANY: ARI	1655

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

13 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐YES ☐NO ☐N/A
GOOD CONDITION ☐YES ☐NO
TEMPERATURE
SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No.
for Other Contract Requirements

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐ 48 HOURS ☒ STANDARD
☐ 72 HOURS OTHER

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Hart Crowser | Project Name: Kent Auto

COC No(s): _____ (NA) | Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: SV27 | Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)..... 3.9 ___ ___ ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F | Temp Gun ID#: 90941619

Cooler Accepted by: JM | Date: 5/3/11 | Time: 1655

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ...	(Bubble Wrap) (Wet Ice) Gel Packs Baggies (Foam Block) Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	(NO)
Were all VOC vials free of air bubbles?	NA	(YES)	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

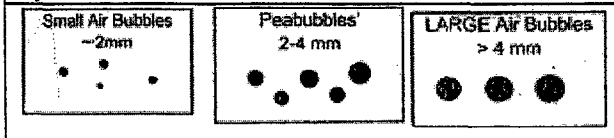
Samples Logged by: JM | Date: 5/3/11 | Time: 1705

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: SV27
Client: Hart Crowser Inc.
Project Event: 7168-09
Project Name: Ken's Auto

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-3	SV27A	11-9968	Water	05/02/11 11:10	05/03/11 16:55
2.	MW-4R	SV27B	11-9969	Water	05/02/11 12:50	05/03/11 16:55
3.	MW-14	SV27C	11-9970	Water	05/02/11 13:35	05/03/11 16:55
4.	MW-6	SV27D	11-9971	Water	05/02/11 15:18	05/03/11 16:55
5.	MW-13	SV27E	11-9972	Water	05/02/11 16:25	05/03/11 16:55

Printed 05/03/11

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MW-3**
TPHG by Method NWTPHG **SAMPLE**

Lab Sample ID: SV27A
LIMS ID: 11-9968
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SV27-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 05/02/11
Date Received: 05/03/11

Date Analyzed: 05/09/11 09:06
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	Toluene	1.0	< 1.0 U	
100-41-4	Ethylbenzene	1.0	< 1.0 U	
179601-23-1	m,p-Xylene	1.0	< 1.0 U	
95-47-6	o-Xylene	1.0	< 1.0 U	
	Gasoline Range Hydrocarbons	0.25	< 0.25 U	GAS ID ---

BETX Surrogate Recovery

Trifluorotoluene	94.9%
Bromobenzene	92.9%

Gasoline Surrogate Recovery

Trifluorotoluene	97.9%
Bromobenzene	96.3%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MW-4R**
TPHG by Method NWTPHG **SAMPLE**

Lab Sample ID: SV27B
LIMS ID: 11-9969
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SV27-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 05/02/11
Date Received: 05/03/11

Date Analyzed: 05/09/11 09:35
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
71-43-2	Benzene	1.0	< 1.0 U
108-88-3	**Toluene**	**1.0**	**1.6**
100-41-4	Ethylbenzene	1.0	< 1.0 U
179601-23-1	m,p-Xylene	1.0	< 1.0 U
95-47-6	o-Xylene	1.0	< 1.0 U

			GAS ID
Gasoline Range Hydrocarbons	0.25	< 0.25 U	---

BETX Surrogate Recovery

Trifluorotoluene	94.7%
Bromobenzene	94.7%

Gasoline Surrogate Recovery

Trifluorotoluene	98.2%
Bromobenzene	98.7%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MW-14**
TPHG by Method NWTPHG **SAMPLE**

Lab Sample ID: SV27C
LIMS ID: 11-9970
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SV27-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 05/02/11
Date Received: 05/03/11

Date Analyzed: 05/09/11 10:04
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	**Toluene**	**1.0**	**1.7**	
100-41-4	**Ethylbenzene**	**1.0**	**1.4**	
179601-23-1	**m,p-Xylene**	**1.0**	**1.3**	
95-47-6	o-Xylene	1.0	< 1.0 U	
	Gasoline Range Hydrocarbons	**0.25**	**3.1**	GAS ID **GAS/GRO**

BETX Surrogate Recovery

Trifluorotoluene	95.7%
Bromobenzene	99.7%

Gasoline Surrogate Recovery

Trifluorotoluene	100%
Bromobenzene	106%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MW-6**
TPHG by Method NWTPHG **SAMPLE**

Lab Sample ID: SV27D
LIMS ID: 11-9971
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SV27-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 05/02/11
Date Received: 05/03/11

Date Analyzed: 05/09/11 10:33
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	Toluene	1.0	< 1.0 U	
100-41-4	Ethylbenzene	1.0	< 1.0 U	
179601-23-1	m,p-Xylene	1.0	< 1.0 U	
95-47-6	o-Xylene	1.0	< 1.0 U	
				GAS ID
	Gasoline Range Hydrocarbons	**0.25**	**0.49**	**GRO**

BETX Surrogate Recovery

Trifluorotoluene	95.0%
Bromobenzene	94.5%

Gasoline Surrogate Recovery

Trifluorotoluene	98.9%
Bromobenzene	97.4%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MB-050911**
TPHG by Method NWTPHG **METHOD BLANK**

Lab Sample ID: MB-050911
LIMS ID: 11-9968
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SV27-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed: 05/09/11 08:17
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
71-43-2	Benzene	1.0	< 1.0 U
108-88-3	Toluene	1.0	< 1.0 U
100-41-4	Ethylbenzene	1.0	< 1.0 U
179601-23-1	m,p-Xylene	1.0	< 1.0 U
95-47-6	o-Xylene	1.0	< 1.0 U

			GAS ID
Gasoline Range Hydrocarbons	0.25	< 0.25 U	---

BETX Surrogate Recovery

Trifluorotoluene	91.9%
Bromobenzene	94.4%

Gasoline Surrogate Recovery

Trifluorotoluene	95.7%
Bromobenzene	98.0%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

BETX WATER SURROGATE RECOVERY SUMMARY

ARI Job: SV27
Matrix: Water

QC Report No: SV27-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09

Client ID	TFT	BBZ	TOT OUT
MB-050911	91.9%	94.4%	0
LCS-050911	94.8%	95.1%	0
LCSD-050911	95.7%	96.5%	0
MW-3	94.9%	92.9%	0
MW-4R	94.7%	94.7%	0
MW-14	95.7%	99.7%	0
MW-6	95.0%	94.5%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(79-120)	(80-120)
(BBZ) = Bromobenzene	(79-120)	(80-120)

Log Number Range: 11-9968 to 11-9971

FORM II BETX

ANALYTICAL RESOURCES INCORPORATED

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: SV27
Matrix: Water

QC Report No: SV27-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09

Client ID	TFT	BBZ	TOT OUT
MB-050911	95.7%	98.0%	0
LCS-050911	101%	99.3%	0
LCSD-050911	102%	99.8%	0
MW-3	97.9%	96.3%	0
MW-4R	98.2%	98.7%	0
MW-14	100%	106%	0
MW-6	98.9%	97.4%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 11-9968 to 11-9971

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-050911
LAB CONTROL SAMPLE

Lab Sample ID: LCS-050911
LIMS ID: 11-9968
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SV27-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 05/09/11 07:18
LCSD: 05/09/11 07:47
Instrument/Analyst LCS: PID1/MH
LCSD: PID1/MH

Purge Volume: 5.0 mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	1.07	1.00	107%	1.07	1.00	107%	0.0%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	101%	102%
Bromobenzene	99.3%	99.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
Page 1 of 1

Sample ID: LCS-050911
LAB CONTROL SAMPLE

Lab Sample ID: LCS-050911
LIMS ID: 11-9968
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SV27-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 05/09/11 07:18
LCSD: 05/09/11 07:47
Instrument/Analyst LCS: PID1/MH
LCSD: PID1/MH

Purge Volume: 5.0 mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	3.14	3.70	84.9%	3.26	3.70	88.1%	3.8%
Toluene	34.5	36.5	94.5%	36.2	36.5	99.2%	4.8%
Ethylbenzene	10.2	10.7	95.3%	10.7	10.7	100%	4.8%
m,p-Xylene	37.0	40.1	92.3%	38.4	40.1	95.8%	3.7%
o-Xylene	17.0	18.1	93.9%	17.6	18.1	97.2%	3.5%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

BETX Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	94.8%	95.7%
Bromobenzene	95.1%	96.5%

SAMPLE RESULTS-CONVENTIONALS
SV27-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 05/02/11
Date Received: 05/03/11

Client ID: MW-3
ARI ID: 11-9968 SV27A

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	05/04/11 050411#1	EPA 300.0	mg/L	1.0	36.0
Bromide	05/03/11 050311#1	EPA 300.0	mg/L	0.1	< 0.1 U
N-Nitrate	05/03/11 050311#1	EPA 300.0	mg-N/L	0.1	3.4
Sulfate	05/04/11 050411#1	EPA 300.0	mg/L	1.0	12.4

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SV27-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 05/02/11
Date Received: 05/03/11

Client ID: MW-4R
ARI ID: 11-9969 SV27B

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	05/04/11 050411#1	EPA 300.0	mg/L	5.0	30.8
Bromide	05/04/11 050411#1	EPA 300.0	mg/L	0.5	8.6
N-Nitrate	05/04/11 050411#1	EPA 300.0	mg-N/L	0.5	18.7
Sulfate	05/04/11 050411#1	EPA 300.0	mg/L	5.0	78.9

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SV27-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 05/02/11
Date Received: 05/03/11

Client ID: MW-14
ARI ID: 11-9970 SV27C

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	05/04/11 050411#1	EPA 300.0	mg/L	2.0	35.1
Bromide	05/03/11 050311#1	EPA 300.0	mg/L	0.1	0.2
N-Nitrate	05/04/11 050411#1	EPA 300.0	mg-N/L	2.0	63.2
Sulfate	05/04/11 050411#1	EPA 300.0	mg/L	20.0	541

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SV27-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 05/02/11
Date Received: 05/03/11

Client ID: MW-6
ARI ID: 11-9971 SV27D

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	05/04/11 050411#1	EPA 300.0	mg/L	5.0	83.0
Bromide	05/03/11 050311#1	EPA 300.0	mg/L	0.1	0.3
N-Nitrate	05/03/11 050311#1	EPA 300.0	mg-N/L	0.1	2.6
Sulfate	05/04/11 050411#1	EPA 300.0	mg/L	5.0	79.6

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SV27-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 05/02/11
Date Received: 05/03/11

Client ID: MW-13
ARI ID: 11-9972 SV27E

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	05/04/11 050411#1	EPA 300.0	mg/L	1.0	20.7
Bromide	05/03/11 050311#1	EPA 300.0	mg/L	0.1	< 0.1 U
N-Nitrate	05/03/11 050311#1	EPA 300.0	mg-N/L	0.1	2.4
Sulfate	05/04/11 050411#1	EPA 300.0	mg/L	0.2	7.3

RL Analytical reporting limit
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
SV27-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
Chloride	EPA 300.0	05/04/11	mg/L	< 0.1 U	
Bromide	EPA 300.0	05/03/11	mg/L	< 0.1 U	
		05/04/11		< 0.1 U	
N-Nitrate	EPA 300.0	05/03/11	mg-N/L	< 0.1 U	
		05/04/11		< 0.1 U	
Sulfate	EPA 300.0	05/04/11	mg/L	< 0.1 U	

STANDARD REFERENCE RESULTS-CONVENTIONALS
SV27-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Chloride	EPA 300.0	05/04/11	mg/L	2.8	3.0	93.3%
ERA #230109						
Bromide	EPA 300.0	05/03/11	mg/L	2.9	3.0	96.7%
ERA #05078		05/04/11		3.0	3.0	100.0%
N-Nitrate	EPA 300.0	05/03/11	mg-N/L	2.9	3.0	96.7%
ERA #09127		05/04/11		2.9	3.0	96.7%
Sulfate	EPA 300.0	05/04/11	mg/L	3.0	3.0	100.0%
ERA #220109						

REPLICATE RESULTS-CONVENTIONALS
SV27-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 05/02/11
Date Received: 05/03/11

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: SV27A Client ID: MW-3						
Chloride	EPA 300.0	05/04/11	mg/L	36.0	35.9	0.3%
Bromide	EPA 300.0	05/03/11	mg/L	< 0.1	< 0.1	NA
N-Nitrate	EPA 300.0	05/03/11	mg-N/L	3.4	3.4	0.0%
Sulfate	EPA 300.0	05/04/11	mg/L	12.4	12.6	1.6%

MS/MSD RESULTS-CONVENTIONALS
SV27-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 05/02/11
Date Received: 05/03/11

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: SV27A Client ID: MW-3							
Bromide	EPA 300.0	05/03/11	mg/L	< 0.1	2.0	2.0	100.0%
N-Nitrate	EPA 300.0	05/03/11	mg-N/L	3.4	5.9	2.0	125.0%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

August 10, 2011

Angie Goodwin
Hart Crowser, Inc.
1700 Westlake Avenue N. Suite 200
Seattle, WA 98109-3256

RE: Client Project: 7168-09
ARI Job No.: TF87

Dear Angie;

Please find enclosed the original Chain-of-Custody (COC) records, sample receipt documentation, and the final data for samples from the project referenced above. Analytical Resources, Inc. (ARI) received five water samples on July 28, 2011. The samples were received in good condition with a cooler temperature of 2.4 °C.

The samples were analyzed for NWTPH-Gx plus BTEX and Anions, as requested on the COC.

There were no anomalies associated with the analyses of this sample.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
kellyb@arilabs.com
206/695-6211
Enclosures

cc: eFile TF87

KFB/kb

Sample Custody Record

Samples Shipped to: ARI

HART CROWSER

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
Phone: 206-324-9530 FAX: 206-328-5581

JOB 7168-09 LAB NUMBER

PROJECT NAME KEN'S AUTO

HART CROWSER CONTACT ANDREW KAPAROS
206-826-4463

SAMPLED BY: ASK

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	NWTPH-Gx	BTEX by 8021B	Ions by 300.0	NO3 as N, SO4, Bromide, and Chloride	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	MW-14		7/27/11	1045	WATER	X	X	X		3	
	MW-4R		↓	1200	↓	X	X	X		3	
	MW-3			1250		X	X	X		3	
	MW-6			1345		X	X	X		3	
	MW-13			1545				X		1	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE: Andrew Kaparos	7/28/11	SIGNATURE	7/28/11
PRINT NAME: ANDREW KAPAROS	TIME	PRINT NAME: A. Volgaardsen	TIME
COMPANY: HART CROWSER		COMPANY: ARI	1040
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	TIME	SIGNATURE	TIME
PRINT NAME		PRINT NAME	
COMPANY		COMPANY	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

13 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS:
☐YES ☐NO ☐N/A
GOOD CONDITION
☐YES ☐NO
TEMPERATURE
SHIPMENT METHOD: ☐HAND
☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No.
for Other Contract Requirements

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐ 48 HOURS ☒ STANDARD
☐ 72 HOURS OTHER

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Hart Crowser | Project Name: Ken's Auto

COC No(s): _____ (NA) | Delivered by: Fed-Ex UPS (Courier) Hand Delivered Other: Non ARI

Assigned ARI Job No: TF87 | Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	(YES)	NO
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)..... 2.4 ____ ____ ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F | Temp Gun ID#: 90941619

Cooler Accepted by: AV Date: 7/28/11 Time: 1040

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs (Baggies) (Foam Block) Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	(NO)
Were all VOC vials free of air bubbles?	NA	YES	(NO)
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	~~7/25/11~~ 7/25/11	

Was Sample Split by ARI : (NA) YES Date/Time:_____ Equipment:_____ Split by:_____

Samples Logged by: JM Date: 7/28/11 Time: 1046

** ***Notify Project Manager of discrepancies or concerns*** **

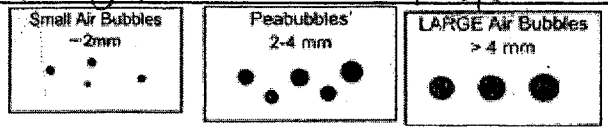
Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

MW-3 = sm in 1 of 2

Trip Blank = sm in 2 of 2

By: JM Date: 7/28/11



Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TF87
Client: Hart Crowser Inc.
Project Event: 7168-09
Project Name: Ken's Auto

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-14	TF87A	11-16110	Water	07/27/11 10:45	07/28/11 10:40
2.	MW-4R	TF87B	11-16111	Water	07/27/11 12:00	07/28/11 10:40
3.	MW-3	TF87C	11-16112	Water	07/27/11 12:50	07/28/11 10:40
4.	MW-6	TF87D	11-16113	Water	07/27/11 13:45	07/28/11 10:40
5.	MW-13	TF87E	11-16114	Water	07/27/11 15:45	07/28/11 10:40
6.	Trip Blank	TF87F	11-16115	Water	07/27/11	07/28/11 10:40

Printed 07/28/11

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MW-14**
TPHG by Method NWTPHG **SAMPLE**
Page 1 of 1

Lab Sample ID: TF87A
LIMS ID: 11-16110
Matrix: Water
Data Release Authorized:
Reported: 08/04/11

QC Report No: TF87-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Date Analyzed: 08/03/11 08:46
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
71-43-2	Benzene	1.0	< 1.0 U
108-88-3	**Toluene**	**1.0**	**1.2**
100-41-4	**Ethylbenzene**	**1.0**	**3.0**
179601-23-1	**m,p-Xylene**	**1.0**	**2.8**
95-47-6	o-Xylene	1.0	< 1.0 U

			GAS ID
Gasoline Range Hydrocarbons	**0.25**	**3.7**	**GAS/GRO**

BETX Surrogate Recovery

Trifluorotoluene	108%
Bromobenzene	106%

Gasoline Surrogate Recovery

Trifluorotoluene	108%
Bromobenzene	107%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MW-4R**
TPHG by Method NWTPHG **SAMPLE**
Page 1 of 1

Lab Sample ID: TF87B
LIMS ID: 11-16111
Matrix: Water
Data Release Authorized:
Reported: 08/04/11

QC Report No: TF87-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Date Analyzed: 08/03/11 09:16
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	**Toluene**	**1.0**	**250 E**	
100-41-4	Ethylbenzene	1.0	< 1.0 U	
179601-23-1	m,p-Xylene	1.0	< 1.0 U	
95-47-6	o-Xylene	1.0	< 1.0 U	
				GAS ID
	Gasoline Range Hydrocarbons	**0.25**	**0.98**	**GRO**

BETX Surrogate Recovery

Trifluorotoluene	102%
Bromobenzene	102%

Gasoline Surrogate Recovery

Trifluorotoluene	102%
Bromobenzene	101%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: MW-4R
DILUTION

Lab Sample ID: TF87B
LIMS ID: 11-16111
Matrix: Water
Data Release Authorized:
Reported: 08/04/11

QC Report No: TF87-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Date Analyzed: 08/03/11 11:23
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 10.0

CAS Number	Analyte	RL	Result
71-43-2	Benzene	10	< 10 U
108-88-3	**Toluene**	**10**	**250**
100-41-4	Ethylbenzene	10	< 10 U
179601-23-1	m,p-Xylene	10	< 10 U
95-47-6	o-Xylene	10	< 10 U

			GAS ID
Gasoline Range Hydrocarbons	2.5	< 2.5 U	---

BETX Surrogate Recovery

Trifluorotoluene	99.9%
Bromobenzene	101%

Gasoline Surrogate Recovery

Trifluorotoluene	100%
Bromobenzene	100%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: MW-3
SAMPLE

Lab Sample ID: TF87C
LIMS ID: 11-16112
Matrix: Water
Data Release Authorized:
Reported: 08/04/11

QC Report No: TF87-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Date Analyzed: 08/03/11 09:45
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	Toluene	1.0	< 1.0 U	
100-41-4	Ethylbenzene	1.0	< 1.0 U	
179601-23-1	m,p-Xylene	1.0	< 1.0 U	
95-47-6	o-Xylene	1.0	< 1.0 U	
	Gasoline Range Hydrocarbons	0.25	< 0.25 U	GAS ID ---

BETX Surrogate Recovery

Trifluorotoluene	102%
Bromobenzene	104%

Gasoline Surrogate Recovery

Trifluorotoluene	103%
Bromobenzene	100%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: MW-6
SAMPLE

Lab Sample ID: TF87D
LIMS ID: 11-16113
Matrix: Water
Data Release Authorized:
Reported: 08/04/11

QC Report No: TF87-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Date Analyzed: 08/03/11 10:14
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
71-43-2	Benzene	1.0	< 1.0 U
108-88-3	Toluene	1.0	< 1.0 U
100-41-4	Ethylbenzene	1.0	< 1.0 U
179601-23-1	m,p-Xylene	1.0	< 1.0 U
95-47-6	o-Xylene	1.0	< 1.0 U

			GAS ID
Gasoline Range Hydrocarbons	**0.25**	**0.61**	**GRO**

BETX Surrogate Recovery

Trifluorotoluene	99.7%
Bromobenzene	104%

Gasoline Surrogate Recovery

Trifluorotoluene	100%
Bromobenzene	105%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: Trip Blank
SAMPLE

Lab Sample ID: TF87F
LIMS ID: 11-16115
Matrix: Water
Data Release Authorized:
Reported: 08/04/11

QC Report No: TF87-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Date Analyzed: 08/03/11 08:17
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	GAS ID
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	Toluene	1.0	< 1.0 U	
100-41-4	Ethylbenzene	1.0	< 1.0 U	
179601-23-1	m,p-Xylene	1.0	< 1.0 U	
95-47-6	o-Xylene	1.0	< 1.0 U	
	Gasoline Range Hydrocarbons	0.25	< 0.25 U	---

BETX Surrogate Recovery

Trifluorotoluene	109%
Bromobenzene	104%

Gasoline Surrogate Recovery

Trifluorotoluene	107%
Bromobenzene	104%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: MB-080311
METHOD BLANK

Lab Sample ID: MB-080311
LIMS ID: 11-16110
Matrix: Water
Data Release Authorized:
Reported: 08/04/11

QC Report No: TF87-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed: 08/03/11 07:18
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
71-43-2	Benzene	1.0	< 1.0 U
108-88-3	Toluene	1.0	< 1.0 U
100-41-4	Ethylbenzene	1.0	< 1.0 U
179601-23-1	m,p-Xylene	1.0	< 1.0 U
95-47-6	o-Xylene	1.0	< 1.0 U

			GAS ID
Gasoline Range Hydrocarbons	0.25	< 0.25 U	---

BETX Surrogate Recovery

Trifluorotoluene	96.3%
Bromobenzene	98.6%

Gasoline Surrogate Recovery

Trifluorotoluene	96.8%
Bromobenzene	98.7%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

BETX WATER SURROGATE RECOVERY SUMMARY

ARI Job: TF87
Matrix: Water

QC Report No: TF87-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09

Client ID	TFT	BBZ	TOT OUT
MB-080311	96.3%	98.6%	0
LCS-080311	104%	102%	0
LCSD-080311	105%	104%	0
MW-14	108%	106%	0
MW-4R	102%	102%	0
MW-4R DL	99.9%	101%	0
MW-3	102%	104%	0
MW-6	99.7%	104%	0
Trip Blank	109%	104%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(79-120)	(80-120)
(BBZ) = Bromobenzene	(79-120)	(80-120)

Log Number Range: 11-16110 to 11-16115

ANALYTICAL RESOURCES INCORPORATED

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: TF87
Matrix: Water

QC Report No: TF87-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09

Client ID	TFT	BBZ	TOT OUT
MB-080311	96.8%	98.7%	0
LCS-080311	106%	102%	0
LCSD-080311	107%	103%	0
MW-14	108%	107%	0
MW-4R	102%	101%	0
MW-4R DL	100%	100%	0
MW-3	103%	100%	0
MW-6	100%	105%	0
Trip Blank	107%	104%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 11-16110 to 11-16115

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-080311
LAB CONTROL SAMPLE

Lab Sample ID: LCS-080311
LIMS ID: 11-16110
Matrix: Water
Data Release Authorized:
Reported: 08/04/11

QC Report No: TF87-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 08/03/11 06:20
LCSD: 08/03/11 06:49
Instrument/Analyst LCS: PID1/MH
LCSD: PID1/MH

Purge Volume: 5.0 mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	1.00	1.00	100%	1.00	1.00	100%	0.0%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	106%	107%
Bromobenzene	102%	103%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
Page 1 of 1

Sample ID: LCS-080311
LAB CONTROL SAMPLE

Lab Sample ID: LCS-080311
LIMS ID: 11-16110
Matrix: Water
Data Release Authorized:
Reported: 08/04/11

QC Report No: TF87-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 08/03/11 06:20
LCSD: 08/03/11 06:49
Instrument/Analyst LCS: PID1/MH
LCSD: PID1/MH

Purge Volume: 5.0 mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	3.56	3.70	96.2%	3.52	3.70	95.1%	1.1%
Toluene	38.7	36.5	106%	38.6	36.5	106%	0.3%
Ethylbenzene	11.4	10.7	107%	11.1	10.7	104%	2.7%
m,p-Xylene	40.4	40.1	101%	40.2	40.1	100%	0.5%
o-Xylene	19.1	18.1	106%	19.0	18.1	105%	0.5%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

BETX Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	104%	105%
Bromobenzene	102%	104%

SAMPLE RESULTS-CONVENTIONALS
TF87-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 08/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Client ID: MW-14
ARI ID: 11-16110 TF87A

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	07/29/11 072911#1	EPA 300.0	mg/L	1.0	40.2
Bromide	07/29/11 072911#1	EPA 300.0	mg/L	1.0	< 1.0 U
N-Nitrate	07/28/11 072811#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	07/29/11 072911#1	EPA 300.0	mg/L	20.0	550

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TF87-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 08/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Client ID: MW-4R
ARI ID: 11-16111 TF87B

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	07/29/11 072911#1	EPA 300.0	mg/L	1.0	24.7
Bromide	07/28/11 072811#1	EPA 300.0	mg/L	0.1	0.9
N-Nitrate	07/28/11 072811#1	EPA 300.0	mg-N/L	0.1	4.2
Sulfate	07/29/11 072911#1	EPA 300.0	mg/L	1.0	12.4

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TF87-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 08/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Client ID: MW-3
ARI ID: 11-16112 TF87C

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	07/29/11 072911#1	EPA 300.0	mg/L	0.5	12.6
Bromide	07/28/11 072811#1	EPA 300.0	mg/L	0.1	< 0.1 U
N-Nitrate	07/28/11 072811#1	EPA 300.0	mg-N/L	0.1	1.8
Sulfate	07/29/11 072911#1	EPA 300.0	mg/L	0.5	21.6

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TF87-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 08/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Client ID: MW-6
ARI ID: 11-16113 TF87D

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	07/28/11 072811#1	EPA 300.0	mg/L	2.0	97.8
Bromide	07/28/11 072811#1	EPA 300.0	mg/L	2.0	< 2.0 U
N-Nitrate	07/28/11 072811#1	EPA 300.0	mg-N/L	2.0	< 2.0 U
Sulfate	07/29/11 072911#1	EPA 300.0	mg/L	50.0	879

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TF87-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 08/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Client ID: MW-13
ARI ID: 11-16114 TF87E

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	07/29/11 072911#1	EPA 300.0	mg/L	0.5	9.4
Bromide	07/28/11 072811#1	EPA 300.0	mg/L	0.1	< 0.1 U
N-Nitrate	07/28/11 072811#1	EPA 300.0	mg-N/L	0.1	1.3
Sulfate	07/29/11 072911#1	EPA 300.0	mg/L	0.5	5.8

RL Analytical reporting limit
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
TF87-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 08/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
Chloride	EPA 300.0	07/28/11	mg/L	< 0.1 U	
		07/29/11		< 0.1 U	
Bromide	EPA 300.0	07/28/11	mg/L	< 0.1 U	
		07/29/11		< 0.1 U	
N-Nitrate	EPA 300.0	07/28/11	mg-N/L	< 0.1 U	
Sulfate	EPA 300.0	07/29/11	mg/L	< 0.1 U	

STANDARD REFERENCE RESULTS-CONVENTIONALS
TF87-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 08/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Chloride	EPA 300.0	07/28/11	mg/L	3.0	3.0	100.0%
ERA #230109		07/29/11		3.0	3.0	100.0%
Bromide	EPA 300.0	07/28/11	mg/L	2.9	3.0	96.7%
ERA #05078		07/29/11		2.9	3.0	96.7%
N-Nitrate	EPA 300.0	07/28/11	mg-N/L	3.1	3.0	103.3%
ERA #09127						
Sulfate	EPA 300.0	07/29/11	mg/L	2.9	3.0	96.7%
ERA #220109						

REPLICATE RESULTS-CONVENTIONALS
TF87-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 08/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: TF87A Client ID: MW-14						
Chloride	EPA 300.0	07/29/11	mg/L	40.2	40.3	0.2%
Bromide	EPA 300.0	07/29/11	mg/L	< 1.0	< 1.0	NA
N-Nitrate	EPA 300.0	07/28/11	mg-N/L	< 0.1	< 0.1	NA
Sulfate	EPA 300.0	07/29/11	mg/L	550	549	0.2%

MS/MSD RESULTS-CONVENTIONALS
TF87-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 08/10/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 07/27/11
Date Received: 07/28/11

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: TF87A Client ID: MW-14							
Chloride	EPA 300.0	07/29/11	mg/L	40.2	56.4	20.0	81.0%
Bromide	EPA 300.0	07/29/11	mg/L	< 1.0	16.2	20.0	81.0%
N-Nitrate	EPA 300.0	07/28/11	mg-N/L	< 0.1	1.8	2.0	90.0%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 21, 2011

Angie Goodwin
Hart Crowser, Inc.
1700 Westlake Avenue N. Suite 200
Seattle, WA 98109-3256

RE: Client Project: 7168-09
ARI Job No.: TV43

Dear Angie:

Please find enclosed the original Chain-of-Custody (COC) records, sample receipt documentation, and the final data for samples from the project referenced above. Analytical Resources, Inc. (ARI) received ten water samples and one trip blank on November 3, 2011. The samples were received in good condition with a cooler temperature of 2.9°C.

The samples were analyzed for NWTPH-Gx plus BTEX, Total Metals, and Anions, as requested on the COC.

The continuing calibration blank, an internal quality control measure, for the Chloride analysis had detections just slightly above the reporting limit at 0.102 on 11/3/11 and 0.110 on 11/4/11. All sample detections for Chloride were well over 10x the level of the blank contamination, and no further corrective action was taken.

There were no other anomalies associated with the analyses.

Sincerely,
ANALYTICAL RESOURCES, INC.

Eric Branson
Project Manager
-for-
Kelly Bottem
Client Services Manager
kellyb@arilabs.com
206/695-6211
Enclosures

cc: eFile TV43

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TV43
Client: Hart Crowser Inc.
Project Event: 7168-09
Project Name: Ken's Auto

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-13	TV43A	11-25596	Water	11/02/11 10:00	11/03/11 15:15
2.	MW-6	TV43B	11-25597	Water	11/02/11 11:05	11/03/11 15:15
3.	MW-15	TV43C	11-25598	Water	11/02/11 11:55	11/03/11 15:15
4.	MW-12	TV43D	11-25599	Water	11/02/11 12:15	11/03/11 15:15
5.	MW-2	TV43E	11-25600	Water	11/02/11 13:10	11/03/11 15:15
6.	MW-14	TV43F	11-25601	Water	11/02/11 13:40	11/03/11 15:15
7.	MW-4R	TV43G	11-25602	Water	11/02/11 14:30	11/03/11 15:15
8.	MW-KA	TV43H	11-25603	Water	11/02/11 14:00	11/03/11 15:15
9.	MW-5	TV43I	11-25604	Water	11/02/11 15:00	11/03/11 15:15
10.	MW-3	TV43J	11-25605	Water	11/02/11 15:30	11/03/11 15:15
11.	Trip Blank	TV43K	11-25606	Water	11/02/11 10:00	11/03/11 15:15

Printed 11/04/11

Sample Custody Record

TV43

Samples Shipped to: ARI

HART CROWSER

Hart Crowser, Inc.
1700 Westlake Avenue North, Suite 200
Seattle, Washington 98109-6212
Office: 206.324.9530 • Fax 206.328.5581

JOB 7168-09 LAB NUMBER

PROJECT NAME KEN'S AUTO

HART CROWSER CONTACT ANGIE GOODWIN

SAMPLED BY: ASK/PHK

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS: NWTPH-Gx/BTEX	NO3/SO4/Br/Cl	TOTAL Pb	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	MW-13		11/2/11	1000	WATER	X	X	X	4	
	MW-6			1105		X	X	X	4	
	MW-15			1155		X	X	X	4	
	MW-12			1215		X	X	X	4	
	MW-2			1310		X	X	X	4	
	MW-14			1340		X	X	X	4	
	MW-4R			1430		X	X	X	4	
	MW-KA			1400		X	X	X	4	
	MW-5			1500		X	X	X	4	TOTAL Pb POLY HAS ~1/2 PRESERVATIVE
	MW-3			1530		X	X	X	4	TOTAL Pb POLY HAS ~1/2 PRESERVATIVE

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE: ANDREW KAPAROS	11/3/11	SIGNATURE: Jose Vgas	
PRINT NAME: HC	TIME: 1000	PRINT NAME: ARI	TIME
COMPANY		COMPANY: 11/3/11 15:15	
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	TIME	SIGNATURE	TIME
PRINT NAME		PRINT NAME	
COMPANY		COMPANY	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

For gas & benzene, please report to the curve.

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. for Other Contract Requirements

TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐YES ☐NO ☐N/A
GOOD CONDITION ☐YES ☐NO
TEMPERATURE
SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐48 HOURS ☒STANDARD
☐72 HOURS OTHER

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client Hart Crowser | Project Name: Kens Auto

COC No(s) _____ (NA) | Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No TV43 | Tracking No _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? (YES) NO

Were custody papers included with the cooler? (YES) NO

Were custody papers properly filled out (ink, signed, etc) (YES) NO

Temperature of Cooler(s) (°C) (recommended 2.0-6 0 °C for chemistry) 2.9

If cooler temperature is out of compliance fill out form 00070F | Temp Gun ID# 90941619

Cooler Accepted by JL | Date 11/3/11 | Time 15:15

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA (YES) NO

Were all bottles sealed in individual plastic bags? YES (NO)

Did all bottles arrive in good condition (unbroken)? (YES) NO

Were all bottle labels complete and legible? (YES) NO

Did the number of containers listed on COC match with the number of containers received? (YES) NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? (YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) NA (YES) NO

Were all VOC vials free of air bubbles? NA (YES) NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI NA | 10/28/11

Was Sample Split by ARI (NA) YES | Date/Time: _____ | Equipment: _____ | Split by: _____

Samples Logged by _____ | Date 11/4/11 | Time: 1155

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

(1) EXCEPT TRIP BLANK - PEABUBBLES IN 2 OF 2

By EB | Date 11/4/11

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
•	• • •	● ● ●

Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

PRESERVATION VERIFICATION 11/04/11
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TV43**

Inquiry Number: NONE
Analysis Requested: 11/04/11
Contact: Goodwin, Angie
Client: Hart Crowser Inc.
Logged by: EB
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Kelly
VTSR: 11/03/11

Project #: 7168-09
Project: Ken's Auto
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-25596 **TV43A**	MW-13						TOT OK															
11-25597 **TV43B**	MW-6						TOT															
11-25598 **TV43C**	MW-15						TOT															
11-25599 **TV43D**	MW-12						TOT															
11-25600 **TV43E**	MW-2						TOT															
11-25601 **TV43F**	MW-14						TOT															
11-25602 **TV43G**	MW-4R						TOT															
11-25603 **TV43H**	MW-KA						TOT															
11-25604 **TV43I**	MW-5						TOT															
11-25605 **TV43J**	MW-3						TOT															

Checked By EB Date 11/4/11

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MW-13**
TPHG by Method NWTPHG **SAMPLE**

Lab Sample ID: TV43A
LIMS ID: 11-25596
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Date Analyzed: 11/14/11 19:13
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	GAS ID
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	0.10	< 0.10 U	---

BETX Surrogate Recovery

Trifluorotoluene	97.9%
Bromobenzene	96.9%

Gasoline Surrogate Recovery

Trifluorotoluene	97.0%
Bromobenzene	96.9%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MW-6**
TPHG by Method NWTPHG **SAMPLE**

Lab Sample ID: TV43B
LIMS ID: 11-25597
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Date Analyzed: 11/14/11 19:42
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
71-43-2	Benzene	0.25	< 0.25 U
108-88-3	Toluene	0.25	< 0.25 U
100-41-4	Ethylbenzene	0.25	< 0.25 U
179601-23-1	m,p-Xylene	0.50	< 0.50 U
95-47-6	o-Xylene	0.25	< 0.25 U
	Gasoline Range Hydrocarbons	**0.10**	**0.59**

GAS ID
GAS/GRO

BETX Surrogate Recovery

Trifluorotoluene	97.2%
Bromobenzene	97.9%

Gasoline Surrogate Recovery

Trifluorotoluene	96.7%
Bromobenzene	95.7%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: MW-15
SAMPLE

Lab Sample ID: TV43C
LIMS ID: 11-25598
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Date Analyzed: 11/14/11 20:11
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	0.10	< 0.10 U	GAS ID ---

BETX Surrogate Recovery

Trifluorotoluene	98.8%
Bromobenzene	97.8%

Gasoline Surrogate Recovery

Trifluorotoluene	97.2%
Bromobenzene	96.4%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: MW-12
SAMPLE

Lab Sample ID: TV43D
LIMS ID: 11-25599
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Date Analyzed: 11/14/11 20:40
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	0.10	< 0.10 U	GAS ID ---

BETX Surrogate Recovery

Trifluorotoluene	97.0%
Bromobenzene	97.3%

Gasoline Surrogate Recovery

Trifluorotoluene	96.1%
Bromobenzene	96.9%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: MW-2
SAMPLE

Lab Sample ID: TV43E
LIMS ID: 11-25600
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Date Analyzed: 11/14/11 21:10
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	0.10	< 0.10 U	GAS ID ---

BETX Surrogate Recovery

Trifluorotoluene	97.6%
Bromobenzene	98.3%

Gasoline Surrogate Recovery

Trifluorotoluene	96.4%
Bromobenzene	98.3%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: MW-14
SAMPLE

Lab Sample ID: TV43F
LIMS ID: 11-25601
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Date Analyzed: 11/14/11 21:39
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	**Ethylbenzene**	**0.25**	**3.4**	
179601-23-1	**m,p-Xylene**	**0.50**	**1.8**	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	**0.10**	**1.2**	GAS ID **GRO**

BETX Surrogate Recovery

Trifluorotoluene	101%
Bromobenzene	101%

Gasoline Surrogate Recovery

Trifluorotoluene	101%
Bromobenzene	98.6%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MW-4R**
TPHG by Method NWTPHG **SAMPLE**

Lab Sample ID: TV43G
LIMS ID: 11-25602
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Date Analyzed: 11/14/11 22:08
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	GAS ID
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	**Toluene**	**0.25**	**14**	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	0.10	< 0.10 U	---

BETX Surrogate Recovery

Trifluorotoluene	96.8%
Bromobenzene	96.8%

Gasoline Surrogate Recovery

Trifluorotoluene	95.7%
Bromobenzene	96.0%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MW-KA**
TPHG by Method NWTPHG **SAMPLE**
Page 1 of 1

Lab Sample ID: TV43H
LIMS ID: 11-25603
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Date Analyzed: 11/14/11 23:36
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	**Ethylbenzene**	**0.25**	**3.3**	
179601-23-1	**m,p-Xylene**	**0.50**	**1.8**	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	**0.10**	**1.2**	GAS ID **GRO**

BETX Surrogate Recovery

Trifluorotoluene	97.3%
Bromobenzene	98.3%

Gasoline Surrogate Recovery

Trifluorotoluene	96.6%
Bromobenzene	95.5%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG

Sample ID: MW-5
SAMPLE

Lab Sample ID: TV43I
LIMS ID: 11-25604
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Date Analyzed: 11/14/11 00:05
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	0.10	< 0.10 U	GAS ID ---

BETX Surrogate Recovery

Trifluorotoluene	98.8%
Bromobenzene	98.8%

Gasoline Surrogate Recovery

Trifluorotoluene	96.6%
Bromobenzene	96.9%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG

Sample ID: MW-3
SAMPLE

Lab Sample ID: TV43J
LIMS ID: 11-25605
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Date Analyzed: 11/14/11 00:34
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	GAS ID
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	0.10	< 0.10 U	---

BETX Surrogate Recovery

Trifluorotoluene	96.5%
Bromobenzene	97.2%

Gasoline Surrogate Recovery

Trifluorotoluene	94.8%
Bromobenzene	95.6%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: Trip Blank**
TPHG by Method NWTPHG **SAMPLE**

Lab Sample ID: TV43K
LIMS ID: 11-25606
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Date Analyzed: 11/14/11 18:14
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	GAS ID
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	0.10	< 0.10 U	---

BETX Surrogate Recovery

Trifluorotoluene	100%
Bromobenzene	98.9%

Gasoline Surrogate Recovery

Trifluorotoluene	99.4%
Bromobenzene	97.5%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

BETX WATER SURROGATE RECOVERY SUMMARY

ARI Job: TV43
Matrix: Water

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09

Client ID	TFT	BBZ	TOT OUT
MB-111411	97.4%	97.6%	0
LCS-111411	105%	102%	0
LCSD-111411	103%	100%	0
MW-13	97.9%	96.9%	0
MW-6	97.2%	97.9%	0
MW-15	98.8%	97.8%	0
MW-12	97.0%	97.3%	0
MW-2	97.6%	98.3%	0
MW-14	101%	101%	0
MW-4R	96.8%	96.8%	0
MW-KA	97.3%	98.3%	0
MW-5	98.8%	98.8%	0
MW-3	96.5%	97.2%	0
Trip Blank	100%	98.9%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(79-120)	(80-120)
(BBZ) = Bromobenzene	(79-120)	(80-120)

Log Number Range: 11-25596 to 11-25606

ANALYTICAL RESOURCES INCORPORATED

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: TV43
Matrix: Water

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09

Client ID	TFT	BBZ	TOT OUT
MB-111411	96.2%	96.8%	0
LCS-111411	105%	101%	0
LCSD-111411	102%	98.9%	0
MW-13	97.0%	96.9%	0
MW-6	96.7%	95.7%	0
MW-15	97.2%	96.4%	0
MW-12	96.1%	96.9%	0
MW-2	96.4%	98.3%	0
MW-14	101%	98.6%	0
MW-4R	95.7%	96.0%	0
MW-KA	96.6%	95.5%	0
MW-5	96.6%	96.9%	0
MW-3	94.8%	95.6%	0
Trip Blank	99.4%	97.5%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 11-25596 to 11-25606

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-111411
LAB CONTROL SAMPLE

Lab Sample ID: LCS-111411
LIMS ID: 11-25596
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 11/14/11 12:23
LCSD: 11/14/11 12:53
Instrument/Analyst LCS: PID1/MH
LCSD: PID1/MH

Purge Volume: 5.0 mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	1.05	1.00	105%	0.99	1.00	99.0%	5.9%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	105%	102%
Bromobenzene	101%	98.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod

Sample ID: LCS-111411
LAB CONTROL SAMPLE

Lab Sample ID: LCS-111411
LIMS ID: 11-25596
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 11/14/11 12:23
LCSD: 11/14/11 12:53
Instrument/Analyst LCS: PID1/MH
LCSD: PID1/MH

Purge Volume: 5.0 mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	3.71	3.70	100%	3.65	3.70	98.6%	1.6%
Toluene	40.6	36.5	111%	40.3	36.5	110%	0.7%
Ethylbenzene	11.3	10.7	106%	11.3	10.7	106%	0.0%
m,p-Xylene	41.7	40.1	104%	41.2	40.1	103%	1.2%
o-Xylene	19.7	18.1	109%	19.6	18.1	108%	0.5%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

BETX Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	105%	103%
Bromobenzene	102%	100%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: MB-111411**
TPHG by Method NWTPHG **METHOD BLANK**

Lab Sample ID: MB-111411
LIMS ID: 11-25596
Matrix: Water
Data Release Authorized:
Reported: 11/15/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed: 11/14/11 13:22
Instrument/Analyst: PID1/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	GAS ID
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	0.10	< 0.10 U	---

BETX Surrogate Recovery

Trifluorotoluene	97.4%
Bromobenzene	97.6%

Gasoline Surrogate Recovery

Trifluorotoluene	96.2%
Bromobenzene	96.8%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-13
SAMPLE

Lab Sample ID: TV43A
LIMS ID: 11-25596
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	11/14/11	200.8	11/18/11	**7439-92-1**	**Lead**	0.1	**0.2**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-6
SAMPLE

Lab Sample ID: TV43B
LIMS ID: 11-25597
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	11/14/11	200.8	11/18/11	**7439-92-1**	**Lead**	0.1	**4.0**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-15
SAMPLE

Lab Sample ID: TV43C
LIMS ID: 11-25598
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	11/14/11	200.8	11/18/11	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-12**
Page 1 of 1 **SAMPLE**

Lab Sample ID: TV43D
LIMS ID: 11-25599
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	11/14/11	200.8	11/18/11	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-2**
Page 1 of 1 **SAMPLE**

Lab Sample ID: TV43E
LIMS ID: 11-25600
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	11/14/11	200.8	11/18/11	**7439-92-1**	**Lead**	0.1	**0.3**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-14**
Page 1 of 1 **SAMPLE**

Lab Sample ID: TV43F
LIMS ID: 11-25601
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	11/14/11	200.8	11/18/11	**7439-92-1**	**Lead**	0.1	**2.0**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-4R**
Page 1 of 1 **SAMPLE**

Lab Sample ID: TV43G
LIMS ID: 11-25602
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	11/14/11	200.8	11/18/11	**7439-92-1**	**Lead**	0.1	**0.1**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-KA
SAMPLE

Lab Sample ID: TV43H
LIMS ID: 11-25603
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	11/14/11	200.8	11/18/11	**7439-92-1**	**Lead**	0.1	**1.7**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-5
SAMPLE

Lab Sample ID: TV43I
LIMS ID: 11-25604
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	11/14/11	200.8	11/18/11	**7439-92-1**	**Lead**	0.1	**2.1**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-3**
Page 1 of 1 **SAMPLE**

Lab Sample ID: TV43J
LIMS ID: 11-25605
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	11/14/11	200.8	11/18/11	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-13**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: TV43A
LIMS ID: 11-25596
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	200.8	0.160	25.3	25.0	101%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-13
DUPLICATE

Lab Sample ID: TV43A
LIMS ID: 11-25596
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	200.8	0.2	0.2	0.0%	+/- 0.1	L

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: TV43LCS
LIMS ID: 11-25597
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Lead	200.8	25.5	25.0	102%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: TV43MB
LIMS ID: 11-25597
Matrix: Water
Data Release Authorized:
Reported: 11/19/11

QC Report No: TV43-Hart Crowser Inc.
Project: Ken's Auto
7168-09
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	11/14/11	200.8	11/18/11	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL
RL-Reporting Limit

SAMPLE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Client ID: MW-13
ARI ID: 11-25596 TV43A

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	11/04/11 110411#1	EPA 300.0	mg/L	0.2	6.3
Bromide	11/03/11 110311#1	EPA 300.0	mg/L	0.1	0.1
N-Nitrate	11/03/11 110311#1	EPA 300.0	mg-N/L	0.1	0.4
Sulfate	11/04/11 110411#1	EPA 300.0	mg/L	0.1	4.7

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Client ID: MW-6
ARI ID: 11-25597 TV43B

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	11/03/11 110311#1	EPA 300.0	mg/L	1.0	25.1
Bromide	11/04/11 110411#1	EPA 300.0	mg/L	0.1	0.2
N-Nitrate	11/04/11 110411#1	EPA 300.0	mg-N/L	0.1	0.1
Sulfate	11/03/11 110311#1	EPA 300.0	mg/L	1.0	14.8

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Client ID: MW-15
ARI ID: 11-25598 TV43C

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	11/04/11 110411#1	EPA 300.0	mg/L	0.2	8.7
Bromide	11/03/11 110311#1	EPA 300.0	mg/L	0.1	< 0.1 U
N-Nitrate	11/03/11 110311#1	EPA 300.0	mg-N/L	0.1	0.4
Sulfate	11/04/11 110411#1	EPA 300.0	mg/L	0.2	6.0

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Client ID: MW-12
ARI ID: 11-25599 TV43D

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	11/11/11 111111#1	EPA 300.0	mg/L	20.0	493
Bromide	11/03/11 110311#1	EPA 300.0	mg/L	0.1	0.3
N-Nitrate	11/03/11 110311#1	EPA 300.0	mg-N/L	0.1	0.7
Sulfate	11/04/11 110411#1	EPA 300.0	mg/L	2.0	60.3

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Client ID: MW-2
ARI ID: 11-25600 TV43E

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	11/04/11 110411#1	EPA 300.0	mg/L	0.2	5.8
Bromide	11/03/11 110311#1	EPA 300.0	mg/L	0.1	< 0.1 U
N-Nitrate	11/03/11 110311#1	EPA 300.0	mg-N/L	0.1	0.6
Sulfate	11/04/11 110411#1	EPA 300.0	mg/L	0.2	9.1

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Client ID: MW-14
ARI ID: 11-25601 TV43F

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	11/04/11 110411#1	EPA 300.0	mg/L	0.5	17.2
Bromide	11/03/11 110311#1	EPA 300.0	mg/L	0.1	0.8
N-Nitrate	11/03/11 110311#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	11/04/11 110411#1	EPA 300.0	mg/L	2.0	63.6

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Client ID: MW-4R
ARI ID: 11-25602 TV43G

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	11/04/11 110411#1	EPA 300.0	mg/L	0.5	14.3
Bromide	11/03/11 110311#1	EPA 300.0	mg/L	0.1	1.0
N-Nitrate	11/03/11 110311#1	EPA 300.0	mg-N/L	0.1	0.2
Sulfate	11/04/11 110411#1	EPA 300.0	mg/L	0.5	13.1

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Client ID: MW-KA
ARI ID: 11-25603 TV43H

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	11/04/11 110411#1	EPA 300.0	mg/L	0.5	17.4
Bromide	11/03/11 110311#1	EPA 300.0	mg/L	0.1	0.9
N-Nitrate	11/03/11 110311#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	11/04/11 110411#1	EPA 300.0	mg/L	2.0	59.4

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Client ID: MW-5
ARI ID: 11-25604 TV43I

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	11/04/11 110411#1	EPA 300.0	mg/L	0.5	16.7
Bromide	11/03/11 110311#1	EPA 300.0	mg/L	0.1	0.1
N-Nitrate	11/03/11 110311#1	EPA 300.0	mg-N/L	0.1	0.4
Sulfate	11/04/11 110411#1	EPA 300.0	mg/L	0.5	21.7

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Client ID: MW-3
ARI ID: 11-25605 TV43J

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	11/04/11 110411#1	EPA 300.0	mg/L	0.2	9.5
Bromide	11/03/11 110311#1	EPA 300.0	mg/L	0.1	0.1
N-Nitrate	11/03/11 110311#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	11/04/11 110411#1	EPA 300.0	mg/L	2.0	24.0

RL Analytical reporting limit
U Undetected at reported detection limit

MS/MSD RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: TV43A Client ID: MW-13							
Chloride	EPA 300.0	11/04/11	mg/L	6.3	15.6	10.0	93.0%
Bromide	EPA 300.0	11/03/11	mg/L	0.1	2.1	2.0	100.0%
N-Nitrate	EPA 300.0	11/03/11	mg-N/L	0.4	2.3	2.0	95.0%
Sulfate	EPA 300.0	11/04/11	mg/L	4.7	8.6	4.0	97.5%

REPLICATE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: 11/02/11
Date Received: 11/03/11

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: TV43A Client ID: MW-13						
Chloride	EPA 300.0	11/04/11	mg/L	6.3	6.4	1.6%
Bromide	EPA 300.0	11/03/11	mg/L	0.1	0.1	0.0%
N-Nitrate	EPA 300.0	11/03/11	mg-N/L	0.4	0.4	0.0%
Sulfate	EPA 300.0	11/04/11	mg/L	4.7	4.7	0.0%

METHOD BLANK RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
Chloride	EPA 300.0	11/03/11	mg/L	< 0.1 U	
		11/04/11		< 0.1 U	
		11/11/11		< 0.1 U	
Bromide	EPA 300.0	11/03/11	mg/L	< 0.1 U	
		11/04/11		< 0.1 U	
N-Nitrate	EPA 300.0	11/03/11	mg-N/L	< 0.1 U	
		11/04/11		< 0.1 U	
Sulfate	EPA 300.0	11/03/11	mg/L	< 0.1 U	
		11/04/11		< 0.1 U	

STANDARD REFERENCE RESULTS-CONVENTIONALS
TV43-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 11/16/11

Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Chloride	EPA 300.0	11/03/11	mg/L	2.9	3.0	96.7%
ERA #411010		11/04/11		2.9	3.0	96.7%
		11/11/11		2.8	3.0	93.3%
Bromide	EPA 300.0	11/03/11	mg/L	3.0	3.0	100.0%
ERA #111109		11/04/11		3.0	3.0	100.0%
N-Nitrate	EPA 300.0	11/03/11	mg-N/L	2.9	3.0	96.7%
ERA #230511		11/04/11		2.9	3.0	96.7%
Sulfate	EPA 300.0	11/03/11	mg/L	3.0	3.0	100.0%
ERA #160111		11/04/11		3.0	3.0	100.0%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

February 23, 2012

Angie Goodwin
Hart Crowser, Inc.
1700 Westlake Avenue N. Suite 200
Seattle, WA 98109-3256

RE: Client Project: Ken's Auto, 7168-09
ARI Job No.: UI10

Dear Angie:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final data for samples from the project referenced above. Analytical Resources, Inc. (ARI) received five water samples and one trip blank on February 14, 2012. The samples were received in good condition with a cooler temperature of 2.3°C. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for NWTPH-Gx plus BTEX and Anions, as requested on the COC.

The continuing calibration blank, an internal quality control measure, for the Chloride analysis had detections just slightly above the reporting limit at 0.109 on 2/15/12. All associated sample detections for Chloride were greater than ten times the level found in the calibration blank. No further corrective action was taken.

There were no other anomalies associated with the analyses.

Sincerely,
ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
-for-
Kelly Bottem
Client Services Manager
kellyb@arilabs.com
206/695-6211
Enclosures

cc: eFile UI10

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Sample Custody Record

Samples Shipped to: ARI

HART CROWSER

Hart Crowser, Inc.
1700 Westlake Avenue . th, Suite 200
Seattle, Washington 98109-6212
Office: 206.324.9530 • **Fax** 206.328.5581

JOB 7168-09 LAB NUMBER

PROJECT NAME KEN'S AUTO

HART CROWSER CONTACT ANGIE GOODWIN

SAMPLED BY: ASK

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSIS: TPH-G/BTEX	REQUESTED ANALYSIS: NO_3/SO_4/Br/Cl	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
	MW-6		2/13/12	1045	WATER	X	X	3	
	MW-3			1145		X	X	3	
	MW-4R			1230		X	X	3	
	MW-14			1315		X	X	3	
	MW-13			1400			X	1	
	TB1		2/10/12	—				1	
	TB2		2/10/12	—				1	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	2/14/12	SIGNATURE	2-14-12
PRINT NAME ANDREW KAPPARDS	TIME	PRINT NAME Taylor street v	TIME
COMPANY Hart Crowser	0845	COMPANY ART	1155
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	TIME	SIGNATURE	TIME
PRINT NAME		PRINT NAME	
COMPANY		COMPANY	

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

For gas + benzene, please report to the Curve.

TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION

CUSTODY SEALS: ☐YES ☐NO ☐N/A

GOOD CONDITION ☐YES ☐NO

TEMPERATURE _____

SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. _____ for Other Contract Requirements

TURNAROUND TIME:

☐ 24 HOURS ☐ 1 WEEK

☐48 HOURS ☒STANDARD

☐72 HOURS OTHER _____

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Hart Crowser Project Name: Kens Auto

COC No(s): _____ NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: UI10 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)..... 2.3

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90901619

Cooler Accepted by: TS Date: 2-14-12 Time: 1155

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	2-10-12	

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

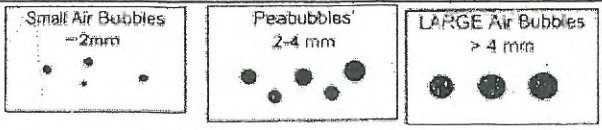
Samples Logged by: TS Date: 2-14-12 Time: 1217

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions: Trip blanks PB x 2

By: TS Date: 2-14-12



Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

UI10:00003

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: UI10
Client: Hart Crowser Inc.
Project Event: 7168-09
Project Name: Ken's Auto

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-6	UI10A	12-2561	Water	02/13/12 10:45	02/14/12 11:55
2.	MW-3	UI10B	12-2562	Water	02/13/12 11:45	02/14/12 11:55
3.	MW-4R	UI10C	12-2563	Water	02/13/12 12:30	02/14/12 11:55
4.	MW-14	UI10D	12-2564	Water	02/13/12 13:15	02/14/12 11:55
5.	MW-13	UI10E	12-2565	Water	02/13/12 14:00	02/14/12 11:55
6.	Trip Blanks	UI10F	12-2566	Water	02/13/12	02/14/12 11:55

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG

Sample ID: MW-6
SAMPLE

Lab Sample ID: UI10A
LIMS ID: 12-2561
Matrix: Water
Data Release Authorized:
Reported: 02/23/12

QC Report No: UI10-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Date Analyzed: 02/17/12 11:15
Instrument/Analyst: PID2/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	GAS ID
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	**o-Xylene**	**0.25**	**1.5**	
	Gasoline Range Hydrocarbons	**0.10**	**1.6**	**GRO**

BETX Surrogate Recovery

Trifluorotoluene	102%
Bromobenzene	98.6%

Gasoline Surrogate Recovery

Trifluorotoluene	106%
Bromobenzene	103%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG

Sample ID: MW-3
SAMPLE

Lab Sample ID: UI10B
LIMS ID: 12-2562
Matrix: Water
Data Release Authorized:
Reported: 02/23/12

QC Report No: UI10-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Date Analyzed: 02/17/12 11:43
Instrument/Analyst: PID2/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
71-43-2	Benzene	0.25	< 0.25 U
108-88-3	Toluene	0.25	< 0.25 U
100-41-4	Ethylbenzene	0.25	< 0.25 U
179601-23-1	m,p-Xylene	0.50	< 0.50 U
95-47-6	o-Xylene	0.25	< 0.25 U

			GAS ID
	Gasoline Range Hydrocarbons	0.10	< 0.10 U ---

BETX Surrogate Recovery

Trifluorotoluene	101%
Bromobenzene	97.9%

Gasoline Surrogate Recovery

Trifluorotoluene	106%
Bromobenzene	103%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: MW-4R
SAMPLE

Lab Sample ID: UI10C
LIMS ID: 12-2563
Matrix: Water
Data Release Authorized:
Reported: 02/23/12

QC Report No: UI10-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Date Analyzed: 02/17/12 12:11
Instrument/Analyst: PID2/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	GAS ID
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	o-Xylene	0.25	< 0.25 U	
	Gasoline Range Hydrocarbons	0.10	< 0.10 U	---

BETX Surrogate Recovery

Trifluorotoluene	97.3%
Bromobenzene	95.8%

Gasoline Surrogate Recovery

Trifluorotoluene	102%
Bromobenzene	100%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG

Sample ID: MW-14
SAMPLE

Lab Sample ID: UI10D
LIMS ID: 12-2564
Matrix: Water
Data Release Authorized:
Reported: 02/23/12

QC Report No: UI10-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Date Analyzed: 02/17/12 12:39
Instrument/Analyst: PID2/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	**Ethylbenzene**	**0.25**	**1.8**	
179601-23-1	**m,p-Xylene**	**0.50**	**7.1**	
95-47-6	**o-Xylene**	**0.25**	**1.5**	
	Gasoline Range Hydrocarbons	**0.10**	**2.2**	GAS ID **GRO**

BETX Surrogate Recovery

Trifluorotoluene	102%
Bromobenzene	100%

Gasoline Surrogate Recovery

Trifluorotoluene	106%
Bromobenzene	104%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG

Sample ID: Trip Blanks
SAMPLE

Lab Sample ID: UI10F
LIMS ID: 12-2566
Matrix: Water
Data Release Authorized:
Reported: 02/23/12

QC Report No: UI10-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Date Analyzed: 02/17/12 10:47
Instrument/Analyst: PID2/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	0.25	< 0.25 U	
108-88-3	Toluene	0.25	< 0.25 U	
100-41-4	Ethylbenzene	0.25	< 0.25 U	
179601-23-1	m,p-Xylene	0.50	< 0.50 U	
95-47-6	o-Xylene	0.25	< 0.25 U	
				GAS ID
	Gasoline Range Hydrocarbons	0.10	< 0.10 U	---

BETX Surrogate Recovery

Trifluorotoluene	101%
Bromobenzene	99.5%

Gasoline Surrogate Recovery

Trifluorotoluene	105%
Bromobenzene	103%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: UI10
Matrix: Water

QC Report No: UI10-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09

Client ID	TFT	BBZ	TOT OUT
MB-021712	101%	100%	0
LCS-021712	102%	102%	0
LCSD-021712	104%	101%	0
MW-6	106%	103%	0
MW-3	106%	103%	0
MW-4R	102%	100%	0
MW-14	106%	104%	0
Trip Blanks	105%	103%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 12-2561 to 12-2566

FORM II TPHG

ANALYTICAL RESOURCES INCORPORATED

BETX WATER SURROGATE RECOVERY SUMMARY

ARI Job: UI10
Matrix: Water

QC Report No: UI10-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09

Client ID	TFT	BBZ	TOT OUT
MB-021712	97.3%	97.1%	0
LCS-021712	97.8%	98.1%	0
LCSD-021712	99.5%	98.8%	0
MW-6	102%	98.6%	0
MW-3	101%	97.9%	0
MW-4R	97.3%	95.8%	0
MW-14	102%	100%	0
Trip Blanks	101%	99.5%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(79-120)	(80-120)
(BBZ) = Bromobenzene	(79-120)	(80-120)

Log Number Range: 12-2561 to 12-2566

FORM II BETX

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-021712
LAB CONTROL SAMPLE

Lab Sample ID: LCS-021712
LIMS ID: 12-2561
Matrix: Water
Data Release Authorized:
Reported: 02/23/12

QC Report No: UI10-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 02/17/12 09:23
LCSD: 02/17/12 09:51
Instrument/Analyst LCS: PID2/MH
LCSD: PID2/MH

Purge Volume: 5.0 mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	1.04	1.00	104%	0.94	1.00	94.0%	10.1%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	102%	104%
Bromobenzene	102%	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
Page 1 of 1

Sample ID: LCS-021712
LAB CONTROL SAMPLE

Lab Sample ID: LCS-021712
LIMS ID: 12-2561
Matrix: Water
Data Release Authorized:
Reported: 02/23/12

QC Report No: UI10-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 02/17/12 09:23
LCSD: 02/17/12 09:51
Instrument/Analyst LCS: PID2/MH
LCSD: PID2/MH

Purge Volume: 5.0 mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	3.71	3.70	100%	3.44	3.70	93.0%	7.6%
Toluene	38.9	39.6	98.2%	35.6	39.6	89.9%	8.9%
Ethylbenzene	11.0	11.6	94.8%	10.1	11.6	87.1%	8.5%
m,p-Xylene	40.8	42.5	96.0%	37.1	42.5	87.3%	9.5%
o-Xylene	18.6	19.2	96.9%	17.0	19.2	88.5%	9.0%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

BETX Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	97.8%	99.5%
Bromobenzene	98.1%	98.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: MB-021712
METHOD BLANK

Lab Sample ID: MB-021712
LIMS ID: 12-2561
Matrix: Water
Data Release Authorized:
Reported: 02/23/12

QC Report No: UI10-Hart Crowser Inc.
Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Date Analyzed: 02/17/12 10:19
Instrument/Analyst: PID2/MH

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
71-43-2	Benzene	0.25	< 0.25 U
108-88-3	Toluene	0.25	< 0.25 U
100-41-4	Ethylbenzene	0.25	< 0.25 U
179601-23-1	m,p-Xylene	0.50	< 0.50 U
95-47-6	o-Xylene	0.25	< 0.25 U

			GAS ID
	Gasoline Range Hydrocarbons	0.10	< 0.10 U ---

BETX Surrogate Recovery

Trifluorotoluene	97.3%
Bromobenzene	97.1%

Gasoline Surrogate Recovery

Trifluorotoluene	101%
Bromobenzene	100%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

SAMPLE RESULTS-CONVENTIONALS
UI10-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 02/17/12

Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Client ID: MW-6
ARI ID: 12-2561 UI10A

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	02/15/12 021512#1	EPA 300.0	mg/L	1.0	25.7
Bromide	02/14/12 021412#1	EPA 300.0	mg/L	0.1	0.1
N-Nitrate	02/14/12 021412#1	EPA 300.0	mg-N/L	0.1	3.1
Sulfate	02/15/12 021512#1	EPA 300.0	mg/L	2.0	68.0

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
UI10-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 02/17/12

Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Client ID: MW-3
ARI ID: 12-2562 UI10B

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	02/15/12 021512#1	EPA 300.0	mg/L	0.5	12.3
Bromide	02/14/12 021412#1	EPA 300.0	mg/L	0.1	< 0.1 U
N-Nitrate	02/14/12 021412#1	EPA 300.0	mg-N/L	0.2	6.8
Sulfate	02/14/12 021412#1	EPA 300.0	mg/L	0.2	8.9

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
UI10-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 02/17/12

Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Client ID: MW-4R
ARI ID: 12-2563 UI10C

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	02/15/12 021512#1	EPA 300.0	mg/L	0.5	20.2
Bromide	02/14/12 021412#1	EPA 300.0	mg/L	0.1	0.5
N-Nitrate	02/14/12 021412#1	EPA 300.0	mg-N/L	2.0	74.9
Sulfate	02/15/12 021512#1	EPA 300.0	mg/L	5.0	174

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
UI10-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 02/17/12

Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Client ID: MW-14
ARI ID: 12-2564 UI10D

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	02/14/12 021412#1	EPA 300.0	mg/L	5.0	208
Bromide	02/14/12 021412#1	EPA 300.0	mg/L	0.1	0.2
N-Nitrate	02/14/12 021412#1	EPA 300.0	mg-N/L	5.0	99.0
Sulfate	02/15/12 021512#1	EPA 300.0	mg/L	20.0	671

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
UI10-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 02/17/12

Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Client ID: MW-13
ARI ID: 12-2565 UI10E

Analyte	Date Batch	Method	Units	RL	Sample
Chloride	02/15/12 021512#1	EPA 300.0	mg/L	1.0	21.7
Bromide	02/14/12 021412#1	EPA 300.0	mg/L	0.1	< 0.1 U
N-Nitrate	02/14/12 021412#1	EPA 300.0	mg-N/L	0.1	0.9
Sulfate	02/15/12 021512#1	EPA 300.0	mg/L	0.2	5.6

RL Analytical reporting limit
U Undetected at reported detection limit

MS/MSD RESULTS-CONVENTIONALS
UI10-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 02/17/12

Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: UI10A Client ID: MW-6							
Chloride	EPA 300.0	02/15/12	mg/L	25.7	44.7	20.0	95.0%
Bromide	EPA 300.0	02/14/12	mg/L	0.1	2.1	2.0	100.0%
N-Nitrate	EPA 300.0	02/14/12	mg-N/L	3.1	5.5	2.0	120.0%
Sulfate	EPA 300.0	02/15/12	mg/L	68.0	170	100	102.0%

REPLICATE RESULTS-CONVENTIONALS
UI10-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 02/17/12

Project: Ken's Auto
Event: 7168-09
Date Sampled: 02/13/12
Date Received: 02/14/12

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: UI10A Client ID: MW-6						
Chloride	EPA 300.0	02/15/12	mg/L	25.7	25.8	0.4%
Bromide	EPA 300.0	02/14/12	mg/L	0.1	0.1	0.0%
N-Nitrate	EPA 300.0	02/14/12	mg-N/L	3.1	3.1	0.0%
Sulfate	EPA 300.0	02/15/12	mg/L	68.0	67.9	0.1%

METHOD BLANK RESULTS-CONVENTIONALS
UI10-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 02/17/12

Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
Chloride	EPA 300.0	02/14/12	mg/L	< 0.1 U	
		02/15/12		< 0.1 U	
Bromide	EPA 300.0	02/14/12	mg/L	< 0.1 U	
N-Nitrate	EPA 300.0	02/14/12	mg-N/L	< 0.1 U	
Sulfate	EPA 300.0	02/14/12	mg/L	< 0.1 U	
		02/15/12		< 0.1 U	

STANDARD REFERENCE RESULTS-CONVENTIONALS
UI10-Hart Crowser Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 02/17/12

Project: Ken's Auto
Event: 7168-09
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Chloride	EPA 300.0	02/14/12	mg/L	3.0	3.0	100.0%
ERA #411010		02/15/12		3.0	3.0	100.0%
Bromide	EPA 300.0	02/14/12	mg/L	3.0	3.0	100.0%
ERA #111109						
N-Nitrate	EPA 300.0	02/14/12	mg-N/L	3.0	3.0	100.0%
ERA #230511						
Sulfate	EPA 300.0	02/14/12	mg/L	3.0	3.0	100.0%
ERA #160111		02/15/12		3.0	3.0	100.0%