April 2014

Groundwater Monitoring Report

River Terrace RV Park

Soldotna, AK

FINAL
May 2015

ADEC NTP: 18-8036-02-006B

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ACRONYMS AND ABBREVIATIONS

°C	degree Celsius
µS/cm	microsiemen per centimeter
µg/L	micrograms per liter
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADOT&PF	Alaska Department of Transportation and Public Facilities
bgs	below ground surface
BTOC	below top of casing
cm	centimeter
COC	contaminant of concern
CSM	conceptual site model
DCE	dichloroethene
Dhc	*Dehalococcoides*
DO	dissolved oxygen
ERM	ERM Alaska, Inc.
HRC	hydrogen release compund
IDW	investigative derived waste
KRBO	Kenai River Bridge Outfall
mg/L	milligrams per liter
MS/MSD	matrix spike/matrix spike duplicate
mS/cm	millisiemen per centimeter
OASIS	OASIS Environmental, Inc.
ORP	oxidation-reduction potential
PCE	tetrachloroethene
qPCR	quantitative polymerase chain reaction
PPE	personal protective equipment
ROD	record of decision
RPD	relative percent difference
RTRVP	River Terrace Recreational Vehicle Park
RI/FS	remedial investigation/feasibility study
SGS	SGS Environmental Services, Inc.
TOC	total organic carbon
VFA	Volatile Fatty Acids
VOC	volatile organic compound
WQC	Water quality criteria

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1. INTRODUCTION

This document was prepared under Contract NTP No. 18-8036-02-006B by ERM Alaska, Inc. (ERM) on behalf of the Alaska Department of Environmental Conservation (ADEC). This groundwater monitoring report serves to summarize a groundwater monitoring event conducted in April 2014 at the River Terrace Recreational Vehicle Park (RTRVP) site in Soldotna, Alaska. The monitoring was performed in compliance with the 31 August 2000 RTRVP Record of Decision (ROD).

Soil and groundwater at the RTRVP has been impacted by the dry cleaning solvent tetrachloroethene (PCE) and its degradation products. RTRVP is located adjacent to the Kenai River (Figure 1).

1.1. Monitoring Objectives and Scope

The primary purpose of work conducted from 2013-2014 was continued annual groundwater monitoring for compliance purposes and to evaluate the performance of HRC injections in the chlorinated solvent plume at the RTRVP.

The scope of work for FY2014 included the following activities:

- Measure dissolved oxygen (DO) in the Kenai River at 3 locations approximately 3 to 5 feet from the riverbank adjacent to the RTRVP site.
- Collect 3 water column samples from the Kenai River for compliance monitoring purposes.
- Collect groundwater samples from approximately 22 groundwater monitoring wells and 6 injection points for compliance and/or performance monitoring.
- Collect biological samples from 5 monitoring wells and 2 injection points for quantitative polymerase chain reaction (qPCR) analysis.
- Resurvey top of casing elevations for all monitoring wells included in the FY2014 monitoring program at RTRVP.
- Providing ADEC technical assistance on continued remedial actions and as needed.

1.2. Site Background

The RTRVP site comprises three parcels on approximately 10 acres adjacent to the Kenai River in Soldotna (Figure 1). The eastern portion of the site is a residential trailer court. The western portion is used as a recreational vehicle camping site, and it contains a building housing a coin-operated laundry and fish packing service for recreational fishermen. A dry cleaning business operated in this existing laundromat building from the 1960s until about 1988.

Environmental studies began at the site with the discovery of 22 drums and indications of stained soils in 1992. Several soil and groundwater investigations occurred between 1995 and 1999 and a detailed remedial investigation/feasibility study (RI/FS) was performed in 1999-2000 (OASIS/Bristol, 2000a). The current monitoring program continues to provide information regarding the fate and transport of contamination present at the site.

The drycleaning solvent, PCE, and its degradation compounds trichloroethene (TCE); trans-1,2-dichloroethene (trans-1,2-DCE); cis-1,2-dichloroethene (cis-1,2-DCE); 1,1-dichloroethene (1,1-DCE), and vinyl chloride have been documented in RTRVP soil. PCE and its degradation compounds have also been detected in groundwater on the RTRVP property and adjacent Alaska Department of Transportation and Public Facilities (ADOT&PF) Sterling Highway Right-of-Way. Appendix A contains a summary of historical PCE, TCE, DCE, and vinyl chloride concentrations detected in RTRVP monitoring wells. During sediment and water quality investigations and a stormwater system investigation, PCE and its degradation compounds were detected in water discharging from the stormwater system outfall (Kenai River Bridge Outfall [KRBO]) located beneath the Kenai River Sterling Highway Bridge, in the Kenai River itself, and in river sediments adjacent to the site. The following groundwater contaminant plumes have been identified at the site:

- The upper contaminant plume located near the former dry cleaners building and migrating toward the Sterling Highway,
- The lower contaminant plume located south of the former dry cleaners building and migrating toward the Kenai River, and
- The semi-confined water-bearing zones located below the lower contaminant plume in the vicinity of MW-44 and MW-47 (note that the semi-confined water-bearing zones are believed to be a series of disconnected or partially connected sand stringers within the till).

Since 2000, multiple reports documenting the history of the RTRVP site and detailed explanations of remediation operations have been submitted to ADEC. To expedite review of this document and prevent excessive redundancy, relevant documentation will be referenced as appropriate.

1.2.1. *Record of Decision*

The August 31, 2000 RTRVP ROD (ADEC 2000) outlines the cleanup levels applicable to the RTRVP site. The site cleanup levels are provided in Table 1-1. Guidance for the application of the surface water cleanup levels provided in the ROD is summarized below.

- Some or all of the current line of monitoring wells adjacent to the Kenai River (MW-27A[1], MW-20, MW-13, MW-12, MW-8, MW-7, MW-6A, MW-5, and MW-35) will be designated as sentry wells to be used to determine compliance with surface water cleanup levels (Table 1-1).

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[1] Monitoring wells MW-27A and MW-13 were subsequently decommissioned.

- Modeling was used to determine that a concentration of 15 micrograms per liter (µg/L) PCE in the sentry wells should achieve the 5 µg/L surface water cleanup level at the groundwater/surface water interface. Based on the modeling, a value of 3 times the water quality criteria are used as cleanup levels for the sentry wells (referred to as modeled cleanup levels in this document).

In addition to cleanup levels, the ROD presents action levels for treatment. Action levels are contaminant concentrations that trigger the need for additional treatment after Phase I of active remediation. For groundwater, the action levels are the same as the cleanup levels (e.g., exceedances of on-RTRVP cleanup levels in groundwater on-RTRVP or exceedances of off-RTRVP cleanup levels in groundwater off-RTRVP trigger the need for additional treatment). For surface water, the ROD states that "further treatment may not be needed if ADEC determines that the three-times the water quality criteria (WQC) levels will be achieved in a reasonable timeframe after contaminant levels in the sentry wells have decreased below the aquatic organisms screening levels (as cited in "Ecotox Thresholds; Eco Update 3(2;1-12)" by EPA OSWER (1996)). The Ecotox threshold level for RTRVP chemicals of concern (COCs) are 120 µg/L PCE and 350 µg/L TCE. The other PCE degradation products do not have Ecotox values; therefore the action levels for DCE and vinyl chloride are three times the water quality criteria level (e.g., 210 µg/L for cis-1,2-DCE, 300 µg/L for trans-1,2-DCE, 21 µg/L for 1,1-DCE, and 6 µg/L for vinyl chloride).

The ROD further states that actual monitoring data from the Kenai River surface water, surface water/groundwater interface, groundwater, sediments, and the sentry wells will all be evaluated together for cleanup decisions. The ROD stipulates that groundwater sampling events initially will occur on a quarterly basis and may be determined by ADEC to be required less frequently, based upon review of the data. The ROD also stipulates monitoring requirements for site closure.

The ROD also outlines ADEC's approach to site remediation and monitoring. ADEC selected a phased approach to site remediation using HRC to enhance biological treatment of the groundwater contaminant plumes.

1.2.2. Remediation Implemented To-Date

The Phase I remediation system was installed between October 12 and October 20, 2000 by an ADEC remediation contractor (Shannon & Wilson, Inc.). Details of the Phase I remediation system installation are provided in (Shannon & Wilson, 2001a). Phase I used HRC™ treatment barriers to intercept the most highly contaminated areas in both the upper contaminant plume and the lower contaminant plume (Figure 1). The HRC™ barriers were designed to treat groundwater to applicable cleanup levels prior to the contamination migrating off the RTRVP property.

Phase II of HRC™ remediation was designed and implemented in May and June 2001 after reviewing the results of the Phase I treatment system. Details regarding the Phase II remediation system are provided in (Shannon & Wilson, 2001b). Between June 19 and

25, 2001, additional HRC™ borings were installed in "hot spots" in both the upper and lower plumes to reduce the overall timeframe necessary to complete remediation. HRC™ was injected into the Phase II injection points on June 26, 2001. HRC™ was reinjected into most of the Phase I injection points on July 5 and 6, 2001. Figure 1 depicts both the Phase I and Phase II HRC™ injection point locations. A comprehensive report discussing the effectiveness of the Phase I and Phase II remediation efforts and recommendations for future phases of remediation was produced by OASIS/Bristol in June 2002 (OASIS/Bristol, 2002b).

On October 25, 2002, a bioaugmentation pilot test was initiated in the Lower Plume at RTRVP. During the pilot test, a consortium of microorganisms that are known to degrade DCE (KB-1 Dechlorinator [KB-1]) were injected into selected HRC™ injection points near MW-9 in the lower plume of RTRVP. The goal of the pilot test was to evaluate whether bioaugmentation could facilitate degradation of cis-1,2-DCE at the RTRVP site. Prior to implementing the pilot test, site remediation using HRC™ had mediated the dechlorination of PCE and TCE to cis-1,2-DCE, but cis-1,2-DCE bioremediation was apparently stalled as there were no indications of further reduction to vinyl chloride or ethene.

Between November 17 and November 20, 2003, Phase III of HRC™ injection was implemented. Details regarding the Phase III remediation are provided in an OASIS letter report dated January 6, 2004 (OASIS, 2004a). The overall objective of the Phase III treatment was to continue mediating reductive dechlorination in the RTRVP lower plume groundwater. Performance monitoring results indicated insufficient quantities of HRC™ in the lower plume but that the HRC™ remaining in the upper plume was likely to be adequate until spring or summer 2004. To meet the Phase III objective, HRC™ was injected into most of the lower plume Phase I and Phase II injection points.

Between August 25 and 28, 2005, Phase IV of HRC™ injection was implemented. Details regarding the Phase IV remediation are provided in an OASIS letter report dated 10 February, 2006 (OASIS, 2006a). The overall objective of the Phase IV treatment was to continue mediating reductive dechlorination in the RTRVP upper and lower groundwater plumes and to begin treatment of known remaining source (soil) contamination in the till near MW-44. To help guide treatment of the source contamination, seven exploratory soil borings (L67 through L73) were driven into the till near MW-44 and assessed for chlorinated ethenes using a Membrane Interface Probe (MIP). Based on the MIP responses, HRC™ was injected into six new deep (temporary) Phase IV injection points near MW-44 (L67D-HRC, L68D-HRC, L70D-HRC, L71D-HRC, L72D-HRC-E, and L72-HRC-W). Because monitoring data showed that the HRC™ was nearly depleted within the unconfined aquifer, HRC™ was also injected into all of the upper plume Phase I and Phase II injection points and selected Phase I and Phase II lower plume injection points (injection points L42 through L51 north of MW-39/44; L2, L4, and L6 south of MW-39/44, L24 through L28 south of MW-19, and L52 through L58 near MW-10). The injection points near MW-4A could not be injected during Phase IV, because the temporary Kenai River Bridge obstructed access to this area.

On October 4 and 5, 2006, Phase V of HRC™ injection was implemented. Details regarding the Phase V remediation are provided in an OASIS letter report dated December 4, 2007 (OASIS, 2007a). The objective of the Phase V treatment was to better assess and treat known remaining source (soil) contamination in the areas of known historical PCE contamination (in the till) and to continue mediating reductive dechlorination in the RTRVP lower plume groundwater. To help guide treatment of the source contamination, four exploratory soil borings (L74 through L77) were driven into the till and assessed for chlorinated ethenes using MIP and soil sampling, and one new monitoring well (MW-47) was installed near location L72 (Figure 1). Based on the MIP responses, HRC™ was injected into four permanent deep injection points (L78 to L81) and ten new deep (temporary) Phase V HRC™ injection points (L82 to L91). During Phase V, HRC™ was also reinjected into ten of the existing Phase I and II lower plume injection points (L7 to L16 and L30 to L35) where monitoring data indicated that HRC was nearly depleted.

During August 2009, Phase VI of HRC™ injection was implemented. Details regarding the Phase VI remediation are provided in an OASIS letter report (OASIS, 2010b). The overall objective of the Phase VI treatment was to further characterize and treat remaining source contamination in the areas of historical PCE contamination and to continue mediating reductive dechlorination in the RTRVP unconfined groundwater lower plume. To guide treatment of the source contamination, five exploratory soil borings (L92 through L96) were driven into the till and assessed for chlorinated ethenes using a MIP and soil sampling, and three new monitoring wells (MW-48, MW-49, and MW-50) were installed. Based on the MIP responses, HRC™ was injected into five permanent deep injection points (L97 to L101) and eight new deep (temporary) injection points (L102 to L109). HRC™ was also reinjected into five of the existing Phase II lower plume injection points (L42 to L46).

During June 2010, Phase VI also included reinjecting HRC™ into 6 of the 38 pre-existing Upper Plume injection points and 4 of the 9 pre-existing Deep Lower Plume Phase V and Phase VI permanent injection points.

During October 2010, additional soil and groundwater characterization activities were performed to further delineate any remaining source contamination in the till. Four soil borings were installed to maximum depths between 32 feet bgs and 37 feet bgs (L-112, L-113, L-114, and L-115), and three new monitoring wells were installed (i.e., MW-6A as a replacement for MW-6, MW-51 and MW-52). Analytical results from MW-51 and MW-52 showed additional areas of source contamination (e.g., MW-51 contained 59,000 µg/L of PCE).

On September 28, 2011, 600 pounds of HRC PRIMER™ was injected into four of the deep lower plume injection points (L-79, L-99, L-100, and L-101) in an attempt to promote further reductive dechlorination bioremediation within the till materials. HRC PRIMER™ was chosen due to its lower viscosity and ability to more easily migrate in tight soils.

On October 9-11, 2012, three additional HRC injection points (L-80A, L-102, and L-103) were installed in the vicinity of MW-50, MW-51, and MW-48, respectively. A total of 300 pounds of HRC PRIMER™ was injected into five injection points in the upper plume area to replenish HRC in areas where it had been depleted. A total of 1,200 pounds of HRC PRIMER™ was injected into seven of the deep lower plume injection points (L-80A, L-81, L-97, L-98, L-100, L-102, and L-103) in an attempt to promote further reductive dechlorination bioremediation within the till materials. HRC PRIMER™ was chosen due to its lower viscosity and ability to more easily migrate in tight soils.

1.2.3. Joint USGS/ADEC Project Evaluating Biodegradation Potential

In fall of 2003, the USGS and ADEC initiated a joint project to evaluate the biodegradation potential at RTRVP. The goal of the project was to determine the best way to accelerate bioremediation (specifically of cis-1,2-dichloroethene (DCE)) at the RTRVP site. The USGS measured in situ hydrogen concentrations and other geochemical parameters in selected RTRVP monitoring wells and constructed microcosms using RTRVP soil and Kenai River sediments. Results of the geochemical parameter measurements and soil and sediment sample collection are provided in the Final Interim Status Report Alternatives to Accelerate Bioremediation at River Terrace RV Park, Soldotna, Alaska, dated March 15, 2004 (OASIS, 2004b).

The final report of the microcosm study results, Chloroethene Biodegradation Potential in the "Lower" Contaminant Plume, River Terrace RV Park, Soldotna, Alaska (Bradley and Chapelle, 2005) was received by ADEC on February 14, 2005.

In the report, USGS reached the following conclusions:

- The RTRVP background sediments were predominantly oxic. Within the lower contaminant plume, sediment redox conditions were dominated by manganese (Mn [IV])-reduction and iron (Fe [III])-reduction with significant methanogenic conditions observed only in HRC™-treated areas.
- The addition of HRC™ or another suitable electron donor appears to be necessary to stimulate reductive dechlorination of PCE and TCE at RTRVP. However, adding electron donor to microcosm samples with a history of electron donor addition in the field did not enhance reductive dechlorination.
- Due to interspecies hydrogen competition, only limited respiratory reductive dechlorination of cis-1,2,-DCE and vinyl chloride is occurring at RTRVP. However, aerobic and anaerobic oxidation of cis-1,2-DCE and vinyl chloride to carbon dioxide occurs in both RTRVP aquifer soils and Kenai River sediments. Therefore, a remediation assessment based only on the presence of reduced daughter products (vinyl chloride and ethene) may underestimate the potential for DCE and vinyl chloride degradation at RTRVP and the total chlorinated ethene concentration should also be monitored to determine if it is declining.

- The effectiveness of KB-1 at increasing reductive dechlorination of cis-1,2-DCE was inconclusive.
- Future electron donor addition should be restricted to upgradient, predominantly PCE/TCE contaminated areas (including source areas), allowing the cis-1,2-DCE and vinyl chloride to mineralize to carbon dioxide in the downgradient areas of the site.

1.3. Long-Term Monitoring Scope

The initial post-ROD RTRVP monitoring work plan (OASIS/Bristol, 2000b) more extensively details the overall long-term monitoring requirements for the RTRVP site. In summary, two types of monitoring programs have been selected for the site.

- Long-term compliance monitoring, which is foreseen for the duration of the RTRVP remediation program, will be used to evaluate compliance with cleanup levels and the long-term performance of the remedial system (or natural attenuation, after active remediation has ceased). Beginning with the 2008-2009 fiscal year, compliance monitoring has been performed on an annual basis.
- Long –term performance monitoring has been used to determine the efficacy of the HRC injections as a remediation option at RTRVP.
    - During the 2000-2003 fiscal years, short-term remedial system performance monitoring was used to evaluate the effectiveness of the Phase I and later on Phase II remedial injections. The performance monitoring was also used to evaluate the timing for reinjecting HRC™ at the site (i.e., Phase III of remediation).
    - Under a separate Notice to Proceed during the 2002-2003 fiscal year, performance monitoring was revised to include microbial analysis testing for evaluation of the bioaugmentation pilot test. Results of the bioaugmentation pilot test performance monitoring were reported in the quarterly performance/compliance monitoring reports.
    - In the 2005-2006 fiscal year, performance monitoring was used to evaluate the continued performance of the historical Phase I, II, III, and IV remedial injections and the bioaugmentation pilot test but now also included monitoring of the deep HRC™ injections performed as part of Phase IV.
    - During the 2006-2007, through 2010-2011 fiscal years, the performance monitoring was changed from quarterly monitoring to semi-annual monitoring that was generally performed in May and September/October of each year. The larger monitoring program that included compliance and performance monitoring was performed during the September/October event.
    - For the most recent fiscal years; 2011-2012, 2012-2013, and 2013-2014; the frequency for performance monitoring was reduced to annually and is being performed in the spring timeframe (April/May). This report details the results of the April 2014 groundwater monitoring event.

Parameters included in the performance monitoring analytical suite are listed and described in Table 1-2. Since a baseline has been established for some of the geochemical parameters listed in Table 1-2 (i.e., nitrate/nitrite and sulfate), and historical data has shown little variability or usefulness for these parameters in evaluating the remediation progress, regular analysis for these parameters has been discontinued. Other performance monitoring parameters of sulfide, alkalinity, chloride, total Kjeldahl nitrogen, ammonia, and phosphorus were also discontinued after the initial (2000-2001) performance monitoring results showed them to be unnecessary for evaluating bioremediation at RTRVP.

TABLE 1-1: CLEANUP LEVELS FOR RTRVP

Media	Contaminant	Maximum Concentration Detected in June 2000	Maximum Detected Concentration 1999-2014	Cleanup Levels		
				Concen-tration	Point of Compliance	Basis
On-RTRVP Property Soil (mg/kg)	PCE	NA	* 20	11.5	Throughout RTRVP Property	ACL for chlorinated com pounds, 18 AAC 75 by application of the 10 times rule (18 AAC 75.75.345(b)(2) for benzene
	TCE	NA	* 0.21	300		
	cis-DCE	NA	* 0.62	72.1		
	trans-DCE	NA	ND	87.3		
	1,1 DCE	NA	ND	7.1		
	Vinyl Chloride	NA	ND	2.1		
	Benzene	NA		0.2		
Off-RTRVP Property Soil (mg/kg)	PCE	NA	0.19	0.3	Anywhere off-RTRVP Property	18 AAC 75 by application of the 10 times rule (18 AAC 75.75.345(b)(2)
	TCE	NA	0.009	0.27		
	cis-DCE	NA	0.006	2		
	trans-DCE	NA	ND	4		
	1,1 DCE	NA	ND	0.3		
	Vinyl Chloride	NA	ND	0.09		
	Benzene	NA	ND	0.2		
On-RTRVP Property Shallow (Unconfined) Aquifer (µg/L)	PCE	1,300	MW-16 - 5,500	840	Throughout RTRVP Property	ACL for chlorinated com pounds, 18 AAC 75 by application of the 10 times rule (18 AAC 75.75.345(b)(2) for benzene
	TCE	540	MW-36 – 1,710	21,900		
	cis-DCE	3,000	MW-20 - 4,600	11,600		
	trans-DCE	26	MW-36 - 87.5	11,600		
	1,1 DCE	2.6	MW-9 - 5.41	7		
	Vinyl Chloride	4.5	MW-39 - 651	2		
	Benzene	3.9	MW-20 – 55.5	50		

Media	Contaminant	Maximum Concentration Detected in June 2000	Maximum Detected Concentration 1999-2014	Cleanup Levels		
				Concen-tration	Point of Compliance	Basis
Off-RTRVP Property Shallow (Unconfined) Aquifer (µg/L)	PCE	280	MW-38 – 1,210	50	RTRVP Property boundary	18 AAC 75 by application of the 10 times rule (18 AAC 75.75.345(b)(2)
	TCE	83	MW-12 - 180	50		
	Cis-DCE	480	MW-12 - 1,500	700		
	Trans-DCE	ND	MW-12 - 24	1,000		
	1,1 DCE	ND	MW-25 – 1.59	70		
	Vinyl Chloride	ND	MW-25 - 48.5	20		
	Benzene	ND	MW-25 - 1.3	50		
Confined Aquifer (µg/L)	PCE	ND	MW-48 - 120,000	5	Throughout property	MCL
	TCE	ND	MW-50 - 26,900	5		
	Cis-DCE	ND	MW-49 – 92,900	70		
	Trans-DCE	ND	MW-47 – 1,330	100		
	1,1 DCE	ND	MW-50 - 261	7		
	Vinyl Chloride	ND	MW-51 – 11,400	2		
	Benzene	ND	MW-47 – 86.6	5		
Surface Water (µg/L) (Note that TAH and TAqH concentrations of 10 and 15 µg/L respectively must also be met in the water column	PCE	2.5	2.5	5	Surface-Water/Ground-Water Interface	WQC
	TCE	0.6	1.9	5		
	Cis-DCE	0.18	15	70		
	Trans-DCE	ND	0.081	100		
	1,1 DCE	ND	ND	7		
	Vinyl Chloride	ND	ND	2		
	Benzene	ND	ND	5		

* Areas of highest soil contamination have been removed and treated. The maximum detections remaining in RTRVP property soil are listed in this table.
ACL: Alternative cleanup levels established for the site in an August 1997 letter from the DEC
18 AAC 75: Alaska Oil and Hazardous Substance Pollution Control Regulations
MCL: Maximum contaminant level; from Alaska Drinking Water Regulations (18 AAC 80)
WQC: Water Quality Criteria (18 AAC 70)

TABLE 1-2: PERFORMANCE MONITORING PARAMETER SUMMARY

Parameter	Description	Threshold Level (Wiedemeier et al., 1996)	Significance of Threshold Level
Geochemical Indicators of Natural Attenuation			
pH	pH is a measure of the acidity or alkalinity of the groundwater.	5 < pH < 9	Optimal range for reductive pathway
Temperature	Groundwater temperature affects the metabolic rate of bacteria. Groundwater temperatures less than 5°C tend to inhibit biodegradation. Biodegradation rates typically double for every 10°C increase in water temperature.	> 20°C	Biochemical process accelerated
DO	Depressed DO levels indicate that the reductive pathway is possible	< 0.5 mg/L	Reductive pathway is not suppressed.
ORP	ORP is an indicator of oxidation potential (aerobic) or reductive potential (anaerobic) of the groundwater system.	< 50 mV < -100 mV	Reductive pathway possible Reductive pathway likely
Nitrate	After DO has been depleted, nitrate may be used as an electron acceptor for anaerobic biodegradation.	< 1 mg/L	At higher concentrations nitrate may compete with reductive pathway
Sulfate	After DO and nitrate have been depleted in the treatment zone, sulfate may be used as an electron acceptor for anaerobic biodegradation (sulfate reduction).	< 20 mg/L	At higher concentrations may compete with reductive pathway
Dissolved iron (ferrous iron)	Ferrous iron (iron II) is produced when ferric iron (iron III) is used as an electron acceptor during anaerobic biodegradation.	>1 mg/L	Indicative that reductive pathway is possible
Methane	The presence of methane in groundwater is indicative of strongly reducing conditions. Methanogenesis generally occurs after the oxygen, nitrate, and sulfate have been depleted in the treatment zone.	> 0.5 mg/L	Indicative that reductive pathway is likely but may also compete with reductive dechlorination process
Ethane, ethene	Produced during reductive dechlorination	> 0.01 mg/L	Indicative that reductive pathway is likely
TOC	Carbon is the energy source that drives reductive dechlorination.	> 20 mg/L	Energy source needed to drive reductive dechlorination
Volatile Organic Acids			
Lactic acid	Nutrient and hydrogen ion source for dechlorinating microbes. Lactic acid is released during biodegradation of HRC™.	Not applicable	Presence indicates biodegradation of HRC™

Parameter	Description	Threshold Level (Wiedemeier et al., 1996)	Significance of Threshold Level
Pyruvic acid	As lactic acid is metabolized by anaerobic microbes, it is degraded to pyruvic acid.	Not applicable	Presence indicates presence and degradation of lactic acid
Acetic acid	As pyruvic acid is metabolized by microbes, it is degraded to acetic acid.	Not applicable	Presence indicates presence and degradation of pyruvic acid
Butyric acid	In a secondary reaction, lactic acid also degrades to butyric acid and propionic acid.	Not applicable	Presence indicates presence and degradation of lactic acid
Propionic acid	In a secondary reaction, lactic acid also degrades to butyric acid and propionic acid.	Not applicable	Presence indicates presence and degradation of lactic acid
Contaminants/Degradation Products (VOCs)			
PCE	Primary contaminant	Not applicable	Compare levels among upgradient/ downgradient wells over time
TCE	PCE daughter product; presence indicates PCE degradation has occurred	Not applicable	Compare levels among upgradient/ downgradient wells over time
Cis-1,2-DCE	TCE daughter product; presence indicates TCE degradation has occurred	Not applicable	Compare levels among upgradient/ downgradient wells over time
Trans-1,2-DCE	TCE daughter product; presence indicates TCE degradation has occurred	Not applicable	Compare levels among upgradient/ downgradient wells over time
1,2-DCA	A possible (although uncommon) cis-1,2-DCE daughter product. 1,2-DCA is a less common daughter product than vinyl chloride.	Not applicable	Compare levels among upgradient/ downgradient wells over time
Vinyl chloride	DCE daughter product; presence indicates DCE degradation has occurred	Not applicable	Compare levels among upgradient/ downgradient wells over time

Notes:
DO – dissolved oxygen
ORP – oxidation/reduction potential
TOC – total organic carbon
PCE – tetrachloroethene
TCE – trichloroethene
DCE – dichloroethene
DCA – dichloroethane
VOC – volatile organic compound

2. SUMMARY OF FIELD PROCEDURES

2.1. Summary of Field Procedures - Groundwater Monitoring

In April of 2014 a groundwater monitoring event was performed in accordance with the work plan (OASIS 2012). Work was performed April 21-24, 2014.

2.1.1. Site Access

One week prior to conducting the following field activities, ERM notified ADEC (Mr. Robert Weimer – 269-7525) and Mr. Gary Hinkle (RTRVP owner 262-5593 or 283-9231) to coordinate site access and ensure that no work conflicts existed.

2.1.2. Condition of Monitoring Wells

ERM located all proposed monitoring wells and injection points to be sampled. All monitoring wells and injection points were found to be in good condition and suitable for sampling with the exception of MW-5 and MW-20 which purged dry and did not recover sufficiently to collect a sample from.

Two monitoring well casings (MW-40 and MW-49) had jacked so that could no longer properly close well monument. Approximately one inch of PVC casing was trimmed off the top of well casing at these two well locations. Work was completed after water levels and elevation survey completed so no impact to current water level data.

2.1.3. Water Level Measurements

During the April 2014 groundwater sampling event, water levels were measured in the monitoring wells scheduled for sampling. Table 2-2 provides a summary of April 2014 groundwater depths and the 2006 through 2014 groundwater elevations. The information provided in Table 2-2 is discussed in Section 3.0.

2.1.4. Groundwater Sampling and Analysis

Groundwater samples were collected from 26 monitoring wells and injection points in the upper plume and lower plume areas Figures 1, 3, and 4. Samples could not be collected from MW-5 and MW-20 due to insufficient water – monitoring wells purged dry and did not recover. All of the samples collected were analyzed for Volatile Organic Compounds (VOCs). Selected groundwater samples from 20 of the monitoring wells or injection points were also analyzed for permanent gases (ethene, ethane, and methane), metabolic acids (pyruvic acid, lactic acid, acetic acid, propionic acid, and butyric acid), total organic carbon (TOC), total and dissolved iron and manganese. Seven of the monitoring well samples were also analyzed for the microbial characterization parameters of *dehalococcoides* (Dhc) microorganisms and a class of enzymes referred to as vinyl chloride reductase (vcrA) using Gene-Trac testing by SiREM. An analytical program summary is presented in Table 2-1.

Analytical laboratory services were provided by an ADEC-approved laboratory, SGS, of Anchorage, Alaska with the exception of the biological samples which were analyzed by SiREM Laboratories of Ontario, Canada. Groundwater samples were collected in accordance with the monitoring work plan (ERM 2013) using a low-flow sample technique. Sample procedures are summarized below.

- Water was purged from the wells using a low-flow technique. A peristaltic pump was used to slowly purge the water while measuring water quality parameters (see below). When the parameters had stabilized to within the criteria outlined in the work plan (ERM 2013), the sample was collected.
- A YSI 556 water quality meter with a flow-through cell was used to measure pH, conductivity, temperature, ORP, and dissolved oxygen in the groundwater after every purge volume. Once the parameters were stable, the final measurements were recorded on the sample data sheets available in Appendix B. The instruments and field screening methods were calibrated and operated in accordance with the manufacturer's recommendations.
- When transferring water from the pump tubing to sample containers, a purge water bucket (5-gallon capacity) was positioned beneath the transfer point to catch any incidental spillage of water. The incidental spillage was transferred to the purge water containers.
- Groundwater samples were placed in an iced cooler immediately upon collection.
- All observable physical characteristics of the groundwater (e.g., color, turbidity) were recorded on the sample data sheets or field logbook.
- Weather conditions at the time of sampling were recorded (e.g., air temperature, wind direction, recent heavy rainfall, drought condition) in a field logbook (provided in Appendix B2).
- The samples were submitted to the project laboratory (SGS or SiREM) under standard chain-of-custody procedures for analysis.

The analytical results for the April 2014 monitoring event are presented in the following sections of this report. Analytical results are discussed in Section 4 with respect to compliance aspects and in Section 5 with respect to bioremediation progress at the site. Analytical results for the RTRVP contaminants of concern (COC) (benzene, PCE, TCE, DCE, and vinyl chloride) are summarized in Table 2-3, and Appendix A provides a summary of historical analytical results for the RTRVP COCs.

TABLE 2-1: ANALYTICAL PROGRAM SUMMARY

Well ID	VOCs	Methane	Metabolic Acids	Total/Diss. Fe/Mn	TOC	Dhc vcr
	EPA 8260B	RSK-175	AM21G	EPA 200.8	SM-5310B	qPCR Analysis
	April 2014					
Upper Plume						
MW-23	1					
MW-25	1					
MW-16	1	1	1	1	1	
MW-36	1	1	1	1	1	
MW-38	1					
MW-42	1	1	1	1	1	
Lower Plume						
MW-5	NS					
MW-6	1	1	1	1	1	
MW-9	1	1	1	1	1	
MW-12	1					
MW-20	NS					
MW-26	1					
MW-35	1					
MW-39	1	1	1	1	1	
MW-40	1	1	1	1	1	
MW-44	1	1	1	1	1	
MW-47	1	1	1	1	1	1
MW-48	1	1	1	1	1	1
MW-49	1	1	1	1	1	1
MW-50	1	1	1	1	1	1
MW-51	1	1	1	1	1	1
MW-52	1	1	1	1	1	
L-78	1	1	1	1	1	1
L-80A	1	1	1	1	1	
L-100	1	1	1	1	1	
L-101	1	1	1	1	1	
L-102	1	1	1	1	1	
L-103	1	1	1	1	1	1
River MW-5	1					
River MW-6	1					
River MW-8	1					
QA/QC						
Duplicate	3	1	1	1	1	-
MS/MSD	2	1	1	1	1	-

Notes: MS/MSD - Matrix Spike/Matrix Spike Duplicate NS: Not Sampled

2.1.5. Surface Water Sampling and Analysis

On April 23, 2014, the field team measured DO, redox potential (ORP), temperature, pH, and conductivity and collected water column samples from the Kenai River out from MW-5, out from MW-6, and out from MW-8 in accordance with the work plan. A YSI 556 water quality meter with a flow-through cell was used to collect the field measurements. Field measurements were recorded on the sample data sheets in Appendix B.

Water column samples were collected from the Kenai River using a peristaltic pump with the inlet tubing placed approximately five feet from the edge of the river and approximately one inch above the river bed. The surface water samples were analyzed for VOCs using EPA Method 8260B (Table 2-1) by SGS in Anchorage. Surface water results are presented in Table 2-3 and discussed in Section 4.5. Historical Kenai River water column monitoring results are presented in Appendix A.

2.1.6. Deviation from the Work Plan

Deviations from the work plan are described below:

- No samples were collected from two of the planned sampling locations. Due to inadequate water levels MW-5 and MW-20 purged dry and did not recover sufficiently to collect a sample.

2.1.7. Waste Management

Investigation-derived waste (IDW) waste from RTRVP having any detectable concentration of PCE (or PCE degradation products) is considered F002 listed waste. In addition, waste having a PCE concentration greater than 500 µg/L is considered toxic characteristic hazardous waste D039, waste with a TCE concentration greater than 500 µg/L is considered toxic characteristic hazardous waste D040, waste with a DCE concentration greater than 700 µg/L is considered toxic characteristic hazardous waste D029, and waste with vinyl chloride concentrations above 200 µg/L is considered toxic characteristic hazardous waste D043.

The IDW generated from monitoring activities at the RTRVP site included the following waste streams:

- Water used in the decontamination process,
- Purge water from well sampling, and
- PPE, disposable sampling supplies (filters and tubing), and general debris.

Purge water from groundwater sampling activities was contained in a 55-gallon drum. Purge water was staged at the northwest corner of the former dry cleaner building. A hazardous waste label was placed on the drum pending transport by Emerald Alaska, Inc. to their approved TSD facility.

PPE, filters, tubing and other disposable sampling wastes were managed as hazardous solid wastes. These wastes were collected in a plastic garbage bag and placed in an open-top drum. This drum was also labeled with a hazardous waste label and staged at the northwest corner of the former dry cleaner building similar to the purge water drum.

Weekly inspections were performed until such time that waste was transported by Emerald Alaska Inc., and taken to their approved TSD for disposal. Waste manifests and inspection forms have been included in Appendix D.

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Table 2-2: Groundwater Elevation Data (5/06-4/14)
River Terrace RV Park, Soldotna, Alaska

Well ID	Northing	Easting	Water-bearing Zone Well Screened In	Elev. At Top of Casing (April 2014)	Depth to Water (feet) April 2014	Water Elevation (feet) 9/11/06	Water Elevation (feet) 5/29/07	Water Elevation (feet) 9/17/07	Water Elevation (feet) 5/12-13/08	Water Elevation (feet) 9/16/08	Water Elevation (feet) 5/5/09	Water Elevation (feet) 10/5/09	Water Elevation (feet) 5/11/10	Water Elevation (feet) 10/18/10	Water Elevation (feet) 5/17/11	Water Elevation (feet) 5/7/12	Water Elevation (feet) April 2013	Water Elevation (feet) April 2014
MW-4A	4967.98	5033.67	Unconfined	58.39	NM	51.51	49.3	51.08	51.15	51.78	NM	50.29	NM	*50.60*	NM	51.44	52.99	NM
MW-05	4852.12	5065.04	Unconfined	47.51	4.71	44.93	42.6	44.1	NM	45.58	NM	42.72	NM	*42.93*	NM	42.69	42.87	42.80
MW-06	4879.44	5023.52	Unconfined	NS	NM	44.9	42.33	44.21	41.43	45.54	41.27	42.67	41.66	*dec*	dec	dec	NM	NM
MW-06A	4877.88	5025.13	Unconfined	47.42	6.03									*42.59*	NM	41.60	43.22	41.39
MW-07	4865.63	5044.1	Unconfined	47.73	NM	44.91	NM	44.17	NM	45.58	NM	42.69	NM	*42.86*	NM	41.71	NM	NM
MW-08	4917.93	4984.69	Unconfined	NS	NM	44.95	NM	44.34	NM	45.85	NM	43.11	NM	*43.15*	NM	41.86	NM	NM
MW-09	4908.14	5056.35	Unconfined	59.18	16.90	45.64	43.12	44.67	43.05	46.09	42.75	43.97	43	*43.86*	NM	43.28	43.98	42.28
MW-10	4936.99	5002.44	Unconfined	NS	NM	45.47	NM	44.93	NM	47.11	NM	43.87	NM	*43.72*	NM	42.79	NM	NM
MW-12	4928.98	4975.81	Unconfined	48.12	6.22	NM	NM	NM	NM	45.91	NM	43.11	NM	*43.21*	NM	42	43.91	41.90
MW-16	5089.26	5176.11	Unconfined	74.79	17.48	57.65	58	57.92	57.98	57.91	58.05	57.85	58.19	*57.91*	58.11	58.38	57.8	57.31
MW-19	4945.84	5039.04	Unconfined	NS	NM	51.85	NM	NM	NM	50.59	NM	NM	NM	*51.07*	NM	52.16	NM	NM
MW-20	4898.66	5004.25	Unconfined	47.04	5.25	44.92	ice	44.36	41.84	45.75	41.63	42.83	42.26	*43.08*	NM	42.03	43.57	41.79
MW-21	5074.04	5133.12	Unconfined	72.37	NM	57.84	NM	58.02	NM	57.91	NM	NM	NM	*57.93*	NM	58.46	NM	NM
MW-23	5083.65	5259.97	Unconfined	75.32	17.16	57.88	NM	57.95	NM	57.91	NM	NM	58.08	*NM*	NM	58.41	58.07	58.16
MW-24	5034.89	5157.88	Perched	NS	NM	60.02	NM	NM	NM	60.2	NM	NM	NM	*59.84*	NM	50.17	NM	NM
MW-25	5141.08	5159.59	Unconfined	70.96	12.86	57.29	57.81	57.87	57.96	57.85	57.97	57.83	58.06	*57.9*	NM	58.34	58.04	58.10
MW-26	4959.26	5128.52	Unconfined	59.52	6.12	54.48	NM	53.52	NM	53.17	NM	NM	NM	*53.38*	NM	54.41	51.2	53.40
MW-29	5030.81	5240.38	Perched	NS	NM	59.4	NM	NM	NM	58.93	NM	NM	59.57	*NM*	NM	59.55	NM	NM
MW-35	4824.43	5105.73	Unconfined	47.78	6.35	45.08	42.52	43.37	NM	45.59	NM	42.69	42.69	*42.87*	NM	41.54	43.15	41.43
MW-36	5069.4	5183.1	Unconfined	75.37	17.21	57.89	57.9	57.97	58.04	57.9	58.05	57.84	58.1	*57.94*	NM	58.45	58.13	58.16
MW-37	5084.4	5177.1	Unconfined	75.10	NM	57.75	NM	57.96	NM	57.9	NM	NM	NM	*NM*	NM	NM	NM	NM
MW-38	5102.2	5172.3	Unconfined	74.18	16.04	57.62	57.82	57.73	NM	57.87	NM	57.85	NM	*57.91*	NM	58.36	57.99	58.14
MW-39	4922.6	5070.5	Unconfined	59.28	16.06	46.45	43.68	45.35	44.48	46.73	43.79	44.69	44.43	*44.47*	43.60	44.84	44.59	43.22
MW-40	4903.3	5048.9	Unconfined	59.12	16.91	45.58	43.09	44.58	43.08	46.03	42.69	43.88	42.91	*43.82*	NM	43.14	43.62	42.21
MW-41	5,016.83	5,204.10	Perched	NS	NM	60.9	NM	NM	NM	60.53	NM	NM	NM	*NM*	NM	60.6	NM	NM
MW-42	5,074.86	5,221.50	Unconfined	75.65	17.48	57.88	57.89	57.97	58	57.89	58.02	57.86	58.11	*57.95*	NM	58.43	58.07	58.17
MW-43	5097.27	5147.62	Unconfined	73.21	NM	57.48	NM	57.94	NM	57.86	NM	NM	NM	*NM*	NM	58.38	NM	NM
MW-44	4918.79	5073.1	Semi-Confined	59.11	15.30	47.5	45.12	45.92	44.35	47.32	43.83	45.24	44.7	*45.91*	44.11	44.69	45.21	43.81
MW-45	4905.6	5059.71	Semi-Confined	59.22	NM	46.63	NM	45.22	NM	46.73	NM	44.86	NM	*NM*	NM	43.66	45.27	NM
MW-46	4893.51	5088.11	Semi-Confined	NS	NM	45.92	NM	44.85	NM	46.14	NM	NM	NM	*NM*	NM	43.86	NM	NM
MW-47	4935.983	5086.1429	Semi-Confined	58.71	6.95	ni	50.75	51.45	52.48	51.43	51.51	51.09	52.94	*52.63*	52.07	53.35	50.73	51.76
MW-48	4947.75	5090.77	Semi-Confined	58.79	7.00	ni	ni	ni	ni	ni	ni	51.68	52.64	*51.57*	52.09	53.44	46.15	51.79
MW-49	4937.13	5072.73	Semi-Confined	58.50	8.96	ni	ni	ni	ni	ni	ni	49.4	50.36	*50.28*	50.06	51.92	49.23	49.54
MW-50	4929.93	5094.23	Semi-Confined	58.67	8.68	ni	ni	ni	ni	ni	ni	49.95	50.91	*50.39*	50.18	51.3	53.02	49.99
MW-51	4940.15	5097.93	Semi-Confined	58.74	7.01	ni	ni	ni	ni	ni	ni	ni	ni	*47.71*	51.32	52.69	51.85	51.73
MW-52	4921.69	5092.02	Semi-Confined	58.68	10.57	ni	ni	ni	ni	ni	ni	ni	ni	*45.63*	48.44	49.3	48.22	48.11
L-78			Semi-Confined	58.15	15.69	ni	ni	ni	ni	ni	ni	ni	ni	*ni*	ni	ni	NM	NM
L-80A	4930.246	5091.345	Semi-Confined	58.77	10.69	ni	ni	ni	ni	ni	ni	ni	ni	*ni*	ni	ni	NM	48.08
L-100	4956.42	5095.63	Semi-Confined	59.00	6.30	ni	ni	ni	ni	ni	ni	51.66	54.01	*NM*	54.65	53.97	51.71	52.70
L-101	4922.07	5099.1	Semi-Confined	58.66	7.80	ni	ni	ni	ni	ni	ni	49.01	NM	*NM*	49.51	48.09	46.05	50.86
L-102	4944.353	5098.878	Semi-Confined	58.30	8.59	ni	ni	ni	ni	ni	ni	ni	ni	*ni*	ni	ni	NM	49.71
L-103	4945.044	5088.265	Semi-Confined	58.62	6.39	ni	ni	ni	ni	ni	ni	ni	ni	ni	ni	ni	NM	52.23

Notes: NM = Not Measured

Horizontal survey coordinates based on local grid system.

All vertical survey elevation referenced to benchmark "Soldotna" on North side Kenai River Bridge; elevation is relative to mean sea level.

[1] The groundwater depth for MW-4A (6.6' bgs) was measured at 1545 on 9-17-08. The depth measured on 9-16-08 (10.78' bgs) appears to be in error .

[2] The depth for MW-16 (16.76' bgs) was measured at 1845 on 5-5-09. The depth measured at 1030 on 5-5 (16.6' bgs) appears in error, because it does not correlate with datalogger elev.

[3] Elevations for all monitoring wells except MW-23, MW-29, MW-37, MW-41, MW-43, and MW-45 were surveyed on 11/10/10 where historical survey elevations were used.

Table 2-3: April 2014 Groundwater VOC Analytical Data (ug/L)
River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Sample Type	Date Sampled	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	1,1-DCE	Vinyl Chloride	Benzene	Ethene
				MCL = 5	MCL = 5	MCL = 70	MCL = 100	MCL = 7	MCL = 2	MCL = 5	MCL = none
				on-RTRVP= 840	on-RTRVP= 21,900	on-RTRVP= 11,600	on-RTRVP= 11,600	on-RTRVP= 70	on-RTRVP= 2	on-RTRVP= 50	
				off-RTRVP = 50	off-RTRVP = 50	off-RTRVP = 700	off-RTRVP = 1000	off-RTRVP = 70	off-RTRVP = 20	off-RTRVP = 50	
				modeled level =15	modeled level=15	modeled level=210	modeled level=300	modeled level=21	modeled level = 6		
				eco action level = 120	eco action level = 350	eco action level = 210	eco action level = 300	eco action level = 21	eco action level = 6		
Upper Plume											
MW-36	14-RT-001-GW	Project Sample	22-Apr-14	7.09	64.1	355	< 0.5	< 0.5	10.8^{A}	0.19 F	5.8
MW-16	14-RT-002-GW	Project Sample	22-Apr-14	6.61	5.02	26.5	0.83 F	< 0.5	8.03^{A}	0.35 F	7.4
MW-23	14-RT-021-GW	Project Sample	22-Apr-14	4.12	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2	
MW-25	14-RT-022-GW	Project Sample	24-Apr-14	3.73	13.7	44	0.91 F	< 0.5	3.2^{A}	0.27 F	
MW-38	14-RT-023-GW	Project Sample	22-Apr-14	0.37 F	0.99 F	29	2.32	< 0.5	16.5^{A}	0.19 F	
MW-38	14-RT-033-GW	QC Duplicate	22-Apr-14	< 50	< 50	61.6 F	< 50	< 50	< 50	< 20	
MW-42	14-RT-003-GW	Project Sample	22-Apr-14	7.0	4.8	58.5	1.66	< 0.5	7.95^{A}	< 0.2	6.5
MW-42	14-RT-032-GW	QC Duplicate	22-Apr-14	< 50	< 50	75.7 F	< 50	< 50	< 50	< 20	6.6
Lower Plume											
MW-5	14-RT-025-GW	Project Sample		NS	NS	NS	NS	NS	NS	NS	
MW-6A	14-RT-004-GW	Project Sample	24-Apr-14	< 0.5	< 0.5	9.61	5.21	< 0.5	2.19^{A}	0.89	11
MW-9	14-RT-005-GW	Project Sample	23-Apr-14	2.96	< 0.5	7.47	8.52	< 0.5	2.05^{A}	2.53	19
MW-12	14-RT-026-GW	Project Sample	24-Apr-14	2.17	1.91	28.2	0.36 F	< 0.5	1.72	< 0.2	
MW-20	14-RT-027-GW	Project Sample		NS	NS	NS	NS	NS	NS	NS	
MW-26	14-RT-024-GW	Project Sample	22-Apr-14	134	26	175	3.51	< 0.5	< 0.5	< 0.2	
MW-26	14-RT-034-GW	QC Duplicate	22-Apr-14	141	< 50	180	< 50	< 50	< 50	< 20	
MW-35	14-RT-028-GW	Project Sample	24-Apr-14	0.70 F	0.70 F	73.3	1.53	< 0.5	< 0.5	< 0.2	
MW-39	14-RT-006-GW	Project Sample	23-Apr-14	< 0.5	< 0.5	13.1	27.6	< 0.5	4.55^{A}	2.56	15
MW-40	14-RT-007-GW	Project Sample	23-Apr-14	0.61 F	< 0.5	3.99	15.4	< 0.5	1.99	1.72	16
Lower Plume - Semi-Confined Water-Bearing Zones Within the Till											
MW-44	14-RT-008-GW	Project Sample	23-Apr-14	1.78	0.91 F	41.9	5.78	< 0.5	52.7^{A}	< 0.2	1,900
MW-47	14-RT-009-GW	Project Sample	23-Apr-14	2,500	790	6,170	62.2	< 10	112^{A}	11.5	8.2
MW-48	14-RT-010-GW	Project Sample	22-Apr-14	< 50	< 50	25,400	70.7 F	61.7 F	$< 50^{A}$	< 20	9.1
MW-49	14-RT-011-GW	Project Sample	23-Apr-14	14.8 F	< 10	37,800	182	31.2	$8,390^{A}$	4.14 F	510
MW-50	14-RT-012-GW	Project Sample	22-Apr-14	128	81.8	7,440	28.6	9.94 F	$1,680^{A}$	< 4.0	110
MW-51	14-RT-013-GW	Project Sample	22-Apr-14	5.81	0.75 F	34.6	0.66 F	< 0.5	12.5^{A}	< 0.2	1.3
MW-52	14-RT-014-GW	Project Sample	23-Apr-14	15.2	0.78 F	11.7	1.02	< 0.5	2.74^{A}	< 0.2	310
L-78	14-RT-015-GW	Project Sample	23-Apr-14	4,350	2,560	19,900	38.6 F	< 50	$1,070^{A}$	< 20	110
L-100	14-RT-016-GW	Project Sample	22-Apr-14	47.5 F	88.6 F	1,610	< 50	< 50	$< 50^{A}$	< 20	1.5
L-101	14-RT-017-GW	Project Sample	23-Apr-14	644	337	29,800	98 F	< 50	$1,470^{A}$	< 20	79
L-80A	14-RT-018-GW	Project Sample	23-Apr-14	63,500	3,670	20,000	41.6 F	66.2 F	284^{A}	< 20	45
L-102	14-RT-019-GW	Project Sample	22-Apr-14	61,500	6,600	36,700	62.4 F	88.4 F	375^{A}	< 20	28
L-103	14-RT-020-GW	Project Sample	23-Apr-14	8,340 VH	3,050 VH	24,600 VH	185 VH	< 50 VH	317^{A} VH	30.1 F VH	14
Kenai River											
River-MW-5	14-RT-029-GW	Project Sample	23-Apr-14	< 0.5	< 0.5	0.32 F	< 0.5	< 0.5	< 0.5	< 0.2	
River-MW-6	14-RT-030-GW	Project Sample	23-Apr-14	< 0.5	< 0.5	0.61 F	< 0.5	< 0.5	< 0.5	< 0.2	
River-MW-8	14-RT-031-GW	Project Sample	23-Apr-14	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2	

Table 2-3: April 2014 Groundwater VOC Analytical Data (ug/L)
River Terrace RV Park, Soldotna, Alaska

Cleanup level exceedences are shaded to match highest cleanup criteria exceeded. Cleanup level exceedences are coded as follows:

A: on-RTRVP property cleanup level;

B: off-RTRVP property cleanup level (Note: B is only applicable to wells near RTRVP property boundary)

C: modeled cleanup level (3 times water quality criteria) for groundwater connected to surface water

D: ecological screening action level for groundwater connected to surface water; this is one component of action levels stated in the ROD (exceedences of A, B, and C also require active treatment)

(Note: C and D are only applicable to sentry wells which have been color coded with a green background color)

Wells located off-RTRVP property or within approximately 10 feet of the property boundary are shown in blue font. MW-4A is located approximately 18 feet from the property boundary.

All analytical results where the reporting limit exceeds the cleanup level are shown in red text.

Reporting limit is elevated due to sample dilution

Data Qualifiers:

J - Estimated value

H - Sample analyzed paste recommended holding time

M - Matrix affect present

F - Analyte detected below laboratory reporting limit

V - Data qualifier assigned by ERM during data review

--- Sample was not analyzed for this analyte

3. SITE HYDROLOGY

This section of the report presents a summary of the hydrogeological conditions observed at RTRVP based on over ten years of hydrogeology data (1997 through 2012) that has been collected at the site. The tables, maps, and graphs representing site hydrogeology based on manual water level measurements and piezometer/datalogger data plus detailed written descriptions of the hydrogeology interpretations can be found in previous reports up through the May 2012 groundwater monitoring report (OASIS, 2013). The RI/FS report (OASIS/Bristol, 2000) presents the first detailed hydrogeology interpretation; the interpretation was updated in every subsequent monitoring report. Monitoring reports with the most significant updates are listed below.

- The September 2000 quarterly monitoring report (OASIS/Bristol, 2001a) and the first performance monitoring letter report (OASIS/Bristol, 2001b) incorporate datalogger information, monitoring well groundwater levels, and boring log and drilling information from Shannon & Wilson, Inc.'s installation of five new monitoring wells and 56 HRC™ injection borings in September and October 2000 (Shannon & Wilson, 2001a).
- The March 2003 quarterly monitoring report (OASIS, 2003b) includes three cross-sections (Figures 5, 6, and 7) that provide the most updated, detailed illustration available for the upper contaminant plume hydrogeology.
- The Phase IV HRC™ injection report (OASIS, 2006a) includes three updated cross-sections (Figures 5, 6, and 7) through the lower plume (focusing on the deeper contamination in the vicinity of MW-44).
- The October 2005 monitoring report (OASIS, 2006b) contains an updated, detailed discussion about groundwater flow patterns in the upper contaminant plume, including an elevation map of the top of the till surface (Figure 5).

The current and recent historical site groundwater conditions are provided in Table 2-4 and April 2013 groundwater contours illustrated on Figure 2. Since the groundwater contours and flow patterns have remained consistent over several annual groundwater monitoring events the contours were not recreated for the 2014 data.

3.1. Historical Datalogger Water Level Measurements

In November 1999, dataloggers were installed in five RTRVP monitoring wells (MW-15, MW-16, MW-19, MW-20, and MW-24) to record the water level twice per day (at 8 am and 8 pm). Since then, the dataloggers have been moved several times, and new dataloggers have been added. Table 3-1 shows the most recent and past datalogger locations at RTRVP.

In consultation with the ADEC project manager it was agreed that sufficient data had been collected to adequately characterize the hydrogeological conditions at RTRVP;

thereby agreeing to terminate collection of water level elevations using dataloggers. ERM removed all the dataloggers from the site in October 2012.

TABLE 3-1: DATALOGGER LOCATIONS

	11/99 - 10/01	10/01- 01/02	01/02 - 9/02	09/02- 11/02	11/02- 12/02	12/02- 10/03	10/03 - 09/06	09/06 - 10/09	10/09 - 10/10	10/10 – 10/12
Datalogger 1	MW-15[4]	MW-36							MW-48	
Datalogger 2	MW-16									
Datalogger 3	MW-19[4]		MW-	*Not* used[1]						
Datalogger 4	MW-20						MW-	MW-20		MW-
Datalogger 5	MW-24[4]	MW-25		*Not* used[1]						
Datalogger 6	Purchased 9/02			MW-38				Removed		
BaroLogger™	Purchased 9/02			MW-38			MW-44			
Datalogger 7[2]	Purchased 9/02			MW-40		MW-39	MW-	MW-39	MW-47	
Datalogger 8	Purchased 11/02				MW-42				MW-50	
Datalogger 9	Purchased 12/02					MW-44[3]	MW-	MW-	MW-44	
Datalogger 10	Purchased 6/08							MW-47	MW-39	

Notes:

[1]: Dataloggers belonged to Bristol Environmental and Engineering Services, Inc. (BEESC) and were returned to them.

[2]: Datalogger measures water level and dissolved oxygen (DO) content.

[3]: Datalogger measurements recorded from February 27, 2003 to present (datalogger was positioned incorrectly prior to 2/27/03).

[4] Historical data from dataloggers in MW-15, MW-19, and MW-24 can be found in the October 2001 quarterly monitoring report (OASIS/Bristol, 2002a); data from these dataloggers are not presented or discussed in subsequent reports.

[5] After the May 2008 monitoring event, it was determined that the datalogger in MW-44 was malfunctioning. In June 2008, this datalogger was replaced with a new "gold" series datalogger. Note that the gold series dataloggers require a different downloading device (Leveloader gold) than all of the other dataloggers at the site.

3.2. Hydrogeologic Conditions

Most of the groundwater on the Kenai Peninsula is located within unconsolidated deposits of glacial outwash, fluvial, and eolian (wind-blown) sediments. At the RTRVP site three aquifers (water-bearing) zones are present: 1) upper aquifer, which is unconfined and the shallowest hydrogeologic unit, 2) semi-confined water-bearing zones lying below the upper aquifer; and 3) lower confined aquifer.

The upper confined aquifer at the RTRVP site is separated from the lower confined aquifer by a dense silty till that acts as a confining unit. The semi-confined water-bearing zone consists of glaciofluvial sand lens within the silty till unit. The upper aquifer consists of fill or alluvium (consisting of silty sand and gravel material) overlying the till unit. The upper aquifer is recharged during precipitation events and snowmelt where it then discharges to the Kenai River. The confined aquifer also provides a component of recharge through flow of groundwater up through the confining unit. An elevated ridge in the top of the till surface runs east-west across the site passing through the former Dry Cleaner Building and divides the unconfined aquifer into two separate units.

The confining unit underlies the upper aquifer at varying depths across the site from less than 5 feet bgs to greater than 20 feet bgs. ADOT Kenai River bridge foundation investigations adjacent to the RTRVP site indicate that this confining layer extends to depths ranging from 81 feet bgs (ADOT, 1997) to 95 feet bgs (ADOT, 1963) where the lower confined aquifer is encountered.

The lower confined aquifer serves as a drinking water source for the RTRVP property's water wells as well as other private entities. Two test wells drilled at the site of the Kenai River Bridge by ADOT in 1963 tapped into the confined aquifer exhibiting flowing artesian groundwater at a rate of approximately 50 gpm out of a three inch pipe and a static hydraulic head of 18 feet above ground surface (ADOT, 1963). This data demonstrates an upward vertical hydraulic gradient between the confined aquifer and the shallow upper unconfined aquifer. Communication between the lower confined aquifer and shallower aquifers has not been evaluated due to insufficient data.

3.3. Upper Contaminant Plume

Groundwater flow patterns in the upper contaminant plume area are complex; being controlled by the contours of the underlying till formation. As previously mentioned this till formation creates a groundwater divide between the upper and lower contaminant plumes.

The till surface undulations create a bowl at the northwest corner of the former Dry Cleaner Building (Figure 5 in OASIS, 2006b) and during periods of recharge groundwater flows north-northwest toward the Sterling Highway but during dryer periods a gradient reversal is sometimes observed with the groundwater flowing back toward the building.

Flow direction in the upper contaminant plume water table aquifer is generally toward the north-northwest, with a very flat gradient near the former dry cleaner building and an increased gradient closer to the Sterling Highway. Once groundwater reaches the Sterling Highway it is intercepted by a storm drain system that diverts the flow back in a southerly direction toward the Kenai River where it then discharges to the Kenai River at the Kenai River Bridge Outfall.

During typical groundwater conditions (recharge and north-northwest groundwater flow) the groundwater flow rate in the upper plume is estimated to be between 0.1 and 0.2 feet per day (ft/day).

Upper plume water table elevation data collected historically from the datalogger in monitoring well MW-16 revealed that the groundwater elevation increased by approximately one foot between September and December 2006 and has remained elevated relative to the historical record from October 2002 through September 2006. Telephone conversations with DOT personnel have suggested that there was a possible water line break at RTRVP (not caused by DOT activities during the bridge upgrade of the Sterling Highway). However, in the fall 2009 the property owner tested this water line for leaks and found none, so it appears that the water source is somewhere else. One possibility is a leak from the onsite artesian water supply well and/or connected distribution piping located near the northwest corner of the Former Dry Cleaner Building.

3.4. Unconfined Lower Contaminant Plume

Groundwater flow direction in the lower contaminant plume is generally southerly toward the Kenai River, although periodic groundwater flow reversals occur close to the river.

In general, the lowest groundwater gradient between MW-39 and the Kenai River occurs when the Kenai River level is relatively high (e.g., during the summer months (June or July to September) and during fall seasonal high precipitation period before winter freeze up. Conversely, the highest groundwater gradient between MW-39 and the Kenai River occurs when the Kenai River level is relatively low, which occurs during the winter and early spring months before breakup. The groundwater flow rate in the lower plume is estimated between 4 and 6 ft/day.

3.5. Semi-Confined Water Bearing Zones

Several monitoring wells (MW-44 through MW-52) were completed at depths greater than 20 feet bgs and all are located within the silty till unit (confining layer); except MW-48 which is located within the 1997 soil excavation removal area and is thus completed in the backfilled material (Figure 4, Appendix E). This confining layer (also referred to as a semi-confined water-bearing zone) includes glaciofluvial sand lenses within the silty till unit.

Static groundwater elevations vary between these monitoring wells with the monitoring wells (MW-47, MW-48, MW-51, L-100, and L-103) completed in or near the 1997 soil excavation removal area (Figure 4 shows excavation contours) having static elevations approximately 8 feet higher (Table 2-2) than monitoring wells completed farther away from the excavation area within the till unit (MW-44, MW-45, and MW-46). This data indicates that the 1997 soil excavation removal has weakened the confining unit layer; creating an area of increased upward flow from the underlying confined aquifer.

4. ANALYTICAL RESULTS

4.1. Quality Assurance Review Summary

A quality assurance review (QAR) of the groundwater analytical results is presented in Appendix H. The QAR discusses the data quality assurance/quality control (QA/QC) procedures and presents the results of the QA/QC analysis. This data quality assurance review conforms to the requirements of the ADEC Technical Memo -06-2002, dated March 2009. ADEC Laboratory Data Review Checklists have been completed for each laboratory work order that is a part of this project and they are provided in Appendix H. The laboratory analytical data reports for this project are contained electronically in the CD-ROM that accompanies this report.

The QA/QC data evaluated during this review process indicate that the sample results are acceptable for their intended project use. Unless otherwise indicated, the analytical results meet the precision and accuracy requirements for the associated analytical methods. The QA/QC data indicate that the quality control mechanisms were generally effective in ensuring measurement data reliability within the expected limits of sampling and analytical error. Data qualified by the review process have been appropriately flagged before being presented in the report. The overall calculated completeness of the April 2014 groundwater sampling data set is 100%.

4.1.1. VOC and Performance Groundwater Analysis (SGS)

Groundwater samples collected from twenty-eight groundwater monitoring wells, and three field duplicate samples (MW-26, MW-38, and MW-42) were analyzed for VOCs by SGS Environmental Services, using EPA method SW8260B. Twenty of the groundwater monitoring wells and one field duplicate (MW-42) sample were analyzed for Total organic carbon using SM 5310B, and dissolved/total iron and manganese using EPA method 200.8. The SGS results, provided in one work order 1141548, were reviewed and only the following minor anomalies were noted in the data.

The samples were received in good condition and with the proper preservation, with the following exceptions:

- The sample pH was greater than two for the following TOC sample bottles: 14-RT-005-GW (MW-9), 14-RT-006-GW (MW-39), 14-RT-009-GW (MW-47), 14-RT-010-GW (MW-48), 14-RT-011-GW (MW-49), 14-RT-015-GW (L-78),14-RT-017-GW (L-101), 14-RT-018-GW (L-80A), 14-RT-019-GW (L-102), and 14-RT-020-GW (L-103). The sample pH appears to have been impacted by high levels of HRC. No data qualification was performed on these results since they were not likely impacted and the data is being used for performance monitoring purposes only.
- The sample pH was greater than two for the following metals sample bottles: 14-RT-009-GW (MW-47), 14-RT-011-GW (MW-49), 14-RT-015-GW (L-78), 14-RT-017-GW (L-101), 14-RT-018-GW (L-80A), 14-RT-019-GW (L-102), and 14-RT-020-GW

(L-103). No data qualification was performed on these results since they were not likely impacted and the data is being used for performance monitoring purposes only.

- Several samples had one or more VOC vials with headspace. The VOC analyses were performed using the containers without headspace, with the exception of 14-RT-020-GW (L-103). The analytical results for this sample have been qualified (VH-flag) to indicate a potential low bias due to improper sample preservation.

The analyses were performed within the recommended hold times.

All associated field and laboratory QA/QC results met established criteria with the following exceptions:

- The project required reporting limit was not met for vinyl chloride in five samples due to a dilution. The affected samples include 14-RT -010-GW, -016-GW, -032-GW, -033-GW, and -034-GW. The usability of the vinyl chloride results for these samples may be limited for this project.

Three field duplicate samples were collected from MW-38, MW-42, and MW-26, to evaluate intra-laboratory precision. Relative percent difference (RPD) values were calculated for all analytes with concentrations above the analytical reporting limit. The analytical results above the reporting limit were agreeable, with no exceptions.

- Where comparable all of the RPD values for the duplicate pairs were within acceptable criteria. However, it should be noted that most of the duplicate sample results had elevated reporting limits due to sample dilution and therefore only two pairs of VOC analyte results were available for comparison.

The total overall calculated completeness of the April 2013 compliance monitoring data set is 100%, which meets the established 85% completeness data quality objective.

4.1.2. ALS

Groundwater samples collected from twenty groundwater monitoring wells plus one field duplicate (MW-42) sample were subcontracted by SGS to ALS for the Permanent gases (ethylene, ethane, and methane) using RSK175.

The samples were received in good condition and with the proper preservation, with the following exception:

- Several samples had one or more VOA vials with headspace and/or had a sample pH that was greater than two for the RSK175 samples. No data qualification was performed on these results since they were not likely impacted and the data is being used for performance monitoring purposes only.

The ALS results, provided in service request P1401715, were reviewed and no anomalies were noted in the data.

One field duplicate sample was collected from MW-42 to evaluate intra-laboratory precision. Relative percent difference (RPD) values were calculated for all analytes with concentrations above the analytical reporting limit. All RPD values for duplicate samples were within the 30% RPD precision criteria.

The total overall calculated completeness of the April 2014 Permanent Gas data set is 100%, which meets the established 85% completeness data quality objective.

4.1.3. Microseeps, Inc.

Groundwater samples collected from twenty groundwater monitoring wells plus one field duplicate (MW-42) sample were analyzed by Microseeps, Inc. for the Volatile Fatty Acids (VFAs) using Microseeps method AM21G.

The Microseeps results, provided in one work order 12031, were reviewed and no anomalies were noted in the data.

One duplicate sample was collected from MW-42 to evaluate intra-laboratory precision. Relative percent difference (RPD) values were calculated for all analytes with concentrations above the analytical reporting limit. All RPD values for duplicate samples were within the 30% RPD precision criteria.

The total overall calculated completeness of the April 2014 VFAs data set is 100%, which meets the established 85% completeness data quality objective.

4.1.4. SiREM

Seven groundwater samples (MW-47, MW-48, MW-49, MW-50, MW-51, L-78 and L-103) and one field duplicate (MW-48) were analyzed by SiREM Laboratories for the presence of *Dehalococcoides* bacteria (Dhc) using a Quantitative Gene-Trac Dehalococcoides Assay and a Gene-Trac Vinyl Choride Reductase Assay (vcrA).

The SiREM results, provided in one work order S-3185, were reviewed and no anomalies were noted in the data. Genomic DNA was extracted from the samples and the suitability of extracted DNA for testing using universal PCR primers was confirmed. The Quantitative Dehalococcoides and Vinyl Chloride Reductase analysis was performed on 6 and 7 May 2014; positive, negative, and DNA extraction blank controls were all within laboratory control limits.

One duplicate sample was collected from MW-48 to evaluate intra-laboratory precision. Relative percent difference (RPD) values were calculated for all results with concentrations above the method reporting limit. The RPD value for duplicate Dhc sample results was 50% RPD and is considered acceptable for microbiological data.

4.2. Groundwater Sample Results for Target Analytes

All 28 sample locations were analyzed for VOC analysis using method EPA 8260B. The April 2014 groundwater sampling results (provided in Table 2-3) show that PCE, cis-1,2-DCE, and vinyl chloride are present at concentrations above applicable cleanup levels in one or more RTRVP monitoring wells/injection points. The following sub-sections summarize cleanup level exceedances from the April 2014 monitoring event.

4.2.1. PCE

Upper Plume

PCE concentrations were below the 840 µg/L on-RTRVP property cleanup level in all upper plume samples.

PCE concentrations were below the 50 µg/L off-RTRVP property cleanup level in all samples from upper plume monitoring wells located off-RTRVP property or within approximately 10 feet of the property boundary (MW-12, MW-16, MW-25, and MW-38).

Lower Plume

PCE concentrations were below the 840 µg/L on-RTRVP property cleanup level in all lower plume samples.

Semi-Confined Water-Bearing Zones within the Till

PCE concentrations exceeded the 840 µg/L on-RTRVP property cleanup level in the lower plume semi-confined water-bearing zones within the till at 5 locations. The location and detected concentration of PCE are listed below:

- 2,500 µg/L at MW-47
- 4,350 µg/L at L-78
- 63,500 µg/L at L-80A
- 61,500 µg/L at L-102
- 8,340 µg/L at L-103

4.2.2. TCE

Upper Plume

TCE concentrations were below the 21,900µg/L on-RTRVP property cleanup level in all upper plume samples.

TCE concentrations were below the 50µg/L off-property cleanup level in all samples from the upper plume monitoring wells located off-RTRVP property or within approximately 10 feet of the property boundary (MW-12, MW-16, MW-25, and MW-38).

Lower Plume and Semi-Confined Water-Bearing Zone within the Till

TCE concentrations were below the 21,900 µg/L on-RTRVP property cleanup level in all lower plume and semi-confined till monitoring well samples.

4.2.3. Cis-1,2-DCE

Upper Plume

Cis-1,2-DCE concentrations were below the 11,600 µg/L on-RTRVP property cleanup level in all upper plume samples.

Cis-1,2-DCE concentrations were below the 700 µg/L off-RTRVP property cleanup level in all samples from upper plume monitoring wells located off-RTRVP property or within approximately 10 feet of the property boundary (MW-12, MW-16, MW-25, and MW-38).

Lower Plume

Cis-1,2-DCE concentrations were below the 11,600 µg/L on-RTRVP property cleanup level in all lower plume samples.

Semi-Confined Water-Bearing Zone within the Till

Cis-1,2-DCE concentrations exceeded the 11,600 µg/L on-RTRVP property cleanup level in the lower plume semi-confined water-bearing zones within the till at seven locations. Detected Cis-1,2-DCE concentrations and associated locations are listed below:

- 25,400µg/L at MW-48
- 37,800µg/L at MW-49
- 19,900µg/L at L-78
- 20,000µg/L at L-80A
- 29,800µg/L at L-101
- 36,700µg/L at L-102
- 24,600µg/L at L-103.

4.2.4. Trans-1,2-DCE and 1,1-DCE

Trans-1,2-DCE and 1,1-DCE concentrations were below the 11,600 or 70 µg/L on-RTRVP property cleanup levels in all upper plume samples. Trans-1,2-DCE and 1,1-DCE concentrations were below the 1,000 or 70 µg/L off-RTRVP property cleanup level in all samples from upper plume monitoring wells located off-RTRVP property or within approximately 10 feet of the property boundary (MW-12, MW-16, MW-25, and MW-38).

Lower Plumes and Semi-Confined Water-Bearing Zone within the Till

Trans-1,2-DCE and 1,1-DCE concentrations were below the 11,600 or 70 µg/L, respectively, on-RTRVP property cleanup level in all lower plume samples except for one location. Injection point L-102 had a 1,1-DCE concentration of 88.4 F µg/L.

4.2.5. *Vinyl Chloride*

Upper Plume

Concentrations for vinyl chloride exceeded the on-RTRVP property cleanup level of 2 µg/L in five of six upper plume locations. Reportable concentrations ranged from 3.2 to 16.5 µg/L.

Lower Plume

Concentrations for vinyl chloride exceeded the on-RTRVP property cleanup level (2 µg/L) in three of nine lower-plume locations with concentrations ranging from 2.05 to 4.55 µg/L.

Semi-Confined Water-Bearing Zone within the Till

Concentrations for vinyl chloride exceeded the on-RTRVP property cleanup level in all thirteen locations from the semi-confined water-bearing zone within the till. Note that the reporting limit for MW-48 and L-100 of 50 µg/L was above the cleanup level and therefore included in the wells that exceeded. Concentrations ranged from 2.74 µg/L in MW-52 to 8,390 µg/L in MW-49.

4.2.6. *Benzene*

Upper and Lower Plumes

Concentrations for benzene were reported below the on-RTRVP property cleanup level of 50 µg/L for all samples.

4.3. Contaminant Plumes Discussion

Figure 5 shows the PCE concentrations in the April 2014 groundwater samples and depicts the inferred extend of groundwater exceeding PCE cleanup levels. The plume show on Figure 5 is encompassing five monitoring wells (L-78, L-80A, L-102, L-103, and MW-47) in the semi-confined water-bearing zones that exceeded the on-RTRP cleanup level (840µg/L).

Figure 6 shows the cis-1,2-DCE concentrations in the April 2014 groundwater samples and depicts the inferred extent of groundwater exceeding cis-1,2-DCE cleanup levels. The groundwater plume shown on Figure 6 encompasses seven out of thirteen of the semi-confined monitoring wells (Table 2-5) where concentrations exceeded the on-RTRVP cleanup level (11,600 µg/L).

Figure 7 shows the vinyl chloride concentrations in the April 2014 groundwater samples and depicts the inferred extent of the groundwater plumes that exceed vinyl chloride cleanup levels. The upper plume encompasses MW-25 on the west, MW-42 on the east, and MW-36 on the south – this includes all sampled monitoring wells with the exception of MW-23 that is located outside the area of contamination. The lower plume is inferred to encompass an area north of L-100 down-gradient to the Kenai River. Note however that this area does include a few small pockets or individual monitoring wells that are below the vinyl chloride cleanup level.

4.4. Groundwater Results for Non-Target Analysis

In addition to the target analytes discussed in the previous section, non-target analytes were detected in many of the April 2014 samples. It should be noted that all September 2008 through April 2014 samples were analyzed for the full suite of VOCs (target analytes plus non-target analytes), whereas in previous sampling events, many samples were analyzed for target analytes only. Therefore, there are many more detections of non-target analytes during the more recent sample events as compared to historical sample events.

Appendix F summarizes the non-target analyte detections for the December 1999 through April 2014 monitoring events (27 events). Per ADEC cumulative risk guidance, only analytes detected above 1/10 of risk-based cleanup levels are considered chemicals of potential concern and are therefore shown in Appendix F.

The April 2014 non-target analyte results are discussed below with respect to ADEC cleanup levels (18 AAC 75, Table C, or for analytes not listed on Table C, calculated cleanup levels).

- 1,2-dichloropropane was detected above its 5 µg/L 18 AAC 75.345 cleanup level in eight of the groundwater samples from the source area within the semi-confined aquifer (i.e., monitoring wells MW-47, MW-49, MW-50, MW-51, L-78, L-80A, L-101, and L-102), where the concentrations ranged from 6.84 µg/L in MW-50 and MW-51 to 257 µg/L in L-80A. Historically, 1,2-dichloropropane has regularly been detected above its cleanup level in samples from the source area within the semi-confined aquifer. The 1,2-dichloropropane was probably originally present as a contaminant in the tetrachloroethene (PCE or dry cleaning fluid), since it is used during preparation of the dry cleaning solvent.
- 1,1-dichloroethene was detected above its 7 µg/L 18 AAC 75.345 cleanup level in eight of the groundwater samples from the source area within the semi-confined aquifer (i.e., monitoring wells MW-47, MW-48, MW-49, MW-50, MW-51, L-80A, L-102, and L-103), where the concentrations ranged from 7.24 µg/L in MW-47 to 88.4 µg/L in L-102. Historically, 1,1-dichloroethene has regularly been detected above its cleanup level in samples from the source area within the semi-confined aquifer. The 1,1-dichloroethene is one of the three possible forms of dichloroethene (DCE) resulting from reductive dechlorination of trichloroethene (TCE), the other two being cis-1,2-DCE and trans-1,2-DCE.
- No other non-target analytes were detected at concentrations above 1/10 of their ADEC cleanup levels.

4.5. Contaminant Migration to Kenai River

The RTRVP ROD provides guidance for the application of the surface water cleanup levels provided in the ROD. This guidance includes the use of sentry wells located adjacent to the Kenai River to be used to determine compliance with surface water cleanup levels. The list of sentry wells includes MW-12, MW-20, MW-8, MW-6A, MW-7, MW-5, and MW-35. Based on modeling a value of three times the water quality criteria is used as the cleanup level for the sentry well (see Table 2-3).

The remainder of this section discusses the current monitoring results in comparison to the cleanup levels defined in the ROD.

4.5.1. Kenai River Sentry Monitoring Wells

The sentry well monitoring results for 2014 showed, for the first time, that no target analytes were detected above the ROD cleanup levels for contaminant migration to the Kenai River in any of the sentry well samples collected (Table 2-3).

Historically the sentry well monitoring results from 2008 through 2013 show that vinyl chloride was the only target analyte detected above its ROD cleanup level of 6 µg/L in the sentry monitoring wells. During the September 2008 monitoring event cis-1,2-DCE was also above its modeled cleanup level of 210 µg/L in MW-35.

4.5.2. Surface Water Column Sample Results

Consistent with all historical sample events from 2003 through 2014, except for October 2009, no target analytes were detected in the surface water column samples collected downslope of MW-5, MW-6, and MW-8 (Appendix A). Based on recent analytical results it appears that the October 2009 surface water analyte detections were due to anomalous site conditions at that time.

Prior to 2003, surface water column samples were collected in May 1997 and May 1999 (Appendix A). PCE, TCE, and cis-1,2-DCE were detected in two of the May 1999 samples. Downslope of MW-8 PCE, TCE, and cis-1,2-DCE were detected at 0.81 µg/L, 0.26 µg/L, and 2.8 µg/L, respectively. Downslope of MW-6 PCE, TCE, and cis-1,2-DCE were detected at 2.5 µg/L, 1.9 µg/L, and 15 µg/L, respectively. Groundwater remedial actions were initiated in 2000 and since that time no contaminants have been detected in the Kenai River water column samples except as discussed above.

5. PERFORMANCE MONITORING (BIOREMEDIATION ANALYSIS)

This section discusses the April 2014 analytical results for natural attenuation parameters, target analytes, and volatile acids for the fourteen monitoring wells and three injection points sampled.

5.1. Dhc Results

Periodically since the initiation of the bioaugmentation pilot test on October 25, 2002, groundwater samples have been collected from selected monitoring wells to monitor the progress of *Dehalococcoides Ethenogenes* DHE growth across the site. *Dehalococcoides* (Dhc) are the only known group of microbes capable of complete reductive dechlorination past cis-1,2-DCE to vinyl choride and ethene. The bioaugmentation pilot test consisted of injecting KB-1, a microbial consortium containing Dhc microorganisms, into five injection points near MW-9. KB-1 is a methanogenic and acetogenic anaerobic microbial consortium containing five strains of Dhc type organisms; it is marketed specifically for bioaugmentation of chlorinated solvents. The Final Initial Status Report on Bioaugmentation at River Terrace RV Park dated January 22, 2003 (OASIS, 2003a) contains details about the bioaugmentation pilot test.

Prior to June 2004, the Dhc samples were analyzed using a Gene-Trac Semi-Quantitative Dhc test, and the results were reported as an intensity score (where "-" indicated an absence of Dhc organisms, "+" indicated a low intensity of Dhc organisms, and so on up to "++++" indicating high numbers of DHE organisms). Beginning with the June 2004 analyses, the Dhc samples have been analyzed using the Gene-Trac Quantitative Dhc test, and the results are reported as numbers of gene copies per liter. As part of the quantitative test, the percent of Dhc in the microbial population is also reported. The Dhc sample results are shown in Table 5-1 and discussed below.

- In 2014, $5X10^4$ Dhc gene copies per liter were detected in MW-47, compared to $3X10^5$ and $2X10^6$ Dhc gene copies per liter detected in 2013 and 2012, respectively. In 2014, Dhc comprised 0.0007 to 0.002 percent of the microbial population, as compared to 0.006 to 0.02 percent in 2013. Overall, the 2014, 2013, 2012, 2010, and 2009 results have shown a moderate Dhc population that should be adequate to mediate complete reductive dechlorination. The Dhc population peaked during the 2009 to 2012 sampling events but has since declined during the last two monitoring events.
- In 2014, $5X10^4$ Dhc gene copies per liter were detected in MW-49, whereas Dhc was not detected in MW-49 in 2013. However, the previous three sampling results showed an increase in Dhc organisms in MW-49 to a high Dhc population that is adequate to mediate complete reductive dechlorination. The reasons for the recent decline and slight rebound in Dhc populations are not known for certain but may be related to changes in the total chlorinated ethene concentrations and relative percentages of daughter products as shown on Chart G-12b.

- In 2014 and 2013, 2X10^7 and 3X10^7 Dhc gene copies per liter, respectively, were detected in MW-50, which is approximately two orders of magnitude lower than the 2X10^9 gene copies per liter detected in 2012. In 2014 and 2013, Dhc comprised 0.4 to 1.0 percent of the microbial population, as compared to 46 to 90 percent in 2012. Overall, the results show a moderate to high Dhc population at MW-50 that is adequate to mediate complete reductive dechlorination. The Dhc population decline observed in 2013 and 2014 may be the result of a large decline in the total chlorinated ethene concentrations that went from about 1,600 µmol/L in 2011 to 200 µmol/L during 2012, 2013, and 2014.
- In 2014, 8X10^6 Dhc gene copies per liter were detected in MW-51, as compared to 2X10^8 Dhc gene copies per liter detected in 2013, or approximately two orders of magnitude lower. In 2014, Dhc comprised 0.2 to 0.6 percent of the microbial population, as compared to 3 to 8 percent in 2013. Overall, the MW-51 analytical results have shown a moderate to high Dhc population that is adequate to mediate complete reductive dechlorination.
- DHE was not sampled at MW-52 in 2014. However, in 2013, 2X10^9 Dhc gene copies per liter were detected in MW-52, which is approximately one order of magnitude higher than the 6X10^8 gene copies per liter detected in 2012. In 2013, Dhc comprised 16 to 40 percent of the microbial population, as compared to 9 to 25 percent in 2012. Overall, the Dhc analytical results have shown a continued increase in Dhc organisms in MW-52 from moderate to high Dhc populations that are adequate to mediate complete reductive dechlorination.
- In 2014, 6x10^5 Dhc gene copies per liter were detected in L-78, as compared to 3x10^5 Dhc gene copies per liter in 2013. Dhc comprised 0.01 to 0.04 percent of the microbial population, as compared to 0.007 to 0.02percent in 2013. These results indicate a moderate concentration of Dhc which may or may not be associated with observable dechlorination activity.
- In 2014, 1x10^4 Dhc gene copies per liter were detected in L-103. Dhc comprised 0.0003 to 0.0008 percent of the microbial population. This result indicates a low concentration of Dhc which may indicate that site conditions are suboptimal for high rates of dechlorination activity.
- In 2014, 3x10^3 Dhc gene copies per liter were detected in MW-48. Dhc was not detected in MW-48 in 2013, 2012, 2010, or 2009, suggesting that there is a low population of Dhc organisms (detection limit is 1X10^4 Dhc gene copies per liter) in the vicinity of MW-48. Samples with low concentrations of Dhc may indicate that site conditions are suboptimal for high rates of reductive dechlorination. The reason for the continued low Dhc population at MW-48 is presently not known.
- In 2013 and 2014, MW-44 was not analyzed for DHE. Overall, the 2006, 2007, 2008, and 2012 results have all shown a high Dhc populations that should be adequate to mediate complete reductive dechlorination.

The Dhc and VOC analytical results suggest the following conclusions:

- Moderate to high concentrations of Dhc organisms are present in the vicinity of MW-44, MW-47, MW-50, MW-51, and MW-52. The Dhc populations should be adequate to mediate reductive dechlorination as long as geochemical conditions are sufficiently reducing.
- The Dhc population in L-78 is only moderate which may explain why the VOC concentrations of PCE, TCE, and cis-DCE have remained elevated (i.e., dominant forms of chlorinated ethenes) since 2008 with only a minor percentage (less than 10%) being vinyl chloride and ethene. The differences between L-78 and M-44 (located approximately 4 feet away and showing excellent reductive dechlorination progress) demonstrate the heterogeneities present in the semi-confined till materials at this site.
- Strangely there is no detectable Dhc population in MW-48, although vinyl chloride and ethene were both detected in samples from MW-48. It is thought that the vinyl chloride and ethene detections in MW-48 may be migrating from nearby areas of the site where Dhc organisms are present. The newly installed injection point L-103, located in the vicinity of MW-48, also indicates low levels of Dhc organisms in this vicinity.
- The low to absent level of Dhc organisms in MW-49 during the 2014 and 2013 sampling events represent a decline from the high Dhc concentrations that were detected previously and indicate a change in the reductive dechlorination rate at this location because VOC results now show increased PCE and cis-DCE levels and a decline in the vinyl chloride levels and ethene concentrations. However, this location had the second highest ethene concentration for the site even with this decline in reductive dechlorination rates.
- There are presently moderate to high Dhc populations in the vicinity of all lower plume semi-confined monitoring wells within the source area (MW-44, MW-47, MW-50, MW-51, MW-52, and L-78) with the exception of MW-48, MW-49, and L-103.

Table 5-1 includes the pH results during monitoring to evaluate its potential impact on the Dhc organism population. The 2014 pH results were between pH 5.1 and 6.8. Bacteria that are active in reductive dechlorination such as Dhc are very sensitive to low pH. The optimal pH range for Dhc is at pH 6 to 8.5. The significant points of interest on the relationship between pH and Dhc populations are discussed below.

- Overall there is not always a consistent relationship between pH and Dhc populations at the River Terrace site. For instance MW-9, MW-39, and MW-40 all have pH values that are generally near or below 6 with Dhc populations consistently above $3x10^6$ Dhc gene copies per liter.
- However, the data also show that when the pH is 7 or above the Dhc populations are ranging from $2x10^5$ (one instance) to $2x10^9$ Dhc gene copies per liter – indicating that concentrations of Dhc are in the moderate to highest observed range and are often associated with observable dechlorination activity.

In conclusion while overall we do not observe a consistent relationship between pH and Dhc populations it does appear that when the pH is 7 or above the Dhc populations are greater with the data showing $3x10^6$ Dhc gene copies per liter or greater. This suggests that it may be beneficial (i.e., promote higher levels of reductive dechlorination activity) to evaluate the potential to adjust the aquifer pH through chemical additions.

Table 5-1: DHE Sample Results; June 2002 through April 2014; RTRVP

Monitoring Well ID	Sample ID	Sample Date	pH	Bacterial DNA Detected	% Dehalococcoides in Microbial Population (% Dhc)	Dehalococcoides Intensity (% Positive Control)	Intensity Score	Chloride Reductase in Microbial Population (% vcrA)	Vinyl Chloride Reductase Gene Copies per Liter (VC in ug/L)	Test Result
						Dehalococcoides 16S rRnA Gene Copies per Liter[4]				
MW-36	02-RT-045-GW	6/18/02[1]	5.1	Yes	NA	1.8	++++			Positive (2 of 3 primer sets)
	06-RT-029-GW	9/12/2006	6.1	Yes	0.02-0.07%		2×10^{5} (4)			Positive (one primer used[4])
	07-RT-021-GW	9/20/2007	6.3	Yes	0.5-1%		4×10^{6} (4)			Positive (one primer used[4])
MW-25	02-RT-049-GW	6/18/02[1]	7.0	Yes	NA	0.12	+			Positive (2 of 3 primer sets)
	06-RT-031-GW	9/12/2006	6.4	Yes	0.1-0.3%		4×10^{5} (4)			Positive (one primer used[4])
	07-RT-023-GW	9/18/2007	6.3	Yes	> 4%		7×10^{5} (4)			Positive (one primer used[4])
MW-26	02-RT-061-GW	6/18/02[1]		Yes	NA	0.19	+			Positive (2 of 3 primer sets)
MW-4A	04-RT-036-GW	6/18/2004	5.8	No	*NA*		<7,500			Negative
	06-RT-044-GW	9/12/2006	5.7	Yes	*0.0003-0.001%*		7×10^{3} (4)			Positive (one primer used[4])
	08-RT-030-GW	9/17/2008	6.3	Yes	*0.04-0.1%*		9×10^{5} (4)			
MW-6	02-RT-040-GW	6/19/02[1]	5.9	Yes	NA	0.16	+		Inconclusive (1.24 ug/L VC)	Positive (2 of 3 primer sets)
	03-RT-004-GW	2/4/2003	6.3	No	NA	0	-			Negative
	03-RT-032-GW	6/17/2003	6.5	Yes	NA	9	+			Positive (2 of 3 primer sets)
	MW-6-05-RT-049-GW	10/11/2005	6.1	Yes	2-7%		3×10^{6} (4)		3×10^{6} (25.4 ug/L VC)	Positive (one primer used[4])
	07-RT-031-GW	9/19/2007	6.3	Yes	0.1-0.3%		5×10^{5} (4)			Positive (one primer used[4])
MW-9	02-RT-041-GW	6/19/02[1]	5.3	Yes	NA	0	-			Negative
	02-RT-102-GW	12/18/2002	5.9	Yes	NA	40	++		1×10^{6} (42.5 ug/L VC)	Positive (2 of 3 primer sets)
	03-RT-036-GW	6/17/2003	6.2	Yes	NA	85	+++			Positive (3 of 3 primer sets)
	04-RT-027-GW	6/18/2004	5.6	Yes	4-13%		5.04×10^{7} (4)			Positive (one primer used[4])
	MW-9-05-RT-050-GW	10/11/2005	5.6	Yes	2-6%		5×10^{7} (4)			Positive (one primer used[4])
	08-RT-031-GW	9/16/2008	5.1	Yes	0.09-0.3%		7×10^{6} (4)			Positive (one primer used[4])
	09-RT-066-GW	10/5/2009	7.5	Yes	0.2-0.7%		2×10^{7} (4)	0.2-0.6%	2×10^{7}	Positive (one primer used[4])
MW-39	04-RT-028-GW	6/18/2004	6.2	Yes	1-3%		6.52×10^{6} (4)			Positive (one primer used[4])
	06-RT-035-GW	9/11/2006	5.8	Yes	1-4%		5×10^{7} (4)			Positive (one primer used[4])
	07-RT-033-GW	9/18/2007	5.7	Yes	1-2%		4×10^{6} (4)			Positive (one primer used[4])
	08-RT-032-GW	9/17/2008	6.0	Yes	0.05-0.2%		3×10^{6} (4)			Positive (one primer used[4])
	09-RT-067-GW	10/6/2009	--	Yes	1-4%		4×10^{7} (4)	1-4%	4×10^{7}	Positive (one primer used[4])
MW-40	02-RT-103-GW	12/18/2002	6.0	Yes	NA	18	+			Positive (2 of 3 primer sets)
	03-RT-002-GW	2/4/2003	6.4	Yes	NA	39	++			Positive (3 of 3 primer sets)
	08-RT-033-GW	9/17/2008	6.1	Yes	0.2-0.5%		1×10^{7} (4)			Positive (one primer used[4])
MW-44	MW-44-05-RT-053-GW	10/11/2005	7.8	Yes	0.01-0.03%		2×10^{5} (4)		1×10^{5} (14.7 ug/L VC)	Positive (one primer used[4])
	06-RT-037-GW	9/12/2006	7.4	Yes	1-3%		2×10^{7} (4)			Positive (one primer used[4])
	07-RT-035-GW	9/18/2007	7.3	Yes	7-20%		5×10^{7} (4)			Positive (one primer used[4])
	08-RT-034-GW	9/17/2008	7.6	Yes	8-21%		9×10^{8} (4)			Positive (one primer used4)
	12-RT-008-GW	5/8/2012	7.2	Yes	4-10%		1×10^{8} (4)	7-18%	3×10^{8}	Positive (one primer used[4])
MW-47	06-RT-038-GW	10/4/2006	6.4	Yes	0.007-0.02%		5×10^{5} (4)			Positive (one primer used[4])
	07-RT-036-GW	9/19/2007	6.2	Yes	0.03-0.1%		9×10^{4} (4)			Positive (one primer used[4])
	08-RT-035-GW	9/17/2008	6.1	Yes	0.0001-0.0004%		5×10^{4} (4)			Positive (one primer used[4])
	09-RT-070-GW	10/6/2009	--	Yes	0.03-0.1%		3×10^{6} (4)	0.05-0.1%	3×10^{6}	Positive (one primer used[4])
	10-RT-089-GW	10/19/2010	5.4	Yes	0.04-0.1%		2×10^{6} (4)	0.06-0.2%	3×10^{6}	Positive (one primer used[4])
	12-RT-009-GW	5/8/2012	5.8	Yes	0.05-0.2%		2×10^{6} (4)	0.08-0.2%	3×10^{6}	Positive (one primer used[4])
	13-RT-025-GW	4/10/2013	5.6	Yes	0.006-0.02%		3×10^{5} (4)	0.01-0.04%	6×10^{5}	Positive (one primer used[4])
	14-RT-009-GW	4/23/2014	6.5	Yes	0.0007-0.002%		5×10^{4} (4)	0.0008-0.002%	6×10^{4}	Positive (one primer used[4])
MW-48	09-RT-071-GW	10/6/2009	--	No	NA		ND	NA	ND	Negative
	10-RT-090-GW	10/19/2010	6.3	No	NA		ND	NA	NA	Negative
	12-RT-010-GW	5/8/2012	5.6	No	NA		$< 3 \times 10^{3}$ (4)	NA	NA	Negative
	13-RT-026-GW	4/10/2013	5.7	Yes	NA		$< 1 \times 10^{4}$ (4)	NA	NA	Negative
	14-RT-010-GW	4/22/2014	6.0	Yes	0.00009-0.0003%		3×10^{3} (4)	NA	$< 3 \times 10^{3}$ (ND)	Positive (one primer used[4])
	14-RT-032-GW	4/22/2014	6.0	Yes	0.0001-0.0003%		5×10^{3} (4)	NA	$< 4 \times 10^{3}$ (ND)	Positive (one primer used[4])
MW-49	09-RT-072-GW	10/6/2009	--	Yes	0.001-0.004%		2×10^{4} (4)	NA	$< 7 \times 10^{3}$ (ND)	Positive (one primer used[4])
	10-RT-091-GW	10/19/2010	6.4	Yes	0.1-0.4%		5×10^{6} (4)	0.02-0.06%	7×10^{5}	Positive (one primer used[4])
	12-RT-011-GW	5/9/2012	8.5	Yes	11-30%		5×10^{8} (4)	10-26%	4×10^{8}	Positive (one primer used[4])
	13-RT-027-GW	4/10/2013	6.4	No	NA		$< 3 \times 10^{3}$ (4)	NA	NA	Positive (one primer used[4])
	14-RT-011-GW	4/23/2014	6.8	Yes	0.004-0.01%		5×10^{4} (4)	0.005-0.02%	7×10^{4}	Positive (one primer used[4])
MW-50	09-RT-073-GW	10/6/2009	--	Yes	0.02-0.07%		6×10^{5} (4)	NA	$< 1 \times 10^{4}$ (ND)	Positive (one primer used[4])
	10-RT-092-GW	10/20/2010	6.6	Yes	0.04-0.1%		4×10^{6} (4)	0.001-0.003%	1×10^{5}	Positive (one primer used[4])
	12-RT-012-GW	5/8/2012	9.1	Yes	46-90%		2×10^{9} (4)	46-90%	2×10^{9}	Positive (one primer used[4])
	13-RT-028-GW	4/10/2013	7.0	Yes	0.4-1%		3×10^{7} (4)	0.6-2%	4×10^{7}	Positive (one primer used[4])
	14-RT-012-GW	4/22/2014	6.3	Yes	0.4-1%		2×10^{7} (4)	0.1-0.4%	6×10^{6}	Positive (one primer used[4])
MW-51	10-RT-093-GW	10/19/2010	7.0	Yes	0.4-1%		4×10^{7} (4)	0.01-0.04%	1×10^{6}	Positive (one primer used[4])
	12-RT-013-GW	5/9/2012	5.2	Yes	42-84%		3×10^{9} (4)	53-97%	4×10^{9}	Positive (one primer used[4])
	13-RT-029-GW	4/10/2013	7.0	Yes	3-8%		2×10^{8} (4)	5-15%	3×10^{8}	Positive (one primer used[4])
	14-RT-013-GW	4/22/2014	6.4	Yes	0.2-0.6%		8×10^{6} (4)	0.2-0.5%	7×10^{6}	Positive (one primer used[4])
MW-52	10-RT-094-GW	10/19/2010	7.6	Yes	0.02-0.06%		3×10^{6} (4)	NA	ND	Positive (one primer used[4])
	12-RT-014-GW	5/9/2012	10.9	Yes	9-25%		6×10^{8} (4)	12-31%	7×10^{8}	Positive (one primer used[4])
	13-RT-030-GW	4/10/2013	8.1	Yes	16-40%		2×10^{9} (4)	43-93%	9×10^{9}	Positive (one primer used[4])
L-9	L-9	10/25/02[2]		Yes	NA	84	+++			Positive (2 of 2 primer sets)
L-17	L-17	10/25/02[2]		Yes	NA	77	+++			Positive (2 of 2 primer sets)
L-13	L-13	11/2/02[3]		Yes	NA	41	++			Positive (2 of 2 primer sets)
	03-RT-005-GW	2/4/2003		Yes	NA	118	++++			Positive(3 of 3 primer sets)
L-78	13-RT-031-GW	4/9/2013	6.1	Yes	0.007-0.02%		3×10^{5} (4)	0.02-0.05%	7×10^{5}	Positive (one primer used[4])
	14-RT-015-GW	4/23/2014	6.1	Yes	0.01-0.04%		6×10^{5} (4)	0.01-0.04%	6×10^{5}	Positive (one primer used[4])
L-80	08-RT-037-GW	9/18/2008		No	NA		ND			Negative
L-103	14-RT-020-GW	4/23/2014	5.1	Yes	0.0003-0.0008%		1×10^{4} (4)	0.0004-0.001%	$< 4 \times 10^{3}$ (ND)	Positive (one primer used[4])

Notes: Newly-presented results are highlighted.

The results for samples collected prior to June 2004 refer to the portion of sample tested with Gene-Trac assay. The test is a semi-quantitative test based on PCR with three primer sets specific to DNA sequences in the 16S rRNA gene of Dehalococcoides. A positive (+ to ++++) result in this assay indicates that a member of the Dehalococcoides group was detected in the water sample.

"Intensity (% of positive control)" = Quantitative assessment of electrophoresis gel band intensity of most abundant PCR Product test result as a percentage of corresponding positive control reaction. This value provides a semi-quantitative assessment of the number of Dehalococcoides organisms present in the sample.

"Intensity Score", categorizes PCR product quantity based on the "intensity (%of positive control)". ++++ = Very high band intensity (greater than 100% of positive control); +++ = high band intensity (67-100%); ++ = moderate band intensity (34-66%); and + = low band intensity (4-33%); -/+ = inconclusive (1-3%); and - = no band (0%).

Approximate correlation between the semi-quantitative (pre-June 2004) test and the quantitative (June 2004 to present) tests are:

+ = 10^{3}-10^{5} gene copies per liter; ++ = 10^{4}-10^{6} gene copies per liter; +++ = 10^{5}-10^{7} gene copies per liter; ++++ = 10^{6}-10^{8} gene copies per liter.

[1] Samples collected before the 10/25/02 DHE injection [2]: Samples collected immediately after the DHE injection. [3]: Samples collected one week after the DHE injection.

[4]: June 2004, Oct 2005, Sept 2006, Sept 2007, Sept 2008, Oct 2009, Oct 2010, May 2012, April 2013, and April 2014 samples were assessed using a quantitative *Dehalococcoides* testing method with only one primer set. The value reported is the number of *Dehalococcoides* 16SRNA gene copies per liter of sample. Percent Dhc is only available for the quantitative tests.

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5.2. Field Screening Results

Field screening results are presented on the groundwater sample data sheets (Appendix B1) and in Appendix C, Table C-1. Groundwater in the monitoring wells was field-screened for pH, temperature, conductivity, DO, and ORP. The significance of the field screening parameters is summarized in Table 1-2, and points of interest are discussed below.

- The April 2014 pH readings ranged from 5.0 to 5.1 pH units (L-102 and L-103) to 7.2 pH units (MW-38). Most pH results were between pH 5 and pH 6.5.
- The April 2014 shallow groundwater temperatures ranged from 2.7°C in MW-6A (near the Kenai River) to 5.9°C in MW-36. The deeper wells from the semi-confined water bearing zone had groundwater temperatures that ranged from 4.1°C in MW-44 to 7.4°C in L-100.
- The April 2014 DO concentrations ranged from 0.15 mg/L (MW-38 and L-78) to 7.2 mg/L (MW-23). The DO was below 2 mg/L in all monitoring wells except for MW-12, MW-23, and MW-26, which are all outside the primary area of HRC treatment. MW-50 and MW-51 had DO concentrations of 2.1 and 3.1, respectively, which correlated with HRC depletion at these locations. The ORP concentrations were fairly consistent with the DO concentrations, although a few inconsistencies are often observed. The highest ORP of 88.8 mV was measured in MW-12, which exhibited a DO concentration of 4.6 mg/L and the lowest ORP of -335.6 mV was measured in L-103, which exhibited a low to moderate DO concentration of 1.2 mg/L.

5.3. Laboratory Natural Attenuation Parameter Results

The April 2014 groundwater samples were analyzed by SGS Laboratories for the following natural attenuation indicator parameters: TOC, dissolved and total iron and manganese, and ethane, ethene, methane. Groundwater natural attenuation (geochemical) parameter results are presented in Appendix C in Table C-2. The significance of the natural attenuation parameters is summarized in Table 1-2, and points of interest are discussed below.

5.3.1. Total Organic Carbon

The April 2014 TOC levels in monitoring wells ranged from 2.64 mg/L in MW-51 to 5,050 mg/L in MW-47. In injection wells TOC levels ranged from 12.8 mg/L in L-100 to 30,700 mg/L in L-102. The TOC concentration in nine of fourteen monitoring wells sampled was above the 20 mg/L threshold level considered conducive for reductive dechlorination. The TOC concentrations in MW-36, MW-42, MW-6A, MW-50, and MW-51 were below 20 mg/L. The TOC concentration in injection well L-100 was also below 20 mg/L.

5.3.2. *Dissolved and Total Iron*

The April 2014 iron levels ranged from 1.91 mg/L in MW-51 to 10,100 mg/L in MW-47. In injection wells the total iron concentration ranged from 16.1 mg/L in L-100 to 5,500 mg/L in L-78. The total iron levels in all monitoring locations were above the 1 mg/L threshold for reductive dechlorination.

Dissolved iron concentrations were generally similar to total iron concentrations, indicating that most of the iron is present in the dissolved, reduced phase. The primary exception being MW-47 with dissolved vs total iron concentrations of 1,680 mg/L vs 10,100 mg/L, respectively. This is likely attributed to sediment being present in the sample matrix.

Consistent with most historical results, the iron concentrations in MW-47, MW-48, MW-49, and L-78 (greater than 60 mg/L) are much higher than those in MW-44, MW-50, MW-51, and MW-52. However, L-100, which previously was in the higher iron concentration group, saw the iron concentration suddenly decrease in April 2014 to 16.1 mg/L. These sudden geochemical changes in the iron concentration appear to coincide with sudden changes in the reductive dechlorination process. For example in April 2013 the MW-49 Chart G-12a shows a sudden decline in the total chlorinated ethene concentration (862 to 5.7 µMol/L) and transformation from predominantly cis-DCE to predominantly VC+ethene, whereas MW-52 Chart G-15a shows a sudden increase in the total chlorinated ethene concentration (20.3 to 491 µMol/L) and transformation from predominantly VC+ethene to predominantly cis-DCE.

Please refer to Section 5.4 for additional discussion of the geochemical parameter results within the semi-confined water bearing zone.

5.3.3. *Dissolved and Total Manganese*

The April 2014 total manganese levels in monitoring wells ranged from 0.092 mg/L in MW-51 to 81.9 mg/L in MW-47. In injection wells the total manganese concentration ranged from 2.93 mg/L in L-100 to 293 mg/L in L-103.

The dissolved manganese concentrations were similar to the total manganese concentrations, indicating that most of the manganese is present in the dissolved, reduced phase. Overall the manganese concentration trends tend to mimic the iron concentration trends but at much lower concentration levels.

5.3.4. *Methane, Ethane, and Ethene*

In April 2014, methane levels in monitoring wells ranged from 0.0022 mg/L in MW-51 to 6 mg/L in MW-44. Methane concentrations in injection wells ranged from 0.09 mg/L in L-101 to 4.6 mg/L in L-100. The methane results suggest significant methanogenesis is occurring in the vicinity of all source area monitoring wells (MW-44, MW-47, MW-48, MW-49, MW-50, MW-52, L-78, and L-103), with the exception of MW-51 and low levels of methanogenesis are occurring in the vicinity L-80A, L-101, and L-102.

In April 2014, ethane was detected in most of the monitoring wells sampled at concentrations between 0.00013 mg/L (MW-9) and 0.0012 mg/L (MW-48). Ethane was detected in injection points L-78, L-80A, L-100, L-101, L-102, and L-103 with concentrations between 0.00016 mg/L and 0.019 mg/L.

In April 2014, ethene was detected in all monitoring wells sampled ranging in concentration from 0.0013 mg/L in MW-51 to 1.9 mg/L in MW-44. In injection points ethene concentrations ranged from 0.0015 mg/L in L-100 to 0.11 mg/L in L-78.

The data now show consistent ethene generation in MW-44 through MW-52. Thus, indicating that most of the semi-confined water-bearing zones are strongly reducing and capable of complete reductive dechlorination.

5.4. Geochemistry Conclusions

This section provides an overall view of the geochemical conditions observed within the different groundwater plume areas at RTRVP. This overview focuses on the geochemistry as it relates to bioremediation by reductive dechlorination.

5.4.1. Upper Plume

In general the upper plume HRC treatment area geochemistry is indicative of an anaerobic environment exhibiting methanogenic conditions (methane 0.3 to 3.7 mg/L) that are supportive of reductive dechlorination. The exception being monitoring well MW-23 that is located outside of the HRC treatment area is exhibiting aerobic conditions (i.e., DO over 2 mg/L). No other geochemical data was collected at these locations.

5.4.2. Lower Plume Unconfined

In general the unconfined lower plume HRC treatment area geochemistry is indicative of an anaerobic environment (DO readings generally below 2 mg/L) and exhibiting iron reducing (iron levels of 81 to 207 mg/L) and methanogenic conditions (methane 1.4 to 3.2 mg/L). These geochemical conditions are all conducive for reductive dechlorination. The bioremediation effectiveness charts discussed in Section 5.7 support these observations, as MW-39, MW-40, MW-9, and MW-6 all indicate significant vinyl chloride + ethene production. The DO reading for MW-12 and MW-26 were above the 2 mg/L threshold because these monitoring wells are outside of the current treatment zone.

5.4.3. Semi-Confined Water Bearing Zones

As the first two wells completed in semi-confined water-bearing zones in the deep source area, the differences in MW-44 and MW-47 geochemistry have been discussed in previous monitoring reports. MW-44 has consistently exhibited low dissolved iron and manganese, moderate methane, and high ethene, while MW-47 has historically exhibited very high dissolved iron and manganese, high methane concentrations and very low to no ethene generation. The April 2014 results for MW-44 and MW-47 were consistent with historical results.

MW-48 (completed in the fill from the 1997 excavation) and L-103 exhibit much of the same characteristics as MW-47, while MW-50, MW-51, and MW-52 exhibit characteristics more similar to MW-44. The MW-49 geochemistry is somewhere between that observed at MW-44 and MW-47 with moderate levels of iron, high methane concentrations like MW-47, and high ethene concentrations like MW-44.

Overall the geochemical conditions and their impact on biologically mediated reductive dechlorination within the semi-confined water bearing unit (till) appear to be highly variable and often changing over time. Therefore it would appear that each monitoring well location needs to be evaluated on its own merits without attempting to generalize information for this zone.

5.5. Attenuation Parameter Graphs

Appendix G contains several charts of natural attenuation parameter results over time for MW-9, as a representative well from the lower plume (unconfined aquifer) and for MW-44, MW-47, and MW-50 as representative wells from the semi-confined water-bearing zones.

Conclusions from the MW-9 charts are presented below.

- Chart G-20 shows a strong correlation between TOC and the volatile acid results, indicating that the HRC is the primary source of TOC in the treatment zone. Note that the various volatile acids are the fermentation breakdown products of HRC.
- Chart G-21 displays TOC, methane, ferrous iron, pH, DO, and temperature results. Overall the April 2014 results were similar to or within the previously observed ranged of values.
    - Groundwater temperature fluctuates seasonally between approximately 4 and 7 degrees Celsius.
    - Groundwater pH was above 6 pH units prior to any HRC injections. The pH dropped to between 5 and 6 pH units in response to the HRC injections and has generally remained between 5 and 6 pH units since then with a few exceptions.
    - Groundwater DO fluctuated between 1 mg/L and 8 mg/L before Phase I of HRC injections but has generally remained at or below 1 mg/L since then.
    - Ferrous iron increased from approximately 7 mg/L to 94 mg/L after Phase I of HRC injection. After Phase II of HRC injection, ferrous iron increased to 665 mg/L. Ferrous iron gradually decreased after Phase II and has generally fluctuated between 100 mg/L and 400 mg/L since then. Ferrous iron previously increased temporarily after each injection event but has shown no apparent change after the last three HRC

  injection events; this may suggest that most of the bioavailable iron has been utilized or removed from the environment.

    - Methane was detected in MW-9 before Phase I of HRC injection, at concentrations between approximately 2 mg/L and 4 mg/L, indicating some methanogenesis was occurring naturally. Methane levels did not respond significantly to Phase I and II of HRC injections, presumably the methanogen population was acclimating during that time. Beginning in September 2002, methane levels increased sharply and have generally remained high (between 5 mg/L and 14 mg/L). The last couple of monitoring events (2013 and 2014) have shown decreases in the methane concentrations.

Conclusions from the MW-44, MW-47, MW-48, MW-49, MW-50, MW-51, and MW-52 charts are presented below. This series of chart was constructed to provide a visual display of the significant geochemical differences and progression of reductive dechlorination between the monitoring wells constructed within the semi-confined till materials.

- Chart G-22 displays TOC, ferrous iron, methane, and ethene results for MW-44 and MW-47. Note that TOC (mg/L), ferrous iron (mg/L), and ethene (µg/L) are displayed on a logarithmic scale on the left y-axis. Methane (mg/L) is displayed on the right y-axis.
    - TOC concentrations have consistently been one to two orders of magnitude lower in MW-44 as compared to MW-47. This is attributed to the fewer number of HRC injection locations near MW-44 and the upward groundwater gradient through the till.
    - Ferrous iron has consistently been two orders of magnitude lower in MW-44 than in MW-47. The ferrous iron levels in MW-47 have ranged between 100 mg/L to 1,000 mg/L. The higher ferrous iron levels in MW-47 may partially be attributed to the higher TOC concentrations as compared to MW-44.
    - Methane levels were initially low (around 1 mg/L) in MW-44, while they were initially high (above 10 mg/L) in MW-47. Over time, the methane concentrations have generally increased in MW-44 while they have decreased in MW-47. Since May 2010, the methane concentrations in MW-44 have been higher than the methane concentrations in MW-47.
    - Ethene production (i.e., an indication of complete reductive dechlorination of PCE) was initially absent at both locations. Starting in May 2007 ethene production was observed at MW-44 and has continued at concentrations above 100 µg/L ever since. Starting in May 2010 ethene production was observed at MW-47 and has continued at concentrations around tens of µg/L ever since.
- Chart G-22b displays TOC, ferrous iron, methane, and ethene results for MW-48 and MW-49.

  - TOC concentrations have fairly consistently been on the order of 1,000 mg/L at both MW-48 and MW-49, which is comparable to the levels seen at MW-47.
  - Ferrous iron levels have remained around 100 mg/L at MW-48 and varied from 1 mg/L to over 100 mg/L at MW-49 both of which are below the ferrous iron levels at MW-47 of between 100 mg/L to 1,000 mg/L. The ferrous iron levels at MW-49 have generally been increasing except for April 2013 when a sudden drop occurred that coincided with an increased ethene production. In April 2014 the MW-49 ferrous iron level has rebounded but only a slight decline in the production of ethene was observed.
  - Methane concentrations ranged from 1 to 4 mg/L at MW-48 and from 3 to 12 mg/L at MW-49.
  - MW-48 has consistently exhibited ethene concentrations near 10 µg/L. Whereas MW-49 has exhibited ethene concentrations of approximately 100 µg/L and later increasing to 1,000 µg/L.
- Chart G-22c displays TOC, ferrous iron, methane, and ethene results for MW-50 and MW-51.
  - TOC concentrations have consistently been on the order of tens of mg/L at MW-50 whereas the MW-51 TOC concentration started at 400 mg/L and has since declined to less than 3 mg/L.
  - Ferrous iron levels increased from initial levels of less than 1 mg/L to near 10 mg/L at both MW-50 and MW-51 and then began to decline to levels below 1 mg/L.
  - Methane concentrations ranged from less than 1 to 4 mg/L at MW-50 and from 1 to 9 mg/L at MW-51.
  - MW-50 has consistently exhibited ethene concentrations near 100 µg/L. Whereas MW-51 has exhibited ethene concentrations ranging from 1 µg/L to 1,000 µg/L.
- Chart G-22d displays TOC, ferrous iron, methane, and ethene results for MW-52 and L-101.
  - TOC concentrations have ranged between 10 mg/L and 1,000 mg/L at MW-52 whereas the L-101 TOC concentration has consistently been above 10,000 mg/L.
  - Ferrous iron levels increased from initial levels of less than 1 mg/L to near 100 mg/L at MW-52 and then declined to levels just above 1 mg/L during the April 2014 sampling event. Ferrous iron levels at L-101 have consistently been above 1,000 mg/L.
  - Methane levels increased from initial levels of less than 1 mg/L to near 9 mg/L at MW-52 and then declined to levels just above 3 mg/L during the

  April 2014 sampling event. Methane levels at L-101 have consistently been below 1 mg/L.
  - MW-52 has exhibited generally increasing ethene concentrations ranging from 4 µg/L to 1,000 µg/L. L-101 initially had ethene concentration below the detection limit before the ethene concentrations increased to near 80 µg/L during the last two sampling events.
- Overall the level of reductive dechlorination does appear to be affected by the geochemical conditions (i.e., high ferrous iron levels) present at MW-47 (see Chart G-10b) as compared to low ferrous iron levels (e.g., less than 10 mg/L) at MW-44, MW-50, and MW-51 (see Charts G-9b, G-13b, and G-14b). The production of vinyl chloride plus ethene has remained below 10 percent of Total Chlorinated Ethenes for MW-47 whereas MW-44 is above 90 percent and MW-50 and MW-51 have been above 20 percent. This may suggest that the bioavailable iron present in the oxidative backfill materials is somewhat inhibiting of the reductive dechlorination process in this area and that once the bioavailable iron is utilized, improvement of the reductive dechlorination process should occur. Similarly, the level of reductive dechlorination has also been relatively high at the MW-49 location with the vinyl chloride plus ethene percentage increasing to 90 percent coinciding with a sudden drop in the ferrous iron levels to below 10 mg/L whereas the normally were near 100 mg/L.
  - However, there are also exceptions that indicate reductive dechlorination will still occur even though high ferrous iron levels are present. Monitoring well L-101 has consistently had ferrous iron levels over 1,000 mg/L but during the two latest sampling events ethene concentrations have increased to near 80 µg/L.

5.6. Volatile Acid Results

Groundwater samples were analyzed for the following volatile organic acids: lactic acid, pyruvic acid, acetic acid, butyric acid, and propionic acid. The significance of these parameters is summarized in Table 1-2.

Volatile organic acid results are presented in Table C-3 of Appendix C. The sums of all of the volatile organic acid concentrations in the upper and lower plume monitoring wells from September 2000 through April 2014 are presented as total molar concentrations in Table 5-2. The volatile acid results are discussed below with respect to the total amount of volatile acids present in the semi-confined water-bearing zone wells sampled in April 2014.

5.6.1. Upper Plume

In April 2014, volatile acids were not detected in MW-36 and MW-42. Volatile acids were detected at MW-16 at total molar concentrations of 3,661 µMol/L as compared to 37,631 µMol/L in April 2013.

The April 2014 volatile acid concentrations in MW-36, MW-16, and MW-42 were lower than the April 2013 concentrations, reflecting the consumption of the HRC material that was injected during October 2012, in the Upper Plume area.

5.6.2. Lower Plume Unconfined

In April 2014, volatile acids were detected in MW-39, MW-9, and MW-40 at total molar concentrations of 629 µMol/L (MW-39), 2,269 µMol/L (MW-9), and 120 µMol/L (MW-40). Volatile acids were not detected in MW-6.

The April 2014 volatile acid concentration in MW-39 and MW-6 were lower but MW-9 and MW-40 were higher than in April 2013.

5.6.3. Semi-Confined Water-Bearing Zones

In April 2014, volatile acids were detected in all semi-confined water-bearing zone wells sampled. The total molar concentrations ranged from 18 µMol/L (MW-51) and 105,868 µMol/L (MW-47) and HRC injection points L-78 (359,055 µMol/L) and L-101 (358,402 µMol/L).

A comparison of the April 2014 semi-confined water-bearing zone volatile acid results with the previous results is highly variable since HRC injections were performed during October 2012 in the vicinity of some of the monitoring points as discussed in Section 2.1.

Table 5-2: Molar Concentrations of Total Volatile Acids (Sept. 2000 through April 2014)
RTRVP Lower Plume Wells

Location Number	Sample ID	Date Sampled	Molar Concentration (uMol/L) of Total Volatile Acids*
MW-39	00-RT-106GW	27-Sep-00	ND
	00-RT-134-GW	28-Nov-00	ND
	01-RT-005-GW	11-Jan-01	ND
	01-RT-034-GW	08-Mar-01	8
	01-RT-074-GW	22-May-01	ND
Phase II HRC Injection			
	01-RT-092-GW	16-Oct-01	12,584
	01-RT-131-GW	16-Jan-02	3,488
	02-RT-063-GW	27-Sep-02	1,229
	02-RT-104-GW	18-Dec-02	1,360
	03-RT-003-GW	04-Feb-03	3,672
	03-RT-039-GW	17-Jun-03	ND
Phase III HRC Injection			
	04-RT-008-GW	21-Jan-04	ND
	04-RT-019-GW	31-Mar-04	2,496
	04-RT-028-GW	08-Jun-04	1,224
	04-RT-055-GW	29-Oct-04	2,841
	05-RT-009-GW	24-Feb-05	768
	05-RT-023-GW	02-Jun-05	1,272
Phase IV HRC Injection			
	05-RT-051-GW	11-Oct-05	2,552
	06-RT-003-GW	08-Mar-06	ND
	06-RT-014-GW	24-May-06	7,080
	06-RT-036-GW	11-Sep-06	2,173
Phase V HRC Injection			
	07-RT-006-GW	30-May-07	12,427
	07-RT-033-GW	18-Sep-07	23,968
	08-RT-006-GW	12-May-08	4,524
	08-RT-032-GW	17-Sep-08	1,274
	09-RT-008-GW	06-May-09	ND
Phase VI HRC Injection			
	09-RT-067-GW	06-Oct-09	4,677
	10-RT-042-GW	12-May-10	28,159
	10-RT-086-GW	20-Oct-10	19,056
	12-RT-006-GW	08-May-12	2,140
	13-RT-020-GW	09-Apr-13	1,973
	14-RT-006-GW	23-Apr-14	629
MW-20	03-RT-033-GW	17-Jun-03	ND
Phase III HRC Injection			
	04-RT-006-GW	20-Jan-04	ND
	04-RT-022-GW	30-Mar-04	ND
	04-RT-026-GW	08-Jun-04	1,135
	04-RT-053-GW	29-Oct-04	ND
	05-RT-007-GW	24-Feb-05	ND
	05-RT-021-GW	02-Jun-05	ND
Phase IV HRC Injection			
	06-RT-016-GW	26-May-06	599
Phase V HRC Injection			
	07-RT-039-GW	19-Sep-07	ND
	09-RT-006-GW	06-May-09	ND
	10-RT-053-GW	13-May-10	ND

Location Number	Sample ID	Date Sampled	Molar Concentration (uMol/L) of Total Volatile Acids*
MW-9	00-RT-107GW	27-Sep-00	ND
	00-RT-133-GW	28-Nov-00	13,901
	01-RT-003-GW	11-Jan-01	12,320
	01-RT-033-GW	08-Mar-01	15,242
	01-RT-068-GW	22-May-01	3,654
Phase II HRC Injection			
	01-RT-091-GW	16-Oct-01	39,597
	01-RT-129-GW	16-Jan-02	28,442
	02-RT-041-GW	19-Jun-02	21,789
	02-RT-062-GW	27-Sep-02	9,585
	02-RT-102-GW	18-Dec-02	7,053
	03-RT-001-GW	04-Feb-03	3,733
	03-RT-007-GW	10-Mar-03	5,660
	03-RT-036-GW	17-Jun-03	4,474
	03-RT-095-GW	08-Oct-03	5,432
Phase III HRC Injection			
	04-RT-007-GW	21-Jan-04	12,516
	04-RT-018-GW	31-Mar-04	11,743
	04-RT-027-GW	08-Jun-04	12,841
	04-RT-054-GW	29-Oct-04	12,463
	05-RT-008-GW	24-Feb-05	9,168
	05-RT-022-GW	02-Jun-05	5,074
Phase IV HRC Injection			
	05-RT-050-GW	11-Oct-05	5,074
	06-RT-002-GW	08-Mar-06	4,156**
	06-RT-013-GW	08-Mar-06	1,715
	06-RT-034-GW	11-Sep-06	3,010
Phase V HRC Injection			
	07-RT-005-GW	30-May-07	32,507
	07-RT-032-GW	19-Sep-07	8,224
	08-RT-005-GW	12-May-08	17,954
	08-RT-031-GW	12-May-08	14,607
	09-RT-007-GW	06-May-09	6,873
	09-RT-018-GW	06-May-09	7,796
Phase VI HRC Injection			
	09-RT-066-GW	05-Oct-09	5,131
	09-RT-075-GW	05-Oct-09	4,648
	10-RT-041-GW	11-May-10	6,528
	10-RT-085-GW	20-Oct-10	6,280
	10-RT-098-GW	20-Oct-10	16,980
	12-RT-005-GW	08-May-12	732
	12-RT-018-GW	08-May-12	646
	13-RT-019-GW	09-Apr-13	1,413
	14-RT-005-GW	23-Apr-14	2,269
MW-7	06-RT-032-GW	11-Sep-06	ND
	06-RT-029-GW	19-Sep-07	4,185

**Total volatile acids = sum of molar concentrations of lactic, pyruvic, acetic, butyric, and propionic acids*

uMol/L = micromoles per liter

***Note that reporting limits are variable and that "no detection" was considered a "zero" value. Therefore, precise comparisons between data points is inadvisable.*

****Monitoring wells MW-26, MW-5, MW-8, MW-12, and MW-35 were each sampled for volatile acids once (10/04 for MW-26 and 8/07 for the other 4 wells); volatile acids were not detected (ND).*

Table 5-2 (page 2): Molar Concentrations of Total Volatile Acids (Sept. 2000 - April 2014)

RTRVP Lower Plume Wells

Location Number	Sample ID	Date Sampled	Molar Concentration (uMol/L) of Total Volatile Acids*
MW-40	00-RT-108GW	27-Sep-00	ND
	00-RT-132-GW	28-Nov-00	9,190
	01-RT-002-GW	11-Jan-01	13,079
	01-RT-032-GW	08-Mar-01	10,399
	01-RT-032-GW	22-May-01	3,875
	Phase II HRC Injection		
	01-RT-090-GW	16-Oct-01	24,124
	01-RT-130-GW	16-Jan-02	27,610
	02-RT-042-GW	19-Jun-02	34,392
	02-RT-064-GW	27-Sep-02	5,200
	02-RT-103-GW	18-Dec-02	15,429
	03-RT-002-GW	04-Feb-03	9,534
	03-RT-035-GW	17-Jun-03	10,855
Phase III HRC Injection			
	04-RT-009-GW	21-Jan-04	4,324
	04-RT-020-GW	30-Mar-04	7,923
	04-RT-029-GW	08-Jun-04	8,941
	04-RT-056-GW	29-Oct-04	6,937
	05-RT-010-GW	24-Feb-05	4,016
	05-RT-024-GW	02-Jun-05	5,142
Phase IV HRC Injection			
	05-RT-052-GW	12-Oct-05	3,514
	06-RT-004-GW	08-Mar-06	ND
	06-RT-015-GW	25-May-06	833
	06-RT-042-GW	12-Sep-06	1,462
Phase V HRC Injection			
	07-RT-007-GW	30-May-07	2,625
	07-RT-034-GW	19-Sep-07	ND
	08-RT-007-GW	12-May-08	92,600
	08-RT-033-GW	17-Sep-08	465
	09-RT-009-GW	06-May-09	2,293
Phase VI HRC Injection			
	09-RT-068-GW	07-Oct-09	1,992
	10-RT-043-GW	13-May-10	626
	10-RT-087-GW	20-Oct-10	1,915
	12-RT-007-GW	07-May-12	1,012
	13-RT-021-GW	09-Apr-13	ND
	14-RT-007-GW	23-Apr-14	120
MW-10	01-RT-100-GW	16-Oct-01	22,216
	01-RT-140-GW	15-Jan-02	32,848
Phase III HRC Injection			
	04-RT-005-GW	20-Jan-04	318
	04-RT-039-GW	08-Jun-04	ND
	04-RT-016-GW	30-Mar-04	1,232
	04-RT-039-GW	08-Jun-04	ND
	04-RT-050-GW	29-Oct-04	925
	05-RT-004-GW	24-Feb-05	ND
Phase IV HRC Injection			
	05-RT-047-GW	11-Oct-05	1,763
	06-RT-010-GW	25-May-06	7,529
Phase V HRC Injection			
	07-RT-037-GW	18-Sep-07	ND

Location Number	Sample ID	Date Sampled	Molar Concentration (uMol/L) of Total Volatile Acids*
MW-6	00-RT-109-GW	27-Sep-00	ND
	00-RT-030-GW	28-Nov-00	6,066
	01-RT-001-GW	11-Jan-01	15,423
	01-RT-030-GW	08-Mar-01	9,555
	01-RT-076-GW	22-May-01	3,207
Phase II HRC Injection			
	01-RT-089-GW	16-Oct-01	39,581
	01-RT-128-GW	16-Jan-02	23,555
	02-RT-040-GW	19-Jun-02	12,556
	02-RT-061-GW	27-Sep-02	16,241
	03-RT-004-GW	04-Feb-03	6,896
	03-RT-032b-GW	17-Jun-03	3,097
Phase III HRC Injection			
	04-RT-010-GW	20-Jan-04	ND
	04-RT-025-GW	07-Jun-04	ND
	04-RT-021-GW	29-Mar-04	1,055
	04-RT-025-GW	07-Jun-04	ND
	04-RT-052-GW	30-Oct-04	ND
	05-RT-006-GW	24-Feb-05	1,156
	05-RT-020-GW	02-Jun-05	ND
Phase IV HRC Injection			
	05-RT-049-GW	11-Oct-05	1,603
	06-RT-012-GW	25-May-06	ND
	06-RT-033-GW	11-Sep-06	ND
Phase V HRC Injection			
	07-RT-004-GW	30-May-07	5,493
	07-RT-031-GW	19-Sep-07	593
	09-RT-005-GW	06-May-09	ND
Phase VI HRC Injection			
	09-RT-065-GW	07-Oct-09	ND
	10-RT-040-GW	14-May-10	ND
	10-RT-084-GW	20-Oct-10	ND
	12-RT-004-GW	08-May-12	ND
	13-RT-022-GW	11-Apr-13	92
	14-RT-004-GW	24-Apr-14	ND
MW-4A	01-RT-097-GW	15-Oct-01	2,450
	01-RT-139-GW	15-Jan-02	1,387
	02-RT-048-GW	19-Jun-02	132
	02-RT-065-GW	27-Sep-02	789
	03-RT-034-GW	17-Jun-03	ND
Phase III HRC Injection			
	04-RT-004-GW	20-Jan-04	538
	04-RT-015-GW	31-Mar-04	11,935
	04-RT-036-GW	08-Jun-04	6,080
	04-RT-051-GW	29-Oct-04	6,888
	05-RT-005-GW	23-Feb-05	43
	05-RT-011-GW	23-Feb-05	131
Phase IV HRC Injection			
	05-RT-048-GW	11-Oct-05	ND
	06-RT-011-GW	25-May-06	ND
Phase V HRC Injection			
	07-RT-027-GW	18-Sep-07	ND
	08-RT-030-GW	17-Sep-08	ND

**Total volatile acids = sum of molar concentrations of lactic, pyruvic, acetic, butyric, and propionic acids*

uMol/L = micromoles per liter

***Note that reporting limits are variable and that "no detection" was considered a "zero" value. Therefore, precise comparisons between data points is inadvisable.*

****Monitoring wells MW-26, MW-5, MW-8, MW-12, and MW-35 were each sampled for volatile acids once (10/04 for MW-26 and 8/07 for the other 4 wells); volatile acids were not detected (ND).*

Table 5-2 (page 3): Molar Concentrations of Total Volatile Acids (Sept. 2000 - April 2014)
RTRVP Semi-Confined Aquifer Wells

Location Number	Sample ID	Date Sampled	Molar Concentration (uMol/L) of Total Volatile Acids*
MW-44	02-RT-100-GW	02-Nov-02	569
	02-RT-105-GW	18-Dec-02	325
	00-RT-096-GW	08-Oct-03	ND
	04-RT-058-GW	29-Oct-04	ND
Phase IV HRC Injection			
	05-RT-053-GW	11-Oct-05	417
	06-RT-005-GW	07-Mar-06	317
	06-RT-017-GW	24-May-06	153
	06-RT-037-GW	12-Sep-06	ND
Phase V HRC Injection			
	07-RT-009-GW	30-May-07	868
	07-RT-035-GW	18-Sep-07	1,034
	08-RT-008-GW	12-May-08	48
	08-RT-034-GW	17-Sep-08	1,980
	09-RT-010-GW	06-May-09	750
Phase VI HRC Injection			
	09-RT-069-GW	06-Oct-09	557
	10-RT-044-GW	12-May-10	413
	10-RT-088-GW	20-Oct-10	1,432
	12-RT-008-GW	08-May-12	2,291
	13-RT-018-GW	09-Apr-13	ND
	14-RT-008-GW	23-Apr-14	879
MW-47	06-RT-038-GW	04-Oct-06	1,675
Phase V HRC Injection			
	07-RT-010-GW	30-May-07	13,160
	07-RT-036-GW	19-Sep-07	15,773
	08-RT-009-GW	12-May-08	16,456
	08-RT-035-GW	17-Sep-08	19,804
	09-RT-011-GW	06-May-09	31,158
Phase VI HRC Injection			
	09-RT-070-GW	06-Oct-09	18,188
	10-RT-045-GW	11-May-10	58,060
	10-RT-089-GW	19-Oct-10	74,425
	11-RT-001-GW	17-May-11	94,040
	12-RT-009-GW	08-May-12	183,991
	13-RT-025-GW	10-Apr-13	66,917
	14-RT-009-GW	23-Apr-14	105,868
MW-48	09-RT-071-GW	06-Oct-09	50,327
	10-RT-046-GW	12-May-10	11,134
	10-RT-090-GW	19-Oct-10	11,375
	11-RT-002-GW	18-May-11	12,803
	12-RT-010-GW	08-May-12	14,221
	13-RT-026-GW	10-Apr-13	5,996
	14-RT-010-GW	22-Apr-14	35,625
MW-46	03-RT-094-GW	09-Oct-03	ND
	04-RT-060-GW	29-Oct-04	ND

Location Number	Sample ID	Date Sampled	Molar Concentration (uMol/L) of Total Volatile Acids*
MW-49	09-RT-072-GW	06-Oct-09	8,407
	10-RT-047-GW	13-May-10	14,241
	10-RT-091-GW	19-Oct-10	18,139
	11-RT-003-GW	18-May-11	21,616
	12-RT-011-GW	09-May-12	32,653
	13-RT-027-GW	10-Apr-13	5,066
	14-RT-011-GW	23-Apr-14	31,434
MW-50	09-RT-073-GW	06-Oct-09	510
	10-RT-048-GW	12-May-10	714
	10-RT-092-GW	20-Oct-10	423
	11-RT-004-GW	17-May-11	153
	11-RT-008-GW	17-May-11	162
	12-RT-012-GW	08-May-12	494
	13-RT-028-GW	10-Apr-13	ND
	14-RT-012-GW	22-Apr-14	220
MW-51	10-RT-093-GW	19-Oct-10	11,759
	11-RT-005-GW	18-May-11	1,628
	12-RT-013-GW	09-May-12	3,029
	13-RT-029-GW	10-Apr-13	1,111
	14-RT-013-GW	22-Apr-14	18
MW-52	10-RT-094-GW	19-Oct-10	1,567
	11-RT-006-GW	17-May-11	723
	12-RT-014-GW	17-May-11	2,986
	13-RT-029-GW	10-Apr-13	24,739
	14-RT-014-GW	23-Apr-14	1,190
L-13	03-RT-008-GW	10-Mar-03	3,864
	08-RT-036-GW	18-Sep-08	266,091
L-78	09-RT-074-GW	07-Oct-09	76,973
	10-RT-095-GW	20-Oct-10	802,624
	12-RT-015-GW	09-May-12	1,659,777
	13-RT-031-GW	09-Apr-13	324,820
	14-RT-015-GW	23-Apr-14	359,055
L-79	08-RT-011-GW	13-May-08	1,827,170
L-80	08-RT-012-GW	13-May-08	1,396,385
	08-RT-037-GW	18-Sep-08	385,405
L-81	08-RT-038-GW	18-Sep-08	103,834
L-100	10-RT-054-GW	12-May-10	204,198
	10-RT-096-GW	20-Oct-10	648,297
	11-RT-007-GW	17-May-11	545,719
	12-RT-016-GW	09-May-12	9,715
	13-RT-035-GW	10-Apr-13	12,520
	14-RT-016-GW	22-Apr-14	164
L-101	10-RT-055-GW	12-May-10	863,182
	10-RT-097-GW	20-Oct-10	10,035
	12-RT-017-GW	08-May-12	682,658
	13-RT-024-GW	10-Apr-13	630,141
	14-RT-017-GW	23-Apr-14	358,402
MW-45	03-RT-093-GW	09-Oct-03	ND
	04-RT-059-GW	29-Oct-04	ND

**Total volatile acids = sum of molar concentrations of lactic, pyruvic, acetic, butyric, and propionic acids*

uMol/L = micromoles per liter

***Note that reporting limits are variable and that "no detection" was considered a "zero" value. Therefore, precise comparisons between data points is inadvisable.*

Table 5-2 (page 4): Molar Concentrations of Total Volatile Acids (Sept. 2000 - April 2014)
RTRVP Upper Plume Wells

Location Number	Sample ID	Date Sampled	Molar Concentration (uMol/L) of Total Volatile Acids*
Upper Plume			
MW-36	00-RT-103GW	27-Sep-00	ND
	00-RT-138-GW	28-Nov-00	1,569
	01-RT-009-GW	11-Jan-01	17,250
	01-RT-035-GW	08-Mar-01	14,743
	01-RT-073-GW	22-May-01	1,600
Phase II HRC Injection			
	01-RT-096-GW	16-Oct-01	82,485
	01-RT-136-GW	16-Jan-02	12,570
	02-RT-045-GW	18-Jun-02	7,184
	02-RT-068-GW	27-Sep-02	6,627
	03-RT-012-GW	10-Mar-03	2,293
	03-RT-040-GW	17-Jun-03	3,884
	03-RT-092-GW	07-Oct-03	3,153
	04-RT-001-GW	21-Jan-04	3,492
	04-RT-012-GW	31-Mar-04	447
	04-RT-023-GW	08-Jun-04	30
	04-RT-047-GW	30-Oct-04	1,070
	05-RT-001-GW	23-Feb-05	ND
Phase IV HRC Injection			
	05-RT-044-GW	11-Oct-05	2,975
	06-RT-007-GW	24-May-06	194
	06-RT-029-GW	12-Sep-06	97
	07-RT-001-GW	30-May-07	1,267
	07-RT-021-GW	20-Sep-07	1,694
	08-RT-001-GW	13-May-08	1,623
	09-RT-001-GW	05-May-09	244
	10-RT-049-GW	14-May-10	70
	10-RT-080-GW	20-Oct-10	905
	12-RT-001-GW	09-May-12	156
	13-RT-016-GW	11-Apr-13	268
	14-RT-001-GW	22-Apr-14	ND
MW-38	00-RT-100-GW	27-Sep-00	ND
	00-RT-135-GW	28-Nov-00	ND
	01-RT-006-GW	11-Jan-01	ND
	01-RT-038-GW	08-Mar-01	ND
	01-RT-070-GW	22-May-01	470
Phase II HRC Injection			
	01-RT-095-GW	16-Oct-01	1,174
	01-RT-132-GW	16-Jan-02	575
	02-RT-043-GW	18-Jun-02	5,548
	02-RT-066-GW	27-Sep-02	736
Phase IV HRC Injection			
	07-RT-025-GW	20-Sep-07	473
MW-42	02-RT-099-GW	02-Nov-02	2,273
	07-RT-026-GW	20-Sep-07	381
	08-RT-004-GW	13-May-08	294
	08-RT-004-GW	05-May-09	1,181
	10-RT-052-GW	14-May-10	ND
	10-RT-083-GW	18-Oct-10	342
	12-RT-003-GW	09-May-12	ND
	13-RT-017-GW	11-Apr-13	233
	14-RT-003-GW	22-Apr-14	ND

Location Number	Sample ID	Date Sampled	Molar Concentration (uMol/L) of Total Volatile Acids*
MW-16	00-RT-101GW	27-Sep-00	ND
	00-RT-136-GW	28-Nov-00	10,698
	01-RT-008-GW	11-Jan-01	2,668
	01-RT-037-GW	08-Mar-01	3,289
	01-RT-071-GW	22-May-01	20,385
Phase II HRC Injection			
	01-RT-095-GW	16-Oct-01	7,147
	01-RT-135-GW	16-Jan-02	3,589
	02-RT-044-GW	18-Jun-02	19,609
	02-RT-067-GW	27-Sep-02	8,392
	03-RT-011-GW	10-Mar-03	5,870
	03-RT-041-GW	18-Jun-03	8,164
	04-RT-002-GW	21-Jan-04	790
	04-RT-013-GW	31-Mar-04	1,239
	04-RT-024-GW	08-Jun-04	9,612
	04-RT-048-GW	30-Oct-04	3,672
	Not Sampled	23-Feb-05	NS
Phase IV HRC Injection			
	05-RT-045-GW	12-Oct-05	749
	06-RT-008-GW	24-May-06	5,046
	06-RT-030-GW	12-Sep-06	7,507
	07-RT-002-GW	29-May-07	14,754
	07-RT-022-GW	20-Sep-07	5,694
	08-RT-002-GW	13-May-08	3,121
	09-RT-002-GW	05-May-09	2,256
	10-RT-050-GW	14-May-10	452
	10-RT-081-GW	21-Oct-10	16,968
	12-RT-002-GW	09-May-12	2,993
	13-RT-015-GW	11-Apr-13	37,631
	14-RT-002-GW	22-Apr-14	3,661
MW-25	01-RT-133-GW	16-Jan-02	3,136
	02-RT-049-GW	18-Jun-02	1,468
	02-RT-066-GW	27-Sep-02	2,075
	03-RT-042-GW	18-Jun-03	1,152
	04-RT-003-GW	21-Jan-04	35
	04-RT-014-GW	31-Mar-04	423
	04-RT-049-GW	30-Oct-04	ND
	05-RT-003-GW	23-Feb-05	ND
Phase IV HRC Injection			
	05-RT-046-GW	12-Oct-05	ND
	06-RT-009-GW	24-May-06	113
	06-RT-031-GW	12-Sep-06	187
	07-RT-003-GW	29-May-07	229
	07-RT-023-GW	18-Sep-07	ND
	08-RT-003-GW	13-May-08	ND
	09-RT-003-GW	05-May-09	ND
	10-RT-051-GW	14-May-10	ND
	10-RT-082-GW	21-Oct-10	ND
MW-21	07-RT-024-GW	20-Sep-07	85
MW-41	01-RT-106-GW	18-Dec-02	ND
MW-43	02-RT-101-GW	02-Nov-02	86

**Total volatile acids = sum of molar concentrations of lactic, pyruvic, acetic, butyric, and propionic acids*

uMol/L = micromoles per liter

5.7. VOC Results

April 2014 VOC results are presented in a variety of tables and graphs in this report, summarized below. This section of the report primarily references the Appendix G graphs to present a comprehensive discussion of VOC results with respect to the progress of bioremediation at the RTRVP site.

- Table 2-3 presents current VOC results, and Figures 5, 6, and 7 display current VOC results that exceed various site cleanup levels. Section 4.2 discusses the current VOC concentrations with respect to site cleanup levels.
- Table C-4 (Appendix C) presents current and historical VOC results for selected performance monitoring wells.
- Figure 8 is a compilation of groundwater monitoring results for all wells completed in semi-confined water-bearing zones in and around the inferred area where PCE, TCE, or DCE exceeds on-site groundwater cleanup levels. Figure 8 shows the groundwater plume where PCE and/or cis-1,2-DCE exceed their on-site cleanup levels.
- Appendix G contains two series of charts constructed to help evaluate the biodegradation progress. Charts G-2a, G-3a, G-4a, and G-5a, etc. show VOC concentrations measured in MW-16, MW-36, MW-39, and MW-9, respectively. Charts G-2b, G-3b, G-4b, and G-5b etc. show molar percentages of PCE plus TCE, cis-1,2-DCE, and vinyl chloride plus ethene in the same monitoring wells.

5.7.1. Upper Plume

5.7.1.1. Relationship between Groundwater Flow and Contamination Levels

As discussed in previous monitoring reports, the upper plume groundwater flow direction appears to strongly affect the contaminant concentrations detected in the upper plume monitoring wells. However, a sustained rise in the upper plume groundwater elevation that began in December 2006/January 2007 has affected the historical relationships between groundwater elevation and contaminant concentrations in specific monitoring wells (e.g., historically there was a correlation between high groundwater elevations and relatively high contamination levels in MW-36; this relationship does not appear to hold true under the new groundwater conditions). At the time of the April 2013 and April 2014 sampling, the groundwater gradient was atypical, with groundwater flowing opposite of the typical northwest direction with an April 2014 groundwater gradient between MW-16 and MW-25 of -0.0146 ft/ft. However the groundwater flow direction and gradient between MW-36 and MW-38 of 0.0006 ft/ft towards the northwest direction are more typical. The negative gradient observed between MW-16 and MW-25 may be due to the seasonal low water table conditions at the time of measurement (i.e., before breakup when groundwater levels at MW-16 are at their lowest).

Chart G-1 shows total chlorinated ethene concentrations in upper plume monitoring wells MW-36, MW-42, MW-16, MW-38, and MW-25 over time. In April 2014, the total chlorinated ethene concentration was highest in MW-16 (4.37 μmole/L) with fairly similar contamination levels in the other upper plume wells (0.49 μmole/L to 0.83 μmole/L).

5.7.1.2. Bioremediation Progress

The Appendix G Charts G-2a and G-3a, which show VOC concentrations measured in MW-16 and MW-36, and Charts G-2b and G-3b, which show molar percentages in MW-16 and MW-36, are useful to illustrate the progress of bioremediation over time in the upper plume.

Both MW-16 and MW-36 have demonstrated a decreasing trend for total chloroethene concentrations and all individual chloroethene (i.e., PCE, TCE, cis-DCE, and VC) concentrations in MW-16 have been less than 100 μg/L since 2008 with a couple of exceptions. The decreasing contaminant concentrations coupled with consistent ethene detections suggest that groundwater contamination is being biologically remediated by reductive dechlorination of the cis-1,2-DCE and vinyl chloride to ethene. The concentration spike in May 2010 at MW-16 is believed to be the result of additional flushing of soil contaminants during a groundwater recharge event and higher water levels. The concentration spike in April 2013 is believed to be the result of additional dissolution of soil contaminant as a result of the October 2012 HRC injection.

Chart G-2b (MW-16) illustrates that VC+ethene has been the predominant form of chloroethenes at this location since May 2009 with a couple of exceptions whereas Chart G-3b (MW-36) illustrates that cis-DCE still remains the predominant form of chloroethenes at this location (i.e., adjacent to the former Dry Cleaner building where treatment is more difficult).

Overall, the 2007-2014 data suggest that measurable complete reductive dechlorination (bioremediation) is occurring in the upper plume area.

5.7.2. *Lower Plume Unconfined*

Shallow lower plume monitoring wells (i.e., total depth less than 20 feet bgs) are completed in an unconfined (water table) aquifer. The monitoring wells included in this classification are MW-4A, MW-5, MW-6A, MW-7, MW-8, MW-9, MW-10, MW-12, MW-19, MW-20, MW-26, MW-35, MW-39, and MW-40 (Figure 1).

5.7.2.1. Bioremediation Progress

Beginning in approximately 2003 or 2004 (the exact time varies by monitoring well), the concentrations of total chlorinated ethenes in the lower plume monitoring wells shown on Chart G-1b began to decline. The Chart G-1b contamination levels reflect the monitoring well position, with the highest levels of contamination detected in MW-39 (first well encountered downgradient of the source area) and the lowest levels of contamination detected in the farthest downgradient sentry wells (MW-6 and MW-20). Total chlorinated ethene concentrations in the sentry wells have been near zero for the past ten monitoring events (May 2007 through April 2014). Contamination levels in MW-9 (located downgradient of MW-39) reached their lowest level in May 2006 before rebounding to a higher but slowly declining level between September 2006 and April 2014. Contamination levels in MW-39 have been generally declining since May 2005. The April 2014 monitoring event represents the lowest total chlorinated ethene concentrations ever observed for monitoring wells MW-39, MW-40, and MW-9.

Charts G-4a, G-5a, G-6a, G-7a, and G-8a show VOC concentrations measured in MW-39, MW-9, MW-40, MW-6, and MW-4A. Charts G-4b, G-5b, G-6b, G-7b, G-7c, and G-8b show molar percentages of PCE plus TCE, cis-1,2-DCE, and vinyl chloride plus ethene in the same monitoring wells. These charts are useful to illustrate the progress of bioremediation over time in the lower plume.

5.7.2.2. Bioaugmentation Pilot Test Area (i.e., MW-9 vicinity)

- HRC™ injection (September 2000 and June 2001) rapidly (within months) reduced PCE and TCE to cis-1,2-DCE, at which point the reductive dechlorination process stalled for over a year. Note that cis-1,2-DCE stall occurred at monitoring wells all across the site.
- On October 25, 2002, a bioaugmentation pilot test was performed in the vicinity of MW-9 in an attempt to mediate reductive dechlorination of the cis-1,2-DCE that appeared to be stalled due to a lack of significant quantities of Dhc bacteria. In December 2002, vinyl chloride was first detected above 10 µg/L in MW-9. Subsequently, vinyl chloride concentrations increased throughout the pilot test area (i.e., in MW-6, MW-7, MW-9, MW-20, MW-35, and MW-40), reaching maximum values in 2004 or 2005 before declining again. The highest vinyl chloride concentration detected in the unconfined lower plume was 651 µg/L measured in MW-39 in February 2005. These vinyl chloride results suggest that bioaugmentation was successful at mediating the reduction of cis-1,2-DCE to vinyl chloride or at least helped to speed up cis-1,2-DCE reduction in this area. In either case, beginning approximately two years after bioaugmentation, cis-1,2-DCE reduction to vinyl chloride became widespread in the bioaugmentation pilot test area.
- Ethene was first detected in the lower plume monitoring wells in September 2003 (100 µg/L in MW-9); since then the ethene detections have been gradually expanding (first detected in MW-40 in January 2004, in MW-39 in March 2004, in MW-6 in October 2004, in MW-20 in February 2005, and first sampled and detected in MW-7 in September 2006). These consistent ethene detections indicate that complete reductive dechlorination is occurring in a swath downgradient from MW-39 between MW-7 and MW-20. Ethene concentrations appear to have peaked in 2006 and have since declined somewhat but remained generally stable through 2007, 2008, and 2009. This decline in ethene concentrations may correlate with the decline in vinyl chloride concentrations discussed below.

- Vinyl chloride concentrations peaked around 2004 or 2005 in the unconfined lower plume bioaugmentation pilot test area and has since declined to lower, fairly stable concentrations. In MW-6, the vinyl chloride concentration declined to pre-bioaugmentation levels (less than 10 µg/L) from 2007 through 2009 and then spiked up in May 2010 after the August 2009 HRC injection and has since dropped back down to less than 5 µg/L. The declining concentration suggests that vinyl chloride is being reduced to ethene (and/or oxidized to carbon dioxide) faster than it is being generated from the reduction of cis-1,2-DCE. This decline is also attributable to the overall decline in total chlorinated ethene concentrations as a result of contaminant mass reduction.
- The downgradient locations (i.e., MW-6, MW-20, and MW-40) show a greater degree of complete reductive dechlorination (and decreasing molar concentrations of total chlorinated ethenes) than the upgradient locations (i.e., MW-9 and MW-39) that are closer to the source area (see Chart G-1b).
- As of April 2014 the total chlorinated ethene concentrations have declined to the following values 0.493 µmole/L (MW-39), 0.216 µmole/L (MW-9), 0.236 µmole/L (MW-40), and 0.188 µmole/L (MW-6A).

5.7.2.3. MW-4A

No bioaugmentation has been performed in the area around MW-4A, and Dhc organisms and vinyl chloride were not detected in significant concentrations in MW-4A until approximately 2008. The 2008 to 2010 monitoring events showed vinyl chloride concentrations in the range of 3 to 5 µg/L before dropping below 1 µg/L in 2012. The molar concentrations of total chlorinated ethenes in MW-4A have remained fairly steady since about 2006 where previous to 2006 they had followed a long term declining trend. As of April 2013 the only chlorinated ethene detected at MW-4A is PCE (1.68 µg/L) or a total chlorinated ethene concentration of 0.01 µmole/L. MW-4A was not scheduled for sampling during the April 2014 monitoring event.

5.7.3. *Semi-Confined Water-Bearing Zones*

Figure 8 is a compilation of groundwater monitoring results for all wells completed in semi-confined water-bearing zones in and around the inferred area where PCE, TCE, or DCE exceeds on-site groundwater cleanup levels.

Chart G-1c shows total chlorinated ethene concentrations in lower plume monitoring wells MW-9 and MW-6A and semi-confined source area wells MW-44, MW-47, MW-48, MW-49, and MW-50 over time. The most striking observation from Chart G-1c is that the contamination levels in the source area of the semi-confined aquifer are at least an order of magnitude higher than in the overlying unconfined aquifer contaminant plume. Chart G-1c also shows that the total chlorinated ethene concentrations in the semi-confined monitoring wells appear to be showing an overall declining trend.

5.7.3.1. Bioremediation Progress

Bioremediation progress in the locations sampled in April 2014 (MW-44, MW-47, MW-48, MW-49, MW-50, MW-51, MW-52, L-78, L-100, and L-101) is discussed below. The following discussion is primarily based on the Appendix G graphs.

- In MW-44, most of the contamination was present as PCE prior to March 2006 (Charts G-9a and G-9b). Beginning in March 2006 and continuing through May 2009, the cis-1,2-DCE concentration increased above the PCE and TCE concentrations, indicating reductive dechlorination of the PCE and TCE to cis-1,2-DCE. Between September 2008 and May 2009, the concentration of total chlorinated ethenes decreased dramatically. The total chlorinated ethene concentration has remained below the ethene concentrations since then, suggesting that complete reductive dechlorination to ethene has become a dominant process at this location.
- In the first MW-47 sampling event (October 2006), high and nearly equal concentrations of PCE and cis-1,2-DCE were detected (Charts G-10a and G-10b). Immediately following the first sampling event, the PCE concentration dropped and cis-1,2-DCE concentration increased. Cis-1,2-DCE became the dominant chlorinated ethene and has remained generally above 90% of total chlorinated ethenes (Chart G-10b) since then, indicating significant reductive dechlorination of PCE and TCE to cis-1,2-DCE but little dechlorination of the cis-1,2-DCE. Starting in 2010 there has been some reversal in the transformation of PCE and TCE to cis-1,2-DCE. Since that time the percentage of PCE+TCE has gone from 0% to 24.5% in April 2013, and cis-1,2-DCE percentages have declined from over 95% to 70.9%. Vinyl chloride production began to increase in October 2009, and low concentrations of ethene have been detected consistently since May 2010, suggesting some possible complete reductive dechlorination to ethene in the vicinity of MW-47. However, the total molar percentage of end products (vinyl chloride plus ethene) remains below 10 percent. To date there has been no significant overall decrease in total chlorinated ethenes in MW-47. Complete reductive dechlorination of cis-1,2-DCE to ethene has not yet become a dominant process at MW-47 and instead there has been some reversal in the transformation of PCE and TCE to cis-1,2-DCE. There has also been a decline in the Dhc population during the 2013 and 2014 sampling events.
- In the initial sampling event in MW-48 (August 2009), PCE + TCE comprised approximately 88% of the total chlorinated ethenes, with cis-1,2-DCE comprising the remaining 12% (Chart G-11b). However, between August and October 2009, the PCE and TCE concentrations dropped and cis-1,2-DCE concentration increased. Cis-1,2-DCE became the dominant chlorinated ethene with molar percentages consistently increasing to the current level of approximately 99% (Chart G-11b). Vinyl chloride and ethene have been consistently detected in MW-48 but at total molar percentages less than 5%. The molar concentration of total chlorinated ethenes decreased by over an order of magnitude between August 2009 and October 2010, before increasing during the May 2011, May 2012, and April 2014 monitoring events. The molar concentration of total chlorinated ethenes decreased during the

April 2013 monitoring event. Complete reductive dechlorination of cis-1,2-DCE to ethene has not yet become a dominant process at MW-48.

- In MW-49, relatively low concentrations of PCE and relatively high concentrations of cis-1,2-DCE have been detected since its installation in August 2009 (Chart G-12a). These data suggest that most of the PCE in this area has been reduced to cis-1,2-DCE. As molar percentages, PCE + TCE has decreased from 10% to 0%, while cis-1,2-DCE has increased from 90% to about 98% before starting to decline in 2010. Then suddenly in April 2013 a dramatic change occurred where cis-1,2-DCE percentage dropped and vinyl choride+ethene increased, corresponding to a dramatic drop in total chlorinated ethene concentration. The vinyl chloride plus ethene percentage increased from 5.2% in May 2012 to 91% in April 2013 and then dropped to 28% in April 2014 which also corresponded to a large increase in the total chlorinated ethene concentration. Complete reductive dechlorination of cis-1,2-DCE to vinyl chloride plus ethene is present at MW-49 but has had widely varying results during the last two monitoring events. The total chlorinated ethene concentration dropped from 862 µmole/L in May 2012 to 5.73 µmole/L in April 2013 and then increased to 526 µmole/L in April 2014.
- In MW-50, PCE + TCE comprised approximately 30% of the total chlorinated ethenes in the initial sampling event (August 2009), with cis-1,2-DCE comprising most of the remaining 70% (Chart G-13b). Since then, the PCE concentrations increased to relatively high levels (PCE+TCE near 70%) before dropping down to less than 10% during May 2012 through April 2014 sampling events. Low concentrations of vinyl chloride and ethene were consistently detected in MW-50 at total molar percentages of less than 2% before increasing to 35% in May 2012, 10% in April 2013, and 28% in April 2014. The molar concentration of total chlorinated ethenes was consistently increasing by over one order of magnitude between August 2009 and May 2011 before dropping during May 2012 through April 2014. Overall, the MW-50 data suggest moderate rates of reductive dechlorination of PCE, TCE, and cis-1,2-DCE to vinyl chloride plus ethene.
- In the initial sampling event in MW-51 (October 2010), PCE + TCE comprised approximately 30% of the total chlorinated ethenes, with cis-1,2-DCE comprising most of the remaining 70%. Between October 2010 and May 2011 the molar percentage of cis-1,2-DCE increased to nearly 90%, but over the last three monitoring events (May 2012, April 2013, and April 2014), the molar percentage of cis-1,2-DCE has gradually decreased to approximately 55% (Chart G-14b). The molar percentage of vinyl chloride plus ethene has steadily increased since October 2010 to approximately 45% in April 2013. Overall, the MW-51 data show PCE and TCE reductive dechlorination to cis-1,2-DCE and a more gradual but steady reduction of cis-1,2-DCE to vinyl chloride and ethene.
- In the initial sampling event in MW-52 (October 2010), PCE + TCE comprised approximately 12% of the total chlorinated ethenes, with cis-1,2-DCE comprising most of the remaining 88%. Between October 2010 and May 2011, the total

chlorinated ethene concentration dropped and the molar percentage of cis-1,2-DCE increased above 90%. Over the last three monitoring events (May 2012, April 2013, and April 2014), the molar percentage of cis-1,2 DCE has decreased while the molar percentage of vinyl chloride plus ethene has increased to 60%, dropped to 40% in April 2013, and then increased to 98% in April 2014. The April 2013 total chlorinated ethene concentration increased dramatically from 20.3 µmole/L to 491 µmole/L; this is attributed to additional release of contaminants from the soil due to the October 2012 HRC injection and is likely the cause for increased percentage of cis-1,2-DCE. The April 2014 total chlorinated ethene concentration returned to even lower levels being 0.27 µmole/L. Overall, the MW-52 data show high rates of PCE and TCE reductive dechlorination to cis-1,2-DCE followed by reduction of cis-1,2-DCE to vinyl chloride and ethene.

- Molar percentage charts have also been created for three injection wells (L-78, L-100, and L-101; Charts G-16a&b, G-17a&b, and G-18a&b).
    - Over nine sample events between September 2008 and April 2014, L-78 has shown molar percentages of PCE + TCE and cis-1,2-DCE fluctuating between 20% and 70% with less than 10% vinyl chloride + ethene. The molar concentration of total chlorinated ethenes has fluctuated with no increasing or decreasing trend. Similarly to MW-50, L-78 is exhibiting moderate rates of reductive dechlorination of PCE and TCE to cis-1,2-DCE, but significant PCE concentrations still remain.
    - Over seven sample events between October 2009 and April 2014, L-100 showed fairly consistent molar percentages of PCE + TCE (10% or less), cis-1,2-DCE (approximately 90%), and vinyl chloride + ethene (approximately 2%). The molar concentration of total chlorinated ethenes has fluctuated, with May 2011 recording the highest concentration of total chlorinated ethenes. Similarly to MW-48, L-100 is exhibiting high rates of reductive dechlorination of PCE and TCE to cis-1,2-DCE but low rates of cis-1,2-DCE reduction (i.e., cis-1,2-DCE stall).
    - Over seven sample events between October 2009 and April 2014, the PCE + TCE concentrations in L-101 initially increased (from just over 20% to nearly 70%) and then decreased to nearly 0% from October 2010 to April 2014. Cis-1,2-DCE concentrations correspondingly decreased and then increased to nearly 100% before dropping to approximately 90% in 2013 and 2014. Vinyl chloride + ethene detections have increased from insignificant percentages to nearly 10% in 2013 and 2014. Based on the October 2010 through April 2014 results, L-101 is exhibiting high rates of reductive dechlorination of PCE and TCE to cis-1,2-DCE and low but increasing rates of cis-1,2-DCE reduction to vinyl chloride + ethene.

5.8. Statistical Trend Analysis

The statistical method chosen to assess chlorinated ethene concentration trends for the River Terrace RV Park site was the Mann-Kendall nonparametric test for trend (Gilbert 1987). The Mann-Kendall test is useful for identifying trends in time series data. Specifically, this test was used to analyze whether the cumulative total molar concentrations of chlorinated ethenes exhibited trends in selected monitoring wells. The test compares the relative magnitudes of sample data rather than absolute data values, which is why the test is nonparametric. One benefit of this test is that the data need not conform to any particular distribution. Results that were reported as NDs were generally assigned values of one half the method reporting limit (MRL) or one half the lowest MRL when the MRLs varied.

The Mann-Kendall trend analysis tables are presented in Appendix I and are grouped by monitoring well location: 1) Semi-confined water bearing zones (MW-44, MW-47, MW-48, MW-49, MW-50, MW-51, and MW-52); 2) Lower contaminant plume (MW-39, MW-9, MW-40, MW-6A, and MW-20); and 3) Upper contaminant plume (MW-36, MW-16, and MW-25).

The Mann-Kendall test assumes zero slope (or no trend) unless data indicates otherwise. In other words, the following hypothesis for each compound from each monitoring well is tested:

H_0: No trend for compound ‘x’ in monitoring well ‘y’.

H_1: Trend for compound ‘x’ in monitoring well ‘y’ is present.

ERM selected a level of significance, or α, equal to 0.10 (confidence level = 90%), which indicates that if the probability of obtaining the computed Mann-Kendall statistic (S) is less than 0.10, then the null hypothesis is rejected for the conclusion that compound ‘x’ in monitoring well ‘y’ exhibits trend. If the probability of obtaining S is greater than or equal to 0.10, then the null hypothesis (no trend) holds. Although not explicitly tested for, it can be inferred that if the probability is less than 0.10 and S is negative, then a downward or decreasing trend is occurring. The opposite situation also exists: if the probability is less than 0.10 and S is positive, then an upward or increasing trend is occurring.

In addition, the coefficient of variation (CV) was calculated to provide a measure of scatter, or fluctuation in the data from year to year. The CV is useful in classifying data as “stable” vs. “no trend” when the null hypothesis holds. Generally, if no trend is present at the specified level of significance, but the CV is small (e.g. < 1), it can be concluded that plume concentrations remain “stable” over time. “No trend” indicates that no statistical increase or decrease is present at the specified level of significance, and the data fluctuates too dramatically from one event to another to be considered “stable.”

5.8.1. *Semi-Confined Water-Bearing Zones*

The Mann-Kendall trend analysis results for the seven lower plume semi-confined monitoring wells evaluated indicate that the total chlorinated ethene molar concentrations generally exhibit no trend except for two locations, MW-44 and MW-51, where a decreasing trend was observed. Detailed presentations of the Mann-Kendall analysis for each monitoring well are provided in Appendix I.

5.8.2. *Lower Plume Unconfined*

The Mann-Kendall trend analysis results for the five lower plume unconfined monitoring wells evaluated indicate that the total chlorinated ethene molar concentrations all exhibit a decreasing trend. Detailed presentations of the Mann-Kendall analysis for each monitoring well are contained in Appendix I.

5.8.3. *Upper Plume*

The Mann-Kendall trend analysis results for the three upper plume monitoring wells evaluated (MW-36, MW-16, and MW-25) indicate that the total chlorinated ethene molar concentrations also all exhibit a decreasing trend.

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6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

6.1.1. Exceedences of Cleanup Levels

The April 2014 groundwater sampling results (provided in Table 2-3) show that PCE, cis-1,2-DCE, and vinyl chloride are present at concentrations above the applicable cleanup levels (specified in Table 1-1) in one or more RTRVP monitoring wells. The following sub-sections summarize cleanup level exceedances from the April 2014 monitoring event.

- PCE concentrations were above the 840 µg/L on-RTRVP property cleanup level in 5 of the 28 monitoring locations sampled, including MW-47 (2,500 µg/L), L-78 (4,350 µg/L), L-80A (63,500 µg/L), L-102 (61,500 µg/L), and L-103 (8,340 µg/L).
- Cis-1,2-DCE concentrations were above the 11,600 µg/L on-RTRVP property cleanup level in 7 of the 28 monitoring locations sampled, including MW-48 (25,400 µg/L), MW-49 (37,800 µg/L), L-78 (19,900 µg/L), L-101 (29,800 µg/L), L-80A (20,000 µg/L), L-102 (36,700 µg/L), and L-103 (24,600 µg/L).
- 1,1-DCE concentrations were above the 70 µg/L on-RTRVP property cleanup level in 1 of the 28 monitoring wells sampled, including L-102 (88.4 µg/L).
- Vinyl chloride concentrations ranged between 1.72 µg/L (MW-12) and 8,390 µg/L (MW-49) in wells where it was detected and exceeded the 2 µg/L on-RTRVP property cleanup level in 19 of the 28 monitoring locations sampled, plus two additional locations (MW-48 and L-100) had reporting limits that were above the cleanup level. Four monitoring well locations had vinyl chloride results that were below the detection limit.

6.1.2. Contaminant Migration to Kenai River

Consistent with all historical sample events from 2003 through 2014, except for October 2009, no target analytes were detected in the surface water column samples collected downslope of MW-5, MW-6, and MW-8 (Appendix A). Based on the other water column analytical results it appears that the October 2009 surface water analyte detections were due to anomalous site conditions that occurred at that time.

The sentry well monitoring results for 2014 showed, for the first time, that no target analytes were detected above the ROD cleanup levels for contaminant migration to the Kenai River (Table 2-3). As noted above two of the sentry wells (MW-5 and MW-6A) were above the onsite cleanup level for vinyl chloride.

6.1.3. Groundwater Flow Patterns in Semi-Confined Water-Bearing Till

There is generally an upward vertical gradient in the deep source area, although occasionally there have been short-term downward gradient between MW-39 and MW-44.

The groundwater elevations in MW-47 and MW-48 (both located within the main excavation area) are nearly identical and appear to be primarily influenced by the underlying confined aquifer that is upwelling through the weakened till layer within the excavation limits. Moving out from the excavation MW-50 and then MW-52 also mimic the water levels from MW-47 and MW-48 but to a lesser extent and also have reduced groundwater elevation heads. While MW-44 shows some influence from the lower confined aquifer it is also influenced heavily by the Kenai River and shows the largest differences with regards to groundwater elevation patterns in MW-47 and MW-48.

Overall, the groundwater elevation patterns measured in the semi-confined water-bearing zone monitoring wells are quite different from those measured in the unconfined aquifer and Kenai River. This difference suggests that the semi-confined water-bearing zones are responding to influences that are not associated with surficial water table aquifer. One possibility for this difference is the influence of the lower confined aquifer hydrostatic pressures (particularly on wells within the former excavation area). Additional data on the hydrostatic pressure/water level variations from the confined aquifer is needed before this relationship can be confirmed.

6.1.4. Bioremediation Progress and Current Status

6.1.4.1. Upper Plume

Overall, the 2007-2014 data suggest that measurable complete reductive dechlorination (bioremediation) is occurring in the upper plume area except at MW-21 and MW-23. The April 2014 bioremediation progress continues to be favorable and observations are summarized below.

- Overall the bioremediation effectiveness charts for MW-16 (Charts G-2a and b) and MW-36 (Charts G-3a and b) show continued long-term progress and effectiveness for reductive dechlorination of the PCE contamination.

- The April 2014 monitoring results showed adequate TOC concentrations (above recommended 20 mg/L) for promotion of reductive dechlorination in MW-16 but inadequate concentrations in MW-36 (4.5 mg/L) and MW-42 (5.5 mg/L). The most recent Dhc results from September 2007 in MW-36 and MW-25 showed moderate levels of Dhc organisms which may or may not show observable reductive dechlorination impacts.

- The Mann-Kendall trend analysis results for the three upper plume monitoring wells that were evaluated indicate that the total chlorinated ethene molar concentrations exhibit a decreasing trend in MW-16, MW-25, and MW-36.

- MW-23 which is located outside of the HRC treatment area exhibit aerobic conditions (i.e., DO over 2 mg/L) with the predominant chlorinated ethenes being PCE. This location does not exceed the on-RTRVP cleanup levels at present.

6.1.4.2. Lower Plume (Unconfined Aquifer)

Overall, the data suggest that measurable complete reductive dechlorination (bioremediation) is occurring in the lower plume unconfined aquifer area. The April 2014 bioremediation progress continues to be favorable and observations are summarized below.

- Overall the bioremediation effectiveness charts for MW-39 (Charts G-4a,b), MW-9 (Charts G-5a,b), MW-40 (Charts G-6a,b), and MW-6 (Charts G-7a,b) show continued long-term effectiveness for reductive dechlorination of the PCE contamination. In fact, MW-40, MW-20 and MW-6 have shown nearly complete degradation of the total chlorinated ethenes (values less than 1 μMol/L) since 2007 and as of May 2012 also includes monitoring wells MW-39 and MW-9 (Chart G-1b).
- The historical presence of chlorinated ethenes in MW-39 and MW-9 that are apparently primarily due to desorption and migration of contaminants from the till (semi confined water bearing zones discussed in Section 6.1.3.3) have shown a large decline in the May 2012 through April 2014 data with MW-39, MW-40, and MW-9 now at their lowest levels ever observed since remediation was started in October 2000. This decline in total chlorinated ethenes is attributed to a reduction in the total amount of contamination present within the semi-confined till area and to partial bioremediation of the contamination that does dissolve into the groundwater, thereby leading to a reduction in the flux (concentration) of contamination that is flowing past MW-39 and MW-9.
- The April 2014 monitoring results showed adequate TOC concentrations (above 20 mg/L) for promotion of reductive dechlorination in MW-39, MW-9, and MW-40, and borderline concentrations in MW-6A at 18.7 mg/L.
- The Mann-Kendall trend analysis (Appendix I) results for the five lower plume monitoring wells that were evaluated indicate that the total chlorinated ethene molar concentrations all exhibit a decreasing trend. This includes MW-39, MW-9, MW-40, MW-6A, and MW-20.

6.1.4.3. Semi-Confined Water-Bearing Zones

Monitoring wells and injection wells in the deep source area show extreme differences in groundwater geochemistry, contamination concentrations, and bioremediation progress. These differences are consistent with the interpretation that the semi-confined water-bearing zones are not a continuous permeable aquifer but rather a series of discontinuous water-bearing layers within the till, as discussed below.

- MW-44 monitoring results suggest that complete reductive dechlorination of PCE to ethene is predominant at this location (vinyl chloride + ethene percentage over 90%

since 2009 with a couple of slight exceptions). MW-44 is also the only semi-confined water-bearing zone well to show a significant and consistent decrease in the total chlorinated ethene concentration with a value of 1.35 μMol/L in April 2014.

- Monitoring wells MW-47 and MW-48 have cis-1,2-DCE as their predominant form of total chlorinated ethenes at over 90% or in the case of MW-47 approximately 70% cis-1,2-DCE plus 25% PCE + TCE. As such complete reductive dechlorination of cis-1,2-DCE to ethene is not yet a dominant process at either MW-47 or MW-48. In fact, the total molar percentage of end products (vinyl chloride plus ethene) remains below 10 percent. To date there has been no significant overall decrease in total chlorinated ethenes in MW-47. Complete reductive dechlorination of cis-1,2-DCE to ethene has not yet become a dominant process at MW-47 and instead there has been some decline in the transformation of PCE and TCE to cis-1,2-DCE. There has also been a decline in the Dhc populations in MW-47 during the 2013 and 2014 sampling events.
- The groundwater geochemistry in MW-47 and MW-48 appear similar to each other. MW-47 and MW-48 both exhibit moderate-to-high iron, manganese, and methane concentrations, indicating high levels of iron- and manganese-reduction and methanogenesis. Furthermore Charts G-22 and G-22b show that the iron concentration trends at both wells very closely follow the TOC concentrations. This suggests that high levels of bioavailable iron are present at these locations. The high levels of bioavailable iron may be due to the oxidized backfill materials used to backfill the excavation. Suggesting that the metal-reducing organisms may be outcompeting the reductive dechlorinators.
- The complete reductive dechlorination of chlorinated ethenes being observed at MW-49 during April 2013 with a vinyl chloride + ethene percentage over 90% appears to have stopped with the April 2014 vinyl chloride + ethene percentage dropping to under 30%. Concurrently the total chlorinated ethene levels that dropped from 862 μmole/L in May 2012 to 5.73 μmole/L in April 2013 have reverted back to more historical level of 526 μmole/L in April 2014.
- Overall monitoring wells MW-50, MW-51, and MW-52 are all showing progress with regards to reductive dechlorination of chlorinated ethenes. The April 2014 results in MW-50, MW-51, and MW-52 all showed declining amounts of cis-1,2-DCE (less than 70%), and increasing amounts of vinyl chloride + ethene (nearly 30% at MW-50 with MW-51 being near 40% and MW-52 being over 90%). These monitoring well all have Dhc populations near 10^7 or greater which indicates high concentrations of Dhc that are often associated with high rates of reductive dechlorination and the production of ethene.
- Performance monitoring data from L-78, L-100, and L-101 all show reductive declorination of PCE + TCE to cis-1,2-DCE (cis-1,2-DCE molar percentages of 20% to 70% for L-78 and over 90% for L-100 and L-101). Cis-1,2-DCE reduction remains minimal with molar percentages for vinyl chloride + ethene of less than 10% for all three monitoring points.

- The Mann-Kendall trend analysis results for the seven semi-confined monitoring wells evaluated indicate that the total chlorinated ethene molar concentrations exhibit no trend at five locations that include MW-47, MW-48, MW-49, MW-50, and MW-52. A decreasing trend was observed at monitoring wells MW-44 and MW-51.
- Chart G-1c also shows that the total chlorinated ethene concentrations in the semi-confined monitoring wells appear to be showing an overall declining trend.

Overall reductive dechlorination is being observed within the semi-confined water bearing till materials, albeit at different rates depending on the location. Continued reductive dechlorination was observed at MW-44 and improved progress was observed at locations (MW-50, MW-51, and MW-52), while other locations (MW-47, MW-48, MW-49, L-78, L-100, and L-101) showed only minimal signs of reductive dechlorination (i.e., VC + ethene percentage less than 10%).

The literature indicates that the optimal pH range for Dhc is at pH 6 to 8.5. While the Table 5-1 data for River Terrace does not show a consistent relationship between pH and Dhc populations, it does appear that when the pH is 7 or above the Dhc populations are greater with the data showing $3x10^6$ Dhc gene copies per liter or greater.

6.2. Recommendations

Overall TOC concentrations are adequate (above 20 mg/L) for promotion of reductive dechlorination or, if TOC concentrations are below 20 mg/L, complete reductive dechlorination is already being observed (e.g., MW-36 and MW-42 in upper plume area and MW-50 and MW-51 in lower plume semi-confined till unit). The only exception is L-100 in the lower plume semi-confined till unit. Therefore no HRC injections are recommended at this time.

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FIGURES

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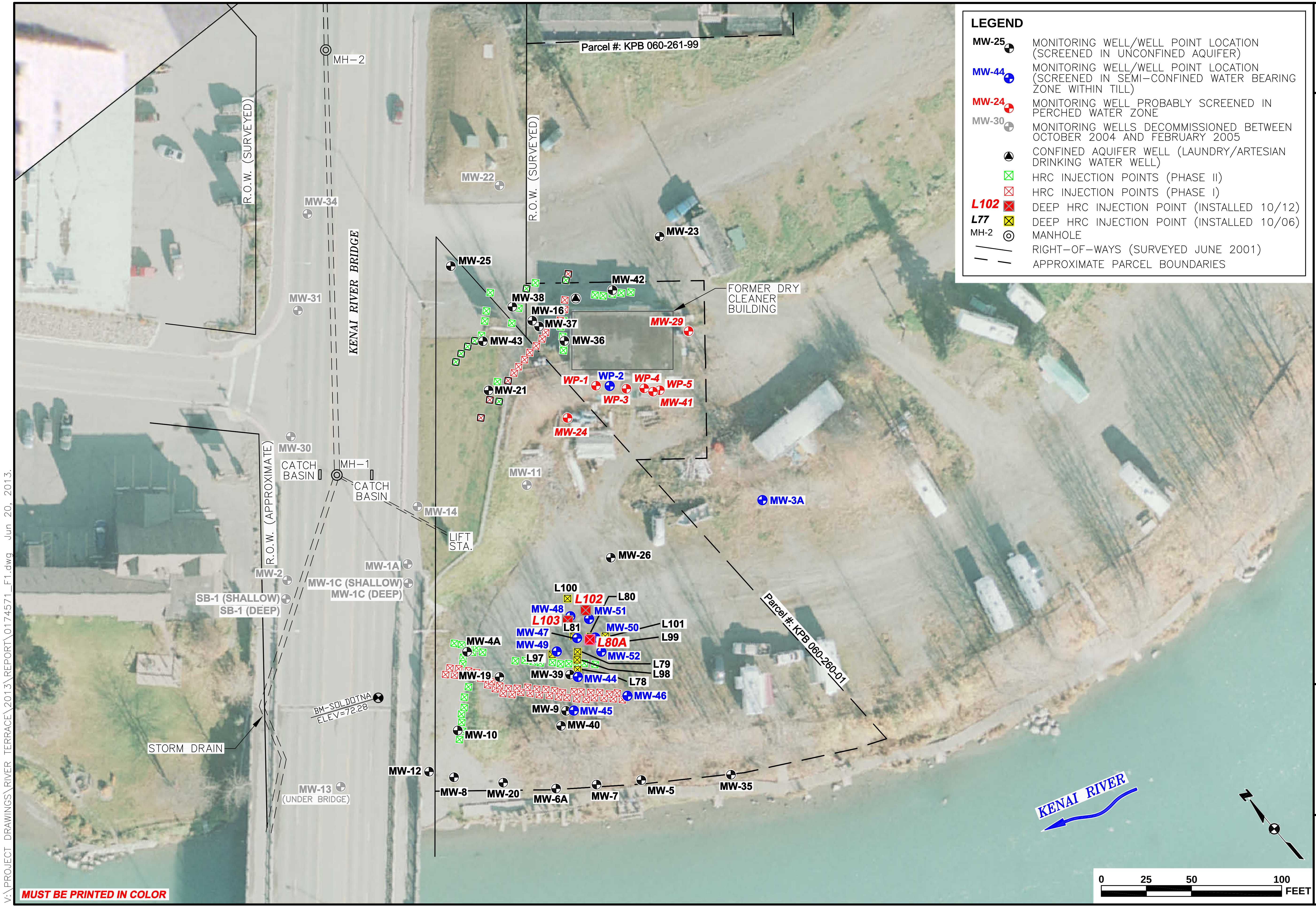


SOURCE: AERIAL PHOTOGRAPH SOLDOTNA9-30-06.TIF DATED 9/30/2006 PROVIDED BY AEROMAP INC.

FIGURE 1

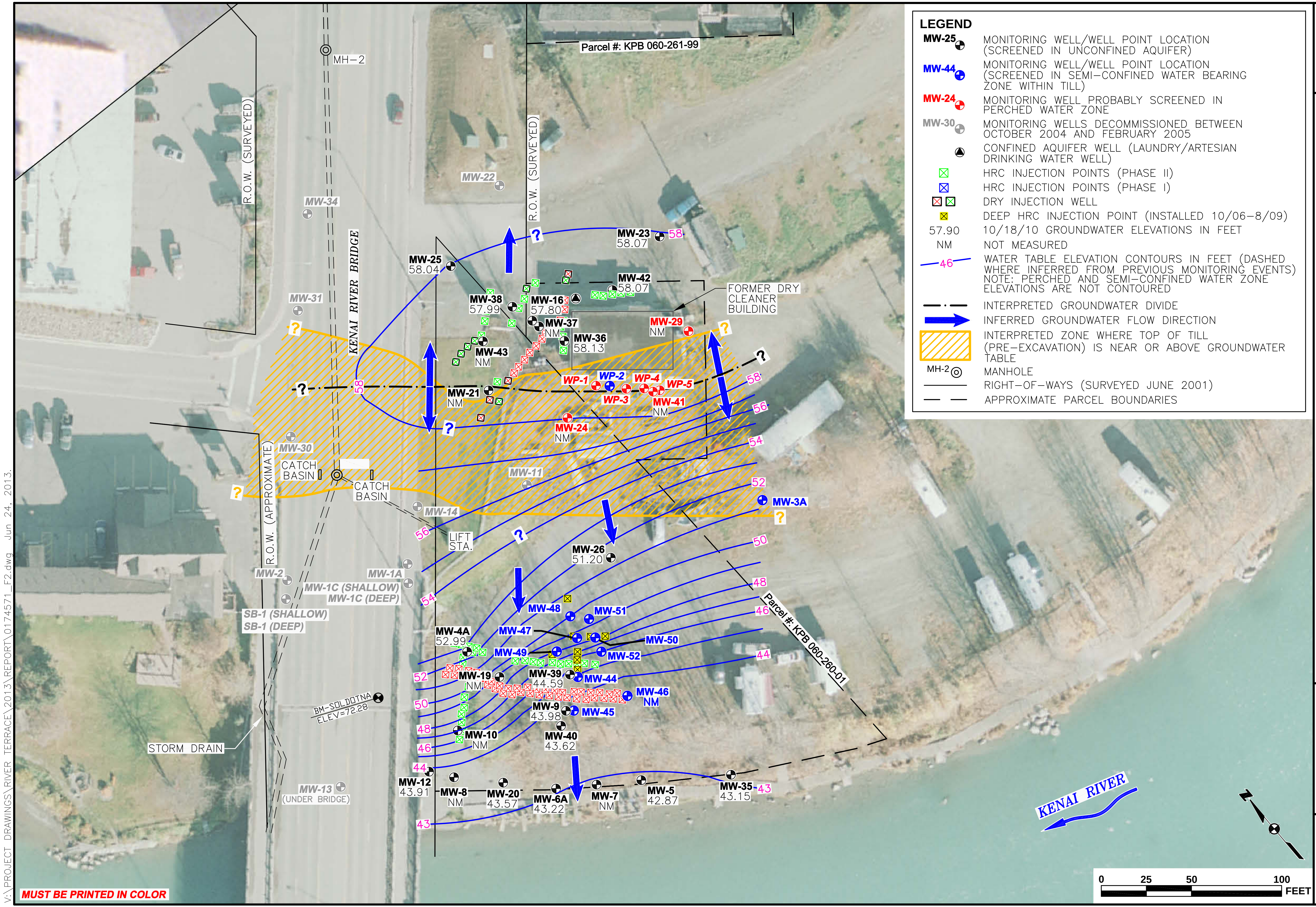
SITE MAP

RIVER TERRACE RV PARK
Soldotna, Alaska

DATE: JUNE 2013
CHKD: T.M.
DRAWN: D.R.F.
PROJ. No.: 0174571

825 W. 8th Ave., Anchorage,
AK 99501, (907) 258-4880

ERM



LEGEND

MW-25	MONITORING WELL/WELL POINT LOCATION (SCREENED IN UNCONFINED AQUIFER)
MW-44	MONITORING WELL/WELL POINT LOCATION (SCREENED IN SEMI-CONFINED WATER BEARING ZONE WITHIN TILL)
MW-24	MONITORING WELL PROBABLY SCREENED IN PERCHED WATER ZONE
MW-30	MONITORING WELLS DECOMMISSIONED BETWEEN OCTOBER 2004 AND FEBRUARY 2005
▲	CONFINED AQUIFER WELL (LAUNDRY/ARTESIAN DRINKING WATER WELL)
☒	HRC INJECTION POINTS (PHASE II)
☒	HRC INJECTION POINTS (PHASE I)
☒ ☒	DRY INJECTION WELL
☒	DEEP HRC INJECTION POINT (INSTALLED 10/06-8/09)
57.90	10/18/10 GROUNDWATER ELEVATIONS IN FEET
NM	NOT MEASURED
46	WATER TABLE ELEVATION CONTOURS IN FEET (DASHED WHERE INFERRED FROM PREVIOUS MONITORING EVENTS) NOTE: PERCHED AND SEMI-CONFINED WATER ZONE ELEVATIONS ARE NOT CONTOURED
— · —	INTERPRETED GROUNDWATER DIVIDE
➡	INFERRED GROUNDWATER FLOW DIRECTION
▨	INTERPRETED ZONE WHERE TOP OF TILL (PRE-EXCAVATION) IS NEAR OR ABOVE GROUNDWATER TABLE
MH-2 ◎	MANHOLE
——	RIGHT-OF-WAYS (SURVEYED JUNE 2001)
— —	APPROXIMATE PARCEL BOUNDARIES

FIGURE
2

APRIL, 2013 WATER TABLE CONTOURS

RIVER TERRACE RV PARK
2013 APRIL GROUNDWATER MONITORING REPORT
Soldotna, Alaska

DATE: JUNE 2013
CHKD: T.M.
DRAWN: D.R.F.
PROJ. No.: 0174571

825 W. 8th Ave., Anchorage,
AK 99501, (907) 258-4880

ERM

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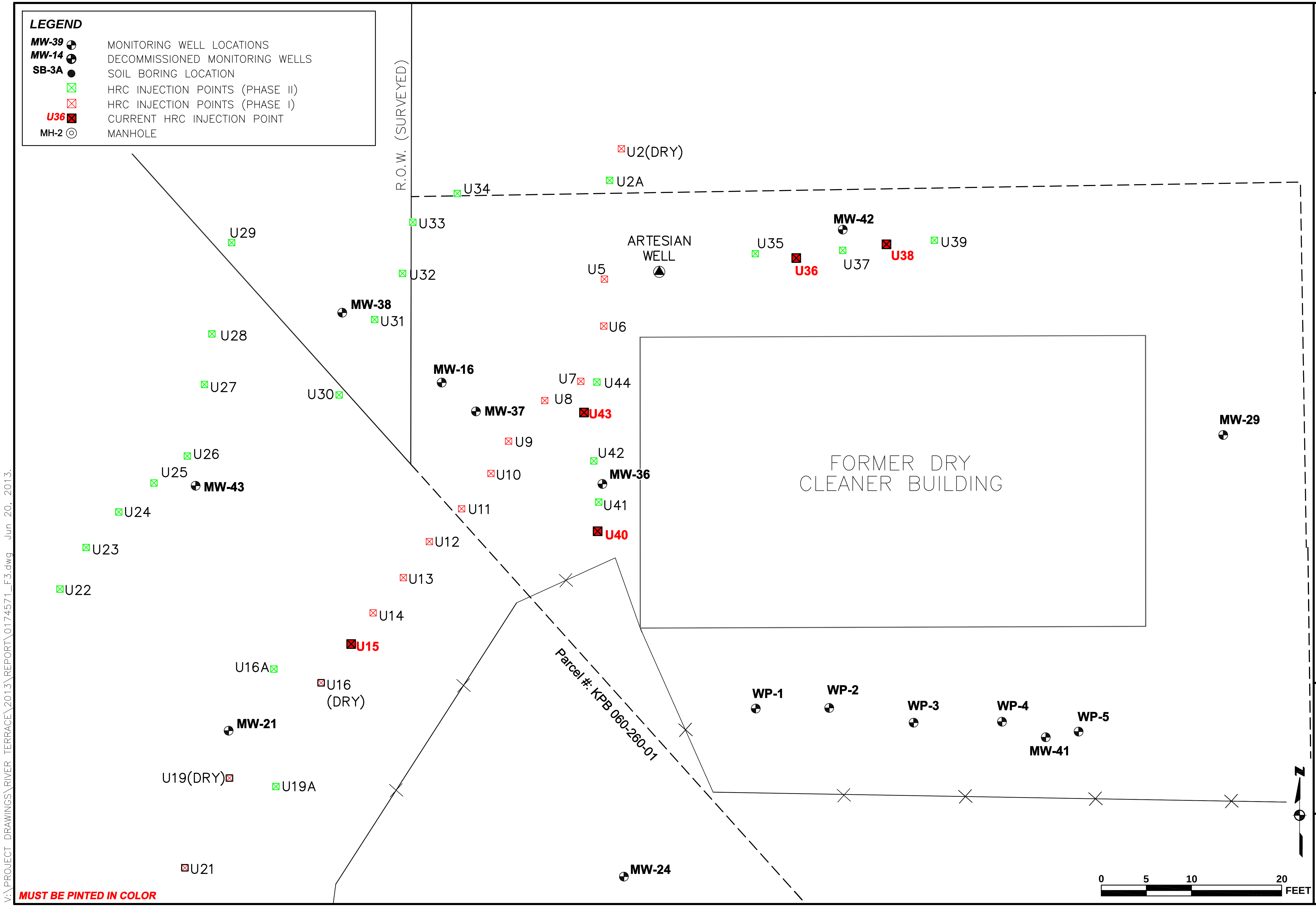

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FIGURE
3

UPPER PLUME ENLARGED
HRC INJECTION LOCATIONS

RIVER TERRACE RV PARK
Soldatna, Alaska

DATE: JUNE 2013
CHKD: T.M.
DRAWN: D.R.F
PROJ. No.: 0174571
825 W. 8th Ave., Anchorage,
AK 99501, (907) 258-4880

ERM

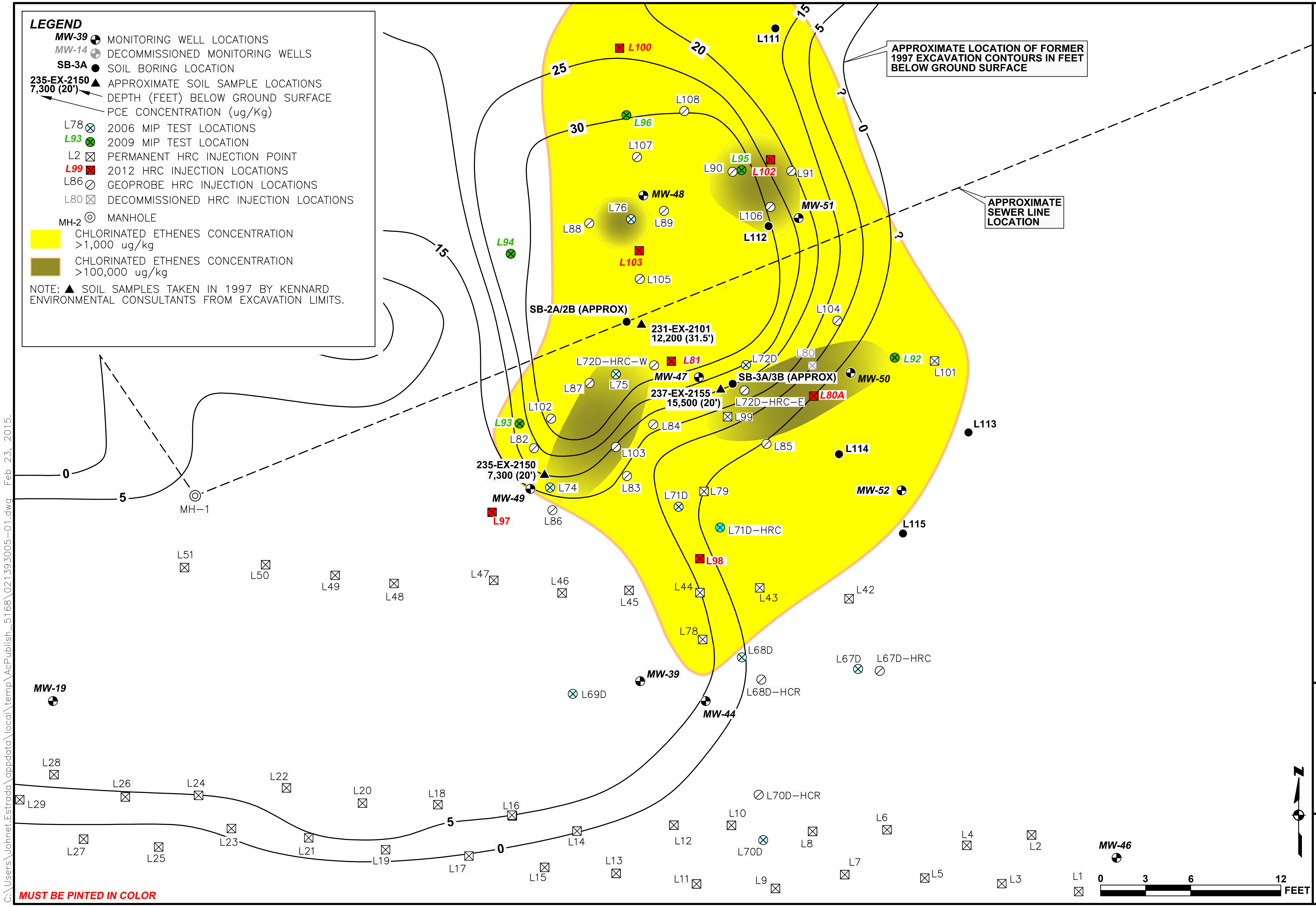

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FIGURE 4

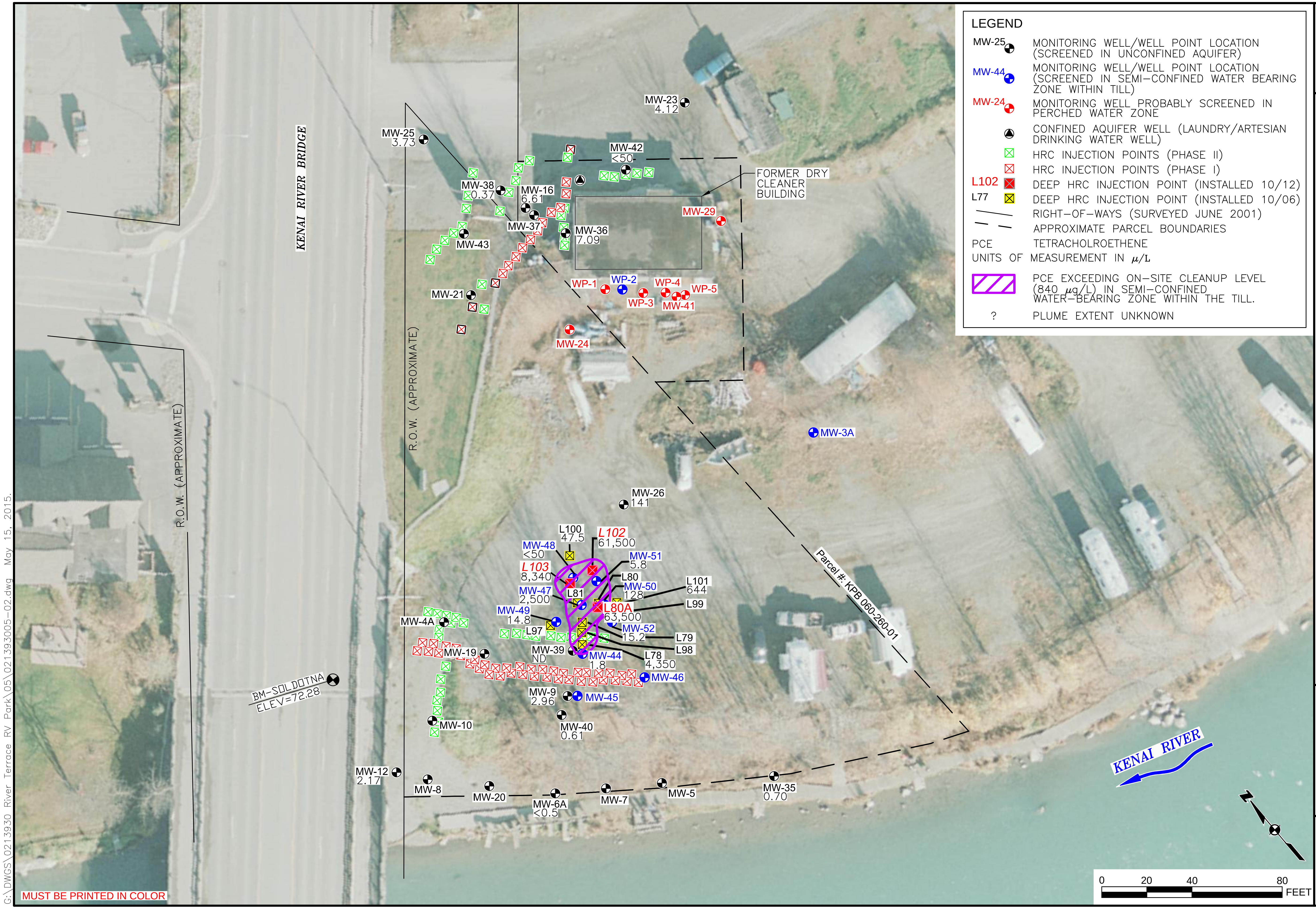
LOWER PLUME ENLARGED HRC INJECTION LOCATIONS

RIVER TERRACE RV PARK
Soldatna, Alaska

DATE: FEB. 2015
CHKD: T.M.
DRAWN: JSE
PROJ. No.: 0213930

ERM
825 W. 8th Ave., Anchorage, AK 99501, (907) 258-4880

G:\DWGS\0213930 River Terrace RV Park\05\0213930005-02.dwg May 15, 2015.



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SOURCE: AERIAL PHOTOGRAPH SOLDOTNA9-30-06.TIF DATED 9/30/2006 PROVIDED BY AEROMAP INC.

FIGURE 5

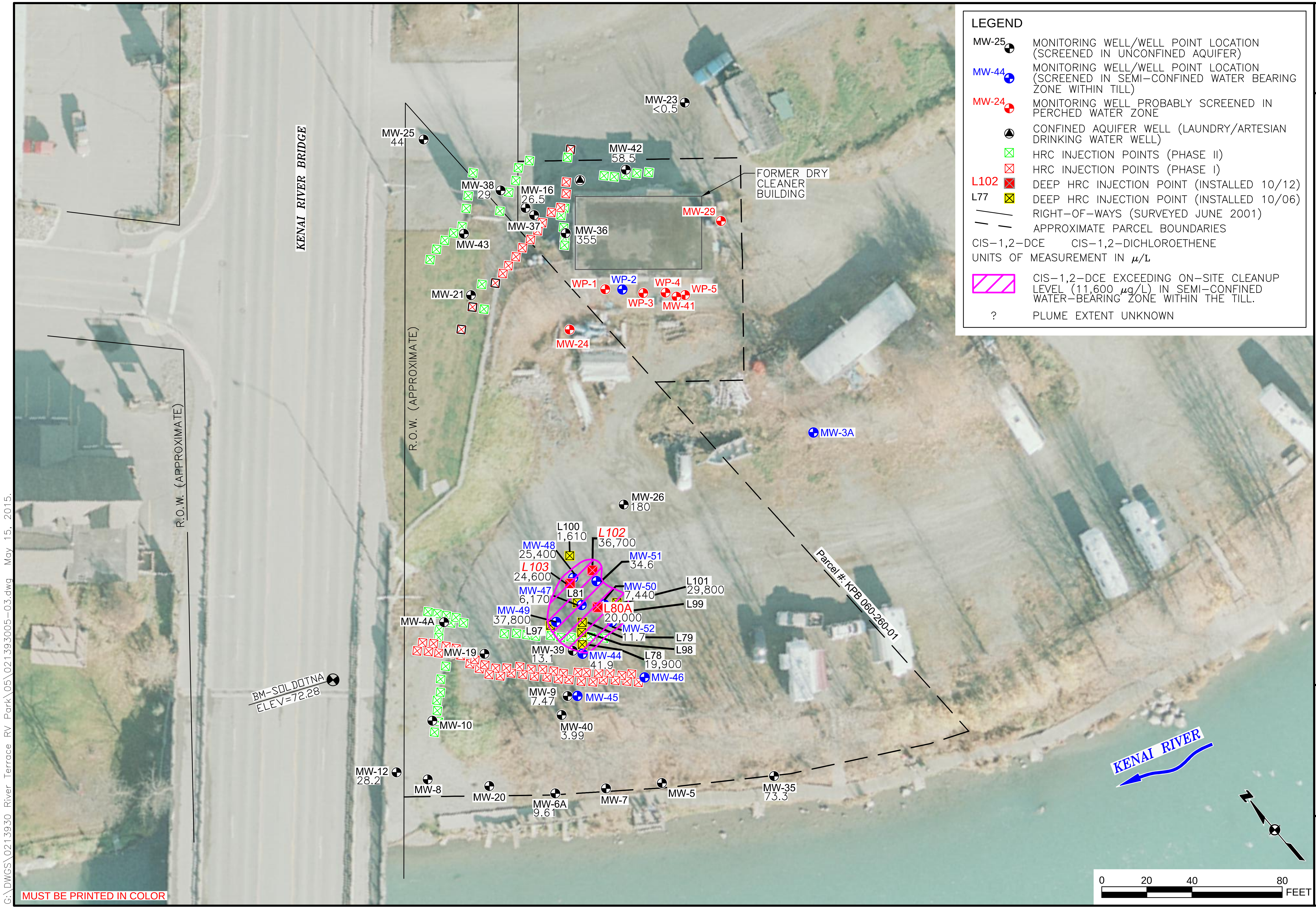
PCE EXTENT AND CONCENTRATION MAP

RIVER TERRACE RV PARK
Soldotna, Alaska

DATE: MAY 2015
CHKD: T.M.
DRAWN: JSE
PROJ. No.: 0213930

825 W. 8th Ave., Anchorage,
AK 99501, (907) 258-4880

ERM



LEGEND

MW-25 ●	MONITORING WELL/WELL POINT LOCATION (SCREENED IN UNCONFINED AQUIFER)
MW-44 ●	MONITORING WELL/WELL POINT LOCATION (SCREENED IN SEMI-CONFINED WATER BEARING ZONE WITHIN TILL)
MW-24 ●	MONITORING WELL PROBABLY SCREENED IN PERCHED WATER ZONE
▲	CONFINED AQUIFER WELL (LAUNDRY/ARTESIAN DRINKING WATER WELL)
☒	HRC INJECTION POINTS (PHASE II)
☒	HRC INJECTION POINTS (PHASE I)
L102 ☒	DEEP HRC INJECTION POINT (INSTALLED 10/12)
L77 ☒	DEEP HRC INJECTION POINT (INSTALLED 10/06)
———	RIGHT-OF-WAYS (SURVEYED JUNE 2001)
— —	APPROXIMATE PARCEL BOUNDARIES
CIS-1,2-DCE	CIS-1,2-DICHLOROETHENE
UNITS OF MEASUREMENT IN μ/L	
▨	CIS-1,2-DCE EXCEEDING ON-SITE CLEANUP LEVEL (11,600 μg/L) IN SEMI-CONFINED WATER-BEARING ZONE WITHIN THE TILL.
?	PLUME EXTENT UNKNOWN

SOURCE: AERIAL PHOTOGRAPH SOLDOTNA9-30-06.TIF DATED 9/30/2006 PROVIDED BY AEROMAP INC.

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FIGURE
6

CIS-1,2-DCE EXTENT AND CONCENTRATION MAP

RIVER TERRACE RV PARK
Soldotna, Alaska

DATE: MAY 2015
CHKD: T.M.
DRAWN: JSE
PROJ. No.: 0213930

825 W. 8th Ave., Anchorage,
AK 99501, (907) 258-4880

ERM

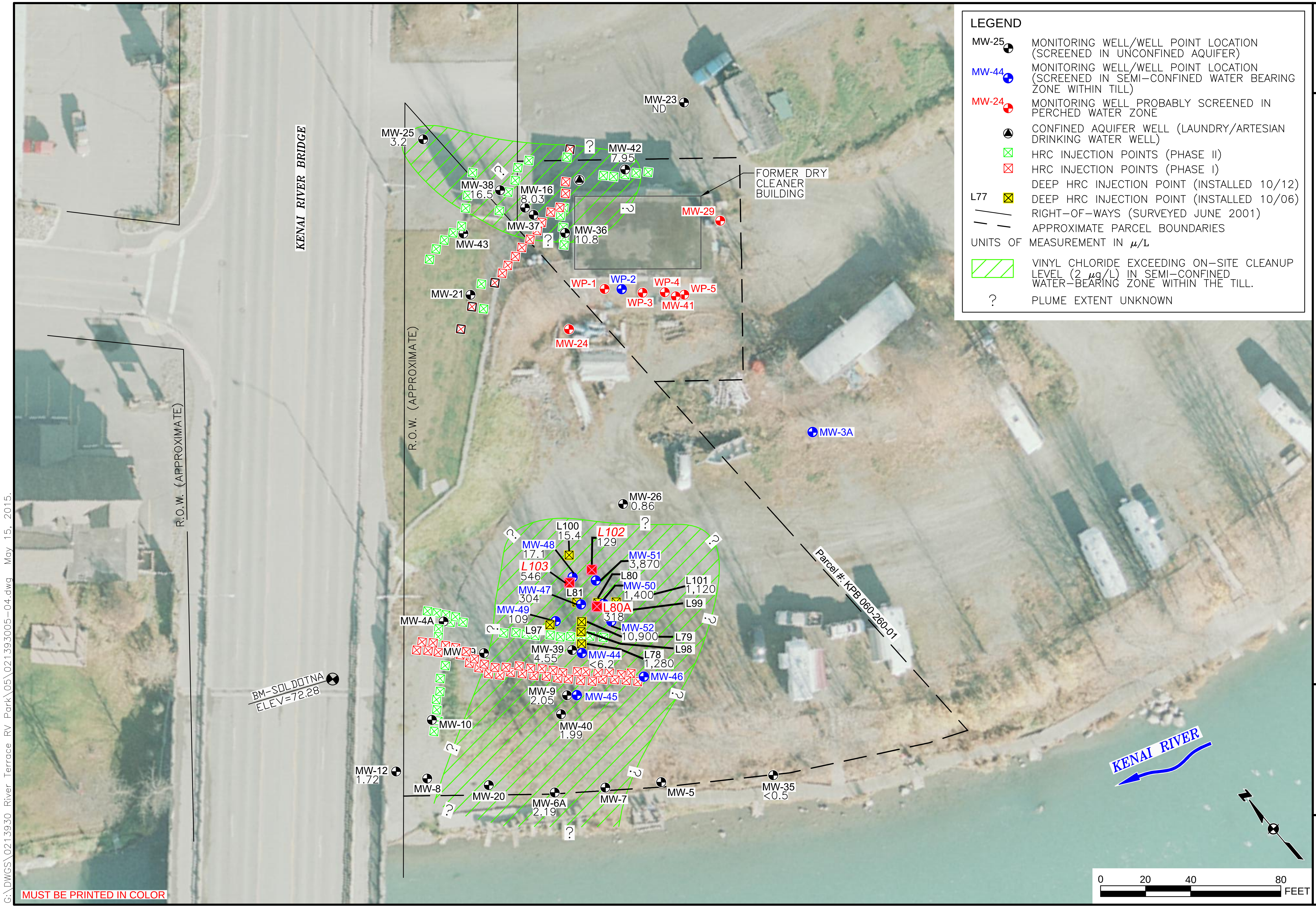

FIGURE 7

VINYL CHLORIDE EXTENT AND CONCENTRATION MAP

RIVER TERRACE RV PARK
Soldotna, Alaska

DATE: MAY 2015
CHKD: T.M.
DRAWN: JSE
PROJ. No.: 0213930

ERM
825 W. 8th Ave., Anchorage, AK 99501, (907) 258-4880

G:\DWGS\0213930 River Terrace RV Park\05\021393005-04.dwg May 15, 2015.

SOURCE: AERIAL PHOTOGRAPH SOLDOTNA9-30-06.TIF DATED 9/30/2006 PROVIDED BY AEROMAP INC.

APPENDIX A

Summary of Groundwater Analytical Data

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-1A	97RTGW502GW	Project Sample	7/18/1997	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-1A	97RTGW503GW	QC Duplicate	7/18/1997	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-1A	MW-1A	Project Sample	10/29/1997	<1	<1	<1	<1	<1	<1	<1
MW-1A	MW-1A	Project Sample	12/31/1997	<1	<1	<1	0.94 J	<1	<1	<1
MW-1A	MW-1A	Project Sample	6/29/1998	<1	<1	<1	<1	<1	<1	<1
MW-1A	MW-1B	QC Duplicate	6/29/1998	<1	<1	<1	<1	<1	<1	<1
MW-1A	MW-1A	Project Sample	10/20/1998	<1	<1	<1	<1	<1	<1	<1
MW-1A	99-RT-006-GW	Project Sample	7/8/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-1A	03-RT-057-GW	Project Sample	6/19/2003	<0.4	<1	<1	1.11	<1	4.3	25.9
MW-1A	03-RT-102-GW	Project Sample	10/7/2003	<0.4	<1	<1	<1	<1	<1	<1
MW-1A	04-RT-065-GW	Project Sample	10/22/2004	<0.4	<1	<1	<1	<1	<1	<1
MW-1C(deep)	97RTGW504GW	Project Sample	7/18/1997	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-1C(deep)	MW-1C	Project Sample	4/23/1998	<1	<1	<1	<1	<1	<1	<1
MW-1C(deep)	MW-1C	Project Sample	6/29/1998	<1	<1	<1	<1	<1	<1	<1
MW-1C(deep)	MW-1C	Project Sample	10/20/1998	<1	<1	<1	<1	<1	<1	<1
MW-1C(deep)	MW-1C	Project Sample	4/16/1999	<1	<1	<	<1	<1	<1	<1
MW-1C(deep)	99-RT-007-GW	Project Sample	7/8/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-1C(deep)	03-RT-104-GW	Project Sample	10/8/2003	0.41	<1	<1	<1	<1	<1	<1
MW-1C (shallow)	03-RT-058-GW	Project Sample	6/19/2003	<0.4	<1	<1	<1	<1	<1	3.2
MW-2	97RTGW505GW	Project Sample	7/18/1997	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-2	MW-2	Project Sample	10/28/1997	<1	<1	<1	<1	<1	<1	<1
MW-2	MW-2	Project Sample	4/23/1998	<1	<1	<1	<1	<1	<1	<1
MW-2	MW-2	Project Sample	6/29/1998	<1	<1	<1	<1	<1	<1	<1
MW-2	MW-2	Project Sample	10/19/1998	<1	<1	<1	<1	<1	<1	<1
MW-2	99-RT-009-GW	Project Sample	7/8/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-2	03-RT-059-GW	Project Sample	6/19/2003	<0.4	<1	<1	<1	<1	<1	2.06
MW-2	03-RT-106-GW	Project Sample	10/8/2003	<0.4	<1	<1	<1	<1	<1	<1
MW-3	97RTGW509GW	Project Sample	7/18/1997	<2 C,H	<2 C,H	<2 C,H	140 C,H	6 C,H	<2 C,H	6 C,H
MW-3A	MW-3A	Project Sample	8/2/1998	<1	<1	<1	<1	<1	<1	<1
MW-3A	MW-3A	Project Sample	10/19/1998	<1	<1	<1	<1	<1	<1	<1

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-3A	MW-3A	Project Sample	4/16/1999	<1	<1	<1	<1	<1	<1	<1
MW-3A	99-RT-004-GW	Project Sample	7/7/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3A	99-RT-041-GW	Project Sample	10/26/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1
MW-3A	99-RT-088-GW	Project Sample	12/14/1999	<1	<1	<1	<1	<1	<1	1.3
MW-3A	00-RT-028-GW	Project Sample	3/25/2000	<1	<1	<1 J	<1	<1	<1	1.4
MW-3A	00-RT-029-GW	QC Duplicate	3/25/2000	<1	<1	<1 J	<1	<1	<1	1.1
MW-3A	00-RT-030-GW	QA Duplicate	3/25/2000	<1	<2	<1	<1	<1	<1	<1
MW-3A	00-RT-060-GW	Project Sample	6/8/2000	<1	<2	<1	<1	<1	<1	3.6
MW-3A	01-RT-111-GW	Project Sample	10/17/2001	<0.7 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J
MW-3A	02-RT-072-GW	Project Sample	9/26/2002	<1	<1	<1	<1	<1	<1	<1
MW-3A	04-RT-067-GW	Project Sample	10/23/2004	<0.4	<1	<1	<1	<1	<1	<1
MW-4	97RTGW513GW	Project Sample	7/22/1997	<50 C	<50 C	<50 C	87 C	<50 C	<50 C	1500 C
MW-4A	MW-4A	Project Sample	8/1/1998	7.56	<1	3.31	2380	23.6	432	3540
MW-4A	MW-14A	QC Duplicate	10/20/1998	5	<1	1	2300 D5,J,H	43	310 D5,J,H	2500 D5,J,H
MW-4A	MW-4A	Project Sample	10/20/1998	5	<1	<1	2300 D5,J,H	39	300 D5,J,H	2400 D5,J,H
MW-4A	MW-24	QC Duplicate	12/29/1998	7	<1	4	2500 D	44	350 D	2900 D
MW-4A	MW-4A	Project Sample	12/29/1998	6	<1	<1	2400 D	39	330 D	3000 D
MW-4A	MW-4A	Project Sample	4/15/1999	2.93	<1	<1	1120	12.3	235	1410
MW-4A	MW-4A replicate	QA Duplicate	4/15/1999	---	<	<	1300	14	280	2400
MW-4A	MW-4Aduplicate	QC Duplicate	4/15/1999	2.97	<1	<1	1140	11.9	238	1330
MW-4A	MW-4Aresample	Project Sample	5/10/1999	3.74	<1	1.04	1880	19.6	327	2300
MW-4A	99-RT-021-GW	Project Sample	7/9/1999	<5	<5	<5	1400	26	380	1900
MW-4A	99-RT-065-GW	Project Sample	10/28/1999	3.2	0.53	1.1	1600 J,H	33	250 J,H	1600 J,H
MW-4A	99-RT-100-GW	Project Sample	12/14/1999	<2	<2	<2	1000	<2	150	1200
MW-4A	00-RT-007-GW	Project Sample	3/24/2000	<1	<1 J	<1	300 J,H	13	71	510 J,H
MW-4A	00-RT-048-GW	Project Sample	6/7/2000	1	<2	<1	630	10	91	410
MW-4A	00-RT-049-GW	QC Duplicate	6/7/2000	<10	<20	<10	850	<10	160	1000
MW-4A	00-RT-050-GW	QA Duplicate	6/7/2000	1.2	<0.5	0.55	780	22	160	900
MW-4A	00-RT-119-GW	Project Sample	9/28/2000	<1	<2	<1	690 VJ	9.7	190	490
MW-4A	01-RT-017-GW	Project Sample	1/10/2001	<20	<20	<20	600	<20	140	530
MW-4A	01-RT-018-GW	QC Duplicate	1/10/2001	<20	<20	<20	600	<20	140	530
MW-4A	01-RT-019-GW	QA Split	1/10/2001	---	<10	---	856	10	188	799
MW-4A	01-RT-047-GW	Project Sample	3/22/2001	<2	<2	<2	649	33.6	114	969
MW-4A	01-RT-080-GW	Project Sample	6/25/2001	<2	<2	<2	638	8.43	102	623

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
MW-4A	01-RT-097-GW	Project Sample	10/15/2001	---	<10	---	1310	<10	15.1	27.2
MW-4A	01-RT-098-GW	QC Duplicate	10/15/2001	---	<10	---	1270	<10	16.6	27.1
MW-4A	01-RT-099-GW	QA Split	10/15/2001	20 J,H	<10 J,H	<10 J,H	1370 J	<10 J,H	16.7 J,H	31 J,H
MW-4A	01-RT-139-GW	Project Sample	1/15/2002	---	<10	---	2290	16.6	68.9	54.6
MW-4A	02-RT-012-GW	Project Sample	3/13/2002	4.15	<2	4.31	3100	24	114	44.8
MW-4A	02-RT-048-GW	Project Sample	6/19/2002	<2 J	<2 J	<2 J	1180 J	9.32 J	59.4 J	38.3 J
MW-4A	02-RT-065-GW	Project Sample	9/27/2002	<1	<1	1.3	1300	10	180	100
MW-4A	02-RT-115-GW	Project Sample	12/19/2002	0.55	<1	<1	658	11.5	110	342
MW-4A	03-RT-015-GW	Project Sample	3/11/2003	<0.4	<1	<1	271	3.44	47.8	61.2
MW-4A	03-RT-034-GW	Project Sample	6/17/2003	---	<5	---	617	7.8	57.4	45
MW-4A	03RT-080-GW	Project Sample	9/18/2003	---	<5	---	950	8.2	139	116
MW-4A	04-RT-004-GW	Project Sample	1/20/2004	---	<1	---	1320	11.8	95.7	110
MW-4A	04-RT-015-GW	Project Sample	3/31/2004	---	<1	---	625	5.4	28.2	24.3
MW-4A	04-RT-030-GW	QC Duplicate	6/8/2004	---	<5	---	854	6.8	<5	<5
MW-4A	04-RT-036-GW	Project Sample	6/8/2004	---	<5	---	808	6.4	<5	<5
MW-4A	04-RT-051-GW	Project Sample	10/29/2004	---	1	---	798	7.1	22.3	8.1
MW-4A	05-RT-005-GW	Project Sample	2/23/2005	---	1.2	---	970	9	4.8 VJ	<1
MW-4A	05-RT-011-GW	QC Duplicate	2/23/2005	---	<5	---	979	7.3	21.8 VJ	<5
MW-4A	05-RT-012-GW	QA Split	2/23/2005	0.4	1.55	<1	879	9.81	7.63 VJ	<1
MW-4A	05-RT-019-GW	QA Duplicate	2/23/2005	0.53	1.58	<1	906	8.93	21.6 VJ	2.76
MW-4A	05-RT-048-GW	Project Sample	10/11/2005	---	<10	---	274 VM	<10	<10	<10
MW-4A	06-RT-011-GW	Project Sample	5/25/2006	---	2.1	---	395	4.8	2	<1
MW-4A	06-RT-044-GW	Project Sample	9/12/2006	<0.5	<0.5	<0.5	200	1.9	48	28
MW-4A	07-RT-027-GW	Project Sample	9/18/2007	---	<1	---	151	1.5	2.7	22.9
MW-4A	08-RT-016-GW	Project Sample	5/13/2008	<0.4	0.84	<1	98	1.63	50	41.2
MW-4A	08-RT-030-GW	Project Sample	9/17/2008	0.23	3.25 VJ	<1	312	2.92	25.5 VM	4.14
MW-4A	09-RT-084-GW	Project Sample	10/7/2009	<0.12	5.28	<0.31	243	3.32	3.78	7.9 VJ
MW-4A	10-RT-103-GW	Project Sample	10/21/2010	<0.12	4.17	<0.31	253	2.18	3.35	6.04
MW-4A	12-RT-020-GW	QA Split	5/9/2012	---	<1	---	21.6	<1	5.9	16.9
MW-4A	12-RT-027-GW	Project Sample	5/9/2012	<0.12 VH	0.61 VH	<0.31 VH	23.7 VH	0.41 VH	7.15 VH	15 VH
MW-4A	12-RT-041-GW	QC Duplicate	5/9/2012	<0.12	0.55	<0.31	18.1	<0.31	3.96 VJ	14.8
MW-4A	13-RT-032-GW	QC Duplicate	4/10/2013	<0.24	<0.62	<0.62	9.16 VR	<0.62	<0.62	2.1
MW-4A	13-RT-036-GW	Project Sample	4/10/2013	<0.24	<0.62	<0.62	<0.62	<0.62	<0.62	1.68
MW-5	97RTGW510GW	Project Sample	7/22/1997	<5 C,H	<5 C,H	<5 C,H	330 C,H	<5 C,H	26 C,H	18 C
MW-5	MW-5	Project Sample	10/28/1997	<1	<1	<1	74	1.11	3.8	4.15

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-5	MW-5	Project Sample	12/31/1997	<1	<1	<1	137	1.22	8.05	9.15
MW-5	MW-5	Project Sample	6/30/1998	<1	<1	<1	69.3	<1	6.48	10.4
MW-5	MW-5	Project Sample	12/28/1998	<1	<1	<1	73	2	5	18
MW-5	MW-5	Project Sample	4/15/1999	<1	<1	<1	58.9	<1	4.35	10.9
MW-5	99-RT-023-GW	Project Sample	7/10/1999	<0.5	<0.5	<0.5	120	4.2	14	31
MW-5	99-RT-102-GW	Project Sample	12/15/1999	<1	<1	<1	110	3.2	7.5	28
MW-5	00-RT-054-GW	Project Sample	6/7/2000	<1	<2	<1	37	<1	2.3	4.1 J
MW-5	00-RT-121-GW	Project Sample	9/29/2000	<1	<2	<1	100	<1	2.1	2.3
MW-5	01-RT-119-GW	Project Sample	10/18/2001	<2 J	<2 J	<2 J	84.3 J	<2 J	2.31 J	4.26 J
MW-5	02-RT-073-GW	Project Sample	9/26/2002	<2	<1	<2	210	<2	5	12
MW-5	03-RT-115-GW	Project Sample	10/8/2003	<0.4	<1	<1	290	<1	4.68	14.2
MW-5	04-RT-068-GW	Project Sample	10/23/2004	<0.4	2.2	<1	289	<1	3.1	4.06
MW-5	05-RT-056-GW	Project Sample	10/13/2005	<0.4	3.73	<1	205	<1	2.15	2.92
MW-5	06-RT-045-GW	Project Sample	9/13/2006	<0.5	0.68	<0.5	72	0.68	3.5	0.95
MW-5	07-RT-028-GW	Project Sample	9/20/2007	---	3.9 VH	---	57.7 VH	<1 VH	2.8 VH	2.8 VH
MW-5	08-RT-050-GW	Project Sample	9/20/2008	<0.4	<1	<1	22.4	<1	1.99	1.52
MW-5	13-RT-007-GW	Project Sample	4/10/2013	<0.24	<0.62	<0.62	9.64	<0.62	0.7	1.1
MW-6	97RTGW512GW	Project Sample	7/22/1997	<50 C	<50 C	<50 C	3400 C	<50 C	970 C	1900 C
MW-6	MW-15	QC Duplicate	10/28/1997	5.17	3.68	1.91	1400	34.4	246	198
MW-6	MW-6	Project Sample	10/28/1997	5.8	4.5	2.2	2500	36	450	380
MW-6	MW-15	QC Duplicate	12/31/1997	<10	<10	<10	851	19	303	179
MW-6	MW-6	Project Sample	12/31/1997	5.61	3.07	1.46	1820	22.5	305	183
MW-6	MW-15	QC Duplicate	4/23/1998	4.9	2.04	<1	792	20.1	250	165
MW-6	MW-6	Project Sample	4/23/1998	4.86	2.13	<1	792	20	238	139
MW-6	MW-6	Project Sample	6/29/1998	<1	<1	<1	536	14.8	195	87.5
MW-6	MW-6	Project Sample	10/21/1998	3	1	1	1700 D5,J,H	24	150	69
MW-6	MW-6	Project Sample	12/28/1998	2	2	1	1500 D	19	140	110
MW-6	MW-6	Project Sample	4/15/1999	3.37	2.85	1.62	1410	14.2	123	135
MW-6	99-RT-013-GW	Project Sample	7/8/1999	<25	3 J,H	<25	1200	<25	210	180
MW-6	99-RT-014-GW	QC Duplicate	7/8/1999	<25	<25	<25	1200	<25	210	190
MW-6	99-RT-015-GW	QA Duplicate	7/8/1999	<100	<200	<100	1700	<100	270	240
MW-6	99-RT-045-GW	Project Sample	10/26/1999	4	3.7	2.3	2200	22	400	980
MW-6	99-RT-104-GW	Project Sample	12/15/1999	<2	<2	<2	950	<10	180	560
MW-6	00-RT-035-GW	Project Sample	3/25/2000	2	1.5	<1 J	1300 J,H	22	180	660 J,H
MW-6	00-RT-045-GW	Project Sample	6/7/2000	1.8	<2	<1	930	9.7	180	330

Appendix A
July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products
River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
MW-6	00-RT-109-GW	Project Sample	9/27/2000	---	2.2	---	865	11.8	71.3	70.3
MW-6	00-RT-130-GW	Project Sample	11/28/2000	---	<5	---	2230	27.4	7.7	<5
MW-6	00-RT-131-GW	QC Duplicate	11/28/2000	---	<5	---	2440	24.9	7.8	<5
MW-6	00-RT-139-GW	QA Duplicate	11/28/2000	3	2 VJ	1.9	1900	14	4.1	2.5
MW-6	01-RT-001-GW	Project Sample	1/11/2001	---	3.1 VJ	---	1720	16.9	<10	14.9
MW-6	01-RT-030-GW	Project Sample	3/8/2001	---	<10	---	1330	13.9	<10	<10
MW-6	01-RT-031-GW	QC Duplicate	3/8/2001	---	<10	---	1280	14	<10	<10
MW-6	01-RT-039-GW	QA Split	3/8/2001	2.5 VJ	2.3 VJ	1.1 VJ	1100 VJ	15 VJ	0.83 VJ	1.3 VJ
MW-6	01-RT-076-GW	Project Sample	5/22/2001	---	<10	---	1390	12.1	<10	<10
MW-6	01-RT-089-GW	Project Sample	10/16/2001	---	<10	---	1710	<10	<10	<10
MW-6	01-RT-128-GW	Project Sample	1/15/2002	---	<10	---	1600	18.2	<10	<10
MW-6	02-RT-002-GW	Project Sample	3/13/2002	2.7	4.83	2.29	1770	15.8	2.33	<2
MW-6	02-RT-040-GW	Project Sample	6/19/2002	0.486 J	1.24 J	0.519 J	2010 J	3.89 J	<0.4 J	<0.4 J
MW-6	02-RT-061-GW	Project Sample	9/27/2002	2.7	6	2.3	2200	19	<1	<1
MW-6	02-RT-116-GW	Project Sample	12/18/2002	2.62	7.32	3.12	2280	25.3	<1	<1
MW-6	03-RT-004-GW	Project Sample	2/4/2003	---	<20	---	2750	22.6	<20	<20
MW-6	03-RT-016-GW	Project Sample	3/11/2003	3.33	15.5	3.9	2870	43.3	<1	<1
MW-6	03-RT-017-GW	QC Duplicate	3/11/2003	3.5	17	3.98	3030	36	<1	<1
MW-6	03-RT-018-GW	QA Split	3/11/2003	---	13.6	---	2940	30	<10	<10
MW-6	03-RT-032b-GW	Project Sample	6/17/2003	---	<25	---	1930	<25	<25	<25
MW-6	03RT-085-GW	Project Sample	9/19/2003	---	16.5	---	2230	24.4	<10	18.5
MW-6	04-RT-010-GW	Project Sample	1/20/2004	---	98.8	---	2740	28.6	<20	<20
MW-6	04-RT-021-GW	Project Sample	3/29/2004	---	148	---	2640	35.2	<1	<1
MW-6	04-RT-025-GW	Project Sample	6/7/2004	---	77.8	---	1440	15.7	<5	<5
MW-6	04-RT-052-GW	Project Sample	10/30/2004	---	439	---	1270	27.1	<1	<1
MW-6	05-RT-006-GW	Project Sample	2/24/2005	---	209	---	174	10.7	<1	<1
MW-6	05-RT-020-GW	Project Sample	6/2/2005	---	204	---	212	<1	<1	<1
MW-6	05-RT-049-GW	Project Sample	10/11/2005	---	25.4	---	58.4 VM	<5	<5	<5
MW-6	06-RT-012-GW	Project Sample	5/25/2006	---	98.8	---	68.9	3.6	<1	<1
MW-6	06-RT-019-GW	QA Split	5/25/2006	1.05	102	<1	62.1	3.04	<1	<1
MW-6	06-RT-033-GW	Project Sample	9/11/2006	---	16.6	---	32	2.9	<1	<1
MW-6	07-RT-004-GW	Project Sample	5/30/2007	---	12.9	---	10.1	3.3	<1	<1
MW-6	07-RT-031-GW	Project Sample	9/19/2007	---	9.2	---	20	2.6	1.3	<1
MW-6	08-RT-018-GW	Project Sample	5/13/2008	0.28	26.1	<1	22.1	3.72	0.32	<1
MW-6	08-RT-022-GW	QC Duplicate	5/13/2008	0.39	31.1	<1	24	3.78	0.37	<1
MW-6	08-RT-041-GW	QA Split	9/19/2008	---	5.5 VJ	---	8	1.9	<1	<1

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-6	08-RT-051-GW	Project Sample	9/19/2008	0.95	8.89	<1	9.7	2.35	0.52	<1
MW-6	08-RT-066-GW	QC Duplicate	9/19/2008	0.83	8.36	<1	8.74	2.29	0.46	<1
MW-6	09-RT-005-GW	Project Sample	5/6/2009	1.38	9.64	<1	8.63	2.46	0.32	<1
MW-6	09-RT-065-GW	Project Sample	10/7/2009	1.11	7.72	<0.31	6.27	2.18	<0.31	<0.31
MW-6	09-RT-099-GW	QC Duplicate	10/7/2009	1.19	8.02	<0.31	7.9	2.16	<0.31	<0.31
MW-6	10-RT-040-GW	Project Sample	5/13/2010	0.61	59.2 VJ	<0.31	39.9	4.27	0.59	<0.31
MW-6	10-RT-084-GW	Project Sample	10/20/2010	1.06	14	<0.31	9.89	4.27	0.67	0.41
MW-6	12-RT-004-GW	Project Sample	5/8/2012	0.39	14.9	<0.31	26.3	3.83	7.68	1.07
MW-6	13-RT-022-GW	Project Sample	4/11/2013	0.62	4.87	<0.62	13.3	3.9	3.11	3.17
MW-6	13-RT-033-GW	QC Duplicate	4/11/2013	0.54	4.09	<0.62	9.84	3.33	3.37	2.68
MW-6	14-RT-004-GW	Project Sample	4/24/2014	0.89	2.19	<0.5	9.61	5.21	<0.5	<0.5
MW-7	97RTGW511GW	Project Sample	7/22/1997	<50 C	<50 C	<50 C	1700 C	<50 C	550 C	760 C
MW-7	MW-7	Project Sample	10/28/1997	1.9	1.2	1.11	693	11.1	350	770
MW-7	MW-7	Project Sample	12/31/1997	0.84 J	<1	<1	700	7.84	119	231
MW-7	MW-7	Project Sample	4/23/1998	1.82	<1	<1	591	10.9	132	169
MW-7	MW-7	Project Sample	6/30/1998	<1	<1	<1	625	<1	103	153
MW-7	MW-7	Project Sample	10/21/1998	2	<1	<1	1100 D5,J,H	15	73	230 D5,J,H
MW-7	MW-7	Project Sample	12/28/1998	1	<1	<1	820 D	10	62	120
MW-7	MW-7	Project Sample	4/16/1999	1.52	1.27	<1	869	6.6	51.7	166
MW-7	99-RT-016-GW	Project Sample	7/8/1999	<25	1 J,H	<25	630	<25	38	140
MW-7	99-RT-017-GW	QC Duplicate	7/8/1999	<25	<25	<25	600	<25	36	130
MW-7	99-RT-018-GW	QA Duplicate	7/8/1999	<25	<50	<25	900	<25	51	180
MW-7	99-RT-046-GW	Project Sample	10/26/1999	2.1	1.8	1.1	1100	11	90	440
MW-7	99-RT-103-GW	Project Sample	12/15/1999	<2	<2	<2	480	4.1	44	260
MW-7	00-RT-036-GW	Project Sample	3/25/2000	<1	<1	<1 J	670 J,H	14	57	450 J,H
MW-7	00-RT-046-GW	Project Sample	6/7/2000	<1	<2	<1	470	4.2	35	250
MW-7	00-RT-120-GW	Project Sample	9/28/2000	<1	<2	<1	430 VJ	3.9	18	88
MW-7	01-RT-016-GW	Project Sample	1/11/2001	1.3 J,H	2.3 H	1.2 J,H	390	8.5 H	2.5 H	6.2 H
MW-7	01-RT-056-GW	QA Split	3/7/2001	---	<5	---	364	5.4	<5	<5
MW-7	01-RT-055-GW	Project Sample	3/22/2001	<2	<2	<2	417	10.5	<2	1.49
MW-7	01-RT-088-GW	Project Sample	6/25/2001	<2	<2	<2	413	4.93	<2	<2
MW-7	01-RT-123-GW	Project Sample	10/18/2001	<4 J	<4 J	<4 J	613 J	6.41 J	<4 J	<4 J
MW-7	01-RT-144-GW	Project Sample	1/16/2002	<10 J	<10 J	<10 J	440 J	8.66 J	<10 J	4.34 J
MW-7	01-RT-145-GW	QC Duplicate	1/16/2002	<10 J	<10 J	<10 J	441 J	7.28 J	<10 J	4.56 J
MW-7	01-RT-146-GW	QA Split	1/16/2002	---	<5 J,H	---	413 J,H	<5 J,H	<5 J,H	<5 J,H

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-7	02-RT-011-GW	Project Sample	3/14/2002	<2	2.02	<2	644	6.35	<2	<2
MW-7	02-RT-053-GW	Project Sample	6/19/2002	<2 J	3.47 J	<2 J	1240 J	8.76 J	<2 J	<2 J
MW-7	02-RT-074-GW	Project Sample	9/26/2002	1.3	3.8	1.1	830	7.3	<1	<1
MW-7	02-RT-117-GW	Project Sample	12/18/2002	1.25	2.73	1.35	822	6.7	1.41	<1
MW-7	02-RT-118-GW	QA Split	12/18/2002	---	3.6	---	807	8.1	1.7	<1
MW-7	03-RT-019-GW	Project Sample	3/11/2003	2.06	6.33	1.4	1290	11.5	<1	<1
MW-7	03-RT-046-GW	Project Sample	6/18/2003	1.77	5.51	1.3	893	8.47	<1	<1
MW-7	03-RT-047-GW	QC Duplicate	6/18/2003	1.76	5.06	1.37	948	8.52	<1	<1
MW-7	03-RT-048-GW	QA Split	6/18/2003	---	<10	---	911	10.2	<10	<10
MW-7	03-RT-120-GW	Project Sample	10/9/2003	0.86	5.02	<1	972	5.83 J	<1	<1
MW-7	04-RT-037-GW	Project Sample	6/7/2004	2.61 VJ	108	1.1	1320	15.8	<1	<1
MW-7	04-RT-069-GW	Project Sample	10/23/2004	1.98	193	1.68	1140	10.7	1.03	<1
MW-7	05-RT-036-GW	Project Sample	6/2/2005	1.71	77.7	<1	367	6.74	<1	<1
MW-7	05-RT-057-GW	Project Sample	10/12/2005	1.77	76.7	<1	193	5.93	<1	<1
MW-7	06-RT-020-GW	Project Sample	5/25/2006	0.93	53.5	1.25	101	2.54	37	<1
MW-7	06-RT-028-GW	QC Duplicate	5/25/2006	0.99	62.8	1.36	99.3	2.66	36.7	<1
MW-7	06-RT-032-GW	Project Sample	9/11/2006	---	45	---	80.9	3.5	<1	<1
MW-7	07-RT-029-GW	Project Sample	9/19/2007	---	5.3	---	3.7	2	<1	<1
MW-7	08-RT-052-GW	Project Sample	9/19/2008	1.2	7.05	<1	10.1	3.03	<1	<1
MW-7	09-RT-086-GW	Project Sample	10/8/2009	1.23	3.87	<0.31	12.3	1.85	0.54	<0.31
MW-7	10-RT-105-GW	Project Sample	10/21/2010	1.3	9.22	<0.31	11.9	2.33	0.69	<0.31
MW-7	12-RT-029-GW	Project Sample	5/10/2012	0.84 VJ	8.51 VJ	<0.31	21.4 VJ	3.69 VJ	24.9 VJ	4.67
MW-8	MW-8	Project Sample	8/2/1998	1.58	<1	<1	675	4.56	175	523
MW-8	MW-8	Project Sample	10/21/1998	3	<1	1	1900 D5,J,H	21	350 D5,J,H	960 D5,J,H
MW-8	MW-8	Project Sample	12/28/1998	2	<1	<1	1500 D	19	290 D	720 D
MW-8	MW-8	Project Sample	4/15/1999	1.05	<1	<1	1010	3.84	140	257
MW-8	99-RT-024-GW	Project Sample	7/10/1999	<2	<2	<2	850	6.4	210	330
MW-8	99-RT-062-GW	Project Sample	10/27/1999	0.6	<0.5	<0.5	650 J,H	3.7	76	150 J,H
MW-8	99-RT-105-GW	Project Sample	12/15/1999	<2	<2	<2	700	5.5	110	250
MW-8	00-RT-033-GW	Project Sample	3/25/2000	<1	<1	<1 J	870 J,H	16	130	270 J,H
MW-8	00-RT-052-GW	Project Sample	6/7/2000	<10	<20	<10	970	<10	150	300
MW-8	00-RT-117-GW	Project Sample	9/28/2000	<1	<2	<1	940 VJ	6.5	170	230
MW-8	01-RT-014-GW	Project Sample	1/10/2001	1.7 J,H	3.7 H	1.8 J,H	1300	18 J	7.9 H	9.5 H
MW-8	01-RT-051-GW	Project Sample	3/22/2001	<2	<2	<2	772	25.7	<2	<2
MW-8	01-RT-084-GW	Project Sample	6/25/2001	<2	<2	<2	832	4.76	<2	2.39

Appendix A
July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products
River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-8	01-RT-124-GW	Project Sample	10/18/2001	<4 J	<4 J	<4 J	1290 J	8.76 J	20.2 J	<4 J
MW-8	01-RT-147-GW	Project Sample	1/16/2002	<2 J,H	1.71 J,H	<2 J,H	1150 J	5 J,H	32.2 J	8.45 J,H
MW-8	02-RT-003-GW	Project Sample	3/13/2002	<2	3.47	2.05	1500	12.6	62.9	17.4
MW-8	02-RT-054-GW	Project Sample	6/19/2002	<2 J	<2 J	<2 J	717 J	5.01 J	29.2 J	13.3 J
MW-8	02-RT-075-GW	Project Sample	9/26/2002	<1	1.3	<1	580	3.9	9.8	5.8
MW-8	02-RT-119-GW	Project Sample	12/18/2002	0.64	<1	<1	658	4.86	7.16	5.04
MW-8	03-RT-020-GW	Project Sample	3/11/2003	0.73	2.51	<1	746	4.56	1.78	1.25
MW-8	03-RT-045-GW	Project Sample	6/18/2003	<0.4	1.18	<1	338	2.86	<1	<1
MW-8	03-RT-117-GW	Project Sample	10/8/2003	<0.4	1.11	<1	259	1.75 J	<1	<1
MW-8	04-RT-038-GW	Project Sample	6/7/2004	0.74 VJ	<1	<1	196 VR	1.57	<1	<1
MW-8	04-RT-070-GW	Project Sample	10/23/2004	<0.4	<1	<1	208	1.38	<1	<1
MW-8	05-RT-013-GW	Project Sample	2/22/2005	<0.4	<1	<1	168	1.86	<1	<1
MW-8	05-RT-058-GW	Project Sample	10/12/2005	<0.4	<1	<1	209	1.63	<1	<1
MW-8	06-RT-021-GW	Project Sample	5/25/2006	<0.4	4.04	<1	327	2.8	<1	<1
MW-8	06-RT-046-GW	Project Sample	9/13/2006	<0.5	1.2	<0.5	140	1.3	1.2	2.6
MW-8	07-RT-030-GW	Project Sample	9/19/2007	---	1	---	94.9	<1	<1	3.2
MW-8	08-RT-053-GW	Project Sample	9/19/2008	<0.4	1.77	<1	100	1.25	1.31	1.75
MW-8	09-RT-087-GW	Project Sample	10/8/2009	<0.12	3.55	<0.31	94.3	1.04	1.87	2.56 VJ
MW-8	10-RT-106-GW	Project Sample	10/21/2010	<0.12	6.66	<0.31	88.4	0.99	1.86	0.86
MW-8	12-RT-030-GW	Project Sample	5/10/2012	<0.12	1.7 VJ	<0.31	16.1 VJ	0.33	0.79	<0.31
MW-9	MW-9	Project Sample	8/1/1998	3.31	1.72	<1	1080	15.6	148	199
MW-9	MW-9	Project Sample	10/20/1998	3	1	2	2000 D5,J,H	14	180	260 D5,J,H
MW-9	MW-9	Project Sample	12/28/1998	6	6	4	3600 D	39	520 D	680 D
MW-9	MW-9	Project Sample	4/15/1999	4.48	2.49	1.65	1270	9.1	199	910
MW-9	99-RT-020-GW	Project Sample	7/9/1999	4.2	3	<2	1500	11	220	690
MW-9	99-RT-060-GW	Project Sample	10/27/1999	4.1	2.6	1.6	1400 J,H	13	140 J,H	940 J,H
MW-9	99-RT-099-GW	Project Sample	12/14/1999	5.5	<2	<2	1300	12	290	1800
MW-9	00-RT-006-GW	Project Sample	3/24/2000	5.1	2.3 J	1.8	1600 J,H	17	250 J,H	1400 J,H
MW-9	00-RT-051-GW	Project Sample	6/7/2000	<10	<20	<10	1000	<10	230	1200
MW-9	00-RT-107-GW	Project Sample	9/27/2000	---	2.8	---	1140	7	345	2320
MW-9	00-RT-133-GW	Project Sample	11/28/2000	---	<5	---	2900	25.9	150	113
MW-9	01-RT-003-GW	Project Sample	1/11/2001	---	<10	---	2260	15.6	99.1	95.3
MW-9	01-RT-004-GW	QC Duplicate	1/11/2001	---	<10	---	2130	15.2	92.1	90.6
MW-9	01-RT-010-GW	QA Split	1/11/2001	<50	<50	<50	1600	<50	<50	<50
MW-9	01-RT-033-GW	Project Sample	3/8/2001	---	<25	---	1570	<25	103	86.2

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Sample Type	Date Sampled	Benzene MCL=5; ACL= NA	Vinyl chloride MCL=2; ACL=2	1,1-DCE MCL=7; ACL=7	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=10; ACL=11,600	TCE MCL=5; ACL=21,900	PCE MCL=5; ACL=840
MW-9	01-RT-067-GW	QA Duplicate	5/22/2001	2.1	2.6	1.45	1260	8.19	5.02	22.6
MW-9	01-RT-068-GW	Project Sample	5/22/2001	---	<10	---	1580	13.5	<10	24.5
MW-9	01-RT-069-GW	QC Duplicate	5/22/2001	---	<10	---	1910	15.5	<10	29.9
MW-9	01-RT-091-GW	Project Sample	10/16/2001	---	<10	---	2050	<10	58.9	63.2
MW-9	01-RT-129-GW	Project Sample	1/15/2002	---	<10	---	2210	21.7	125	129
MW-9	02-RT-001-GW	Project Sample	3/13/2002	5.72	8.19	5.41	3280	20.8	326	588
MW-9	02-RT-041-GW	Project Sample	6/19/2002	3.54 J	9.51 J	3.24 J	2830 J	<200 J	<200 J	<200 J
MW-9	02-RT-062-GW	Project Sample	9/27/2002	3.3	7.1	2.7	2300	18	68	190
MW-9	02-RT-102-GW	Project Sample	12/18/2002	---	42.5	---	2670	30.2	7.9	21.9
MW-9	03-RT-001-GW	Project Sample	2/4/2003	---	30	---	3030	18.4 J	<20	17 J
MW-9	03-RT-007-GW	Project Sample	3/10/2003	---	66.2	---	3460	28.1	13.2	27.8
MW-9	03-RT-036-GW	Project Sample	6/17/2003	---	171	---	2540	37.8	<20	40.8
MW-9	03RT-083-GW	Project Sample	9/19/2003	---	306	---	3150	38.3	<10	62.3
MW-9	03-RT-095-GW	Project Sample	10/8/2003	---	450	---	2980	28.3	<5	37.8
MW-9	04-RT-007-GW	Project Sample	1/21/2004	---	434	---	1460	34.8	4	160
MW-9	04-RT-011-GW	QC Duplicate	1/21/2004	---	441	---	1460	30.5	<10	139
MW-9	04-RT-018-GW	Project Sample	3/31/2004	---	413	---	2490	46.6	3.5	21.1
MW-9	04-RT-027-GW	Project Sample	6/8/2004	---	436	---	1260	24.8	<20	35.2
MW-9	04-RT-054-GW	Project Sample	10/29/2004	---	358	---	1600	40.6	<1	4.7
MW-9	04-RT-062-GW	QC Duplicate	10/29/2004	---	372	---	2070	38.6	10.3	15.9
MW-9	05-RT-008-GW	Project Sample	2/24/2005	---	176	---	844	<5	<5	<5
MW-9	05-RT-022-GW	Project Sample	6/2/2005	---	135	---	410	<1	<1	<1
MW-9	05-RT-025-GW	QC Duplicate	6/2/2005	---	140	---	361	<1	<1	<1
MW-9	05-RT-026-GW	QA Split	6/2/2005	3.18	103	<1	421	28.8 VJ	<1	<1
MW-9	05-RT-050-GW	Project Sample	10/11/2005	---	105	---	537 VM	18.9	<5	93.8
MW-9	05-RT-055-GW	QA Split	10/11/2005	2.54	113	<1	681	19.7	4.06	79.8
MW-9	06-RT-002-GW	Project Sample	3/8/2006	---	68.6	---	280	20	<1	<1
MW-9	06-RT-006-GW	QC Duplicate	3/8/2006	---	67.2	---	270	20.4	<1	<1
MW-9	06-RT-013-GW	Project Sample	5/25/2006	---	62.3	---	123	30.3	<1	<1
MW-9	06-RT-034-GW	Project Sample	9/11/2006	---	98.3	---	594	15.8	<5	<5
MW-9	07-RT-005-GW	Project Sample	5/30/2007	---	152	---	544	35.2	34.4	33
MW-9	07-RT-011-GW	QC Duplicate	5/30/2007	---	147	---	492	29.9	32.4	30.2
MW-9	07-RT-012-GW	QA Split	5/30/2007	3.38	97.9 VJ	<1	476 VH	23.7 VJ	33.7	38.5
MW-9	07-RT-032-GW	Project Sample	9/19/2007	---	85.5	---	536	16.7	<10	<10
MW-9	07-RT-041-GW	QC Duplicate	9/19/2007	---	108	---	529	21.2	9.2	8.3 VJ
MW-9	07-RT-043-GW	QA Split	9/19/2007	0.73	88.4 VM	0.54	397 VM	11.9 VJ	8.23	5.29 VJ

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-9	08-RT-005-GW	Project Sample	5/12/2008	---	84.2	---	408	18	27.3	24.4
MW-9	08-RT-014-GW	QC Duplicate	5/12/2008	---	80.4	---	453	17	26.6	24.7
MW-9	08-RT-015-GW	QA Split	5/12/2008	1.59	106	0.46	520	20.9	33.1	29.6
MW-9	08-RT-031-GW	Project Sample	9/16/2008	1.9	95	0.48	431	11.7	34.3 VM	39.1
MW-9	09-RT-007-GW	Project Sample	5/6/2009	2.52	47.1	0.48	240	15.7	16.7	13.8
MW-9	09-RT-014-GW	QA Split	5/6/2009	---	49.3	---	224	14.8	17	14.7
MW-9	09-RT-018-GW	QC Duplicate	5/6/2009	2.36	44.7	<1	259	14.6	15.2	15.2
MW-9	09-RT-066-GW	Project Sample	10/5/2009	2.07	38.7	<0.31	194	12.6	0.89	1.49 VJ
MW-9	09-RT-076-GW	QA Split	10/5/2009	---	25.4 VJ	---	149 VJ	9.3 VJ	<5	<5
MW-9	09-RT-097-GW	QC Duplicate	10/5/2009	2.19	38.2	<0.31	207	12.7	0.83	1.68 VJ
MW-9	10-RT-041-GW	Project Sample	5/11/2010	2.08	56.8 VJ	<0.31	202	15	0.68	1.12
MW-9	10-RT-058-GW	QA Split	5/11/2010	---	37.6 VJ	---	173	15.1	<1	1.2
MW-9	10-RT-066-GW	QC Duplicate	5/11/2010	2.11	52.7 VJ	<0.31	256	15.2	4.11 VR	29.6 VR
MW-9	10-RT-085-GW	Project Sample	10/20/2010	1.07	38.5	0.45	332	6.71	12.9	28.8
MW-9	12-RT-005-GW	Project Sample	5/8/2012	1.61	19.2	<0.31	19.7	10.1	0.72	0.91
MW-9	12-RT-018-GW	QC Duplicate	5/8/2012	1.58	18.7	<0.31	24.3	10.5	1	1.72
MW-9	13-RT-019-GW	Project Sample	4/9/2013	1.32	4.16	<0.62	17.2	6.25	<0.62	1.84
MW-9	14-RT-005-GW	Project Sample	4/23/2014	2.53	2.05	<0.5	7.47	8.52	<0.5	2.96
MW-10	MW-10	Project Sample	8/2/1998	1.19	<1	<1	275	<1	64	587
MW-10	MW-10D	QC Duplicate	8/2/1998	1.31	<1	<1	356	<1	95	958
MW-10	MW-10	Project Sample	10/21/1998	<1	<1	<1	510 D5,J,H	9	110	1200 D5,J,H
MW-10	MW-10	Project Sample	12/28/1998	<1	<1	<1	510 D	4	69	410 D
MW-10	MW-10	Project Sample	4/15/1999	<1	<1	<1	209	<1	21.3	18.2
MW-10	99-RT-022-GW	Project Sample	7/9/1999	1.3	0.7	<1	440	9.6	98	620
MW-10	99-RT-044-GW	Project Sample	10/26/1999	1	<0.5	<0.5	490	2.3	64	370
MW-10	99-RT-108-GW	Project Sample	12/15/1999	<2	<2	<2	470	3.4	85	970
MW-10	00-RT-032-GW	Project Sample	3/25/2000	1	<1	<1 J	590 J,H	22	88	420 J,H
MW-10	00-RT-053-GW	Project Sample	6/7/2000	<10	<20	<10	460	<10	82	610 J
MW-10	00-RT-118-GW	Project Sample	9/28/2000	1.1	<2	<1	460 VJ	<1	86	690
MW-10	01-RT-013-GW	Project Sample	1/10/2001	1.6 J,H	<2 H	1.3 J,H	780	4.9 H	24 H	31
MW-10	01-RT-050-GW	QA Split	3/7/2001	---	<10	---	1740	<10	13.9	<10
MW-10	01-RT-048-GW	Project Sample	3/22/2001	<2	<2	<2	1020	40.3	26.2	21.5
MW-10	01-RT-049-GW	QC Duplicate	3/22/2001	<2	<2	<2	974	25.3	21	12.5
MW-10	01-RT-050-GW	QA Split	3/22/2001	---	<10	---	816	<10	20.1	12.2
MW-10	01-RT-081-GW	Project Sample	6/25/2001	<2	---	<2	801	2.46	11.7	17.6

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-10	01-RT-100-GW	Project Sample	10/16/2001	---	<10	---	954	<10	116	95.5
MW-10	01-RT-140-GW	Project Sample	1/15/2002	---	<10	---	986	<10	135	144
MW-10	01-RT-141-GW	QC Duplicate	1/15/2002	---	<10	---	1110	<10	187	172
MW-10	01-RT-142-GW	QA Split	1/15/2002	1.5 J,H	2.22 J,H	1.16 J,H	858 J	<2 J,H	123 J	160 J
MW-10	02-RT-010-GW	Project Sample	3/13/2002	2.71	3.47	<2	994	5.89	127	180
MW-10	02-RT-051-GW	Project Sample	6/19/2002	<2 J	<2 J	<2 J	724 J	3.11 J	58.1 J	34.7 J
MW-10	02-RT-076-GW	Project Sample	9/26/2002	<1	<1	<1	330	1.2	15	20
MW-10	02-RT-120-GW	Project Sample	12/19/2002	<0.4	<1	<1	363	1.57	1.25	1.69
MW-10	03-RT-021-GW	Project Sample	3/11/2003	0.4	1.69	<1	489	2	<1	<1
MW-10	03-RT-044-GW	Project Sample	6/18/2003	0.54	1.9	<1	443	1.79	<1	1
MW-10	03-RT-118-GW	Project Sample	10/8/2003	<0.4	<1	<1	115	<1	1.74	9.42
MW-10	03-RT-119-GW	QC Duplicate	10/8/2003	<0.4	<1	<1	181	<1	1.54	7.72
MW-10	04-RT-005-GW	Project Sample	1/20/2004	---	3.3	---	820	15.1	2.2	1.6
MW-10	04-RT-016-GW	Project Sample	3/30/2004	---	1.3	---	286	<1	1.9	2.4
MW-10	04-RT-039-GW	Project Sample	6/8/2004	---	1	---	258	1.1	<1	<1
MW-10	04-RT-050-GW	Project Sample	10/29/2004	---	<5	---	258	<5	<5	<5
MW-10	05-RT-004-GW	Project Sample	2/24/2005	---	<5	---	269	<5	<5	<5
MW-10	05-RT-033-GW	Project Sample	6/2/2005	<0.4	1.59	<1	359	<1	<1	<1
MW-10	05-RT-047-GW	Project Sample	10/11/2005	---	<1	---	159 VM	<1	<1	<1
MW-10	06-RT-010-GW	Project Sample	5/25/2006	---	1.8	---	339	1.2	<1	<1
MW-10	06-RT-043-GW	Project Sample	9/13/2006	<0.5	<0.5	<0.5	11	<0.5	2.6	9.9
MW-10	07-RT-037-GW	Project Sample	9/18/2007	---	<1	---	19.5	<1	<1	8.2
MW-10	08-RT-054-GW	Project Sample	9/19/2008	<0.4	<1	<1	1.18	<1	<1	10.5
MW-10	09-RT-088-GW	Project Sample	10/7/2009	<0.12	<0.31	<0.31	1.67	<0.31	0.36	7.2
MW-10	10-RT-107-GW	Project Sample	10/21/2010	<0.12	<0.31	<0.31	10.1	<0.31	0.85	6.69
MW-10	12-RT-031-GW	Project Sample	5/10/2012	<0.12	<0.31	<0.31	3.81 VJ	<0.31	0.42	9.23
MW-11	MW-11	Project Sample	12/29/1998	<1	<1	<1	<1	<1	<1	1
MW-11	MW-11	Project Sample	4/15/1999	<1	<1	<1	<1	<1	<1	23.7
MW-11	99-RT-005-GW	Project Sample	7/7/1999	<0.5	<0.5	<0.5	0.7	<0.5	1.4	26
MW-11	99-RT-042-GW	Project Sample	10/26/1999	<0.5	<0.5	<0.5	<0.5	<0.5	1.9	46
MW-11	99-RT-092-GW	Project Sample	12/14/1999	<1	<1	<1	<1	<1	<1	34
MW-11	00-RT-005-GW	Project Sample	3/24/2000	<1	<1 J	<1	<1	<1	2.8	44
MW-11	00-RT-058-GW	Project Sample	6/8/2000	<1	<2	<1	<1	<1	5	48
MW-11	01-RT-112-GW	Project Sample	10/18/2001	<0.7 J	<1 J	<1 J	<1 J	<1 J	3.05 J	34.6 J
MW-11	02-RT-077-GW	Project Sample	9/26/2002	<1	<1	<1	16	<1	4.6	46

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-11	04-RT-071-GW	Project Sample	10/23/2004	<0.4	<1	<1	31.7	<1	24	110
MW-12	MW-12	Project Sample	10/29/1998	<50	<100	<50	1500	<50	170	100
MW-12	MW-12	Project Sample	12/28/1998	<1	<1	<1	1100 D	9	89	110
MW-12	MW-12	Project Sample	4/15/1999	<1	<1	<1	575	1.92	99.2	78.9
MW-12	99-RT-025-GW	Project Sample	7/10/1999	<2	<2	<2	770	7.5	180	140
MW-12	99-RT-047-GW	Project Sample	10/26/1999	0.5	<0.5	<0.5	850	8.4	120	110
MW-12	99-RT-107-GW	Project Sample	12/15/1999	<2	<2	<2	460	3.6	79	98
MW-12	00-RT-034-GW	Project Sample	3/25/2000	<1	<1	<1 J	980 J,H	24	130	80
MW-12	00-RT-056-GW	Project Sample	6/8/2000	<10	<20	<10	480	<10	83	100 J
MW-12	00-RT-115-GW	Project Sample	9/28/2000	<1	<2	<1	750 VJ	<1	140	95
MW-12	00-RT-116-GW	QC Duplicate	9/28/2000	<1	<2	<1	780 VJ	<1	120	93
MW-12	00-RT-128-GW	QA Split	9/28/2000	<1	<1	<1	692	3.78	96.8 VJ	64.3 VJ
MW-12	01-RT-120-GW	Project Sample	10/18/2001	<4 J	<4 J	<4 J	489 J	<4 J	<4 J	<4 J
MW-12	01-RT-121-GW	QC Duplicate	10/18/2001	<4 J	<4 J	<4 J	531 J	<4 J	<4 J	<4 J
MW-12	01-RT-122-GW	QA Split	10/18/2001	---	<10	---	442	<10	<10	<10
MW-12	01-RT-143-GW	Project Sample	1/16/2002	<2 J	<2 J	<2 J	95 J	0.78 J	4.32 J	5.26 J
MW-12	02-RT-007-GW	Project Sample	3/13/2002	<1	<1	<1	71.4	<1	3.91	5.95
MW-12	02-RT-052-GW	Project Sample	6/19/2002	<2 J	<2 J	<2 J	298 J	<2 J	<2 J	<2 J
MW-12	02-RT-078-GW	Project Sample	9/26/2002	<1	<1	<1	550	2.3	2.3	<1
MW-12	02-RT-122-GW	QA Split	12/18/2002	---	<1	---	197	1.9	5.4	<1
MW-12	02-RT-121-GW	Project Sample	12/19/2002	<0.4	<1	<1	244	1.71	4.48	<1
MW-12	03-RT-022-GW	Project Sample	3/11/2003	<0.4	<1	<1	217	1.74	3.8	<1
MW-12	03-RT-049-GW	Project Sample	6/18/2003	<0.4	<1	<1	273 H	1.42	<1	<1
MW-12	03-RT-110-GW	Project Sample	10/8/2003	<0.4	<1	<1	248	<1	5.2	<4
MW-12	04-RT-032-GW	Project Sample	6/8/2004	<0.4	<1	<1	189	1.17	<1	<1
MW-12	04-RT-072-GW	Project Sample	10/23/2004	<0.4	<1	<1	246	1.53	1.7	<1
MW-12	05-RT-014-GW	Project Sample	2/22/2005	<0.4	<1	<1	220	1.96	<1	<1
MW-12	05-RT-059-GW	Project Sample	10/12/2005	<0.4	<1	<1	262	1.96	2.81	<1
MW-12	07-RT-038-GW	Project Sample	9/19/2007	---	<1	---	<1	<1	<1	5.2
MW-12	08-RT-055-GW	Project Sample	9/19/2008	<0.4	<1	<1	2.7	<1	<1	4.19
MW-12	09-RT-089-GW	Project Sample	10/7/2009	<0.12	<0.31	<0.31	82.4	<0.31	3.65 VJ	3 VJ
MW-12	10-RT-108-GW	Project Sample	10/21/2010	<0.12	2.01	<0.31	84	0.9	3.23	2.95
MW-12	12-RT-032-GW	Project Sample	5/10/2012	<0.12	0.56	<0.31	18.6 VJ	<0.31	1.31 VJ	4.16
MW-12	13-RT-008-GW	Project Sample	4/9/2013	<0.24	3.09	<0.62	54.2	<0.62	1.99	1.62
MW-12	14-RT-026-GW	Project Sample	4/24/2014	<0.2	1.72	<0.5	28.2	0.36	1.91	2.17

Appendix A
July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products
River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
MW-13	MW-13	Project Sample	10/29/1998	<1	<2	<1	<1	<1	1.2	2.1
MW-13	MW-13	Project Sample	12/29/1998	<1	<1	<1	<1	<1	<1	18
MW-13	MW-13	Project Sample	4/15/1999	<1	<1	<1	8.63	<1	1.98	50.8
MW-13	99-RT-008-GW	Project Sample	7/8/1999	<1	<1	<1	13	<1	1.9	66
MW-13	99-RT-049-GW	Project Sample	10/26/1999	<0.5	<0.5	<0.5	44	<0.5	5.9	77
MW-13	99-RT-106-GW	Project Sample	12/15/1999	<1	<1	<1	14	<1	3.9	90
MW-13	00-RT-014-GW	Project Sample	3/24/2000	<1	<1	<1 J	86	4.4	13	140
MW-13	00-RT-057-GW	Project Sample	6/8/2000	<10	<20	<10	74	<10	12	130 J
MW-13	01-RT-012-GW	Project Sample	1/11/2001	<2	<2	<2	83	<2	18	120
MW-13	01-RT-046-GW	Project Sample	3/22/2001	<1	<1	<1	44.9	<1	7.61	54.7
MW-13	01-RT-083-GW	Project Sample	6/25/2001	<2	<2	<2	39.9	<2	6.05	63.2
MW-13	01-RT-125-GW	Project Sample	10/17/2001	<1.4 J	<2 J	<2 J	57 J	<2 J	10.4 J	77.3 J
MW-13	01-RT-148-GW	Project Sample	1/17/2002	<1 J	<1 J	<1 J	26.1 J	<1 J	6.29 J	46.9 J
MW-13	02-RT-008-GW	Project Sample	3/13/2002	<1	<1	<1	52.5	<1	10.5	74.1
MW-13	02-RT-055-GW	Project Sample	6/19/2002	<1 J	<1 J	<1 J	46.1 J	<1 J	9.2 J	40.4 J
MW-13	02-RT-079-GW	Project Sample	9/26/2002	<1	<1	<1	24	<1	5.2	34
MW-13	02-RT-123-GW	Project Sample	12/19/2002	<0.4	<1	<1	42.9	<1	6.83	39.6
MW-13	03-RT-023-GW	Project Sample	3/11/2003	<0.4	<1	<1	28	<1	4.82	30.7
MW-13	03-RT-050-GW	Project Sample	6/19/2003	<0.4	<1	<1	12.8	<1	3.84	22.4
MW-13	03-RT-109-GW	Project Sample	10/8/2003	<0.4	<1	<1	20.3	<1	4.79	37.1
MW-13	04-RT-040-GW	Project Sample	6/8/2004	<0.4	<1	<1	16.4	<1	3.74	26.8
MW-13	04-RT-073-GW	Project Sample	10/23/2004	<0.4	<1	<1	15.7	<1	4.38	20.5
MW-13	05-RT-015-GW	Project Sample	2/22/2005	<0.4	<1	<1	20.7	<1	4.47	22.2
MW-14	MW-14	Project Sample	10/29/1998	<2	<4	<2	13	<2	13	88
MW-14	MW-14duplicate	QC Duplicate	10/29/1998	<2	<4	<2	13	<2	13	87
MW-14	MW-14	Project Sample	12/29/1998	<1	<1	<1	2	<1	2	21
MW-14	MW-14	Project Sample	4/16/1999	<1	<1	<1	1.05	<1	1.23	12.3
MW-14	99-RT-003-GW	Project Sample	7/7/1999	<1	<1	<1	9.2	<1	7.1	50
MW-14	99-RT-064-GW	Project Sample	10/28/1999	<0.5	<0.5	<0.5	5.6	<0.5	5.4	48
MW-14	99-RT-095-GW	Project Sample	12/14/1999	<1	<1	<1	2.6	<1	2.2	29
MW-14	00-RT-010-GW	Project Sample	3/24/2000	<1	<1	<1 J	1.2	<1	1	12
MW-14	00-RT-064-GW	Project Sample	6/9/2000	<1	<2	<1	1.1	<1	1.6	19
MW-14	00-RT-065-GW	QC Duplicate	6/9/2000	<1	<2	<1	1.9	<1	1.6	20
MW-14	00-RT-066-GW	QA Duplicate	6/9/2000	<0.5	<0.5	<0.5	2.8	<0.5	2.4	24

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
MW-14	00-RT-124-GW	Project Sample	9/29/2000	<1	<2	<1	<1	<1	1.5	19
MW-14	01-RT-024-GW	Project Sample	1/10/2001	<2	<2	<2	2 VJ	<2	<2	21
MW-14	01-RT-040-GW	Project Sample	3/22/2001	<1	<1	<1	1.75	<1	2.32	23.1
MW-14	01-RT-079-GW	Project Sample	6/25/2001	<1	<1	<1	1.92	<1	1.63	17.7
MW-14	01-RT-108-GW	Project Sample	10/17/2001	<0.7 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J
MW-14	02-RT-091-GW	Project Sample	9/27/2002	<1	<1	<1	5.1	<1	2.8	21
MW-14	03-RT-101-GW	Project Sample	10/7/2003	<0.4	<1	<1	2.23	<1	<1	9.44
MW-15	99-RT-002-GW	Project Sample	7/7/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-15	99-RT-039-GW	Project Sample	10/26/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-15	00-RT-008-GW	Project Sample	3/24/2000	<1	<1 J	<1	<1	<1	<1	<1
MW-16	99-RT-001-GW	Project Sample	7/7/1999	<25	<25	<25	<25	<25	36	1000
MW-16	99-RT-031-GW	Project Sample	9/2/1999	<20	<20	<20	24	<20	92	5500
MW-16	99-RT-053-GW	Project Sample	10/27/1999	0.7	<0.5	<0.5	9.3	0.7	37	2500
MW-16	99-RT-054-GW	QC Duplicate	10/27/1999	0.6	<0.5	<0.5	9.5	0.7	35	2200
MW-16	99-RT-093-GW	Project Sample	12/14/1999	<1	<1	<1	11	<1	53	2400
MW-16	99-RT-094-GW	QC Duplicate	12/14/1999	<1	<1	<1	11	<1	49	2700
MW-16	00-RT-012-GW	Project Sample	3/24/2000	1.2	<1 J	<1	41	1.5	99	3400 J,H
MW-16	00-RT-040-GW	Project Sample	6/7/2000	<1	<2	<1	8.5	<1	37	1300
MW-16	00-RT-101-GW	Project Sample	9/27/2000	---	<1	---	17.6	<1	73.7	2450
MW-16	00-RT-136-GW	Project Sample	11/28/2000	---	<5	---	113	<5	968	3110
MW-16	01-RT-008-GW	Project Sample	1/11/2001	---	<10	---	578	10.8	889	60.7
MW-16	01-RT-037-GW	Project Sample	3/8/2001	---	<5	---	1210	10.2	46	17.8
MW-16	01-RT-071-GW	Project Sample	5/22/2001	---	<10	---	2700	31.7	121	25.2
MW-16	01-RT-095-GW	Project Sample	10/16/2001	---	<5 J,H	---	476 J,H	<5 J,H	6 J,H	<5 J,H
MW-16	01-RT-135-GW	Project Sample	1/16/2002	---	<2 J,H	---	306 J,H	2.2 J,H	<2 J,H	3.9 J,H
MW-16	02-RT-014-GW	Project Sample	3/13/2002	<2	<2	<2	383	2.78	2.58	2.48
MW-16	02-RT-044-GW	Project Sample	6/18/2002	<2 J	<2 J	2.87 J	2410 J	15.7 J	25.3 J	12.8 J
MW-16	02-RT-067-GW	Project Sample	9/27/2002	1.2	1.1	1.6	1200	7	8.2	8.2
MW-16	02-RT-109-GW	Project Sample	12/19/2002	0.83	<1	1.22	864	<1	28.2	17.1
MW-16	03-RT-011-GW	Project Sample	3/10/2003	---	<10	---	681	<10	21.7	16.1
MW-16	03-RT-041-GW	Project Sample	6/18/2003	---	<10	---	635	<10	<10	<10
MW-16	03RT-078-GW	Project Sample	9/18/2003	---	<5	---	352	<5	<5	<5
MW-16	04-RT-002-GW	Project Sample	1/21/2004	---	1	---	380	3.7	1.3	2
MW-16	04-RT-013-GW	Project Sample	3/31/2004	---	1.9	---	557	5.6	<1	2.2

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
MW-16	04-RT-024-GW	Project Sample	6/8/2004	---	<5	---	844	5.6	<5	<5
MW-16	04-RT-048-GW	Project Sample	10/30/2004	---	2.9	---	1040	7.9	<1	2.4
MW-16	04-RT-064-GW	QA Split	10/30/2004	1.06	2.11	<1	1080	5.17	5.36	16.5
MW-16	05-RT-028-GW	Project Sample	6/3/2005	0.86	<2	<2	920	4.28	<2	<2
MW-16	05-RT-045-GW	Project Sample	10/12/2005	---	1.7	---	509 VM	4.1	1.6	1
MW-16	06-RT-008-GW	Project Sample	5/24/2006	---	36.6	---	115	5.5	<1	<1
MW-16	06-RT-030-GW	Project Sample	9/12/2006	---	22.8	---	271	<5	<5	30.6
MW-16	07-RT-002-GW	Project Sample	5/29/2007	---	78.9	---	422	5.8	8	9.8
MW-16	07-RT-022-GW	Project Sample	9/20/2007	---	37.8 VH	---	158 VH	2.6 VH	9.8 VH	12.6 VH
MW-16	08-RT-002-GW	Project Sample	5/13/2008	---	11.2	---	58.8	1.4	7.6	14.5
MW-16	08-RT-043-GW	Project Sample	9/19/2008	0.31	21.7 VJ	<1	61.5	1.91	3.74	4.36
MW-16	08-RT-065-GW	QC Duplicate	9/19/2008	0.41	20.3	<1	58.7	1.84	4.59	5.19
MW-16	09-RT-002-GW	Project Sample	5/5/2009	1.04	16.7	<1	35.9	3.15	1.92	1.04
MW-16	09-RT-079-GW	Project Sample	10/8/2009	0.68	7.62	<0.31	22.6	1.54	7.52 VB	2.35
MW-16	10-RT-050-GW	Project Sample	5/14/2010	0.59	6.1 VJ	<0.31	960	1.26	13.3	10.1
MW-16	10-RT-081-GW	Project Sample	10/21/2010	1	10.7	<0.31	18.6	2.13	11.5	9.99
MW-16	10-RT-099-GW	QA Split	10/21/2010	---	8.1	---	18.7	2.2	12.2	9.7
MW-16	12-RT-002-GW	Project Sample	5/9/2012	<0.12 VH	3.73 VH	<0.31 VH	13.8 VH	0.42 VH	7.76 VH	30.4 VH
MW-16	13-RT-015-GW	Project Sample	4/11/2013	0.88	35.3	<0.62	297 VJM	3.93	13.4	47.7
MW-16	13-RT-034-GW	QC Duplicate	4/11/2013	0.86	31.7	<0.62	153 VJM	3.67	13.4	48
MW-16	14-RT-002-GW	Project Sample	4/22/2014	0.35	8.03	<0.5	26.5	0.83	5.02	6.61
MW-17	99-RT-026-GW	Project Sample	7/10/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-17	99-RT-052-GW	Project Sample	10/27/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-17	00-RT-009-GW	Project Sample	3/24/2000	<1	<1 J	<1	<1	<1	<1	<1
MW-18	99-RT-027-GW	Project Sample	7/10/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-18	99-RT-048-GW	Project Sample	10/26/1999	<0.5	<0.5	<0.5	<0.5 J,H	<0.5	<0.5	<0.5
MW-18	00-RT-031-GW	Project Sample	3/25/2000	<1	<1	<1 J	<1	<1	<1	<1
MW-18	03-RT-105-GW	Project Sample	10/8/2003	<0.4	<1	<1	<1	<1	<0.1	<1
MW-19	99-RT-019-GW	Project Sample	7/9/1999	<2	<2	<2	1200	8.9	210	57
MW-19	99-RT-043-GW	Project Sample	10/26/1999	0.8	0.8	<0.5	650 J,H	7	100 J,H	54
MW-19	99-RT-098-GW	Project Sample	12/14/1999	<2	<2	<2	530	4.8	73	120
MW-19	00-RT-043-GW	Project Sample	6/7/2000	<1	<2	<1	390	2.6	84	49
MW-19	01-RT-113-GW	Project Sample	10/18/2001	<2.8 J	<4 J	<4 J	633 J	6.13 J	<4 J	<4 J

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
MW-19	02-RT-080-GW	Project Sample	9/26/2002	2	2.7	<1	550	8.6	16	24
MW-19	03-RT-114-GW	Project Sample	10/8/2003	0.84	2.06	<1	419	5.23	<50	83.5
MW-19	04-RT-074-GW	Project Sample	10/23/2004	0.9	1.23	<1	281	3.18	2.62	1.19
MW-19	04-RT-089-GW	QC Duplicate	10/23/2004	0.91	<1	<1	256	3.17	2.55	1.1
MW-19	05-RT-060-GW	Project Sample	10/12/2005	1.4	1.13	<1	326	3.73	<1	1.37
MW-19	05-RT-071-GW	QC Duplicate	10/12/2005	1.45	1.3	<1	310	3.54	<1	1.25
MW-19	06-RT-048-GW	Project Sample	9/13/2006	1.1	1.5	<0.5	240	4.1	8.9	2.6
MW-19	08-RT-056-GW	Project Sample	9/18/2008	1.83	2.17 VJ	<1	179	4.13	1.32	20.5
MW-19	10-RT-111-GW	Project Sample	10/21/2010	0.38	1.01	<0.31	92	1.39	11.8	33.8
MW-20	99-RT-010-GW	Project Sample	7/8/1999	<50	7.6 J,H	<50	3400	<50	680	700
MW-20	99-RT-011-GW	QC Duplicate	7/8/1999	<50	<50	<50	3400	<50	710	630
MW-20	99-RT-012-GW	QA Duplicate	7/8/1999	<100	<200	<100	4600	<100	860	750
MW-20	99-RT-061-GW	Project Sample	10/27/1999	3.4	3.3	2.4	2800 J,H	33	500 J,H	700 J,H
MW-20	99-RT-096-GW	Project Sample	12/14/1999	2.3	<2	<2	2300	26	400	660
MW-20	99-RT-097-GW	QC Duplicate	12/14/1999	2.4	<2	<2	2300	25	400	670
MW-20	00-RT-003-GW	Project Sample	3/24/2000	3.4	4.1	2.9 J	3800	64	700	640
MW-20	00-RT-044-GW	Project Sample	6/7/2000	3.9	4.5	2.6	3000	26	540	420
MW-20	00-RT-110-GW	Project Sample	9/27/2000	3.2	<2	<1	3100 VJ	30	370	200
MW-20	01-RT-015-GW	Project Sample	1/11/2001	2.6 H	7.3 H	3.4 H	2600	35 H	7 H	6 H
MW-20	01-RT-052-GW	Project Sample	3/22/2001	1.72	<2	<2	2270	69.8	3.44	3.57
MW-20	01-RT-053-GW	QC Duplicate	3/22/2001	1.75	<2	<2	2630	43.5	2.69	2.66
MW-20	01-RT-054-GW	QA Split	3/22/2001	---	<10	---	2290	23.4	<10	<10
MW-20	01-RT-085-GW	Project Sample	6/25/2001	<2	5.3	2.36	2090	20.7	2.28	3.24
MW-20	01-RT-086-GW	QC Duplicate	6/25/2001	<2	5.09	2.53	2380	21.4	2.38	3.25
MW-20	01-RT-087-GW	QA Split	6/25/2001	1.83	4.57	2.31	2490	25.1	2.33	2.99
MW-20	01-RT-126-GW	Project Sample	10/18/2001	55.5 J,H	5.87 J,H	<10 J,H	2870 J	<10 J,H	<10 J,H	<10 J,H
MW-20	01-RT-149-GW	Project Sample	1/16/2002	0.836 J,H	1.32 J,H	<2 J,H	886 J	11.8 J	1.67 J,H	1.9 J,H
MW-20	02-RT-004-GW	Project Sample	3/13/2002	3	6.87	3.23	4420 E	32	<2	<2
MW-20	02-RT-005-GW	QC Duplicate	3/13/2002	3.49	8.23	4.26	3100	41.3	<2	<2
MW-20	02-RT-006-GW	QA Split	3/13/2002	1.76	<2	<1	2150	21.3	<1	<1
MW-20	02-RT-056-GW	Project Sample	6/18/2002	<2 J	3.85 J	<2 J	1770 J	12.7 J	<2 J	<2 J
MW-20	02-RT-057-GW	QC Duplicate	6/18/2002	<2 J	4.53 J	<2 J	2220 J	16.8 J	<2 J	<2 J
MW-20	02-RT-058-GW	QA Split	6/18/2002	---	<10	---	1820	20.7	<10	<10
MW-20	02-RT-081-GW	Project Sample	9/26/2002	<1	3.2	<1	1300	12	<1	<1
MW-20	02-RT-082-GW	QC Duplicate	9/26/2002	1.1	3.6	1.1	1500	14	<1	<1

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Sample Type	Date Sampled	Benzene MCL=5; ACL= NA	Vinyl chloride MCL=2; ACL=2	1,1-DCE MCL=7; ACL=7	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=10; ACL=11,600	TCE MCL=5; ACL=21,900	PCE MCL=5; ACL=840
MW-20	02-RT-083-GW	QA Split	9/26/2002	---	<10	---	1060	<10	<10	<10
MW-20	02-RT-124-GW	Project Sample	12/18/2002	1.7	5.1	1.51	2000	22.5	<1	<1
MW-20	03-RT-024-GW	Project Sample	3/11/2003	1.15	4.39	<1	1090	16.4	<1	<1
MW-20	03-RT-025-GW	QC Duplicate	3/11/2003	1.17	4.58	<1	1210	18.3	<1	<1
MW-20	03-RT-026-GW	QA Split	3/11/2003	---	<10	---	1210	18.5	<10	<10
MW-20	03-RT-033-GW	Project Sample	6/17/2003	---	<5	---	1260	18.6	<5	<5
MW-20	03RT-090-GW	Project Sample	9/19/2003	---	3.6	---	1020	15.5	3.3	14.1
MW-20	04-RT-006v-GW	Project Sample	1/21/2004	---	4	---	1050	16	1.6	1.4
MW-20	04-RT-017-GW	Project Sample	3/30/2004	---	3.3	---	895	12.9	<1	<1
MW-20	04-RT-022-GW	QC Duplicate	3/30/2004	---	3.4	---	943	12.3	<1	<1
MW-20	04-RT-026-GW	Project Sample	6/8/2004	---	<10	---	857	11.4	<10	<10
MW-20	04-RT-053-GW	Project Sample	10/29/2004	---	59.4	---	1560	22	6.5	32
MW-20	05-RT-007-GW	Project Sample	2/24/2005	---	248	---	898	5.6	7.6	<5
MW-20	05-RT-021-GW	Project Sample	6/2/2005	---	211	---	582	<1	<1	<1
MW-20	05-RT-061-GW	Project Sample	10/11/2005	0.8	113	<1	231	8.5	<1	<1
MW-20	06-RT-016-GW	Project Sample	5/26/2006	---	15.5	---	39.1	4.9	<1	<1
MW-20	06-RT-049-GW	Project Sample	9/13/2006	<0.5	4.1	<0.5	22	3.5	1.1	<0.5
MW-20	06-RT-064-GW	QC Duplicate	9/13/2006	<0.5	4.3	<0.5	22	3.4	0.99	<0.5
MW-20	07-RT-039-GW	Project Sample	9/19/2007	---	<1	---	6.1	<1	1.4	3.6
MW-20	08-RT-017-GW	Project Sample	5/13/2008	<0.4	3.73	<1	8.66	2.5	2.23	4.28
MW-20	08-RT-057-GW	Project Sample	9/19/2008	<0.4	1.42	<1	10.1	0.77	1.32	3.49
MW-20	09-RT-006-GW	Project Sample	5/6/2009	0.24	2.43	<1	9.07	1.73	1.37	0.64
MW-20	09-RT-090-GW	Project Sample	10/8/2009	<0.12	6.21	<0.31	16.4	3.1	1.33	0.83 F
MW-20	10-RT-053-GW	Project Sample	5/13/2010	<0.12	5.73 VJ	<0.31	11.7	1.87	2.46	1.24
MW-20	10-RT-109-GW	Project Sample	10/21/2010	0.23	12.7	<0.31	24.6	2.85	1.65	0.91
MW-20	12-RT-033-GW	Project Sample	5/10/2012	0.21	12.3 VJ	<0.31	12.3 VJ	1.7 VJ	5.03 VJ	2.33
MW-20	13-RT-010-GW	Project Sample	4/9/2013	<0.24	<0.62	<0.62	2.12	<0.62	0.58	0.64
MW-21	99-RT-034-GW	Project Sample	9/3/1999	<1	<1	<1	220	2	79	350
MW-21	99-RT-035-GW	QC Duplicate	9/3/1999	<1	<1	<1	210	2	78	330
MW-21	99-RT-058-GW	Project Sample	10/27/1999	<0.5	<0.5	<0.5	160 H	2.3	50	170 J,H
MW-21	99-RT-085-GW	Project Sample	12/13/1999	<1	<1	<1	67	1.5	30	140
MW-21	00-RT-011-GW	Project Sample	3/24/2000	<1	<1 J	<1	57	<1	42	240 J,H
MW-21	00-RT-067-GW	Project Sample	6/9/2000	<1	<2	<1	42	<1	25	130
MW-21	00-RT-125-GW	Project Sample	9/29/2000	<1	<2	<1	29	<1	19	130
MW-21	01-RT-023-GW	Project Sample	1/10/2001	<2	<2	<2	36	<2	16	53

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Sample Type	Date Sampled	Benzene MCL=5; ACL= NA	Vinyl chloride MCL=2; ACL=2	1,1-DCE MCL=7; ACL=7	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=10; ACL=11,600	TCE MCL=5; ACL=21,900	PCE MCL=5; ACL=840
MW-21	01-RT-041-GW	Project Sample	3/22/2001	<1	<1	<1	45.2	<1	16.9	53.8
MW-21	01-RT-078-GW	Project Sample	6/25/2001	<2	<2	<2	73	<2	11.2	28.4
MW-21	01-RT-107-GW	Project Sample	10/17/2001	<0.7 J	<1 J	<1 J	73.9 J	<1 J	3.13 J	11 J
MW-21	01-RT-151-GW	Project Sample	1/16/2002	<1 J	<1 J	<1 J	104 J	0.788 J	3.16 J	8.57 J
MW-21	02-RT-050-GW	Project Sample	6/18/2002	<1 J	<1 J	<1 J	84.3 J	<1 J	2.95 J	11.3 J
MW-21	02-RT-092-GW	Project Sample	9/27/2002	<2	<1	<2	99	<2	9.5	32
MW-21	03-RT-065-GW	Project Sample	6/18/2003	<0.4	<1	<1	177	<1	13	45.7
MW-21	03-RT-100-GW	Project Sample	10/7/2003	<0.4	<1	<1	72.7	<1	3.64	21.4
MW-21	04-RT-031-GW	Project Sample	6/8/2004	<0.4	<1	<1	89.8	<1	1.24	1.26
MW-21	04-RT-045-GW	QC Duplicate	6/8/2004	<0.4	<1	<1	97.5	<1	1.46	1.43
MW-21	04-RT-075-GW	Project Sample	10/22/2004	<0.4	<1	<1	91.7	<1	3.22	7.36
MW-21	05-RT-030-GW	Project Sample	6/3/2005	<0.4	<1	<1	144	<1	14.6	27.5
MW-21	05-RT-062-GW	Project Sample	10/12/2005	<0.4	<1	<1	116	<1	<1	1.27
MW-21	06-RT-050-GW	Project Sample	9/13/2006	<0.5	<0.5	<0.5	170	<0.5	42	88
MW-21	07-RT-024-GW	Project Sample	9/20/2007	---	<1	---	121	<1	7.5	23.6
MW-21	08-RT-045-GW	Project Sample	9/20/2008	<0.4	<1	1.53	389	0.69	62.8	148
MW-21	09-RT-081-GW	Project Sample	10/8/2009	<0.12	0.34	1.1	341	0.54	6.95 VJ	9.2 F
MW-21	10-RT-101-GW	Project Sample	10/22/2010	<0.24	<0.62	0.86	549	1.44	23.9	47.7
MW-21	10-RT-119-GW	QC Duplicate	10/22/2010	0.17	0.31	1.01	575	1.5	27.7	55.5
MW-21	12-RT-021-GW	Project Sample	5/10/2012	<0.12	<0.31	<0.31	34.9 VJ	<0.31	18.6 VJ	38.1
MW-22	99-RT-033-GW	Project Sample	9/2/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.9
MW-22	99-RT-050-GW	Project Sample	10/26/1999	<0.5	<0.5	<0.5	<0.5	<0.5	0.84	18
MW-22	99-RT-084-GW	Project Sample	12/14/1999	<1	<1	<1	<1	<1	<1	6.4
MW-22	00-RT-021-GW	Project Sample	3/25/2000	<1	<1	<1 J	<1	<1	<1	4.7
MW-22	00-RT-022-GW	QC Duplicate	3/25/2000	<1	<1	<1 J	<1	<1	<1	4.3
MW-22	00-RT-023-GW	QA Duplicate	3/25/2000	<1	<2	<1	<1	<1	<1	5
MW-22	00-RT-071-GW	Project Sample	6/9/2000	<1	<2	<1	<1	<1	<1	4.6
MW-22	01-RT-101-GW	Project Sample	10/17/2001	<0.7 J	<1 J	<1 J	<1 J	<1 J	<1 J	2.61 J
MW-22	02-RT-093-GW	Project Sample	9/26/2002	<1	<1	<1	<1	<1	<1	2.6
MW-22	03-RT-066-GW	Project Sample	6/18/2003	<0.4	<1	<1	<1	<1	<1	1.3
MW-22	04-RT-076-GW	Project Sample	10/22/2004	<0.4	<1	<1	<1	<1	<1	<1
MW-23	99-RT-032-GW	Project Sample	9/2/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	10
MW-23	99-RT-057-GW	Project Sample	10/27/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	20
MW-23	99-RT-083-GW	Project Sample	12/14/1999	<1	<1	<1	<1	<1	<1	12

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-23	00-RT-016-GW	Project Sample	3/25/2000	<1	<1	<1 J	<1	<1	<1	<1
MW-23	00-RT-017-GW	QC Duplicate	3/25/2000	<1	<1	<1 J	<1	<1	<1	12
MW-23	00-RT-018-GW	QA Duplicate	3/25/2000	<1	<2	<1	<1	<1	<1	11
MW-23	00-RT-072-GW	Project Sample	6/9/2000	<1	<2	<1	<1	<1	<1	13
MW-23	01-RT-102-GW	Project Sample	10/17/2001	<0.7 J	<1 J	<1 J	<1 J	<1 J	<1 J	10.5 J
MW-23	01-RT-104-GW	QC Duplicate	10/17/2001	<0.7 J	<1 J	<1 J	<1 J	<1 J	<1 J	10.8 J
MW-23	01-RT-105-GW	QA Split	10/17/2001	---	<1 J,H	---	<1 J,H	<1 J,H	<1 J,H	10.6 J,H
MW-23	02-RT-094-GW	Project Sample	9/26/2002	<1	<1	<1	65	<1	3.2	28
MW-23	03-RT-103-GW	Project Sample	10/7/2003	<0.4	<1	<1	<1	<1	<1	7.94
MW-23	04-RT-077-GW	Project Sample	10/22/2004	<0.4	<1	<1	<1	<1	<1	5.35
MW-23	06-RT-051-GW	Project Sample	9/13/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.9
MW-23	10-RT-060-GW	Project Sample	5/13/2010	<0.12	<0.31	<0.31	<0.31	<0.31	<0.31	4.19
MW-23	12-RT-022-GW	Project Sample	5/10/2012	<0.12	<0.31	<0.31	<0.31	<0.31	0.33 VJ	17.8
MW-23	13-RT-001-GW	Project Sample	4/11/2013	<0.24	<0.62	<0.62	5.15	<0.62	0.81	18
MW-23	14-RT-021-GW	Project Sample	4/22/2014	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	4.12
MW-24	99-RT-036-GW	Project Sample	9/3/1999	<1	<1	<1	390	2	50	57
MW-24	99-RT-040-GW	Project Sample	10/26/1999	<0.5	0.6	0.8	450	1.5	51	73
MW-24	99-RT-090-GW	Project Sample	12/14/1999	<1	<1	<1	250	<1	41	79
MW-24	00-RT-004-GW	Project Sample	3/24/2000	<1	<1 J	<1	310 J,H	3.2	100	210 J,H
MW-24	00-RT-042-GW	Project Sample	6/7/2000	<1 J	<2 J	<1 J	250 J	<1 J	51 J	110 J
MW-24	01-RT-114-GW	Project Sample	10/18/2001	<2.8 J	<4 J	<4 J	319 J	<4 J	56.4 J	66.2 J
MW-24	02-RT-084-GW	Project Sample	9/26/2002	<1	<1	<1	260	<1	83	170
MW-24	03-RT-108-GW	Project Sample	10/9/2003	<0.4	<1	<1	222	<1	46.2	68.8
MW-24	05-RT-035-GW	Project Sample	6/3/2005	<0.4	<1	<1	360	<1	63.9	98.8
MW-24	05-RT-063-GW	Project Sample	10/12/2005	<0.4	<1	<1	288	<1	68.8	118
MW-24	06-RT-052-GW	Project Sample	9/13/2006	<0.5	<0.5	<0.5	230	<0.5	68	130
MW-24	08-RT-058-GW	Project Sample	9/18/2008	<0.4	<1	<1	69	0.56	49.4	192
MW-24	10-RT-112-GW	Project Sample	10/21/2010	<0.12	0.38	<0.31	153	<0.31	63	151
MW-25	99-RT-037-GW	Project Sample	9/3/1999	<2	<2	<2	16	<2	26	920
MW-25	99-RT-055-GW	Project Sample	10/27/1999	<0.5	<0.5	<0.5	4.4	<0.5	8.3	300 J,H
MW-25	99-RT-056-GW	QC Duplicate	10/27/1999	<0.5	<0.5	<0.5	4.6	<0.5	8.8	290 J,H
MW-25	99-RT-086-GW	Project Sample	12/14/1999	<1	<1	<1	8.4	<1	13	500
MW-25	99-RT-087-GW	QC Duplicate	12/14/1999	<1	<1	<1	7.9	<1	12	460
MW-25	00-RT-013-GW	Project Sample	3/24/2000	<1	<1 J	<1	11	<1	17	610 J,H

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-25	00-RT-068-GW	Project Sample	6/9/2000	<1	<2	<1	7.1	<1	11	310
MW-25	00-RT-069-GW	QC Duplicate	6/9/2000	<1	<2	<1	6.7	<1	11	280
MW-25	00-RT-070-GW	QA Duplicate	6/9/2000	<0.5	<0.5	<0.5	6.4	<0.5	10	290
MW-25	00-RT-126-GW	Project Sample	9/29/2000	<1	<2	<1	11	<1	18	540
MW-25	00-RT-127-GW	QC Duplicate	9/29/2000	<1	<2	<1	7.4	<1	16	500
MW-25	00-RT-129-GW	QA Split	9/29/2000	<1	<1	<1	10	<1	14.9	395
MW-25	01-RT-020-GW	Project Sample	1/10/2001	<20	<20	<20	58	<20	120	480
MW-25	01-RT-021-GW	QC Duplicate	1/10/2001	<20	<20	<20	57	<20	130	510
MW-25	01-RT-022-GW	QA Split	1/10/2001	---	<10	---	72.8	<10	171	792
MW-25	01-RT-042-GW	Project Sample	3/22/2001	<2	<2	<2	284	7.93	84	425
MW-25	01-RT-077-GW	Project Sample	6/25/2001	<2	<2	<2	142	2.3	25.6	156
MW-25	01-RT-109-GW	Project Sample	10/17/2001	<1.4 J	<2 J	<2 J	801 J	4.23 J	10 J	17.9 J
MW-25	01-RT-133-GW	Project Sample	1/16/2002	---	<5 J,H	---	752 J,H	<5 J,H	<5 J,H	5.4 J,H
MW-25	02-RT-016-GW	Project Sample	3/13/2002	<2	<2	<2	956	<2	2.28	3.22
MW-25	02-RT-017-GW	QC Duplicate	3/13/2002	<2	<2	<2	933	<2	2.49	4.07
MW-25	02-RT-018-GW	QA Split	3/13/2002	1.15	<2	<1	804	4.12	2.21	3.7
MW-25	02-RT-049-GW	Project Sample	6/18/2002	<2 J	<2 J	<2 J	721 J	4.12 J	<2 J	2.89 J
MW-25	02-RT-071-GW	Project Sample	9/27/2002	1.3	1.3	1.5	980	6.2	<1	2.5
MW-25	02-RT-108-GW	Project Sample	12/19/2002	0.66	<1	<1	796	<1	1.61	3.28
MW-25	03-RT-013-GW	Project Sample	3/11/2003	1.13	1.2	1.59	1320	9.82	<1	1.4
MW-25	03-RT-042-GW	Project Sample	6/18/2003	---	<10	---	563	<10	<10	<10
MW-25	03-RT-088-GW	Project Sample	9/18/2003	0.99 J	<1 J	1.19 J	765 J	13.9 J	<1 J	<1 J
MW-25	04-RT-003-GW	Project Sample	1/21/2004	---	1	---	867	7.9	4.1	<1
MW-25	04-RT-014-GW	Project Sample	3/31/2004	---	1.3	---	932	6.5	1.3	<1
MW-25	04-RT-033-GW	Project Sample	6/8/2004	<0.4	<1	<1	301	1.73	<1	<1
MW-25	04-RT-046-GW	QC Duplicate	6/8/2004	0.4	<1	<1	325	1.93	<1	<1
MW-25	04-RT-049-GW	Project Sample	10/30/2004	---	<1	---	1020	7	5	<1
MW-25	05-RT-003-GW	Project Sample	2/23/2005	---	<1	---	566	4.2	6.9	<1
MW-25	05-RT-029-GW	Project Sample	6/3/2005	<0.4	<1	<1	358	2.69	6.49	<1
MW-25	05-RT-046-GW	Project Sample	10/12/2005	---	1.8	---	1030 VM	9.2	<1	<1
MW-25	06-RT-009-GW	Project Sample	5/24/2006	---	48.5	---	949	<10	<10	<10
MW-25	06-RT-031-GW	Project Sample	9/12/2006	---	34.7	---	451	<5	<5	<5
MW-25	07-RT-003-GW	Project Sample	5/29/2007	---	12.4	---	137	1.1	5	7.9
MW-25	07-RT-023-GW	Project Sample	9/18/2007	---	14.2 VM	---	141	1.4	5.9	7
MW-25	08-RT-003-GW	Project Sample	5/13/2008	---	29.2	---	126	1.9	2.8	3.5
MW-25	08-RT-044-GW	Project Sample	9/19/2008	<0.4	26.8	<1	127	2.03	3.34	4.41

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Sample Type	Date Sampled	Benzene MCL=5; ACL= NA	Vinyl chloride MCL=2; ACL=2	1,1-DCE MCL=7; ACL=7	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=10; ACL=11,600	TCE MCL=5; ACL=21,900	PCE MCL=5; ACL=840
MW-25	09-RT-003-GW	Project Sample	5/5/2009	<0.4	0.42	<1	15.8	<1	1.9	9.66
MW-25	09-RT-080-GW	Project Sample	10/8/2009	0.32	11	<0.31	58.8	0.95	1.98 VB	8.94
MW-25	10-RT-051-GW	Project Sample	5/14/2010	0.18	10.1 VJ	<0.31	49.7	1.3	5.22	3.35
MW-25	10-RT-082-GW	Project Sample	10/21/2010	0.29	9.5 VJ	<0.31	84.8	1.26	8.46	8.76
MW-25	10-RT-100-GW	QA Split	10/21/2010	---	6.8 VJ	---	83.5	1.4	8.2	8.8
MW-25	12-RT-023-GW	Project Sample	5/10/2012	0.23	5	<0.31	43.4 VJM	0.93 VJ	11.8 VJ	11.1
MW-25	12-RT-042-GW	QC Duplicate	5/10/2012	0.25	6.52	<0.31	49.4 VM	1.25	13.4	10.8
MW-25	13-RT-003-GW	Project Sample	4/11/2013	<0.24	1.48	<0.62	37.2	0.53	6.61	6
MW-25	14-RT-022-GW	Project Sample	4/24/2014	0.268	3.2	<0.5	44	0.905	13.7	3.73
MW-26	99-RT-038-GW	Project Sample	9/3/1999	<0.5	<0.5	<0.5	160	4.4	19	93
MW-26	99-RT-059-GW	Project Sample	10/27/1999	<0.5	<0.5	<0.5	80	2.8	11	51
MW-26	99-RT-089-GW	Project Sample	12/14/1999	<1	<1	<1	710	22	40	200
MW-26	00-RT-059-GW	Project Sample	6/8/2000	<10	<20	<10	710 E	13	52	170
MW-26	01-RT-115-GW	Project Sample	10/17/2001	<8 J	<8 J	<8 J	297 J	<8 J	59.8 J	73 J
MW-26	01-RT-116-GW	QC Duplicate	10/17/2001	<4 J	<4 J	<4 J	344 J	9.72 J	31.4 J	107 J
MW-26	01-RT-117-GW	QA Split	10/17/2001	---	<2 J,H	---	265 J,H	7.8 J,H	28.2 J,H	112 J,H
MW-26	02-RT-085-GW	Project Sample	9/26/2002	<1	<1	<1	53	2	11	68
MW-26	02-RT-086-GW	QC Duplicate	9/26/2002	<1	<1	<1	53	1.9	11	68
MW-26	02-RT-087-GW	QA Split	9/26/2002	---	<1	---	52.3	<1	13.2	86.4
MW-26	03-RT-087-GW	Project Sample	9/18/2003	<0.4 J	<1 J	---	231 J	10.4 J	31.3 J	124 J
MW-26	04-RT-057-GW	Project Sample	10/30/2004	---	<1	---	44.2	2	9.3	72.3
MW-26	05-RT-064-GW	Project Sample	10/12/2005	<0.4	<1	<1	44.8	1.85	8.84	56.9
MW-26	06-RT-053-GW	Project Sample	9/13/2006	<0.5	<0.5	<0.5	56	2.5	13	78
MW-26	08-RT-059-GW	Project Sample	9/18/2008	<0.4	<1	<1	148	5.48	23.7	135
MW-26	10-RT-113-GW	Project Sample	10/21/2010	<0.12	<0.31	<0.31	192	5.8	31.5	148
MW-26	13-RT-005-GW	Project Sample	4/10/2013	<0.24	0.86	<0.62	262	<6.2	24.4	146
MW-26	14-RT-024-GW	Project Sample	4/22/2014	<0.2	<0.5	<0.5	175	3.51	26	134
MW-26	14-RT-032-GW	QC Duplicate	4/22/2014	<20	<50	<50	75.7	<50	<50	<50
MW-27	99-RT-077-GW	Project Sample	11/8/1999	<0.5	<0.5	<0.5	1.7	<0.5	0.8	1.1
MW-27	99-RT-091-GW	Project Sample	12/14/1999	<1	<1	<1	1.3	<1	<1	<1
MW-27	00-RT-027-GW	Project Sample	3/25/2000	<1	<1	<1 J	3.2	<1	1.3	<1
MW-27A	00-RT-075-GW	Project Sample	6/9/2000	<1	<2	<1	11	<1	7.4	2.5
MW-27A	00-RT-113-GW	Project Sample	9/28/2000	<1	<2	<1	22	<1	6.4	<1

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
MW-27A	01-RT-011-GW	Project Sample	1/11/2001	<2	<2	<2	55	<2	38	26
MW-27A	01-RT-045-GW	Project Sample	3/22/2001	<1	<1	<1	31.1	<1	19.6	15
MW-27A	01-RT-082-GW	Project Sample	6/25/2001	<1	<1	<1	28.9	<1	18.6	4.39
MW-27A	01-RT-127-GW	Project Sample	10/17/2001	<0.7 J	<1 J	<1 J	19.3 J	<1 J	4.43 J	<1 J
MW-27A	01-RT-150-GW	Project Sample	1/17/2002	<1 J	<1 J	<1 J	17.7 J	<1 J	2.46 J	0.696 J
MW-27A	02-RT-009-GW	Project Sample	3/13/2002	<1	<1	<1	8.46	<1	3.64	<1
MW-27A	02-RT-059-GW	Project Sample	6/19/2002	<2 J	<0.2 J	<0.2 J	20.4 J	<0.2 J	8.78 J	1.6 J
MW-27A	02-RT-088-GW	Project Sample	9/26/2002	<1	<1	<1	16	<1	2.1	<1
MW-27A	03-RT-051-GW	Project Sample	6/19/2003	<0.4	<1	<1	10.7	<1	8.03	1.77
MW-28	99-RT-069-GW	Project Sample	11/2/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-29	99-RT-074-GW	Project Sample	11/8/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.6
MW-29	99-RT-075-GW	QC Duplicate	11/8/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	11
MW-29	99-RT-081-GW	Project Sample	12/14/1999	<1	<1	<1	<1	<1	<1	12
MW-29	00-RT-019-GW	Project Sample	3/25/2000	<1	<1	<1 J	<1	<1	<1	9.6
MW-29	00-RT-041-GW	Project Sample	6/7/2000	<1	<2	<1	<1	<1	<1	12
MW-29	01-RT-103-GW	Project Sample	10/17/2001	<0.7 J	<1 J	<1 J	<1 J	<1 J	<1 J	7.83 J
MW-29	02-RT-097-GW	Project Sample	9/26/2002	<1	<1	<1	<1	<1	<1	14
MW-29	04-RT-079-GW	Project Sample	10/22/2004	<0.4	<1	<1	<1	<1	<1	8.68
MW-29	06-RT-054-GW	Project Sample	9/13/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8.9
MW-29	10-RT-061-GW	Project Sample	5/14/2010	<0.12	<0.31	<0.31	1.07	<0.31	0.47	6.87
MW-30	99-RT-076-GW	Project Sample	11/8/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-30	99-RT-079-GW	Project Sample	12/14/1999	<1	<1	<1	<1	<1	<1	<1
MW-30	00-RT-026-GW	Project Sample	3/25/2000	<1	<1	<1 J	<1	<1	<1	<1
MW-30	00-RT-063-GW	Project Sample	6/9/2000	<1	---	<1	<1	<1	<1	<1
MW-30	03-RT-062-GW	Project Sample	6/19/2003	<0.4	<1	<1	<1	<1	<1	<1
MW-31	99-RT-073-GW	Project Sample	11/8/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6
MW-31	99-RT-080-GW	Project Sample	12/14/1999	<1	<1	<1	<1	<1	<1	2
MW-31	00-RT-025-GW	Project Sample	3/25/2000	<1	<1	<1 J	<1	<1	<1	1.6
MW-31	00-RT-062-GW	Project Sample	6/9/2000	<1	<2	<1	<1	<1	<1	2.5
MW-31	00-RT-123-GW	Project Sample	9/28/2000	<1	<2	<1	<1	<1	<1	3
MW-31	01-RT-106-GW	Project Sample	10/17/2001	<0.7 J	<1 J	<1 J	<1 J	<1 J	<1 J	2.12 J
MW-31	02-RT-098-GW	Project Sample	9/27/2002	<1	<1	<1	<1	<1	<1	1.1

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
MW-31	03-RT-063-GW	Project Sample	6/19/2003	<0.4	<1	<1	<1	<1	<1	1.27
MW-31	04-RT-080-GW	Project Sample	10/22/2004	<0.4	<1	<1	<1	<1	<1	<1
MW-32	99-RT-072-GW	Project Sample	11/8/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-32	99-RT-082-GW	Project Sample	12/13/1999	<1	<1	<1	<1	<1	<1	<1
MW-32	00-RT-020-GW	Project Sample	3/25/2000	<1	<1	<1 J	<1	<1	<1	<1
MW-32	00-RT-073-GW	Project Sample	6/9/2000	<10	<2	<1	<1	<1	<1	<1
MW-34	00-RT-001-GW	Project Sample	1/14/2000	<1	<1	<1	<1	<1	<1	<1
MW-34	00-RT-002-GW	QC Duplicate	1/14/2000	<1	<1	<1	<1	<1	<1	<1
MW-34	00-RT-024-GW	Project Sample	3/25/2000	<1	<1	<1 J	<1	<1	<1	<1
MW-34	00-RT-061-GW	Project Sample	6/9/2000	<1	---	<1	<1	<1	<1	<1
MW-34	03-RT-064-GW	Project Sample	6/19/2003	<0.4	<1	<1	<1	<1	<1	<1
MW-34	03-RT-086-GW	Project Sample	9/18/2003	<0.4 J	<1 J	---	<1 J	<1 J	<1 J	<1 J
MW-35	00-RT-074-GW	Project Sample	6/9/2000	<1	<2	<1	210 E	2.8	2.2	1.6
MW-35	00-RT-122-GW	Project Sample	9/28/2000	<1	<2	<1	210 VJ	1.9	1.7	<1
MW-35	01-RT-118-GW	Project Sample	10/18/2001	<4 J	<4 J	<4 J	197 J	<4 J	<4 J	<4 J
MW-35	02-RT-089-GW	Project Sample	9/26/2002	<2	<1	<2	160	<2	3.3	<2
MW-35	03-RT-113-GW	Project Sample	10/8/2003	<0.4	<1	<1	86.9	1.47	---	2.55
MW-35	04-RT-081-GW	Project Sample	10/23/2004	<0.4	2.42	<1	403	2.31	2.79	<1
MW-35	05-RT-065-GW	Project Sample	10/12/2005	<0.4	<1	<1	247	1.75	3.16	1.1
MW-35	06-RT-022-GW	Project Sample	5/25/2006	<0.4	17	<1	306	6.27	1.81	1.18
MW-35	06-RT-055-GW	Project Sample	9/13/2006	<0.5	12	<0.5	290	3.4	2.2	1.1
MW-35	07-RT-014-GW	Project Sample	5/31/2007	<0.4	14.3	<1	189 J,H	6.35 VJ	1.2	0.68 F
MW-35	07-RT-020-GW	QC Duplicate	5/31/2007	<0.4	11.2	<1	328 VJ	3.75 VJ	1.27	0.97 F
MW-35	07-RT-040-GW	Project Sample	9/20/2007	---	3.5	---	208	2.5	2	1.2
MW-35	08-RT-060-GW	Project Sample	9/20/2008	<0.4	6.41	0.32	294	3.07	1.51	1.65
MW-35	09-RT-091-GW	Project Sample	10/8/2009	<0.12	2.8	<0.31	203	2.23	2.23	1.51 VJ
MW-35	10-RT-110-GW	Project Sample	10/21/2010	<0.12	3.48	<0.31	208	2.5	2.16	1.92
MW-35	12-RT-034-GW	Project Sample	5/10/2012	0.3	11.8 VJ	<0.31	67.9	3.5 VJ	1.17 VJ	0.66
MW-35	13-RT-006-GW	Project Sample	4/9/2013	<0.24	8.94	<0.62	142	2.59	1.38	0.92
MW-35	14-RT-028-GW	Project Sample	4/24/2014	<0.2	<0.5	<0.5	73.3	1.53	0.7	0.7
MW-36	00-RT-103-GW	Project Sample	9/27/2000	---	<1	---	27.2	<1	209 VJ	3420
MW-36	00-RT-104-GW	QC Duplicate	9/27/2000	---	<1	---	28	<1	205 VJ	3230

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-36	00-RT-105-GW	QA Duplicate	9/27/2000	2	<2	<1	25	<1	170	3600
MW-36	00-RT-138-GW	Project Sample	11/28/2000	---	<5	---	842	30.8	1710	2880
MW-36	01-RT-009-GW	Project Sample	1/11/2001	---	<10	---	1480	28.5	604	198
MW-36	01-RT-035-GW	Project Sample	3/8/2001	---	<50	---	3990	87.5	1000	628
MW-36	01-RT-073-GW	Project Sample	5/22/2001	---	<25	---	1640	28.5	390	3090
MW-36	01-RT-096-GW	Project Sample	10/16/2001	---	<10	---	1170	<10	26.3	<10
MW-36	01-RT-136-GW	Project Sample	1/16/2002	---	<10	---	1330	<10	36.5	18.9
MW-36	01-RT-137-GW	QC Duplicate	1/16/2002	---	<10	---	1330	<10	39	16.6
MW-36	01-RT-138-GW	QA Split	1/16/2002	<2 J,H	<2 J,H	2.29 J,H	1420 J	14.6 J	41.5 J	24.4 J
MW-36	02-RT-015-GW	Project Sample	3/13/2002	<2	<2	2.53	1170	<2	7.76	5.25
MW-36	02-RT-045-GW	Project Sample	6/18/2002	<2 J	<2 J	2.92 J	3340 J	28 J	23.9 J	7.38 J
MW-36	02-RT-046-GW	QC Duplicate	6/18/2002	<2 J	<2 J	2.37 J	2650 J	23.8 J	27 J	7.32 J
MW-36	02-RT-047-GW	QA Split	6/18/2002	---	<10	---	2610	24.9	21.2	<10
MW-36	02-RT-068-GW	Project Sample	9/27/2002	<1	<1	<1	810	5.4	370	320
MW-36	02-RT-069-GW	QC Duplicate	9/27/2002	<1	<1	<1	800	5.4	380	310
MW-36	02-RT-070-GW	QA Split	9/27/2002	---	<10	---	727	<10	415	346
MW-36	02-RT-110-GW	Project Sample	12/19/2002	<0.4	<1	<1	716	<1	4.43	2.81
MW-36	03-RT-012-GW	Project Sample	3/10/2003	---	<10	---	969	<10	<10	<10
MW-36	03-RT-040-GW	Project Sample	6/17/2003	---	<10	---	2220	27.3	21.7	26
MW-36	03-RT-092-GW	Project Sample	10/7/2003	---	<1	---	901	8.2	68.6	41
MW-36	04-RT-001-GW	Project Sample	1/21/2004	---	1.3	---	717	5.8	<1	1.3
MW-36	04-RT-012-GW	Project Sample	3/31/2004	---	<1	---	484	4.7	<1	1.9
MW-36	04-RT-023-GW	Project Sample	6/8/2004	---	<5	---	1620	17.4	7.3	10.1
MW-36	04-RT-047-GW	Project Sample	10/30/2004	---	<1	---	1330	13.6	9.8	6
MW-36	05-RT-001-GW	Project Sample	2/23/2005	---	<5	---	914	8.2	<5	8.9
MW-36	05-RT-027-GW	Project Sample	6/3/2005	<0.8	<2	<2	1850	13.7	82.2	8.28
MW-36	05-RT-043-GW	QC Duplicate	6/3/2005	<0.8	<2	<2	1970	14.7	61.6	8.14
MW-36	05-RT-044-GW	Project Sample	10/11/2005	---	6.6	---	636 VM	5.9	<1	<1
MW-36	06-RT-007-GW	Project Sample	5/24/2006	---	93.6	---	547	7.6	<1	<1
MW-36	06-RT-029-GW	Project Sample	9/12/2006	---	<10	---	139	<10	110	414
MW-36	07-RT-001-GW	Project Sample	5/30/2007	---	29.1	---	257	<5	23.1	8.3
MW-36	07-RT-021-GW	Project Sample	9/20/2007	---	18	---	339	<5	62.7	54.3
MW-36	07-RT-042-GW	QC Duplicate	9/20/2007	---	18.8	---	337	<5	64.1	62.6
MW-36	07-RT-044-GW	QA Split	9/20/2007	<0.4	12.6 VJ	<1	251	0.69 VM	50	33.5 VJ
MW-36	08-RT-001-GW	Project Sample	5/13/2008	---	64.1	---	202	4.4	24.4	25.4
MW-36	08-RT-040-GW	QA Split	9/18/2008	---	1.5	---	32.5	<1	<1 VJ	95.6 VJ

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
MW-36	08-RT-042-GW	Project Sample	9/18/2008	<0.4	0.77 VJ	<1	27.2 VM	<1	26.9 VM	71.7
MW-36	08-RT-064-GW	QC Duplicate	9/18/2008	<0.4	1.7 VJ	<1	30.4	<1	26.8	70
MW-36	09-RT-001-GW	Project Sample	5/5/2009	0.35	34.3	<1	221	1.71	37.7	98.9
MW-36	09-RT-078-GW	Project Sample	10/8/2009	0.94	55.8	<0.31	192	3.04	77.2	125
MW-36	10-RT-049-GW	Project Sample	5/14/2010	0.13	32.3 VJ	<0.31	207	1.82	61.9	175
MW-36	10-RT-080-GW	Project Sample	10/20/2010	0.22	17.4	<0.31	168	1.2	42.6	51.6
MW-36	12-RT-001-GW	Project Sample	5/9/2012	<0.12	4.38	<0.31	85.5	0.46	9.35	1.81
MW-36	13-RT-016-GW	Project Sample	4/11/2013	<0.24	4.97	<0.62	41	<0.62	8.69	11.3
MW-36	14-RT-001-GW	Project Sample	4/22/2014	0.19	10.8	<0.5	355	<0.5	64.1	7.09
MW-37	00-RT-102-GW	Project Sample	9/27/2000	---	<1	---	19.1	<1	55.3	1910
MW-37	00-RT-137-GW	Project Sample	11/28/2000	---	<5	---	655	<5	1280	982
MW-37	01-RT-007-GW	Project Sample	1/11/2001	---	<10	---	1240	<10	462	314
MW-37	01-RT-036-GW	Project Sample	3/8/2001	---	<10	---	1430	<10	219	209
MW-37	01-RT-072-GW	Project Sample	5/22/2001	---	<10	---	1530	16.2	144	53.3
MW-37	01-RT-094-GW	Project Sample	10/16/2001	---	<5 J,H	---	544 J,H	<5 J,H	8.6 J,H	7.5 J,H
MW-37	01-RT-134-GW	Project Sample	1/16/2002	---	<2 J,H	---	384 J,H	2.5 J,H	2.4 J,H	5.3 J,H
MW-38	00-RT-100-GW	Project Sample	9/27/2000	---	<1	---	3.3	<1	19.7	804
MW-38	00-RT-135-GW	Project Sample	11/28/2000	---	<5	---	16.3	<5	37.4	1210
MW-38	01-RT-006-GW	Project Sample	1/11/2001	---	<10	---	18.9	<10	54.1	226
MW-38	01-RT-038-GW	Project Sample	3/8/2001	---	<1	---	1.5	<1	17.9	178
MW-38	01-RT-070-GW	Project Sample	5/22/2001	---	<1	---	535	4.8	53.4	84.7
MW-38	01-RT-093-GW	Project Sample	10/16/2001	---	<1 J,H	---	117 J,H	<1 J,H	9.5 J,H	52.7 J,H
MW-38	01-RT-132-GW	Project Sample	1/16/2002	---	<1	---	82	<1	4.6	12.2
MW-38	02-RT-013-GW	Project Sample	3/13/2002	<2	<2	<2	91.1	<2	4.1	9.19
MW-38	02-RT-043-GW	Project Sample	6/18/2002	<2 J	<2 J	<2 J	635 J	3.19 J	2.18 J	2.52 J
MW-38	02-RT-066-GW	Project Sample	9/27/2002	<1	<1	<1	150	<1	14	53
MW-38	02-RT-111-GW	Project Sample	12/19/2002	<0.4	<1	<1	376	<1	4.94	5.69
MW-38	03-RT-014-GW	Project Sample	3/11/2003	<0.4	<1	<1	279	2.31	3.8	5.77
MW-38	03-RT-067-GW	Project Sample	6/18/2003	<0.4	<1	<1	182	1.05	3.67	3.49
MW-38	03RT-079-GW	Project Sample	9/18/2003	---	<1	---	159	1	4.6	6.3
MW-38	04-RT-034-GW	Project Sample	6/9/2004	<0.4	<1	<1	326	1	<1	1.05
MW-38	04-RT-082-GW	Project Sample	10/22/2004	<0.4	<1	<1	72.6	<1	1.6	2.12
MW-38	05-RT-031-GW	Project Sample	6/3/2005	<0.4	<1	<1	240	<1	1.86	1.83 VB
MW-38	05-RT-066-GW	Project Sample	10/12/2005	<0.4	<1	<1	141	<1	1.73	2.22

Appendix A
July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products
River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Sample Type	Date Sampled	Benzene MCL=5; ACL= NA	Vinyl chloride MCL=2; ACL=2	1,1-DCE MCL=7; ACL=7	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=10; ACL=11,600	TCE MCL=5; ACL=21,900	PCE MCL=5; ACL=840
MW-38	06-RT-023-GW	Project Sample	5/26/2006	<0.4	1.69	<1	122	1.35	1.72	<1
MW-38	06-RT-056-GW	Project Sample	9/12/2006	<0.5	23	<0.5	260	2.2	5.5	14
MW-38	06-RT-063-GW	QC Duplicate	9/12/2006	<0.5	24	<0.5	250	2.3	5.7	14
MW-38	07-RT-015-GW	Project Sample	5/30/2007	<0.4	43.1	<1	89	3.22	3.28	6.05
MW-38	07-RT-025-GW	Project Sample	9/20/2007	---	4.5	---	35.2	1.3	1.2	1.4
MW-38	08-RT-046-GW	Project Sample	9/19/2008	<0.4	1.59	<1	4.77	<1	1.02	12.9
MW-38	09-RT-082-GW	Project Sample	10/8/2009	0.27	7.67	<0.31	21.8	1.72	<0.31	<0.31
MW-38	10-RT-102-GW	Project Sample	10/22/2010	<0.12	2.79	<0.31	3.61	<0.31	<0.31	<0.31
MW-38	12-RT-024-GW	Project Sample	5/10/2012	<0.12 VJ	12.4 VJ	<0.31	93.1	1.21 VJ	2.23 VJ	1.39
MW-38	13-RT-004-GW	Project Sample	4/11/2013	0.16	7.47	<0.62	27.4	1.39	5.97	1.14
MW-38	14-RT-023-GW	Project Sample	4/22/2014	0.193	16.5	<0.5	29	2.32	0.986	0.373
MW-38	14-RT-033-GW	QC Duplicate	4/22/2014	<20	<50	<50	61.6	<50	<50	<50
MW-39	00-RT-106-GW	Project Sample	9/27/2000	---	2.5	---	726	9	93.5	62.9
MW-39	00-RT-134-GW	Project Sample	11/28/2000	---	<5	---	594	5.2	81	36.4
MW-39	01-RT-005-GW	Project Sample	1/11/2001	---	<10	---	625	<10	74.4	27.6
MW-39	01-RT-034-GW	Project Sample	3/8/2001	---	<5	---	394	<5	41	30.6
MW-39	01-RT-074-GW	Project Sample	5/22/2001	---	<5	---	622	6	62.2	29.4
MW-39	01-RT-092-GW	Project Sample	10/16/2001	---	<20 J,H	---	2500 J,H	<20 J,H	31.8 J,H	<20 J,H
MW-39	01-RT-131-GW	Project Sample	1/15/2002	---	<20	---	1860	23.4	<20	<20
MW-39	02-RT-063-GW	Project Sample	9/27/2002	4.2	9.1	2.4	3400	36	7.4	6.3
MW-39	02-RT-104-GW	Project Sample	12/18/2002	---	6.5	---	2530	25.9	<5	16.4
MW-39	02-RT-107-GW	QA Split	12/18/2002	3.07	5.85	1.99	2950	28.5	1.78	18.7
MW-39	03-RT-003-GW	Project Sample	2/4/2003	---	<50	---	11400	39.5 J	<50	<50
MW-39	03-RT-006-GW	Pre-purge Sample	2/4/2003	---	<50	---	6720	50.5	<50	<50
MW-39	03-RT-027-GW	Project Sample	3/11/2003	4.58	12.7	4.06	4720	36.4	2.54	<1
MW-39	03-RT-039-GW	Project Sample	6/17/2003	---	<25	---	3830	39.5	<10	<10
MW-39	03RT-081-GW	Project Sample	9/18/2003	---	19.4	---	2360	22.4	<5	25
MW-39	04-RT-008-GW	Project Sample	1/21/2004	---	214	---	6370	74	<50	<50
MW-39	04-RT-019-GW	Project Sample	3/31/2004	---	456	---	3100	44.6	<1	<1
MW-39	04-RT-028-GW	Project Sample	6/8/2004	---	65.4	---	4230	56.5	<5	9.4
MW-39	04-RT-055-GW	Project Sample	10/29/2004	---	116	---	3590	81.8	<1	<1
MW-39	04-RT-061-GW	QC Duplicate	10/29/2004	---	120	---	3530	82.4	2.3	11.5
MW-39	05-RT-009-GW	Project Sample	2/23/2005	---	651	---	3550	61	<20	<20
MW-39	05-RT-023-GW	Project Sample	6/2/2005	---	460	---	1620	<1	<1	<1
MW-39	05-RT-051-GW	Project Sample	10/11/2005	---	226	---	2160 VM	53.2	<5	<5

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-39	06-RT-003-GW	Project Sample	3/8/2006	---	255	---	3090	67.9	<5	11.4
MW-39	06-RT-014-GW	Project Sample	5/24/2006	---	435	---	1160 VH	55	<1	<1
MW-39	06-RT-035-GW	Project Sample	9/11/2006	---	158	---	1500	48.9	<10	<10
MW-39	07-RT-006-GW	Project Sample	5/30/2007	---	300	---	660	40	<1	<1
MW-39	07-RT-033-GW	Project Sample	9/18/2007	---	134	---	1820	64.1	<1	<1
MW-39	08-RT-006-GW	Project Sample	5/12/2008	---	174	---	888	45.5	<1	<1
MW-39	08-RT-032-GW	Project Sample	9/17/2008	4.39	216	0.71	1140	47.4	<1 VM	0.34
MW-39	09-RT-008-GW	Project Sample	5/6/2009	1.79	41.1	<1	330	14.4	0.32	2.11
MW-39	09-RT-067-GW	Project Sample	10/6/2009	4.19	187	0.39	902	43.8	0.81	1.55 VJ
MW-39	10-RT-042-GW	Project Sample	5/12/2010	4.92	132	<0.31	518	47.4	3.08	0.94
MW-39	10-RT-086-GW	Project Sample	10/20/2010	5.54	115	0.32	585	52.2	1.84	3.59
MW-39	10-RT-117-GW	QC Duplicate	10/20/2010	4.82	114	<0.62	589	46	1.64	3.64
MW-39	12-RT-006-GW	Project Sample	5/8/2012	2.22	53.7	<0.31	<3.1	18.9	<0.31	<0.31
MW-39	13-RT-020-GW	Project Sample	4/9/2013	3.31	14.1	<0.62	25	34.1	<0.62	<0.62
MW-39	14-RT-006-GW	Project Sample	4/23/2014	2.56	4.55	<0.5	13.1	27.6	<0.5	<0.5
MW-40	00-RT-108-GW	Project Sample	9/27/2000	---	2.6	---	1120	10.2	158	641
MW-40	00-RT-132-GW	Project Sample	11/28/2000	---	<5	---	1940	19.4	43	76.9
MW-40	01-RT-002-GW	Project Sample	1/11/2001	---	<10	---	2440	15.9	<10	52.9
MW-40	01-RT-032-GW	Project Sample	3/8/2001	---	<25	---	1270	<25	<25	30.5
MW-40	01-RT-075-GW	Project Sample	5/22/2001	---	<10	---	1540	13.4	<10	28.6
MW-40	01-RT-090-GW	Project Sample	10/16/2001	---	<10	---	1930	<10	64.1	39.4
MW-40	01-RT-130-GW	Project Sample	1/15/2002	---	<10	---	2330	22.1	75.2	43.3
MW-40	02-RT-042-GW	Project Sample	6/19/2002	0.993 J	2.41 J	0.999 J	2720 J	8.23 J	<0.4 J	<0.4 J
MW-40	02-RT-064-GW	Project Sample	9/27/2002	2	3.9	1.9	1600	11	100	470
MW-40	02-RT-103-GW	Project Sample	12/18/2002	---	24.3	---	2350	28.4	25.6	29.9
MW-40	03-RT-002-GW	Project Sample	2/4/2003	---	33.4	---	2860	24.6	68	27.6
MW-40	03-RT-028-GW	Project Sample	3/11/2003	4.95	53.4	4.41	3810	36.4	55.8	48.8
MW-40	03-RT-035-GW	Project Sample	6/17/2003	---	96.6	---	2690	33.9	70.9	35.8
MW-40	03RT-084-GW	Project Sample	9/19/2003	---	144	---	2760	30.5	45.6	31.1
MW-40	04-RT-009-GW	Project Sample	1/21/2004	---	363	---	2030	39.8	27	<20
MW-40	04-RT-020-GW	Project Sample	3/30/2004	---	173	---	2620	39.8	145	13.5
MW-40	04-RT-029-GW	Project Sample	6/8/2004	---	341	---	1810	36.8	12	26.8
MW-40	04-RT-056-GW	Project Sample	10/29/2004	---	235	---	1220	37.6	22.1	5.1
MW-40	05-RT-010-GW	Project Sample	2/24/2005	---	101	---	507	21.4	<5	<5
MW-40	05-RT-024-GW	Project Sample	6/2/2005	---	201	---	521	1.1	21.4	2.2

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Sample Type	Date Sampled	Benzene MCL=5; ACL= NA	Vinyl chloride MCL=2; ACL=2	1,1-DCE MCL=7; ACL=7	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=10; ACL=11,600	TCE MCL=5; ACL=21,900	PCE MCL=5; ACL=840
MW-40	05-RT-052-GW	Project Sample	10/12/2005	---	78.5	---	468 VM	15.7	<10	<10
MW-40	06-RT-004-GW	Project Sample	3/8/2006	---	57.2	---	118	13.1	<1	<1
MW-40	06-RT-015-GW	Project Sample	5/25/2006	---	43.5	---	144	13	<1	7.7
MW-40	06-RT-018-GW	QC Duplicate	5/25/2006	---	36	---	144	11	<10	<10
MW-40	06-RT-036-GW	Project Sample	9/12/2006	---	38.7	---	180	15.2	52.1	108
MW-40	06-RT-041-GW	QC Duplicate	9/12/2006	---	38.8	---	174	15.1	44.4	96.3
MW-40	06-RT-042-GW	QA Split	9/12/2006	1.5	28 VJ	<0.5	170	12	49	81
MW-40	07-RT-007-GW	Project Sample	5/30/2007	---	43.1	---	72.4	15.3	<1	<1
MW-40	07-RT-034-GW	Project Sample	9/19/2007	---	13.3	---	28.5	7.9	<1	3.2
MW-40	08-RT-007-GW	Project Sample	5/12/2008	---	<1	---	3	<1	<1	<1
MW-40	08-RT-033-GW	Project Sample	9/17/2008	1.51	20.7 VJ	<1	44.4 VM	10	1.29 VM	12
MW-40	09-RT-009-GW	Project Sample	5/6/2009	1.9	9.4	<1	17.8	9.76	7.79	4.45
MW-40	09-RT-068-GW	Project Sample	10/7/2009	1.13	9.39	<0.31	33.2	6.52	1.27	12.1 VJ
MW-40	09-RT-077-GW	QA Split	10/7/2009	---	5.3 VJ	---	23 VJ	<5	<5	7.6
MW-40	09-RT-098-GW	QC Duplicate	10/7/2009	0.99	9.1	<0.31	35.9	5.07	1.3	7.45
MW-40	10-RT-043-GW	Project Sample	5/13/2010	1.28	17.6 VJ	<0.31	21.9	10.5	1.99	5.54
MW-40	10-RT-087-GW	Project Sample	10/20/2010	0.58	8.95	0.34	103	3.78	3.72	7.26
MW-40	10-RT-118-GW	QC Duplicate	10/20/2010	0.56	10.4	0.36	108	3.52	3.66	7
MW-40	12-RT-007-GW	Project Sample	5/7/2012	0.95	6.65	<0.31	12.2	7.06	11.5	41.4
MW-40	13-RT-021-GW	Project Sample	4/9/2013	1.08	2.48	<0.62	10.8	6.95	0.82	2.3
MW-40	14-RT-007-GW	Project Sample	4/23/2014	1.72	1.99	<0.5	3.99	15.4	<0.5	0.61
MW-41	02-RT-106-GW	Project Sample	12/18/2002	---	<1	---	1.4	<1	1.2	94.3
MW-41	03-RT-068-GW	Project Sample	6/18/2003	<0.4	<1	<1	<1	<1	<1	21.5
MW-41	03-RT-111-GW	Project Sample	10/8/2003	<0.4	<1	<1	1.61	<1	1.75	157
MW-41	03-RT-112-GW	QC Duplicate	10/8/2003	<0.4	<1	<1	1.5	<1	1.44	149
MW-41	04-RT-083-GW	Project Sample	10/22/2004	<0.4	<1	<1	<1	<1	<1	28.8
MW-41	06-RT-057-GW	Project Sample	9/13/2006	<0.5	<0.5	<0.5	30	<0.5	12	160
MW-41	08-RT-047-GW	Project Sample	9/19/2008	<0.4	<1	<1	15.3	<1	9.18	94
MW-41	12-RT-025-GW	Project Sample	5/10/2012	<0.12	<0.31	<0.31 VJ	7.64 VJ	<0.31	4.64 VJ	137
MW-42	02-RT-099-GW	Project Sample	11/2/2002	---	<1	---	129	1.3	17.7	39.7
MW-42	02-RT-112-GW	Project Sample	12/19/2002	0.72	<1	<1	976	9.76	19.2	44.5
MW-42	03-RT-030-GW	Project Sample	3/11/2003	0.79	<1	1.51	940	12.9	43.8	69.4
MW-42	03-RT-069-GW	Project Sample	6/18/2003	0.81	<1	<1	355	3.67	11.6	23.1
MW-42	03-RT-070-GW	QC Duplicate	6/18/2003	0.87	<1	<1	387	3.75	10.8	20.5

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-42	03-RT-071-GW	QA Split	6/18/2003	---	<1	---	373	5.1	18.5	32.9
MW-42	03-RT-097-GW	Project Sample	10/7/2003	2.57	<1	4.84	<1	<1	309	298
MW-42	04-RT-035-GW	Project Sample	6/9/2004	0.41	<1	<1	181	1.84	9.69	31.6
MW-42	04-RT-084-GW	Project Sample	10/22/2004	0.6	<1	<1	400	<1	35.5	15.6
MW-42	05-RT-032-GW	Project Sample	6/3/2005	0.41	<1	<1	93	1.37	21.3	23.1
MW-42	05-RT-067-GW	Project Sample	10/12/2005	0.49	<1	<1	634	7.39	21.3	127
MW-42	06-RT-024-GW	Project Sample	5/26/2006	0.63	23	<1	472	5.53	14.9	41.9
MW-42	06-RT-058-GW	Project Sample	9/12/2006	<0.5	1.3	<0.5	140	1.3	5.8	13
MW-42	07-RT-016-GW	Project Sample	5/30/2007	0.14	18.3	<1	259 VH	3.06	10.9	27.9
MW-42	07-RT-026-GW	Project Sample	9/20/2007	---	1.1 VH	---	18 VH	<1 VH	7.3 VH	16.8 VH
MW-42	08-RT-004-GW	Project Sample	5/13/2008	---	59.4	---	241	2.4	11.2	1.7
MW-42	08-RT-048-GW	Project Sample	9/18/2008	<0.4	11.1 VJ	<1	48.5	0.69	57	194
MW-42	09-RT-004-GW	Project Sample	5/5/2009	0.92	52.5	<1	234	3.74	176	409
MW-42	09-RT-083-GW	Project Sample	10/8/2009	0.8	9.45	<0.31	25.3	1.57	11.1	27.7
MW-42	10-RT-052-GW	Project Sample	5/14/2010	<0.12	1.55 VJ	<0.31	12.6	<0.31	8.07	40.8
MW-42	10-RT-083-GW	Project Sample	10/18/2010	<0.12	6.63	<0.31	17.5	<0.31	2.84	17.3
MW-42	12-RT-003-GW	Project Sample	5/9/2012	<0.12 VJ	7.01 VJH	<0.31 VJH	60.7 VJH	0.62 VJH	16.1 VJH	48 VJH
MW-42	13-RT-017-GW	Project Sample	4/11/2013	0.46	18.3	<0.62	256	2.17	25.5	11.3
MW-42	14-RT-003-GW	Project Sample	4/22/2014	<0.2	7.95	<0.5	58.5	1.66	4.8	7
MW-42	14-RT-034-GW	QC Duplicate	4/22/2014	<20	<50	<50	180	<50	<50	141
MW-43	02-RT-101-GW	Project Sample	11/2/2002	---	<1	---	164	<1	24.6	48.2
MW-43	02-RT-113-GW	Project Sample	12/19/2002	<0.4	<1	<1	39.1	<1	7.38	57.4
MW-43	03-RT-031-GW	Project Sample	3/11/2003	<0.4	<1	<1	19.5	<1	5.18	65.8
MW-43	03-RT-072-GW	Project Sample	6/18/2003	<0.4	<1	<1	142	<1	11.9	36.8
MW-43	03-RT-098-GW	Project Sample	10/7/2003	<0.4	<1	<1	120	<1	16.2	45.6
MW-43	03-RT-099-GW	QC Duplicate	10/7/2003	<0.4	<1	<1	101	<1	15.7	41.1
MW-43	04-RT-085-GW	Project Sample	10/22/2004	<0.4	<1	<1	6.77	<1	5.28	69.4
MW-43	04-RT-088-GW	QC Duplicate	10/22/2004	<0.4	<1	<1	8.21	<1	6.05	71.2
MW-43	06-RT-059-GW	Project Sample	9/12/2006	<0.5	<0.5	<0.5	4.3	<0.5	4.4	58
MW-43	08-RT-049-GW	Project Sample	9/20/2008	<0.4	<1	<1	19.5	<1	5.89	20.2
MW-43	12-RT-026-GW	Project Sample	5/10/2012	<0.12	5.91 VJ	<0.31	42.2 VJ	<0.31	18.6 VJ	34.8
MW-44	02-RT-100-GW	Project Sample	11/2/2002	---	<10	---	556	<10	1480	31300
MW-44	02-RT-105-GW	Project Sample	12/18/2002	---	10.6	---	326	2.4	3170	19800
MW-44	03-RT-029-GW	Project Sample	3/11/2003	<2	9	15.5	147	<5	2390	29500

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
MW-44	03-RT-054-GW	QA Split	6/18/2003	---	<5	---	1750	9.6	5730	26300
MW-44	03-RT-052-GW	Project Sample	6/19/2003	0.68	10.5	19	2180	9.01	5390	20600
MW-44	03-RT-053-GW	QC Duplicate	6/19/2003	0.61	9.86	17.4	1840	8.61	5440	23100
MW-44	03RT-082-GW	Project Sample	9/18/2003	---	11.6	---	894	3.6	4970	18900
MW-44	04-RT-042-GW	Project Sample	6/8/2004	0.69	8.3	10.1	1050	6.01	3740	15800
MW-44	04-RT-058-GW	Project Sample	10/29/2004	---	49.7	---	1760	9.9	4460	13500
MW-44	04-RT-063-GW	QA Split	10/29/2004	0.4	31.3	13.8	1510	7	3310	8160
MW-44	05-RT-037-GW	Project Sample	6/3/2005	<0.4	9.16	11	1160	2.56	3990	9250
MW-44	05-RT-053-GW	Project Sample	10/12/2005	---	14.7	---	1890 VM	<10	4570	11500
MW-44	06-RT-005-GW	Project Sample	3/7/2006	---	187	---	8080	104	3220	3530
MW-44	06-RT-017-GW	Project Sample	5/24/2006	---	45.6	---	6170 VH	28	720	416
MW-44	06-RT-037-GW	Project Sample	9/12/2006	---	<25	---	3990	<25	<25	26.5
MW-44	07-RT-009-GW	Project Sample	5/30/2007	---	1630	---	7500	84.4	34.8	26.2
MW-44	07-RT-035-GW	Project Sample	9/18/2007	---	5910	---	18600	88.5	3.6	1.8
MW-44	08-RT-008-GW	Project Sample	5/12/2008	---	393	---	1020	10.4	15.2	67.5
MW-44	08-RT-034-GW	Project Sample	9/17/2008	0.27	4340	11.1	6220	43.7	0.57 VM	0.88
MW-44	09-RT-010-GW	Project Sample	5/6/2009	<0.4	72.7 VJ	<1	104	8	1.61	5.04
MW-44	09-RT-069-GW	Project Sample	10/6/2009	<0.12	171 VJ	0.35	188	6.03	0.69	1.98 VJ
MW-44	10-RT-044-GW	Project Sample	5/12/2010	<0.12 VH	204 VH	0.67 VH	482 VH	5.16 VH	4.55 VH	11.8 VH
MW-44	10-RT-088-GW	Project Sample	10/20/2010	<0.12	609	0.8	380	4.37	0.46	0.85
MW-44	12-RT-008-GW	Project Sample	5/8/2012	<0.12	109	<0.31	131	11	<0.31	0.58
MW-44	13-RT-018-GW	Project Sample	4/9/2013	<0.24	<6.2	<0.62	87	1.4	0.73	1.1
MW-44	14-RT-008-GW	Project Sample	4/23/2014	<0.2	52.7	<0.5	41.9	5.78	0.91	1.78
MW-45	03-RT-093-GW	Project Sample	10/9/2003	---	<1	---	6.1	<1	2.5	<1
MW-45	04-RT-043-GW	Project Sample	6/8/2004	<0.4	<1	<1	2.32	<1	10.7	8.41
MW-45	04-RT-059-GW	Project Sample	10/29/2004	---	<1	---	1.7	<1	3.7	2.2
MW-45	05-RT-038-GW	Project Sample	6/3/2005	<0.4	<1	<1	4.89	<1	7.62	2.76
MW-45	06-RT-039-GW	Project Sample	9/12/2006	---	<1	---	2.4	<1	1.9	<1
MW-45	12-RT-035-GW	Project Sample	5/9/2012	<0.12 VH	8.04 VH	<0.31 VH	18.7 VH	0.72 VH	9.43 VH	0.58 VH
MW-45	13-RT-011-GW	Project Sample	4/9/2013	<0.24	0.92	<0.62	2.61	<0.62	2.52	0.47
MW-46	03-RT-094-GW	Project Sample	10/9/2003	---	<1	---	51.4	<1	<1	<1
MW-46	04-RT-044-GW	Project Sample	6/8/2004	<0.4	<1	<1	9.95 VH	<1	13.4 VH	73.6 VH
MW-46	04-RT-060-GW	Project Sample	10/29/2004	---	<1	---	10.1	<1	<1	3.9
MW-46	05-RT-039-GW	Project Sample	6/3/2005	<0.4	<1	<1	1.45	<1	<1	40.1

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
MW-46	06-RT-040-GW	Project Sample	9/12/2006	---	1.9	---	10.1	<1	<1	<1
MW-46	12-RT-036-GW	Project Sample	5/9/2012	<0.12 VH	1.32 VH	<0.31 VH	3.48 VH	<0.31 VH	<0.31 VH	0.59 VH
MW-47	06-RT-038-GW	Project Sample	10/4/2006	---	71	---	18700	193	2270	16100
MW-47	07-RT-010-GW	Project Sample	5/30/2007	---	139	---	47700	777	<10	<10
MW-47	07-RT-036-GW	Project Sample	9/19/2007	---	142	---	45500	485	<10	<10
MW-47	08-RT-009-GW	Project Sample	5/12/2008	---	83.8	---	21400	260	<5	<5
MW-47	08-RT-035-GW	Project Sample	9/17/2008	73	165	27	40600	1330	1.1 VM	0.43
MW-47	09-RT-011-GW	Project Sample	5/6/2009	67.4	268 VJ	49.3	55900	490	48.4	1
MW-47	09-RT-019-GW	QC Duplicate	5/6/2009	68.9	256 VJ	47.9	62300	494	40.5	<10
MW-47	09-RT-070-GW	Project Sample	10/6/2009	67.9	413	30.4	32800	309	2.5	0.35 F
MW-47	10-RT-045-GW	Project Sample	5/11/2010	64.7	1980	32.3	38700 VH	410	232	55.3
MW-47	10-RT-089-GW	Project Sample	10/19/2010	86.6	2080	71.8	67700	612	2280	278
MW-47	11-RT-001-GW	Project Sample	5/17/2011	69.6	1430	35.4	34900	384	4140	1610
MW-47	12-RT-009-GW	Project Sample	5/8/2012	<60	370	37.2	34400	345	5120	4050
MW-47	13-RT-025-GW	Project Sample	4/10/2013	31 VH	304 VH	<62 VH	10900 VH	181 VH	1950 VH	3990 VH
MW-47	14-RT-009-GW	Project Sample	4/23/2014	11.5	112	7.24	6170	62.2	790	2500
MW-48	09-RT-043-GW	Project Sample	8/17/2009	<1.2	57.9	89.9	12100	42.9	16800	120000
MW-48	09-RT-071-GW	Project Sample	10/6/2009	3.23	128	73	23700	119	4090	333 VJ
MW-48	10-RT-046-GW	Project Sample	5/12/2010	0.24	16.5 VJ	7.31	3310	13.5	292 VJ	26 VJ
MW-48	10-RT-068-GW	QC Duplicate	5/12/2010	0.25	16.2	7.41	3100	14.2	617 VR	616 VR
MW-48	10-RT-090-GW	Project Sample	10/19/2010	<0.12	7.22 VJ	3.08	1220	6.78	7.39	2.78
MW-48	11-RT-002-GW	Project Sample	5/18/2011	0.52	54.1	39.2	14600	37.4	<620	30
MW-48	12-RT-010-GW	Project Sample	5/8/2012	1.35	<155	<155	31500	<155	4.57	3.42
MW-48	13-RT-026-GW	Project Sample	4/10/2013	1.29	17.1	16.5	4700	14.6	0.72	0.64
MW-48	14-RT-010-GW	Project Sample	4/22/2014	<20	<50	61.7	25400	70.7	<50	<50
MW-49	09-RT-044-GW	Project Sample	8/17/2009	<1.2	25.9	8.4	7660	17	309	986
MW-49	09-RT-072-GW	Project Sample	10/6/2009	2.4	78.8 VJ	31.7	16300	73.9 VJ	1490	137 VJ
MW-49	10-RT-047-GW	Project Sample	5/13/2010	5.2	359 VJ	94	92900	203	<6.2	29.2
MW-49	10-RT-091-GW	Project Sample	10/19/2010	4.26 VH	314 VH	66.5 VH	63200 VH	120 VH	1.76 VH	0.93 VH
MW-49	11-RT-003-GW	Project Sample	5/18/2011	3.13	876	49.8	50700	96	5.25	2.65
MW-49	12-RT-011-GW	Project Sample	5/9/2012	<24	2700	<62	79300	94	<62	<62
MW-49	13-RT-027-GW	Project Sample	4/10/2013	<0.24	109	<0.62	382	4.57	<0.62	<0.62
MW-49	14-RT-011-GW	Project Sample	4/23/2014	4.14	8390	31.2	37800	182	<10	14.8

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
MW-50	09-RT-045-GW	Project Sample	8/17/2009	2.8	25.4	21.2	8840	44.1	2340	3550
MW-50	09-RT-073-GW	Project Sample	10/6/2009	3.7	81.6 VJ	115	12600	58.7	9360	44000 VJ
MW-50	10-RT-048-GW	Project Sample	5/12/2010	3.97	285	226	28900	67.5	26900	64400
MW-50	10-RT-059-GW	QA Split	5/12/2010	---	146 VJ	---	23000	52.5	20100	64900
MW-50	10-RT-067-GW	QC Duplicate	5/12/2010	3.65	294	246	30700	78	26100	73100
MW-50	10-RT-092-GW	Project Sample	10/20/2010	2.2	77	101	21400	45	17900	54700
MW-50	11-RT-004-GW	Project Sample	5/17/2011	1.82	354 VJ	114	117000 VJ	103 VJ	15500 VJ	38100 VJ
MW-50	11-RT-009-GW	QA Split	5/17/2011	---	258 VJ	---	48800 VJ	219 VJ	6050 VJ	18000 VJ
MW-50	12-RT-012-GW	Project Sample	5/8/2012	2.82	1180	261	3890	654	22.2	4.69
MW-50	13-RT-028-GW	Project Sample	4/10/2013	0.37	1400	38.2	19600	51	1080	2710
MW-50	14-RT-012-GW	Project Sample	4/22/2014	<4	1680	9.94	7440	28.6	81.8	128
MW-51	10-RT-093-GW	Project Sample	10/19/2010	1.53	184	196	79400	254	5200	59000
MW-51	11-RT-005-GW	Project Sample	5/18/2011	0.49	2220	53.9	30300	180	236	793
MW-51	12-RT-013-GW	Project Sample	5/9/2012	<24	11400	64	73600	256	<62	<62
MW-51	13-RT-029-GW	Project Sample	4/10/2013	0.13	3870	17.3	10500	49	2.54	4.73
MW-51	14-RT-013-GW	Project Sample	4/22/2014	<0.2	12.5	<0.5	34.6	0.655	0.749	5.81
MW-52	10-RT-094-GW	Project Sample	10/19/2010	0.42	26.5	36.8	18200	81.8	2320	1410
MW-52	11-RT-006-GW	Project Sample	5/17/2011	<0.12	53.5	2.81	1130	5.05	1.75	2.78
MW-52	12-RT-014-GW	Project Sample	5/8/2012	<0.12	475	3.74	1220	8.71	<0.31	0.7
MW-52	13-RT-030-GW	Project Sample	4/10/2013	3.66	10900	23.1	30500	152	1.17	<0.62
MW-52	14-RT-014-GW	Project Sample	4/23/2014	<0.2	2.74	<0.5	11.7	1.02	0.776	15.2
L-13	03-RT-008-GW	Project Sample	3/10/2003	---	166	---	3040	42.2	<10	<10
L-13	03-RT-010-GW	QA Split	3/10/2003	3.81	193	3.05	3240	42.8	1.39	1.15
L-13	03-RT-037-GW	Project Sample	6/17/2003	---	599	---	3690	51.5	<10	<10
L-13	03-RT-077-GW	QA Split	6/17/2003	6.51	610	2.85	4360	<1	<1	<1
L-17	03-RT-038-GW	Project Sample	6/17/2003	---	11.6	---	1490	20.2	111	161
L-74	06-RT-076-GW	Project Sample	10/1/2006	1.16	4.89	1.8	1030	1.8	<310	700 F
L-75	06-RT-077-GW	Project Sample	10/1/2006	36.4	<620	51.3	39100	51.6	720 F	3860

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
L-76	06-RT-078-GW	Project Sample	10/1/2006	12.6	49.7	<620	700 F	<620	1740 F	139000 VH
L-76	06-RT-081-GW	QC Duplicate	10/1/2006	12.6	<620	<620	640	<620	1780 F	139000
L-78	08-RT-010-GW	Project Sample	6/26/2008	<20	44.5	32	7630	70.5	5800	12300
L-78	08-RT-036-GW	Project Sample	9/18/2008	1.3	208 VJ	64	14500	101 VJ	9620	22800
L-78	09-RT-020-GW	Project Sample	5/7/2009	<8	257 VJ	35.6	5520	39.2	3350	5900
L-78	09-RT-074-GW	Project Sample	10/7/2009	1.3	61.8	82.1 VJ	14300 VJ	107 VJ	5610	19600 VJ
L-78	10-RT-062-GW	Project Sample	5/13/2010	<12	1380 VJ	113	28400	160	9220	26100
L-78	10-RT-095-GW	Project Sample	10/20/2010	1.97 VH	66.3 VH	13.3 VH	5470 VH	16.1 VH	834 VH	21200 VH
L-78	11-RT-010-GW	Project Sample	5/17/2011	<120	570	<310	15100	<310	3090	8750
L-78	12-RT-015-GW	Project Sample	5/9/2012	<24	<62	<62	4040	<62	472	12700
L-78	13-RT-031-GW	Project Sample	4/9/2013	0.75 VH	1280 VH	38.5 VH	21800 VH	31 VH	3150 VH	6510 VH
L-78	14-RT-015-GW	Project Sample	4/23/2014	<20	1070	<50	19900	38.6	2560	4350
L-79	08-RT-011-GW	Project Sample	5/13/2008	---	13.4	---	1240	9.2	918	2710
L-80	08-RT-012-GW	Project Sample	5/13/2008	---	77.8	---	8850	68	4450	48900
L-80	08-RT-037-GW	Project Sample	9/18/2008	5.98	93.6 VJ	51.5	11700	60.9	3920	41300
L-80	09-RT-021-GW	Project Sample	5/7/2009	5.4	138 VJ	46.2	11600	53.8	4150	13300
L-80	14-RT-018-GW	Project Sample	4/23/2014	<20	284	66.2	20000	41.6	3670	63500
L-81	08-RT-013-GW	Project Sample	6/26/2008	23.5	77	<50	11700	108	978	2950
L-81	08-RT-038-GW	Project Sample	9/18/2008	24	302	22	23100	184	490	480
L-81	09-RT-022-GW	Project Sample	5/7/2009	25.8	303 VJ	21	16600	156	761	791
L-93	09-RT-039-GW	Project Sample	8/15/2009	<1.2	11.7	4.5	1540	12.7	17.3	32.2
L-94	09-RT-040-GW	Project Sample	8/15/2009	<1.2	7.5	3.8	2390	16.6	265	201
L-96	09-RT-042-GW	Project Sample	8/15/2009	3.1	7.8	3.9	1890	20.4	261	6250
WP-2	02-RT-114-GW	Project Sample	12/18/2002	<4	<1	<1	<1	<1	<1	<1
SB-1(deep)	97RTGW506GW	Project Sample	7/18/1997	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB-1(deep)	SB-1 (D)	Project Sample	4/23/1998	<1	<1	<1	<1	<1	<1	<1
SB-1(deep)	SB-1 Deep	Project Sample	6/29/1998	<1	<1	<1	<1	<1	<1	<1

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5;* *ACL= NA*	*Vinyl chloride* *MCL=2;* *ACL=2*	*1,1-DCE* *MCL=7;* *ACL=7*	*cis-1,2-DCE* *MCL=70;* *ACL=11,600*	*trans-1,2-DCE* *MCL=10;* *ACL=11,600*	*TCE* *MCL=5;* *ACL=21,900*	*PCE* *MCL=5;* *ACL=840*
SB-1(deep)	SB-1 Deep	Project Sample	10/20/1998	<1	<1	<1	<1	<1	<1	<1
SB-1(deep)	03-RT-061-GW	Project Sample	6/19/2003	<0.4	<1	<1	<1	<1	5.11	39
SB-1(deep)	03-RT-107-GW	Project Sample	10/9/2003	1.07	<1	<1	<1	<1	<1	<1
SB-1(deep)	04-RT-066-GW	Project Sample	10/22/2004	<0.4	<1	<1	<1	<1	<1	<1
SB-1(shallow)	SB-1 (S)	Project Sample	4/23/1998	<1	<1	<1	<1	<1	<1	<1
SB-1(shallow)	SB-1 Shallow	Project Sample	6/30/1998	<1	<1	<1	<1	<1	<1	<1
SB-1(shallow)	SB-1 Shallow	Project Sample	10/20/1998	<1	<1	<1	<1	<1	<1	<1
SB-1(shallow)	SB-1 Shallow	Project Sample	4/16/1999	<1	<1	<1	<	<1	<1	<1
SB-1(shallow)	03-RT-060-GW	Project Sample	6/19/2003	<0.4	<1	<1	<1	<1	<1	<1
L-97	09-RT-047-GW	Project Sample	8/19/2009	0.82	7.33	0.56	395	1.57	7.85	25
L-98	09-RT-048-GW	Project Sample	8/19/2009	4.5	35.4	35.5	21600	41.9	1230	45500
L-99	09-RT-049-GW	Project Sample	8/19/2009	4.3	25	9.4	2120	<3.1	1070	13900
L-100	09-RT-050-GW	Project Sample	8/19/2009	1.08	3.3	1.15	1350	6.43	163	128
L-100	09-RT-092-GW	Project Sample	10/7/2009	1.23	23.5	1.6	1870	7.2	121	93
L-100	10-RT-054-GW	Project Sample	5/12/2010	0.82 VH	16.5 J,H	1.17 VH	1200 VH	3.9 VH	65.7 VH	91.3 VH
L-100	10-RT-096-GW	Project Sample	10/20/2010	<2.4	18	<6.2	1700	7.6	225	110
L-100	11-RT-007-GW	Project Sample	5/17/2011	<12	50	<31	3010	<31	216	151
L-100	12-RT-016-GW	Project Sample	5/9/2012	<12	<31	<31	2450	<31	61	<31
L-100	13-RT-023-GW	Project Sample	4/10/2013	0.66	15.4	2.72	1720	17	38.8	17.5
L-100	13-RT-035-GW	QC Duplicate	4/10/2013	0.65	11.9	2.94	1690	16.7	42.3	19.6
L-100	14-RT-016-GW	Project Sample	4/22/2014	<20	<50	<50	1610	<50	88.6	47.5
L-101	09-RT-059-GW	Project Sample	8/19/2009	0.99	21.1	32.9	2730	16	8580	18700
L-101	09-RT-093-GW	Project Sample	10/7/2009	1.08	47.1	69.5	31200	197	5730	7100
L-101	10-RT-055-GW	Project Sample	5/12/2010	2.35 VH	33.1 J,H	27.9 VH	16700 VH	53.9 VH	4680 VH	57600 VH
L-101	10-RT-097-GW	Project Sample	10/20/2010	<2.4	83.6	87.4	55500	217	173	110
L-101	11-RT-011-GW	Project Sample	5/17/2011	<12	1440	82	54300	182	<31	<31
L-101	11-RT-012-GW	QC Duplicate	5/17/2011	<12	1530	86	61800	203	<31	<31
L-101	12-RT-017-GW	Project Sample	5/8/2012	<24	76	<62	28800	118	62	406
L-101	12-RT-019-GW	QA Split	5/8/2012	---	462 VR	---	27600	123	95.8	363
L-101	12-RT-040-GW	QC Duplicate	5/8/2012	<24	62	<62	26200	180	<62	344

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
L-101	13-RT-024-GW	Project Sample	4/10/2013	1.21 VH	1120 VH	29.8 VH	25200 VH	<62 VH	266 VH	582 VH
L-101	14-RT-017-GW	Project Sample	4/23/2014	<20	1470	<50	29800	98	337	644
L-102	14-RT-019-GW	Project Sample	4/22/2014	<20	375	88.4	36700	62.4	6600	61500
L-103	14-RT-020-GW	Project Sample	4/23/2014	30.1	317	36.6	24600	185	3050	8340
Laundry Well	WSWell	Project Sample	10/29/1997	<1	<1	<0.5	1.07	<1	<1	<1
Laundry Well	WSWell	Project Sample	12/31/1997	<1	<1	<0.5	<1	<1	<1	<1
Laundry Well	Drinking Water Well	Project Sample	6/30/1998	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Laundry Well	DWW	Project Sample	12/29/1998	<5	<5	<5	<5	<5	<5	<5
Laundry Well	99-RT-063-GW	Project Sample	10/27/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Laundry Well	00-RT-047-GW	Project Sample	7/7/2000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Laundry Well	WSWell	Project Sample	6/20/2003	<0.5	<0.4	<0.5	<0.5	<0.5	<0.5	<0.5
Laundry Well	Space 79 Kitchen	Project Sample	11/29/2006	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5
Laundry Well	Drinking Water Well	Project Sample	12/20/2010	<0.5	<0.4	<0.5	<0.5	<0.5	<0.5	<0.5
River - MW-5	05-RT-040-GW	Project Sample	6/2/2005	<0.4	<1	<1	<1	<1	<1	<1
River - MW-5	05-RT-068-GW	Project Sample	10/12/2005	<0.4	<1	<1	<1	<1	<1	<1
River - MW-5	06-RT-025-GW	Project Sample	5/25/2006	<0.4	<1	<1	<1	<1	<1	<1
River - MW-5	06-RT-060-GW	Project Sample	9/13/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
River - MW-5	07-RT-017-GW	Project Sample	5/30/2007	<0.4	<1	<1	<1	<1	<1 VM	<1 VM
River - MW-5	07-RT-045-GW	Project Sample	9/20/2007	<0.4	<1	<1	<1	<1	<1	<1
River - MW-5	07-RT-048-GW	QC Duplicate	9/20/2007	<0.4	<1	<1	<1	---	<1	<1
River - MW-5	08-RT-019-GW	Project Sample	5/13/2008	<0.4	<1	<1	<1	<1	<1	<1
River - MW-5	08-RT-061-GW	Project Sample	9/20/2008	<0.4	<1	<1	<1	<1	<1	<1
River - MW-5	09-RT-015-SW	Project Sample	5/7/2009	<0.4	<1	<1	<1	<1	<1	<1
River - MW-5	09-RT-094-GW	Project Sample	10/9/2009	<0.12	<0.31	<0.31	13.3	<0.31	1.66	0.91 VJ
River - MW-5	10-RT-063-GW	Project Sample	5/13/2010	<0.12	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
River - MW-5	10-RT-114-GW	Project Sample	10/22/2010	<0.12	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
River - MW-5	12-RT-037-GW	Project Sample	5/9/2012	<0.12 VH	<0.31 VH	<0.31 VH	0.4 VH	<0.31 VH	<0.31 VH	<0.31 VH
River - MW-5	14-RT-029-GW	Project Sample	4/23/2014	<0.2	<0.5	<0.5	0.32	<0.5	<0.5	<0.5
River - MW-6	99RTRVP004SW	Project Sample	5/19/1999	---	<0.02	---	15	0.081	1.9	2.5
River - MW-6	03-RT-055-GW	Project Sample	6/19/2003	<0.4	<1	<1	<1	<1	<1	<1
River - MW-6	03-RT-116-GW	Project Sample	10/8/2003	<0.4	<1	<1	<1	<1	<1	<1

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July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene MCL=5; ACL= NA*	*Vinyl chloride MCL=2; ACL=2*	*1,1-DCE MCL=7; ACL=7*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=10; ACL=11,600*	*TCE MCL=5; ACL=21,900*	*PCE MCL=5; ACL=840*
River - MW-6	04-RT-001-SW	Project Sample	5/6/2004	---	<1	---	<1	<1	<1	<1
River - MW-6	04-RT-002-SW	Project Sample	5/6/2004	---	<1	---	<1	<1	<1	<1
River - MW-6	04-RT-041-GW	Project Sample	6/7/2004	<0.4	<1	<1	<1	<1	<1	<1
River - MW-6	05-RT-041-GW	Project Sample	6/2/2005	<0.4	<1	<1	<1	<1	<1	<1
River - MW-6	05-RT-069-GW	Project Sample	10/12/2005	<0.4	<1	<1	<1	<1	<1	<1
River - MW-6	06-RT-026-GW	Project Sample	5/25/2006	<0.4	<1	<1	<1	<1	<1	<1
River - MW-6	06-RT-061-GW	Project Sample	9/13/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
River - MW-6	07-RT-018-GW	Project Sample	5/30/2007	<0.4	<1	<1	<1	<1	<1 VM	<1 VM
River - MW-6	07-RT-046-GW	Project Sample	9/20/2007	<0.4	<1	<1	<1	<1	<1	<1
River - MW-6	08-RT-020-GW	Project Sample	5/13/2008	<0.4	<1	<1	<1	<1	<1	<1
River - MW-6	08-RT-062-GW	Project Sample	9/20/2008	<0.4	<1	<1	<1	<1	<1	<1
River - MW-6	09-RT-016-SW	Project Sample	5/7/2009	<0.4	<1	<1	<1	<1	<1	<1
River - MW-6	09-RT-095-GW	Project Sample	10/9/2009	<0.12	<0.31	<0.31	5.17	<0.31	<0.31	<0.31
River - MW-6	10-RT-064-GW	Project Sample	5/13/2010	<0.12	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
River - MW-6	10-RT-115-GW	Project Sample	10/22/2010	<0.12	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
River - MW-6	12-RT-038-GW	Project Sample	5/9/2012	<0.12 VH	<0.31 VH	<0.31 VH	<0.31 VH	<0.31 VH	<0.31 VH	<0.31 VH
River - MW-6	14-RT-030-GW	Project Sample	4/23/2014	<0.2	<0.5	<0.5	0.613	<0.5	<0.5	<0.5
River - MW-8	97-LTRP-202WA	Project Sample	5/14/1997	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
River - MW-8	99RTRVP003SW	Project Sample	5/19/1999	---	<0.02	---	2.8 E	<0.02	0.26	0.81
River - MW-8	05-RT-042-GW	Project Sample	6/2/2005	<0.4	<1	<1	<1	<1	<1	<1
River - MW-8	05-RT-070-GW	Project Sample	10/12/2005	<0.4	<1	<1	<1	<1	<1	<1
River - MW-8	06-RT-027-GW	Project Sample	5/25/2006	<0.4	<1	<1	<1	<1	<1	<1
River - MW-8	06-RT-062-GW	Project Sample	9/13/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
River - MW-8	07-RT-019-GW	Project Sample	5/30/2007	<0.4	<1	<1	<1	<1	<1 VM	<1 VM
River - MW-8	07-RT-047-GW	Project Sample	9/20/2007	<0.4	<1	<1	<1	<1	<1	<1
River - MW-8	08-RT-021-GW	Project Sample	5/13/2008	<0.4	<1	<1	<1	<1	<1	<1
River - MW-8	08-RT-063-GW	Project Sample	9/20/2008	<0.4	<1	<1	<1	<1	<1	<1
River - MW-8	09-RT-017-SW	Project Sample	5/7/2009	<0.4	<1	<1	<1	<1	<1	<1
River - MW-8	09-RT-096-GW	Project Sample	10/9/2009	<0.12	<0.31	<0.31	2.84	<0.31	<0.31	<0.31
River - MW-8	10-RT-065-GW	Project Sample	5/13/2010	<0.12	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
River - MW-8	10-RT-116-GW	Project Sample	10/22/2010	<0.12	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
River - MW-8	12-RT-039-GW	Project Sample	5/9/2012	<0.12 VH	<0.31 VH	<0.31 VH	0.31 VH	<0.31 VH	<0.31 VH	<0.31 VH
River - MW-8	14-RT-031-GW	Project Sample	4/23/2014	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
River - SD-11	99RTRVP005SW	Project Sample	5/19/1999	---	<0.02	---	<0.02	<0.02	<0.02	<0.02

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River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
River - SD-035	06-RT-045-PW	Project Sample	5/17/2006	<0.4	<1	<1	<1	<1	<1	<1
River - SD-043	06-RT-046-PW	Project Sample	5/17/2006	<0.4	<1	<1	<1	<1	<1	<1
River - SD-043	08-RT-046-PW	Project Sample	5/7/2008	<0.4	<1	<1	<1	<1	<1	<1
River - SD-035	08-RT-047-PW	Project Sample	5/7/2008	<0.4	<1	<1	<1	<1	<1	<1
River - SD-035	13-RT-045-PW	Project Sample	5/22/2013	<0.24	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62
River - SD-041	13-RT-046-PW	Project Sample	5/22/2013	<0.24	<0.62	<0.62	0.36	<0.62	<0.62	<0.62
SD-004	04-RT-090-PW	Project Sample	11/24/2004	<0.4	<1	<1	38.2	<1	1.9	<1
SD-006	04-RT-091-PW	Project Sample	11/5/2004	<0.4	<1	<1	45.3	<1	2.69	2.19
SD-006	04-RT-100-PW	QC Duplicate	11/24/2004	<0.4	<1	<1	5.66	<1	1.35	1.42
SD-006	04-RT-101-PW	Project Sample	11/24/2004	<0.4	<1	<1	4.45	<1	1.25	1.41
SD-006	06-RT-006-PW	Project Sample	5/17/2006	0.45	21.3	<1	41.8 VJ	3.13	1.65	<1
SD-006	08-RT-006-PW	Project Sample	5/7/2008	<0.4	11.6 VJ	<1	23.6	1.13	1.55	0.68
SD-006	13-RT-006-PW	Project Sample	5/22/2013	0.25 VB	0.49	<0.62	4.22	0.34	1.09	1.15
SD-007	04-RT-092-PW	Project Sample	11/5/2004	<0.4	4.48	<1	106	<1	2.02	<1
SD-007	04-RT-102-PW	Project Sample	11/24/2004	<0.4	<1	<1	6.08	<1	<1	<1
SD-007	06-RT-007-PW	Project Sample	5/17/2006	<0.4	4.24	<1	31.7 VJ	<1	1.6	<1
SD-007	13-RT-007-PW	Project Sample	5/23/2013	0.29 VB	2.05	<0.62	3.3	1.01	1.46	0.96
SD-008	06-RT-008-PW	Project Sample	5/17/2006	<0.4	9.58	<1	41.3 VJ	<1	<1	<1
SD-008	08-RT-008-PW	Project Sample	5/7/2008	<0.4	10.2 VJ	<1	25.1	3.4	0.35	<1
SD-008	13-RT-008-PW	Project Sample	5/23/2013	0.24 VB	<0.62	<0.62	3.03	0.38	1.43	0.56
SD-009	04-RT-094-PW	Project Sample	11/24/2004	<0.4	<1	<1	40.9	<1	<1	<1
SD-009	06-RT-009-PW	Project Sample	5/17/2006	<0.4	5.2	<1	49.1 VJ	<1	<1	<1
SD-009	08-RT-009-PW	Project Sample	5/7/2008	<0.4	2.54 VJ	<1	15.7	1.12	0.73	<1
SD-009	13-RT-009-PW	Project Sample	5/23/2013	0.32 VB	0.69	<0.62	5.65	0.64	1.21	<0.62
SD-010	04-RT-095-PW	Project Sample	11/24/2004	<0.4	<1	<1	53	<1	1.97	1.04
SD-010	06-RT-010-PW	Project Sample	5/17/2006	<0.4	<1	<1	23.3 VJ	<1	<1	<1
SD-010	13-RT-010-PW	Project Sample	5/23/2013	<0.24	<0.62	<0.62	2.17	<0.62	0.61	<0.62
SD-027	08-RT-027-PW	Project Sample	5/7/2008	<0.4	<1	<1	26	<1	3.91	8.92
SD-027	08-RT-048-PW	Project Sample	5/13/2008	<0.4	<1	<1	25.4	<1	4.29	8.15

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River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
SD-033	06-RT-033-PW	Project Sample	5/17/2006	<0.4	4.17	<1	13 VJ	<1	<1	<1
SD-033	08-RT-049-PW	Project Sample	5/13/2008	<0.4	7.33 VJ	<1	16.7	2.12	0.71	<1
SD-033	13-RT-033-PW	Project Sample	5/22/2013	0.28 VB	2.03	<0.62	3.2	0.88	0.82	<0.62
SD-035	06-RT-035-PW	Project Sample	5/17/2006	<0.4	6.77	<1	23.8 VJ	<1	<1	<1
SD-035	08-RT-035-PW	Project Sample	5/7/2008	<0.4	0.74	<1	4.12	0.52	<1	<1
SD-035	13-RT-035-PW	Project Sample	5/22/2013	0.25 VB	0.66	<0.62	1.58	0.38	0.8	<0.62
SD-037	06-RT-037-PW	Project Sample	5/17/2006	<0.4	7.11	<1	43.6 VJ	<1	<1	<1
SD-037	08-RT-037-PW	Project Sample	5/7/2008	0.14	3.86 VJ	<1	11.4	1.83	0.31	<1
SD-037	13-RT-037-PW	Project Sample	5/22/2013	0.28 VB	0.5	<0.62	1.64	0.42	<0.62	<0.62
SD-040	04-RT-098-PW	Project Sample	11/24/2004	<0.4	18.4	<1	321	3.23	1.03	<1
SD-040	06-RT-031-PW	QC Duplicate	5/17/2006	<0.4	6.1	<1	33 VJ	<1	<1	<1
SD-040	06-RT-040-PW	Project Sample	5/17/2006	<0.4	6.92	<1	40.9	1.1	1.07	<1
SD-040	08-RT-050-PW	Project Sample	5/13/2008	<0.4	5.16 VJ	<1	20.5	1.63	3.35	<1
SD-040	08-RT-051-PW	QC Duplicate	5/13/2008	<0.4	6.26 VJ	<1	18.7	1.56	3.02	<1
SD-040	13-RT-031-PW	QC Duplicate	5/22/2013	0.27 VB	<0.62	<0.62	5.88	0.77	1.71	1.25
SD-040	13-RT-040-PW	Project Sample	5/22/2013	0.28 VB	1.45	<0.62	5.67	0.71	1.59	1.05
SD-041	04-RT-099-PW	Project Sample	11/24/2004	0.48	65.4	<1	353	4.39	<1	<1
SD-041	06-RT-032-PW	QC Duplicate	5/17/2006	<0.4	<1	<1	4.58	<1	<1	<1
SD-041	06-RT-041-PW	Project Sample	5/17/2006	<0.4	<1	<1	6.36 VJ	<1	<1	<1
SD-041	08-RT-032-PW	QC Duplicate	5/7/2008	<0.4	5.8 VJ	<1	21	3.12	0.59	<1
SD-041	08-RT-041-PW	Project Sample	5/7/2008	<0.4	5.72 VJ	<1	25	3.91	0.62	<1
SD-041	13-RT-032-PW	QC Duplicate	5/22/2013	0.35 VB	3.31	<0.62	8.55	1.43	3.7	0.64
SD-041	13-RT-041-PW	Project Sample	5/22/2013	0.35 VB	3.76	<0.62	9.12	1.58	4.17	0.63
SD-042	08-RT-042-PW	Project Sample	5/7/2008	<0.4	6.6 VJ	<1	23.6	1.96	1.24	<1
SD-042	13-RT-042-PW	Project Sample	5/22/2013	0.51 VB	4.93	<0.62	12.4	1.95	1.23	0.38
SD-043	06-RT-043-PW	Project Sample	5/17/2006	<0.4	2.24	<1	12.1 VJ	<1	<1	<1
SD-043	08-RT-043-PW	Project Sample	5/7/2008	<0.4	7.08 VJ	<1	21.7	4.11	0.36	<1
SD-043	13-RT-043-PW	Project Sample	5/23/2013	<0.24	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Sample Type*	*Date Sampled*	*Benzene* *MCL=5; ACL= NA*	*Vinyl chloride* *MCL=2; ACL=2*	*1,1-DCE* *MCL=7; ACL=7*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=10; ACL=11,600*	*TCE* *MCL=5; ACL=21,900*	*PCE* *MCL=5; ACL=840*
SD-044	06-RT-044-PW	Project Sample	5/17/2006	<0.4	7.21	<1	24.9 VJ	<1	10.4	1.5
SD-044	13-RT-044-PW	Project Sample	5/23/2013	<0.24	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62
SD-045	08-RT-045-PW	Project Sample	5/7/2008	<0.4	15.6 VJ	<1	28.4	2.01	0.65	<1
Outfall	97-LTRP-201-WA	Project Sample	5/14/1997	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	23
Outfall	002-WA SHBO	Project Sample	6/26/1997	<1	---	---	<3	---	<3	8.2
Outfall	99RTRVP001SW	Project Sample	5/19/1999	---	<0.02	---	0.18	<0.02	0.33	17
Outfall	99RTRVP002SW	QC Duplicate	5/19/1999	---	<0.02	---	0.18	<0.02	0.27	17
Outfall	KRBO SDOF	Project Sample	11/9/1999	<1	<1	<1	<1	<1	<1	6.69
Outfall	00-RT-015-GW	Project Sample	3/24/2000	<1	<1 J	<1	<1	<1	<1	1.2
Outfall	00-RT-038-GW	Project Sample	3/25/2000	<1	<1	<1 J	<1	<1	<1	2.2
Outfall	00-RT-055-GW	Project Sample	6/8/2000	<1	<2	<1	<1	<1	<1	4 J
Outfall	00-RT-112-GW	Project Sample	9/28/2000	<1	<2	<1	<1	<1	<1	2.2
Outfall	01-RT-026-GW	Project Sample	1/10/2001	<2	<2	<2	<2	<2	<2	4.6
Outfall	01-RT-044-GW	Project Sample	3/22/2001	<1	<1	<1	1.65	<1	<1	2.76
Outfall	01-RT-065-WQ	Project Sample	5/21/2001	<1	<1	<1	2.48	<1	<1	1.88
Outfall	01-RT-110-GW	Project Sample	10/18/2001	<0.7 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J
Outfall	02-RT-060-GW	Project Sample	6/19/2002	<0.2 J	<0.2 J	<0.2 J	3.95 J	<0.2 J	<0.2 J	0.35 J
Outfall	02-RT-090-GW	Project Sample	9/26/2002	<1	<1	<1	2.2	<1	<1	<1
Outfall	03-RT-056-GW	Project Sample	6/19/2003	<0.4	<1	<1	1.65	<1	<1	2.36
Outfall	04-RT-086-SW	Project Sample	10/22/2004	<0.4	<1	<1	2.84	<1	<1	<1
Outfall-Aeration On	00-RT-039-GW	Project Sample	6/6/2000	<1	<2	<1	<1	<1	<1	4.4
Outfall-Aeration On	00-RT-111-GW	Project Sample	9/27/2000	<1	<2	<1	<1	<1	<1	2
Outfall-Aeration On	01-RT-025-GW	Project Sample	1/11/2001	<2	<2	<2	<2	<2	<2	4.4

Appendix A

July 1997-April 2014 Groundwater Analytical Data (ug/L) for Benzene, PCE, and PCE Degradation Products

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Sample Type	Date Sampled	Benzene MCL=5; ACL= NA	Vinyl chloride MCL=2; ACL=2	1,1-DCE MCL=7; ACL=7	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=10; ACL=11,600	TCE MCL=5; ACL=21,900	PCE MCL=5; ACL=840

Notes:

J or VJ - Estimated Value *H - Estimated result; the analysis was performed past the recommended hold time or sample preservation incorr*

C - The MRL is elevated because the sample required diluting. *F - Result is below the MRL.*

D4, D5, and D6 - Value is from a 10 fold, 20 fold, and 50 fold diluted anlaysis, respectively.

-- Analyte not included in performance monitoring analytical program

A qualified result for tetrachloroethene (PCE) was originally reported for the MW-28 project sample (99-RT-069-GW). The reported PCE result was suspected to be a carry-over from the analysis of a previous sample. There was insufficient sample volume for re-analysis; therefore, the third party sample result is reported for PCE.

Samples collected during the October 1997 sampling event (and the December 1997 Laundry well samples) were analyzed by EPA Methods 8260 and 524.2. The value reported for each analyte represents the maximum concentration detected between the two analyses.

The "Laundry Well" is completed in the deeper, confined aquifer.

"Outfall" refers to the Kenai River Bridge Outfall discharging from the storm sewer system adjacent to the RTRVP site. "Outfall - aeration on" refers to samples collected while an aeration system (installed in May 2000) was functioning in the storm sewer system. "Outfall" refers to samples collected either before the aeration system was installed or while the system was shut down. The aeration system has not functioned since March 2001.

Note, samples were collected from the outfall on 3/24/2000 and again on 3/25/2000, because the 3/24/2000 sample was collected during a rain storm event. The 3/25/2000 sample was collected to more accurately represent usual (non-storm event) conditions in the storm drain outfall.

APPENDIX B

Groundwater/Surface water Sample Data Sheets
and
Field Notes

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-16
Project # : 0213930-2
Date: 4/22/14
Project Name: 2013-14 River Terrace
Start Time: 0840
Site: River Terrace RV Park
End Time: 0940
Field Team: KA RB KC

* Sample ID: 14-RT-002-GW Time: 0930 [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 26°F; clear; Wind 6 mph East

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
Depth to Water (ft BTOC): 17.39'
Total Depth (ft BTOC): 21.03'
* Note: Same as depth to water

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear], Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, [✓ H2S], Fuel Like, Chemical ?, Unknown
Turbidity: None, [✓ Low], Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	0900	4.34	5.87	0.547	Low to None	0.52	-20.2	Clear	H_2S	17.39'	—
2	0910	4.14	6.12	0.396	None	0.82	-40.1	Clear	H_2S	17.44	0.05
3	0915	4.17	6.17	0.385	None	0.75	-43.5	clear	H_2S	17.69	0.25
4	0920	4.21	6.18	0.386	None	0.74	-43.1	clear	H_2S	17.69	0.00
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm Gases	3
Org Meta Acids	2
Tot Metals	1
Diss Metals	1
+ TOC	

Comments:
4-21-14 1340 Depth to Water: 17.48 ft BTOC
Total depth: 21.03 ft BTOC
* 150 ml/min purge rate
* Dissolved metals field filtered. * Sampled "RFS" + "VOC"

Signed:
Date: 4/22/14

Signed/reviewer:
Date:

* RFS

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-42

Project # : 0213930-2

Date: 4/22/14

Project Name: 2013-14 River Terrace

Start Time: 0850

Site: River Terrace RV Park

End Time: 1130

Field Team: RB; EC; EA

* Sample ID: 14-RT-003-GW Time: ~~1030~~ 1035 [✓ primary] dup split ms/msd

Sample ID: 14-RT-032-GW Time: ~~1040~~ primary [✓ dup] split [✓ ms/msd] Duplicate #1

* Sample ID: —— Time: 1045 primary dup split ms/msd

Weather Conditions: 26°F; Clear; Wind 6 mph East

Depth to Top of Product (ft BTOC): N/A

Depth to Oil/Water Interface* (ft BTOC): N/A

* Note: Same as depth to water

Depth to Water (ft BTOC): 18.27'

Total Depth (ft BTOC): 22.92'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear], Amber, Tan, Brown, Grey, Milky White, Other:

Odor: None, Low, Medium, High, Very Strong, [✓ H2S], Fuel Like, Chemical ?, Unknown

Turbidity: [✓ None], Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	0945	5.33	6.42	0.138	None	1.00	-97.0	Clear	H_2S	18.27	0
2	0950	5.38	6.43	0.138	None	0.96	-111.2	Clear	H_2S	18.27	0
3	0955	5.33	6.39	0.136	None	1.63	-116.9	Clear	H_2S	18.27	0
4	1000	5.07	6.39	0.135	None	1.57	-122.4	Clear	H_2S	18.27	0
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	~~6~~ 12
Perm gases	6
Org Meta Acids	4
Tot Metals	2
Diss Metals	2
TOC	2

Comments: 4-21-14 13:30 Depth to water: 17.48 ft BTOC
Total Depth: 22.92 ft BTOC
*150ml/min purge. *Duplicate of VOC and RFS (+VOC MS/MSD)
* Dissolved metals field filtered * Sampled "RFS" + "VOC"

Signed: B C

Date: 4/22/14

Signed/reviewer:

Date:

* RFS

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-38

Project # : 0213930-2

Date: 4/22/14

Project Name: 2013-14 River Terrace

Start Time: 0945

Site: River Terrace RV Park

End Time: 1115

Field Team: RB; KC; FA

Sample ID: 14-RT-023-GW Time: 1030 [✓ primary] dup split ms/msd

Sample ID: 14-RT-033-GW Time: 1040 primary [✓ dup] split [✓ ms/msd] Dup#2

Sample ID: — Time: — primary dup split ms/msd

Weather Conditions: 26°F; Clear; Wind 6 mph East

Depth to Top of Product (ft BTOC): N/A

Depth to Oil/Water Interface* (ft BTOC): N/A

* Note: Same as depth to water

Depth to Water (ft BTOC): 16.08'

Total Depth (ft BTOC): 23.46'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, Amber, Tan, Brown, Grey, Milky White, Other:

Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown

Turbidity: None, Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1020	5.70	7.30	0.859	None	0.57	-180.6	Clear	H_2S	16.08	0.00
2	1025	5.40	7.29	0.848	None	0.28	-180.7	Clear	H_2S	16.08	0.00
3	1030	5.58	7.26	0.834	None	0.14	-177.3	Clear	H_2S	16.08	0.00
4	1035	5.84	7.23	0.809	None	0.15	-170.8	Clear	H_2S	16.08	0.00
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	6
MS/MSD	6

Comments:

4-21-14 1343 Depth to Water: 16.04 ft BTOC
Total depth: 23.46 ft BTOC

x150 ml/min purge
* Sampled "V"

* VOC duplicate only (+VOC MS/MSD)

Signed:

Date: 4/22/14

Signed/reviewer:

Date:

* V

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-23
Project # : 0213930-2
Date: 4/22/14
Project Name: 2013-14 River Terrace
Start Time: 1130
Site: River Terrace RV Park
End Time: 1230
Field Team: RB; KC; EA

Sample ID: 14-RT-021-GW Time: 1215 [✓ primary] dup split ms/msd
Sample ID: — Time: — primary dup split ms/msd
Sample ID: — Time: — primary dup split ms/msd

Weather Conditions: 26°F; Clear; Wind 6 mph East

Depth to Top of Product (ft BTOC): N/A
Depth to Water (ft BTOC): 17.20'
Depth to Oil/Water Interface* (ft BTOC): N/A
Total Depth (ft BTOC): 22.06'
* Note: Same as depth to water

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, Amber, Tan, Brown, [✓ Grey], Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, [✓ H2S], Fuel Like, Chemical ?, Unknown
Turbidity: None, Low, Medium, [✓ High], Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1140	4.68	6.25	0.121	High	6.18	-30.6	Grey	H_2S	17.20	—
2	1145	4.60	6.06	0.102	Low - medium	6.70	2.9	Grey	H_2S	17.20	0.00
3	1150	4.39	6.02	0.098	Low	7.39	19.6	Clear	H_2S	17.20	0.00
4	1150	4.77	5.99	0.098	Low	7.17	34.5	Clear	H_2S	17.20	0.00
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3

Comments:
4-21-14 13:24 Depth to Water 17.16 ft BTOC
Total Depth 22.06 ft BTOC
* VOCs only
*150ml/min flow rate.

Signed: Ryan B'C
Date: 4/22/14

Signed/reviewer:
Date:

* V

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-36

Project # : 0213930-2

Date: 4/20/14

Project Name: 2013-14 River Terrace

Start Time: 1145

Site: River Terrace RV Park

End Time: 1245

Field Team: RB; EC; KA

Sample ID: 14-RT-001-GW Time: 1230 [✓ primary] dup split ms/msd

Sample ID: — Time: — primary dup split ms/msd

Sample ID: — Time: — primary dup split ms/msd

Weather Conditions: 26°F; Wind 6mph East; clear

Depth to Top of Product (ft BTOC): N/A

Depth to Oil/Water Interface* (ft BTOC): N/A

Depth to Water (ft BTOC): 18.00'

Total Depth (ft BTOC): 23.65

* Note: Same as depth to water

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear], Amber, Tan, Brown, Grey, Milky White, Other:

Odor: None, Low, Medium, High, Very Strong, [✓ H2S] Fuel Like, Chemical ?, Unknown

Turbidity: None, [✓ Low] Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1155	6.50	6.53	0.890	Clear/Low	0.44	-89.9	clear	H_2S	18.00'	—
2	1200	6.35	6.53	0.770	clear/Low	0.40	-90.8	Clear	H_2S	18.00	0.00
3	1206	6.10	6.51	0.539	Clear/Low	0.29	-89.3	Clear	H_2S	18.00	0.00
4	1211	5.97	6.51	0.432	Clear/Low	0.22	-90.2	clear	H_2S	18.00	0.00
5	1216	5.92	6.52	0.332	clear/Low	0.33	-87.5	Clear	H_2S	18.00	0.00
6	1221	5.90	6.50	0.277	Clear/Low	0.36	-84.0	Clear	H_2S	18.00	0.00
7	1226	5.95	6.50	0.241	clear/Low	0.32	-80.0	clear	H_2S	18.00	0.00
8	1231	5.92	6.50	0.216	Clear/Low	0.27	-79.2	clear	H_2S	18.00	0.00
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm bases	3
Org Meta Acids	2
Tot metals	1
Diss Metals	1
TOC	1

Comments:

4-21-14 1335 Depth to Water: 17.21 ft BTOC
Total depth: 23.65 ft BTOC

* 90ml/min flow rate * Conductivity not within 10% stability range. Purge 3 well volumes; then sample.

* Dissolved metals field filtered.

Signed:

Date: 4/22/14

Signed/reviewer:

Date:

3.1208L *RFS
3.15 L

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-48

Project # : 0213930-2

Date: 4/22/14

Project Name: 2013-14 River Terrace

Start Time: 1420

Site: River Terrace RV Park

End Time: 1540

Field Team: KA KC RB

Sample ID: 14-RT-010-GW Time: 1515 [✓ primary] dup split ms/msd

Sample ID: 14-RT-032-GW Time: 1535 primary [✓ dup] split ms/msd Duplicate #1 for "bio".

Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 48° Partly Cloudy; 5-10 mph wind S

Depth to Top of Product (ft BTOC): N/A

Depth to Water (ft BTOC): 7.84

Depth to Oil/Water Interface* (ft BTOC): N/A

Total Depth (ft BTOC): 29.7

* Note: Same as depth to water

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, Amber, Tan, Brown, [✓ Grey] Milky White, Other:

Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, [✓ Unknown HRC (Sweet)]

Turbidity: [✓ None], Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1430	5.96	6.05	4.355	low	3.09	-65.6	grey	HRC	8.50	0.92
2	1435	5.60	6.02	4.303	none	2.20	-76.0	clear	HRC	10.24	1.74
3	1440	5.42	6.01	4.264	none	1.90	-80.8	clear	HRC	11.20	0.96
4	1445	5.31	6.01	4.183	none	1.70	-83.2	clear	HRC	11.88	0.68
5	1450	5.20	6.00	4.033	none	1.66	-84.3	clear	HRC	12.40	0.52
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm. Gases	3
Org. Meta. Acids	2
Tot. Metals	1
Diss. Metals	1
TOC	1
DHC/NCE	2

Comments: 4-21-14 1632 Depth to Water: 7.00 ft BTOC Total depth: 29.68 ft BTOC

*150 ml/min flow rate. "RFS" + "VOCs" + 'Bio" sampled.

Signed: Brian Bo

Date: 4/22/14

Signed/reviewer:

Date:

* Water at this location effervesces. Difficult to keep bubbles out

* RFS

* Bio + duplicate

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-26
Project # : 0213930-2
Date: 4-22-14
Project Name: 2013-14 River Terrace
Start Time: 1420
Site: River Terrace RV Park
End Time: 1530
Field Team: K. Coolidge / K. Adams / R. Burich
Sample ID: 14-RT-024-GW Time: 1510 [✓ primary] dup split ms/msd
Sample ID: 14-RT-034-GW Time: 1520 primary [✓ dup] split ms/msd Duplicate #3
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: Partly Cloudy / light wind 54°F

Depth to Top of Product (ft BTOC): NA
Depth to Oil/Water Interface* (ft BTOC): NA
* Note: Same as depth to water
Depth to Water (ft BTOC): 6.00
Total Depth (ft BTOC): 11.36

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear] Amber, Tan, Brown, Grey, Milky White, Other:
Odor: [✓ None], Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown
Turbidity: None, [✓ Low], Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1425	5.38	6.95	0.290	NA Low	2.84	0.7	Clear	None	6.01	0.01
2	1430	5.45	6.96	0.267	NA Low	1.46	1.2	Clear	None	6.01	0.00
3	1435	4.98	6.96	0.231	Low	4.34	2.2	Clear	None	6.01	0.0
4	1440	4.48	6.85	0.189	Low	6.55	2.8	Clear	None	6.01	0.0
5	1445	4.40	6.80	0.176	Low	6.67	2.5	Clear	None	6.01	0.0
6	1450	4.23	6.69	0.141	Low	7.67		Clear	None	6.01	0.0
7	1455	4.26	6.61	0.132	Low	7.36	6.2	Clear	None	6.01	0.0
8	1500	4.62	6.50	0.119	Low	7.25	9.7	Clear	None	6.01	0.0
9	1505	4.81	6.43	0.116	Low	7.08	8.3	Clear	None	6.01	0.0
10	1510	4.87	6.40	0.110	Low	7.10	13.4	Clear	None	6.01	0.0
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	12

Comments:
1623 4-21-14 Depth to Water: 6.12 ft BTOC
Total Depth: 11.36 ft BTOC
*Collect duplicate and MS/MSD for VOC. *VOC only at this [illegible] location.
Purged @ 90 mL/min

Signed: Ryan B
Date: 4/22/14
Signed/reviewer:
Date:

*V

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: L-100

Project # : 0213930-2

Date: 4/22/14

Project Name: 2013-14 River Terrace

Start Time: 1550

Site: River Terrace RV Park

End Time: 1630

Field Team: R.Burich; K.Adams; K. Coolidge

Sample ID: 14-RT-016-GW Time: 1620 [✓ primary] dup split ms/msd

Sample ID: N/A Time: N/A primary dup split ms/msd

Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 54°F; Clear; Wind 12 mph W

Depth to Top of Product (ft BTOC): N/A

Depth to Water (ft BTOC): 6.0'

Depth to Oil/Water Interface* (ft BTOC): N/A

Total Depth (ft BTOC): 22.70

* Note: Same as depth to water

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear], Amber, Tan, Brown, Grey, Milky White, Other:

Odor: None, Low, Medium, High, Very Strong, [✓ H2S], Fuel Like, Chemical ?, Unknown

Turbidity: [✓ None] Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1608	7.73	6.75	0.307	Clear	0.21	-99.4	Clear	H2S	6.0	—
2	1613	8.18	6.76	0.307	Clear	0.25	-102.9	Clear	H2S	6.2	0.20
3	1618	7.35	6.76	0.300	Clear	0.25	-104.0	Clear	H2S	6.2	0.00
4											
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm. Gases	3
Org. Meta. Acids	2
Tot. Metals	1
Diss. Metals	1
TOC	1

Comments:

4-21-14 1620

Depth To Water: 6.30 ft BTOC

Total Depth: 22.70 ft BTOC

* 80 ml/min purge rate * Diss metals field filtered

Signed:

Date: 4/22/14

Signed/reviewer:

Date:

* RFS

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-51
Date: 4/22/14
Start Time: 1555
End Time: 1645

Project # : 0213930-2
Project Name: 2013-14 River Terrace
Site: River Terrace RV Park
Field Team: RB; KA; KC

Sample ID: 14-RT-~~[illegible]~~-GW 013 Time: ~~1620~~ 1630 [✓ primary] dup split ms/msd
Sample ID: — Time: — primary dup split ms/msd
Sample ID: — Time: — primary dup split ms/msd

Weather Conditions: 54°F; Clear; Wind 12mph W

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water

Depth to Water (ft BTOC): 7.36'
Total Depth (ft BTOC): 29.65

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear], Amber, Tan, Brown, Grey, Milky White, Other:
Odor: [✓ None], Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown
Turbidity: None, [✓ Low], Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1605	5.94	6.58	0.122	Clear/Low	3.63	-11.8	Grey	None	7.36	—
2	1610	5.42	6.46	0.082	Clear/Low	3.03	-7.0	Clear	None	9.82	2.46
3	1615	5.23	6.44	0.063	Clear/low	2.84	4.2	Clear	None	10.82	1.00
4	1620	5.26	6.42	0.057	Clear/low	2.96	19.1	Clear	None	11.60	0.78
5	1625	5.21	6.39	0.051	Clear/low	3.07	27.1	Clear	None	12.31	0.71
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm. Gases	3
Org Meta Acids	2
Tot. Metals	1
Diss. Metals	1
TOC	1
DHC/UCR	1

Comments:
4-21-14 1652 Depth to Water: 7.01 ft BTOC
total depth: 29.65 ft BTOC

* 120 ml/min purge rate * Diss metals field filtered

Signed:
Date: 4/22/14

Signed/reviewer:
Date:

* RFS + Bio

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: L-102
Project # : 0213930-2
Date: 4/22/14
Project Name: 2013-14 River Terrace
Start Time: 1710
Site: River Terrace RV Park
End Time: 1745
Field Team: RB; EC; EA

Sample ID: 14-RT-019-GW Time: 1735 [✓ primary] dup split ms/msd
Sample ID: — Time: — primary dup split ms/msd
Sample ID: — Time: — primary dup split ms/msd

Weather Conditions: 55°F; Cloudy (Partially); Wind 6 mph N

Depth to Top of Product (ft BTOC): N/A
Depth to Water (ft BTOC): 8.80'
Depth to Oil/Water Interface* (ft BTOC): N/A
Total Depth (ft BTOC): 31.42
* Note: Same as depth to water

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, [✓ Amber], Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, [✓ Unknown HRC (Sweet)]
Turbidity: None, [✓ Low], Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1722	6.36	5.05	7.696	Medium	0.93	-93.7	Amber	HRC	10.00	1.82
2	1727	6.01	5.02	7.513	Low	0.50	-141.4	Amber	HRC	10.50	0.50
3	1735	6.06	5.00	7.545	Low	0.49	-138.0	Amber	HRC	10.80	0.30
4	1742	5.82	4.95	7.420	Low	0.48	-119.1	Amber	HRC	11.32	0.52
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
PermGases	3
Org Meta Acids	2
Tot Metals	1
Diss Metals	1
TOC	1

Comments:
4-21-14 1648 Depth to Water: 8.59 ft BTOC
Total Depth: 31.42 ft BTOC
* Water effervesces; difficult to fill VOAs w/o bubbles.
* 100 ml/min purge rate * Diss metals field filtered

Signed: Ry BZ
Date: 4/22/14

Signed/reviewer:
Date:

* RFS

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-50
Project # : 0213930-2
Date: 4/22/14
Project Name: 2013-14 River Terrace
Start Time: 1713
Site: River Terrace RV Park
End Time: 1815
Field Team: RB, KC, KA

Sample ID: 14-RT-012-GW Time: 1800 [✓ primary] dup split ms/msd
Sample ID: ——— Time: N/A primary dup split ms/msd
Sample ID: ——— Time: N/A primary dup split ms/msd

Weather Conditions: 55°F; Partly Cloudy; Wind 6 mph N

Depth to Top of Product (ft BTOC): N/A
Depth to Water (ft BTOC): 8.82
Depth to Oil/Water Interface* (ft BTOC): N/A
Total Depth (ft BTOC): 34.95
* Note: Same as depth to water

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, [✓ Amber,] Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, [✓ Unknown HRC (Sweet)]
Turbidity: None, Low, [✓ Medium] High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	~~1722~~	~~6.36~~	~~5.05~~	~~2.696~~	~~Medium~~	~~0.93~~	~~-93.7~~	~~Amber~~	~~HRC~~	~~10.00~~	~~1.82~~
2	1725	5.10	7.32	0.517	Clear	1.21	-85.1	Clear	HRC	11.95	3.13
3	1730	5.28	7.33	0.501	Clear	0.70	-97.2	Clear	HRC	12.63	0.68
4	1736	5.43	7.23	0.395	Clear	1.29	-90.7	Clear	HRC	13.55	0.92
5	1742	5.21	6.91	0.254	Clear	1.72	-62.1	Clear	HRC	14.70	1.15
6	1747	5.13	6.73	0.206	clear	1.95	-42.1	Clear	HRC	15.40	0.70
7	1752	5.11	6.60	0.185	clear	1.93	-29.9	clear	HRC	16.15	0.75
8	1757	5.27	6.50	0.166	clear	1.94	-21.9	clear	HRC	16.95	0.80
9	1802	5.24	6.40	0.157	clear	2.00	-25.5	clear	HRC	17.80	0.85
10	1807	5.22	6.31	0.139	clear	2.07	-29.3	clear	HRC	19.10	1.30
11	1813	5.14	6.28	0.134	clear	2.07	-32.6	clear	HRC	19.60	0.50
12	1818	5.18	6.27	0.132	clear	2.14	-33.4	clear	HRC	20.10	0.50

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm. Gases	3
Org Meta Acids	2
Tot Metals	1
Diss Metals	1
TOC	1

Comments:
4-21-14 1714 Depth to Water: 8.68 ft BTOC
Total Depth: 34.95 ft BTOC
* ~~100 ml~~ 150 ml/min purge rate * Diss metals field filtered

Signed: DHC/NCR
Date: 4/22/14

Signed/reviewer:
Date:

* RFS + 810

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: L-103
Project # : 0213930-2
Date: 4/23/14
Project Name: 2013-14 River Terrace
Start Time: 0850
Site: River Terrace RV Park
End Time: 0950
Field Team: RB; KC; KA

Sample ID: 14-RT-026-GW Time: 0940 [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 32°F; Partly Cloudy; Wind 5 mph East

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water
Depth to Water (ft BTOC): 7.02'
Total Depth (ft BTOC): 30.52'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, [✓ Amber] Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, [✓ High] Very Strong, H2S, Fuel Like, Chemical ?, Unknown [✓ HRC odor]
Turbidity: None, [✓ Low] Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	0926	4.56	5.17	4.455	Low	1.36	-386.8	Amber	HRC	7.02	—
2	0931	4.46	5.12	4.341	Low	1.30	-374.2	Amber	HRC	8.85	1.83
3	0936	4.43	5.14	4.466	Low	1.23	-335.6	Amber	HRC	9.00	0.15
4											
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm Gases	3
Orc Meta Acids	2
Tot Metals	1
Diss Metals	1
TOC	1
DHC/UCR	1

Comments:
4-21-14 1637 Depth to Water: 6.39 ft BTOC - intermit.
Total depth: 30.52 ft BTOC
*Effervescos
*100 ml/min purge rate * Diss metals field filtered

Signed: B Z
Date: 4/23/14

Signed/reviewer:
Date:

*RFS & Bio

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-52
Project # : 0213930-2
Date: 4/23/14
Project Name: 2013-14 River Terrace
Start Time: 0900
Site: River Terrace RV Park
End Time: 1000
Field Team: RB; KC; RA

Sample ID: 14-RT-014-GW Time: 0950 [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 32° F; Partly cloudy; Wind 5mph East

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water
Depth to Water (ft BTOC): 10.7'
Total Depth (ft BTOC): 34.65'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear] Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, [✓ H2S] Fuel Like, Chemical ?, Unknown
Turbidity: [✓ None], Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	0920	4.77	7.20	0.727	None	1.12	96.2	Clear	Sl. H2S	10.7	—
2	0927	4.89	7.46	0.737	None	0.33	10.3	Clear	Sl. H2S	14.34	3.64
3	0932	4.95	7.51	0.698	None	0.23	-36.5	clear	Sl H2S	15.14	0.80
4	0939	5.00	7.54	0.657	None	0.23	-68.1	Clear	Sl. H2S	16.25	1.11
5	0947	4.95	7.22	0.594	None	0.56	-73.8	Clear	Sl. H2S	17.09	0.84
6	0952	5.11	6.77	0.480	None	1.31	-41.6	Clear	Sl. H2S	17.85	0.76
7	0957	5.15	6.71	0.423	None	0.59	-54.4	Clear	Sl. H2S	18.20	0.35
8	1002	5.18	6.55	0.373	None	0.34	-50.3	Clear	Sl. H2S	18.61	0.41
9	1008	5.10	6.38	0.328	None	0.22	-35.5	Clear	Sl. H2S	19.34	0.73
10	1013	5.37	6.34	0.313	None	0.25	-26.5	Clear	Sl. H2S	19.85	0.51
11	1018	5.36	6.30	0.303	None	0.26	-20.7	Clear	Sl. H2S	20.31	0.46
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected	Comments:
SW 8260B	3	4-21-14 1724 Depth to Water: 10.57 ft BTOC Total depth: 34.65 ft BTOC
Perm Gases	3	
Org Mete Acids	2	
Tot Metals	1	
Diss Metals	1	* 120 ml/min purge rate * Diss metals field filtered
TOC	1	

Signed: Date: 4/23/14

Signed/reviewer: Date:

* RFS ~~Bio~~

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: L-101
Project # : 0213930-2
Date: 4/23/14
Project Name: 2013-14 River Terrace
Start Time: 1050
Site: River Terrace RV Park
End Time: 1130
Field Team: RB; KC; EA

Sample ID: 14-RT-017-GW Time: 1130 [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 38°F; Cloudy; Wind 8 mph SW

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water
Depth to Water (ft BTOC): 7.82'
Total Depth (ft BTOC): 20.81'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, [✓ Amber], Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, [✓ High], Very Strong, H2S, Fuel Like, Chemical ?, Unknown [✓ Sweet (HRC?)]
Turbidity: None, [✓ Low], Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1115	5.73	5.77	6.495	Low	1.77	-153.9	Amber	HRC		
2	1121	5.62	5.80	6.461	Low	0.37	-188.3	Clear	HRC		
3	1126	5.52	5.80	6.429	Low	0.28	-203.6	Clear	HRC		
4	1131	5.51	5.80	6.425	Low	0.22	-205.3	Clear	HRC		
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm Gases	3
Org Meta Acids	2
Tot. metals	1
Diss Metals	1
TOC	1

Comments:
4-21-14 ~~1646~~ 1717 Depth to Water: 7.80 ft BTOC
Total depth: 20.81 ft BTOC
* Effervesces
* 100 ml/min purge rate * WLI wouldn't fit downhole w/the tubing

Signed:
Date: 4/23/14
Signed/reviewer: *Diss metals field filtered
Date:

* RFS

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-47

Project # : 0213930-2

Date: 4/23/14

Project Name: 2013-14 River Terrace

Start Time: 1055

Site: River Terrace RV Park

End Time: 1155

Field Team: RB; KC; KM

Sample ID: 14-RT-009-GW Time: 1140 primary dup split ms/msd

Sample ID: N/A Time: N/A primary dup split ms/msd

Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 38°F; Cloudy; Wind 8mph SW

Depth to Top of Product (ft BTOC): N/A

Depth to Water (ft BTOC): 7.23'

Depth to Oil/Water Interface* (ft BTOC): N/A

Total Depth (ft BTOC): 33.43'

* Note: Same as depth to water

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear], Amber, Tan, Brown, Grey, Milky White, Other:

Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown [✓ HRC (Sweet)]

Turbidity: None, [✓ Low], Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1130	5.23	6.45	0.337	Low	0.67	-102.8	Clear	HRC	8.63	1.40
2	1135	5.41	6.45	0.338	Low	0.37	-109.9	Clear	HRC	8.76	0.13
3	1140	5.60	6.49	0.333	Low	0.30	-109.1	clear	HRC	8.85	0.09
4	1145	5.37	6.52	~~[illegible]~~	Low	0.30	-106.9	Clear	HRC	9.00	0.15
5				0.365 RB							
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
PermGases	3
OrgMetaAcids	2
Tot Metals	1
Diss Metals	1
TOC	1

Comments:

4-21-14 1700

Depth to Water: 6.95 ft BTOC

Total depth: 33.43 ft BTOC

* Diss metals field filtered

* ~~Effervesces~~

* 100ml/min purge rate

Signed: DNK/NCR

Date: 4/23/14

Signed/reviewer:

Date:

* RFS + Bio

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-39
Project # : 0213930-2
Date: 4/23/14
Project Name: 2013-14 River Terrace
Start Time: 1330
Site: River Terrace RV Park
End Time: 1440
Field Team: RB; KC; KA
Sample ID: 14-RT-006-GW Time: 1425 [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 39°F; Partly Cloudy; Wind 10mph WNW

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water
Depth to Water (ft BTOC): 16.1'
Total Depth (ft BTOC): 21.66'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear], Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, [✓ Unknown] HRC (Sweet)
Turbidity: [✓ None], Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1405	5.20	6.26	0.806	None	1.30	-43.1	Clear	HRC	17.01	0.91
2	1410	5.24	6.27	0.816	None	0.72	-43.0	Clear	HRC	17.23	0.22
3	1415	5.17	6.28	0.834	None	0.53	-45.1	Clear	HRC	17.49	0.26
4	1420	5.15	6.32	0.868	None	0.36	-49.4	Clear	HRC	17.80	0.31
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm Gases	3
Org Meta Acids	2
Diss Metals	1
Tot. Metals	1
TOC	1

Comments:
4-21-14 1741 Depth to water: 16.06 ft BTOC.
total depth: 21.66 ft BTOC
* 110 ml/min purge rate * Diss metals field filtered.

Signed:
Date: 4/23/14

Signed/reviewer:
Date:

*RFS

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-49
Project # : 0213930-2
Date: 4/23/14
Project Name: 2013-14 River Terrace
Start Time: 1340
Site: River Terrace RV Park
End Time: 1440
Field Team: RB; KC; KA

Sample ID: 14-RT-011-GW Time: 1420 [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 36°F; Partly Cloudy; Wind 10 mph WNW

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water
Depth to Water (ft BTOC): 8.80'
Total Depth (ft BTOC): 32.18'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear], Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown [✓ HRC (Sweet)]
Turbidity: [✓ None], Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1400	5.33	6.86	3.753	clear	2.10	-57.2	Clear	HRC	8.80	—
2	1405	5.55	6.78	3.745	clear	1.19	-69.9	clear	HRC	10.86	2.06
3	~~1410~~	~~5.21~~	~~6.27~~								
4	1410	5.21	6.77	3.665	Clear	0.98	-80.4	Clear	HRC	11.35	0.49
5	1415	5.28	6.76	3.506	clear	0.78	-84.5	Clear	HRC	12.14	0.79
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected	Comments:
SW 8260B	3	4-21-14 17:34 Depth to Water: 8.96 ft BTOC total depth: 32.18 ft BTOC
Perm Gases	3	
Org Meta Acids	2	
Diss Metals	1	
Tot. Metals	1	*80ml/min purge rate *Diss metals field filtered
TOC	1	
DHC/VCR	1	

Signed: Date: 4/23/14
Signed/reviewer: Date:

*RFS + Bio

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-44

Project # : 0213930-2

Date: 4/23/14

Project Name: 2013-14 River Terrace

Start Time: 1515

Site: River Terrace RV Park

End Time: 1620

Field Team: RB; KC; EA

Sample ID: 14-RT-068-GW Time: 1415 [✓ primary] dup split ms/msd

Sample ID: N/A Time: N/A primary dup split ms/msd

Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 42°F; Partly Cloudy; Wind 9mph W

Depth to Top of Product (ft BTOC): N/A

Depth to Oil/Water Interface* (ft BTOC): N/A

Depth to Water (ft BTOC): 15.3'

Total Depth (ft BTOC): 35'

* Note: Same as depth to water

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear], Amber, Tan, Brown, Grey, Milky White, Other:

Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, [✓ Unknown HRC (Sweet)]

Turbidity: [✓ None], Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1530	5.32	7.15	0.234	None	1.23	-58.6	Clear	HRC	16.19	0.89
2	1535	4.89	7.13	0.216	None	0.54	-55.7	Clear	HRC	17.09	0.90
3	1540	5.06	7.05	0.199	None	0.38	-50.6	Clear	HRC	17.95	0.86
4	1545	5.39	7.03	0.179	None	0.26	-51.3	Clear	HRC	18.63	0.68
5	1550	5.11	7.00	0.169	None	0.30	-54.4	Clear	HRC	19.19	0.56
6	1555	5.08	6.98	0.151	None	0.48	-51.6	Clear	HRC	19.99	0.80
7	1600	5.09	6.95	0.136	None	0.53	-40.7	Clear	HRC	20.51	0.52
8	1605	4.95	6.95	0.126	None	0.74	-31.2	Clear	HRC	21.21	0.70
9	1610	5.02	6.93	0.120	None	0.93	-19.8	Clear	HRC	21.85	0.64
10	1615	4.09	7.09	0.122	None	0.82	-25.8	Clear	HRC	22.46	0.61
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm Gases	3
Org Meta Acids	2
Tot Metals	1
Diss Metals	1
TOC	1

Comments:

4-21-14 1748 ICE @ time of DTW measurement.

* 100 ml/min purge rate * Diss metals field filtered

Signed: Ryan B

Date: 4/23/14

Signed/reviewer:

Date:

*FFS

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: L78
Project # : 0213930-2
Date: 4/23/14
Project Name: 2013-14 River Terrace
Start Time: 1520
Site: River Terrace RV Park
End Time: 1620
Field Team: RB; KC; KA
Sample ID: 14-RT-~~008~~-GW 015 Time: 1405 [✓ primary] dup split ms/msd
Sample ID: Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 42°F; Partly Cloudy; Wind 9 MPH West

Depth to Top of Product (ft BTOC): N/A
Depth to Water (ft BTOC): 15.69'
Depth to Oil/Water Interface* (ft BTOC): N/A
Total Depth (ft BTOC): 33.10'
* Note: Same as depth to water

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, Amber, Tan, Brown, [✓ Grey], Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown [✓ HRC (Sweet)]
Turbidity: None, Low, [✓ Medium], High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1534	6.73	6.14	8.593	Low-Med	1.98	-150.8	Grey	HRC		
2	1541	6.38	6.15	8.532	Low-Med	0.42	-155.6	Grey	HRC		
3											
4	1558	7.24	6.15	8.705	Medium	0.17	-154.9	Grey	HRC		
5	1603	6.87	6.15	8.611	Medium	0.16	-162.0	Grey	HRC		
6	1608	6.57	6.15	8.532	Medium	0.15	-147.7	Grey	HRC		
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm Gases	3
Org. Meta Acids	2
Tot. Metals	1
Diss Metals	1
TOC	1

Comments: 4-21-14 1749 → Depth to Water: 5.32 ft BTOC
Total depth: 33.10 ft BTOC
Malfunctioning WLI @ time of measurement
*80 ml/min purge rate *Diss metals field filtered.

DHC/VCR!

Signed: Kym BC
Date: 4/23/14

Signed/reviewer
Date:

* RFS + Bio

* Not able to measure drawdown, as WLI will not fit in well w/tubing.

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-9
Project # : 0213930-2
Date: 4-23-14
Project Name: 2013-14 River Terrace
Start Time: 1710
Site: River Terrace RV Park
End Time: 1810
Field Team: RB; KC; KA
Sample ID: 14-RT-005-GW Time: 1750 [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 39°F; Mostly Cloudy; Wind 12 mph WSW

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water
Depth to Water (ft BTOC): 17.61
Total Depth (ft BTOC): 19.05

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear], Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown [✓ HRC (Sweet)]
Turbidity: None, [✓ Low], Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1725	5.15	7.08	0.991	~~NA~~ Low	2.24	-63.7	Clear	None	17.91	—
2	1730	4.61	6.98	0.999	~~NA~~ Low	1.28	-68.9	Clear	None	18.00	0.1
3	~~1735~~	~~4.27~~	~~6.94~~								
4	1735	4.27	6.94	1.060	Low	0.95	-83.1	Clear	HRC	18.05	0.05
5	1740	4.32	6.85	0.998	Low	0.71	-86.6	Clear	HRC	18.05	—
6	1745	4.20	6.83	0.994	Low	0.71	-83.0	Clear	HRC	18.05	—
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260	3
Perm Gases	3
Org Meta Acids	2
Tot. Metals	1
Diss Metals	1
TOC	1

Comments:
4-21-14 1753 Depth to water: 16.9 ft BTOC
Total depth: 19.05 ft BTOC
* 100ml/min purge rate. * Diss metals field filtered.

Signed:
Date: 4/23/14

Signed/reviewer:
Date:

*RFS

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-40
Project # : 0213930-2
Date: 4-23-14
Project Name: 2013-14 River Terrace
Start Time: 1710
Site: River Terrace RV Park
End Time: 1815
Field Team: RB; KC; KA
Sample ID: 14-RT-~~004~~ 007-GW Time: 1755 [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 39°F; Mostly Cloudy; Wind 12 mph WSW

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water
Depth to Water (ft BTOC): 18.90'
Total Depth (ft BTOC): 21.56'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear], Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, [✓ H2S], Fuel Like, Chemical ?, Unknown
Turbidity: None, [✓ Low], Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1720	6.07	6.49	.707	Low	1.23	-77.6	clear	H_2S	17.37	—
2	1730	5.33	6.39	0.651	Low	0.82	-75.7	Clear	H_2S	17.41	0.04
3	1740	5.07	6.35	0.619	Low-Clear	0.61	-71.6	Clear	H_2S	17.41	—
4	1745	5.00	6.32	0.606	Low	0.48	-68.2	Clear	H_2S	17.41	—
5	1750	4.91	6.31	0.601	Low	0.40	-66.3	Clear	H_2S	17.41	—
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW 8260B	3
Perm Gases	3
Org Meta Acids	2
Tot Metals	1
Diss Metals	1
TOC	1

Comments:
4-21-14 1800 Depth to Water: 16.91 ft BTOC
Total depth: 21.56 ft BTOC
*120 ml/min purge rate. * Diss metals field filtered

Signed: Ryan B. Date: 4/23/14

Signed/reviewer: Date:

*RFS

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: L-80A
Project # : 0213930-2
Date: 4/23/14
Project Name: 2013-14 River Terrace
Start Time: 1820
Site: River Terrace RV Park
End Time: 1920
Field Team: RB; KC; KA

Sample ID: 14-RT-018-GW Time: 1905 [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 39° F; Mostly Cloudy; Wind 10mph West

Depth to Top of Product (ft BTOC): N/A
Depth to Water (ft BTOC): 11.19
Depth to Oil/Water Interface* (ft BTOC): N/A
Total Depth (ft BTOC): 31.25
* Note: Same as depth to water

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, [✓ Amber], Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown [✓ HRC (Sweet)]
Turbidity: None, [✓ Low], Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	1840	4.38	5.86	6.889	Low	3.14	-453	Amber	HRC		
2	1845	4.43	5.78	6.903	Low	1.07	-458	Amber	HRC		
3	1850	4.18	5.70	6.870	Low	0.82	-452	Amber	HRC		
4	1855	4.17	5.62	6.845	Low	0.52	-439	Amber	HRC		
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW 8260B	3
Perm Gas	3
Org Meta Acids	2
Tot Metals	1
Diss Metals	1
TOC	1

Comments:
4-21-14 1705 Depth to Water: 10.69 ft BTOC
Total depth: 31.25 ft BTOC
* 100 ml/min purge rate * Dissolved metals fieldfiltered

Signed: Ryan B
Date: 4/23/14
Signed/reviewer
Date:

*RFS * DTW (drawdown) not measured; WLI will not fit in well with tubing.

Surface Water/Sediment Sample Sheet

Project: RTRVP (0213930-2)
Site: River Terrace RV Park
Location: Between MW6 & MW20

Date: 4/23/14 Time: 1900
Weather: 37°F; Partly Cloudy; 0-5 mph W
Sampler: RB & KA

Surf Water Spl ID 14-RT-030-GW
SW Dup Spl ID — N/A
Split Spl ID — N/A

Sed Spl ID — N/A
Sed Dup Spl ID — N/A
Split Spl ID — N/A

Note: Write "N/A" in the sample ID space for any sample that was not collected so a reader will know what samples were not collected at a particular location. (For example, if only a surface water sample was collected, and no QA/QC sampling was done, write "N/A" in the duplicate and split Spl ID spaces on the left, below the Surf Water Spl ID, and in all three blanks for sediment sample IDs on the right.)

Describe water body (river, pond, etc.) and type (fresh, brackish, etc): River; fresh; between MW6 & MW20; out ~5' from shore.

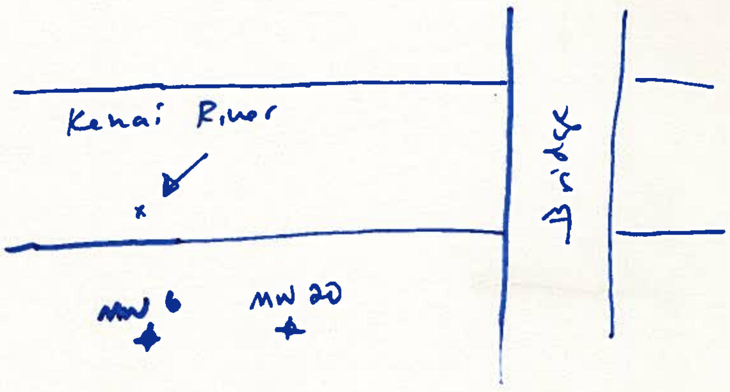
Water Quality

Sample Depth: ~0.5'
Temp (°C) 6.34
pH 8.75
Conductivity 0.053 mS/cm
DO 14.52 mg/L
Turbidity Slight
Color Amber to clear
Odor None
Sheen Slight sheen
Debris None
Other N/A

Sediment Quality

Sample Depth: N/A
Soil Type N/A
Color N/A
Odor N/A
Sheen N/A
Debris N/A

Location Diagram/Notes (Maps should include a north arrow, landmarks (roads, wells, buildings), and the approximate distance from the sample location to at least two landmarks.)



SW Analyses	# of Bottles Collected
VOC	3
DRO or GRO	N/A
PCB	N/A
PAH	N/A

Sed Analyses	# of Bottles Collected
VOC/GRO	N/A
VOC (low level)	N/A
DRO/PAH/PCB/% Moisture	N/A

*✓

Signed:
Date: 4/23/14

Surface Water/Sediment Sample Sheet

Project: RTRVP (0213930-2)
Site: River Terrace RV Park
Location: MW 8

Date: 4/23/14 Time: 1935
Weather 38°F; Partly Cloudy; wind 0-5 mph west
Sampler RB; KA

Surf Water Spl ID 14-RT-031-GW
SW Dup Spl ID N/A
Split Spl ID N/A

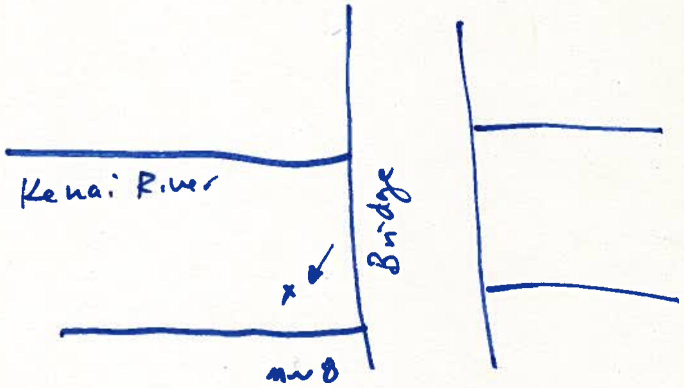
Sed Spl ID N/A
Sed Dup Spl ID N/A
Split Spl ID N/A

Note: Write "N/A" in the sample ID space for any sample that was not collected so a reader will know what samples were not collected at a particular location. (For example, if only a surface water sample was collected, and no QA/QC sampling was done, write "N/A" in the duplicate and split Spl ID spaces on the left, below the Surf Water Spl ID, and in all three blanks for sediment sample IDs on the right.)

Describe water body (river, pond, etc.) and type (fresh, brackish, etc): River; fresh; MW 8; out 5' from shore.

Water Quality				Sediment Quality	
Sample Depth:	~0.5'			Sample Depth:	N/A
Temp (°C)	6.35	Color	Amber-Clear	Soil Type	N/A
pH	9.10	Odor	None	Color	N/A
Conductivity	0.051 mS/cm	Sheen	slight	Odor	N/A
DO	14.46	Debris	None	Sheen	N/A
Turbidity	Slight	Other	N/A	Debris	N/A

Location Diagram/Notes (Maps should include a north arrow, landmarks (roads, wells, buildings), and the approximate distance from the sample location to at least two landmarks.)



SW Analyses	**# of Bottles Collected**
VOC	3
DRO or GRO	N/A
PCB	N/A
PAH	N/A

Sed Analyses	**# of Bottles Collected**
VOC/GRO	N/A
VOC (low level)	N/A
DRO/PAH/PCB/% Moisture	N/A

*✓

Signed:

Date: 4/23/14

Surface Water/Sediment Sample Sheet

Project: RTRVP (0213930-2)
Date: 4/23/14 Time: 1947
Site: River Terrace RV Park
Weather 38°F; Partly Cloudy; Wind 0-5mph West
Location: MW-5
Sampler RB; KA

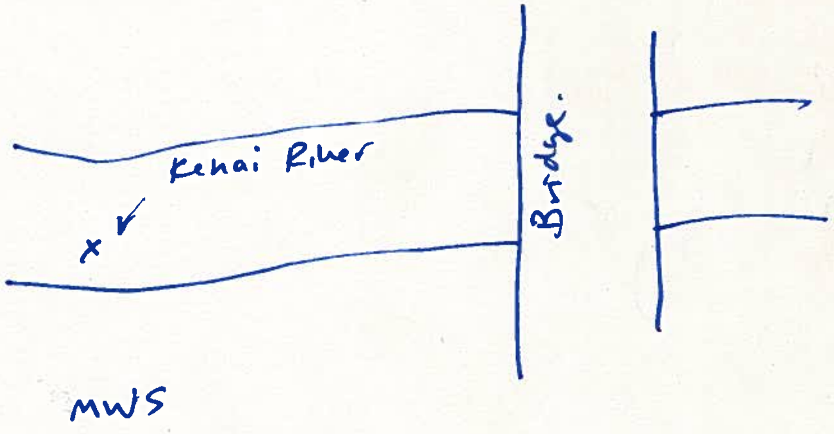
Surf Water Spl ID 14-RT-029-GW
Sed Spl ID N/A
SW Dup Spl ID N/A
Sed Dup Spl ID N/A
Split Spl ID N/A
Split Spl ID N/A

Note: Write "N/A" in the sample ID space for any sample that was not collected so a reader will know what samples were not collected at a particular location. (For example, if only a surface water sample was collected, and no QA/QC sampling was done, write "N/A" in the duplicate and split Spl ID spaces on the left, below the Surf Water Spl ID, and in all three blanks for sediment sample IDs on the right.)

Describe water body (river, pond, etc.) and type (fresh, brackish, etc): River; fresh; MW5; out 5' from shore

Water Quality				Sediment Quality	
Sample Depth:	~0.5'			Sample Depth:	N/A
Temp (°C)	6.27	Color	Amber to clear	Soil Type	N/A
pH	9.13	Odor	None	Color	N/A
Conductivity	0.051	Sheen	None	Odor	N/A
DO	14.18	Debris	None	Sheen	N/A
Turbidity	Slight to None	Other	N/A	Debris	N/A

Location Diagram/Notes (Maps should include a north arrow, landmarks (roads, wells, buildings), and the approximate distance from the sample location to at least two landmarks.)



SW Analyses	**# of Bottles Collected**
VOC	3
DRO or GRO	N/A
PCB	N/A
PAH	N/A

Sed Analyses	**# of Bottles Collected**
VOC/GRO	N/A
VOC (low level)	N/A
DRO/PAH/PCB/% Moisture	N/A

Signed:
Date: 4/23/14

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-25
Project # : 0213930-2
Date: 4/24/14
Project Name: 2013-14 River Terrace
Start Time: 0730
Site: River Terrace RV Park
End Time: 0830
Field Team: RB; KC; KA
Sample ID: 14-RT-022-GW Time: 0820 [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 21°F; Partly Cloudy; 5 mph wind ESE

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water
Depth to Water (ft BTOC): 12.86'
Total Depth (ft BTOC): 18.89'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: [✓ Clear, Amber], Tan, Brown, Grey, Milky White, Other:
Odor: [✓ None, Low], Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown
Turbidity: [✓ None], Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	0810	2.75	6.26	0.161	Low	0.74	46.1	Amber	None	12.86	—
2	0815	2.71	6.27	0.154	Low	0.47	34.1	Amber	None	12.86	—
3	0820	3.44	6.31	0.147	Low	0.52	22.1	Amber	None	12.86	—
4	0825	3.51	6.32	0.146	Low	0.48	17.9	Amber	None	12.86	—
5	0830	3.18	6.33	0.143	Low	0.45	15.4	Amber	None	12.86	—
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected	Comments:
SW8260	3	4-21-14 1350 Depth to Water: 12.86 ft BTOC Total Depth: 18.89 ft BTOC * Purge rate = 100 ml/min

Signed: Ryan B
Date: 4/24/14

Signed/reviewer:
Date:

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: ~~MW-20~~ MW-12

Project # : 0213930-2

Date: 4/24/14

Project Name: 2013-14 River Terrace

Start Time: 0840

Site: River Terrace RV Park

End Time: 0940

Field Team: RB; KC; KA

Sample ID: 14-RT-026-GW Time: 0930 [✓ primary] dup split ms/msd

Sample ID: — Time: — primary dup split ms/msd

Sample ID: — Time: primary dup split ms/msd

Weather Conditions: 27°F; Clear; Wind 4 mph ENE

Depth to Top of Product (ft BTOC): N/A

Depth to Oil/Water Interface* (ft BTOC): N/A

* Note: Same as depth to water

Depth to Water (ft BTOC): ~~5.25~~ ~~6.65~~ 6.3

Total Depth (ft BTOC): ~~5.5~~ 7.6

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, [✓ Amber], Tan, Brown, Grey, Milky White, Other:

Odor: [✓ None], Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown

Turbidity: None, [✓ Low], [✓ Medium], High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1	0910	2.92	5.49	0.675	Low-Med	3.87	116	Amber	None	6.65	0.34
2	0915	3.21	5.48	0.684	Low-Med	3.94	92.5	Amber	None	7.04	0.39
3	0920	3.22	5.60	0.675	Low-Med	4.65	88.8	Amber	None	purge dry	
4											
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3

Comments:

4-21-14 ~~1805~~ 1802 ~~Depth to ICE 5.5ft~~

DTW: 6.22' BTOC

TD: 7.6' BTOC

* 120 ml/min purge rate. * Purge dry, but stabilized.

Signed:

Date: 4/24/14

Signed/reviewer:

Date:

* V

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: ~~MW-12~~ MW-20
Project # : 0213930-2
Date: 4/24/14
Project Name: 2013-14 River Terrace
Start Time: 0845
Site: River Terrace RV Park
End Time:
Field Team: RB; KC; KA

Sample ID: N/A Time: N/A [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 27°F; Clear; Wind 4 mph ENE

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water
Depth to Water (ft BTOC): ~~6.31'~~ 5.25
Total Depth (ft BTOC): ~~7.6'~~ 5.5

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown
Turbidity: None, Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected	Comments:
~~SW8260B~~ RB	~~3~~ RB	4-21-14 ~~1802~~ RB 1805 Depth to Water: ~~6.22 ft BTOC~~ No water Total depth: ~~7.6 ft BTOC~~ ~~possibly ice~~ 5.5' BTOC
		* Purged dry @ 0900; will sample after recovery.

Signed: Ryan BT
Date: 4/24/14

Signed/reviewer:
Date:

*V

* Not possible to collect sample; no recovery.
-Purged; then let sit for two hours before re-trying.

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-6A
Project # : 0213930-2
Date: 4/24/14
Project Name: 2013-14 River Terrace
Start Time: 0920
Site: River Terrace RV Park
End Time: 1020
Field Team: RB/KC/KA
Sample ID: 14-RT-004-GW Time: 1000 [✓ primary] dup split ms/msd
Sample ID: — Time: — primary dup split ms/msd
Sample ID: — Time: — primary dup split ms/msd

Weather Conditions: 34°F; Clear; No wind

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water
Depth to Water (ft BTOC): ~~7.30~~ 6.98'
Total Depth (ft BTOC): 10.87'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, Amber, Tan, Brown, [✓ Grey] Milky White, Other:
Odor: [✓ None], Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown
Turbidity: None [✓ Low], Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down	
1	~~0935~~	~~3.18~~	~~6.27~~	~~0.512~~	~~Medium~~	~~2.32~~	~~63.7~~	~~Amber~~	~~None~~	~~7.36~~	~~0.06~~	RBS
2	~~0940~~	~~2.82~~	~~6.27~~	~~0.507~~	~~Medium~~	~~1.17~~	~~67.3~~	~~Amber~~	~~None~~	~~7.37~~	~~0.00~~	RBS
3	1000	3.12	6.23	0.179	Low	15.36	-28.1	Grey	None	6.98	—	
4	1020	2.93	6.30	0.333	Low	2.54	-62.3	Grey	None	7.06	0.08	
5	1025	2.53	6.28	0.360	Low	0.64	-35.5	Grey	None	7.06	0.08	
6	1030	2.54	6.23	0.358	Low	0.62	-78.5	Grey	None	7.06	0.08	
7	1035	2.68	6.22	0.360	Low	0.71	-81.6	Grey	None	7.06	0.08	
8												
9												
10												
11												
12												

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3
Perm Gases	3
Org Meta Acids	2
Tot Metal	1
Diss Metal	1
TOC	1

Comments:
4-21-14 1810 Depth to Water 6.03 ft BTOC
~~Depth to~~
Total depth 10.87 ft BTOC
* Purge rate 100 ml/min
* Diss Metals field filtered.

Signed: Ryan B
Date: 4/24/14

Signed/reviewer:
Date:

*RFS

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-5

Project # : 0213930-2

Date: 4/24/14

Project Name: 2013-14 River Terrace

Start Time: 1030

Site: River Terrace RV Park

End Time: 11 30

Field Team: RB; KC; KA

Sample ID: N/A Time: N/A primary dup split ms/msd

Sample ID: N/A Time: N/A primary dup split ms/msd

Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 45°F; Mostly cloudy; No wind.

Depth to Top of Product (ft BTOC): N/A

Depth to Oil/Water Interface* (ft BTOC): N/A

* Note: Same as depth to water

Depth to Water (ft BTOC): N/A

Total Depth (ft BTOC): 5.19'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: N/A Clear, Amber, Tan, Brown, Grey, Milky White, Other:

Odor: N/A None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown

Turbidity: N/A None, Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected	Comments:
		4-21-12 1812 Depth to Water: 4.71 ft BTOC Total depth: 5.19 to ice
		*Purged dry; No recovery. Poured ~1 gal. hot water into casing; did not melt through ice.

Signed:

Date: 4/24/14

Signed/reviewer:

Date:

* Observe screened interval begins @ ground surface.

* No sample collected

C1 LowFlow Sample Sheet.xls

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW-35
Project # : 0213930-2
Date: 4/24/14
Project Name: 2013-14 River Terrace
Start Time: 1125
Site: River Terrace RV Park
End Time: 1225
Field Team:

Sample ID: 14-RT-028-GW Time: 1200 [✓ primary] dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd
Sample ID: N/A Time: N/A primary dup split ms/msd

Weather Conditions: 45° F; Mostly cloudy; No wind

Depth to Top of Product (ft BTOC): N/A
Depth to Oil/Water Interface* (ft BTOC): N/A
* Note: Same as depth to water
Depth to Water (ft BTOC): 6.65'
Total Depth (ft BTOC): 6.9'

Criteria for Stable Parameters

Parameter	Working Range	Stability Criteria	Notes
Temperature	>0.00 °C	± 1° C	
pH	0-14	± 10%	
Conductivity	0-999 mS/m	± 10%	
ORP	± 1999 mV	NA	
Dissolved Oxygen	0-19.99 mg/L	NA	
Turbidity	0-800 NTU	NA	

Sensory Observations

Color: Clear, Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown
Turbidity: None, Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Round	Time	Temp °C	pH	Conductivity (mS/cm)	Turbidity (NTUs)	DO (mg/L)	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected
SW8260B	3

Comments:
4-21-14 1814 Depth to Water: 6.35 ft BTOC
total depth: 6.65 to ice
* Purge dry. Collect 3 VOAs for SW8260B.
* No parameters collected.

Signed:
Date: 4/24/14

Signed/reviewer:
Date:

*V

CONTENTS

PAGE	REFERENCE	DATE

RTRVP

52°F 4/21/14
Wind 5mph ENE
Clear

R. Burich; K. Coolidge; K. Adams

1130 - Arrive in Soldotna and check in at the Kenai River Lodge (across the street from the project site)

1145 - Lunch

1230 - Contact Gary Hinckle, the project site property owner, and let him know we'll be onsite collecting groundwater samples. He gives us permission and is friendly and accomodating.

1250 - Review project workplan with team members and begin uncovering monitoring wells in the upper plume. Wells include: MW-16, 23, 25, 36, 38, + 42. Use Schoenstadt metal detector to locate wells. Use shovels to uncover wells.

1320 - Begin collecting depth-to-water measurements at (6) upper plume monitoring wells.

RTRVP

52°F
Wind 5mph ENE

4/21/14 R.Bunch; K. Coolidge; K.Adams Clear

1415 - Begin uncovering monitoring wells and injection points in the lower plume. Use Schoenstadt metal detector and shovels to uncover wells wells. Wells include:

MW 26
MW 39
MW 44
MW 47
MW 48
MW 49
MW 50
MW 51
MW 40
MW 9
MW 5

MW52
L 78
L 100
L101
L 80A
L102
L103
MW6A
MW12
MW20

1630 Begin measuring depth-to-water at the lower plume monitoring wells and injection points (using the Solinst Model 101 Water Level Meter SWL-1 for monitoring wells and the Slope Indicator SL-4 for the injection points).

52°F
Wind 5mph ENE
Clear

RTRVP

R.Bunch; K.Coolidge; K.Adams 4/21/14

1700 Some of the monitoring wells in the lower plume seem to have ice in them, as the total depths are less than previous years. See below wells for examples:

MW 5
MW 25
MW44
MW47
MW 78
L 80
L 81
L 100
L101

} See sample data sheets

1730 Write well numbers on all compression caps.

1830 Depart site.

Ryan Bunch
4/21/14

Ryan Burich
4/21/14

RTRUP

26°F 4/22/14
Clear
Wind 6mph E

R. Burich; K. Coolidge; K. Adams

0730 – Onsite

0800 – Calibrate YSIs.

Using ~~two~~ YSIs

1) YSI 556 MPS (# Y-6)
2) YSI 556 MPS (#Y-2)

Using two peristaltic pumps

1) Alexis Pegasus (# PP-1)
2) Geopump Series II (GP-1)

Using Masterflex PharMed surgical-grade tubing with peristaltic pump

0840 Set up equipment and begin collecting groundwater samples from groundwater monitoring wells and HRC injection points. Two peristaltic pumps and two YSIs used in order to sample to locations at a time. A third person fills out sample data worksheets for each location. See next page for sampling info.

Ryan Burich
4/22/14

RTRUP

55°F
Partly Cloudy
Wind 6 MPH N

4/22/14 R. Burich; K. Coolidge; K. Adams

Location	ID: 14-RT-	Time	Analyses		# Bottles
MW-16	002-GW	0930	* 2	* See Sample Data Worksheets for Water Quality Parameters	11
MW-42	003-GW	1035	* 2		11
Dup (MW-42) + MS/MSD	032-GW	1045	* 2		17
MW-38	023-GW	1030	* 1		3
Dup (MW-38) + MS/MSD	033-GW	1040	* 1		9
MW-23	021-GW	1215	* 1		3
MW-36	001-GW	1230	* 2		11
MW-48	010-GW	1515	* 2+3		12
Dup (MW-48)	032-GW	1535	* 3		1
MW-26	024-GW	1510	* 1		3
Dup (MW-26) + MS/MSD	034-GW	1520	* 1		9
L-100	016-GW	1620	* 2		11
MW-51	013-GW	1630	* 2+3		12
L-102	019-GW	1735	* 2		11
MW-50	012-GW	1800	* 2+3		12

* 1) VOCs
2) VOCs; Methane; Total Metals; Dissolved Metals; TOC; Metabolic Acid VFAs
3) DHC; VCR

* YSI flow-through cells decon'd between wells.

1830 - Place purge water and IDW in appropriately labeled containers staged at the northwest corner of the processing building.

1845 - Depart site.

32°F
Partly Cloudy
Wind 5 MPH East

RTRUP

R. Burich; K. Coolidge; K. Adams 4/23/14

0730 - Onsite.

0800 - Calibrate both YSIs. See YSI calibration log books.

0830 - Set up equipment and begin collecting groundwater samples.

Location	ID: 14-RT-	Time	Analyses		# Bottles
L-103	020-GW	0940	* 2+3	* See Sample Data Worksheets for Water Quality Parameters	12
MW-52	014-GW	0950	* 2		11
L-101	017-GW	1130	* 2		11
MW-47	009-GW	1140	* 2+3		12
MW-39	006-GW	1425	* 2		11
MW-49	011-GW	1420	* 2+3		12
MW44	008-GW	1615	* 2		11
L-78	015-GW	1605	* 2+3		12
MW-9	005-GW	1750	* 2		11
MW-40	007-GW	1755	* 2		11
L-80A	018-GW	1905	* 2		11

* 1) VOCs
2) VOCs; Methane; Total Metals; Dissolved Metals; TOC; Metabolic Acids VFAs
3) DHC; VCR

* YSI flow-through cells decon'd between wells.

Ryan Burich
4/23/14

RTRVP
39°F
Mostly Cloudy
Wind 10mph West

4/23/14 R. Burich; K. Coolidge; K. Adams

1300 - McClane Consulting Inc. onsite to survey top-of-casing elevation of monitoring wells and injection point sampled during this event. They're happy that we've uncovered all wells and points and marked with pin flags.

1900 - Collect water quality parameters and surface water samples from Kenai River adjacent to RTRVP property. Water samples and parameters collected ~5' out from shoreline at proposed locations.

Location	ID: 14-RT-	Time	Analysis	# Bottles
MW-6/MW-20	030-GW	1900	VOCs	3
MW-8	031-GW	1935	VOCs	3
MW-5	029-GW	1947	VOCs	3

* See sample data worksheets for water quality parameters and approx. sample locations.

2015 - Place purge water + IDW in appropriate containers and depart site.

21°F
Partly Cloudy
Wind 5 mph ESE

RTRVP

R. Burich; K. Coolidge; K. Adams. 4/24/14

0730 - Onsite

0800 - Calibrate both YSIs. See calibration logbooks.

0815 - Set up equipment and begin collecting groundwater samples

Location	ID: 14-RT-	Time	Analyses	# Bottles
MW-25	022-GW	0820	*1	3
MW-12	026-GW	0830	*1	3
MW-6A	004-GW	1000	*2	11
MW-35	028-GW	1200	*1	3

*1) VOCs
2) VOCs; Methane; Total Metals; Dissolved Metals; Metabolic Acids VFA.

1000 - Not able to collect groundwater samples at locations MW-20 and MW-5, as both locations purged dry and did not recover.
* See sample data work sheets.

RTRUP

45°F
Mostly Cloudy
No Wind

4/24/14 R. Burich, K. Coolidge, K. Adams

1230 - Assess condition of all monitoring well and injection point monuments and covers. Replace all missing bolts. Assess condition of all compression caps. See below.

* Need new compression caps:

MW-36
MW-16
MW-42
MW-39
MW-40
MW-44
MW-48
MW-50
MW-52
MW-38
MW-5

} 2" ID

MW-35 → 1 5/16" ID

* Need to trim well casing:

MW-40
MW-49

} trim approx. 1" from TOC

* Needs diff. size monument cover:

MW-20 → 8 3/4" diam needed. Current cover is too big.

RTRUP

45°F
Mostly Cloudy; No Wind

R. Burich, K. Coolidge, K. Adams 4/24/14

* MW-5 screened interval begins at ground surface.

1330 - Place purge water and IDW in appropriate containers. Containers onsite include

(1) 55-gal black steel drum for purge water.

(1) 15-gal black steel drum for IDW

(1) 5-gal green plastic bucket w/screw-top lid for IDW.

- Coordinate with Emerald Services in Kenai, AK to manage generated waste.
- Coordinate with Discovery Drilling (in Anchorage office) to schedule weekly inspection of containers (until picked up by Emerald).

1345 Depart site.

* Note: Property owner, Gary Hinckley ~~Hinckel~~, requests copies of the lab results for groundwater sampling event. He requests mailed hard copies.

Rite in the Rain

APPENDIX C

Performance Monitoring Analytical Results

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Upper Plume

Location	Sample ID	Date Sampled	pH	Temperature (degrees C)	Conductivity (mS)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-36	00-RT-103GW	9/27/2000	6.91	8.2	.289	1	---
	00-RT-138-GW	11/28/2000	6.38	7.8	.35	0.45	---
	01-RT-009-GW	1/11/2001	5.57	6.6	.950	0.54	-68
	01-RT-035-GW	3/8/2001	5.92	6.3	.654	1.4	-59
	01-RT-073-GW	5/22/2001	6.68	6.9	.215	0.86	-20
	01-RT-096-GW	10/16/2001	5.2	8.6	1.4	0.61	81.6
	01-RT-136-GW	1/16/2002	5.36	5.8	.592	2.65	5.43
	02-RT-015-GW	3/13/2002	6.32	5.4	0.885	0.1	---
	02-RT-045-GW	6/18/2002	5.07	8.6	0.324	0.47	7
	02-RT-068-GW	9/27/2002	5.22	9.2	0.367	0.27	67
	02-RT-110-GW	12/19/2002	6.19	6.2	0.607	0.09	-10.5
	03-RT-012-GW	3/10/2003	6.43	3.9	.295	0.44	-6.7
	03-RT-040-GW	6/17/2003	5.99	7.4	.441	0.06	16.6
	03-RT-092-GW	10/7/2003	5.93	9.23	0.475	---	-99
	04-RT-001-GW	1/21/2004	6.08	7.25	0.501	0.2	10.8
	04-RT-012-GW	3/31/2004	6.55	4.54	0.114	0.3	-29
	04-RT-023-GW	6/8/2004	6.35	7.1	0.124	0.56	-30.9
	04-RT-047-GW	10/30/2004	5.91	9.2	0.186	1.11	51.1
	05-RT-001-GW	2/23/2005	---	5.71	0.392	0.39	-123.2
	05-RT-027-GW	6/3/2005	---	7.3	0.21	0.36	-132.9
	05-RT-044-GW	10/11/2005	6.00	9.43	0.454	0.21	-20.3
	06-RT-007-GW	5/24/2006	6.35	7.76	0.234	0.88	-33
	06-RT-029-GW	9/12/2006	6.13	9.75	0.155	2.37	15.5
	07-RT-001-GW	5/30/2007	6.78	5.52	0.289	2.42	-42.4
	07-RT-021-GW	9/20/2007	6.34	9.52	0.270	0.88	27
	08-RT-001-GW	5/13/2008	7.49	5.86	0.305	0.82	41.4
	08-RT-042-GW	9/18/2008	6.14	8.74	0.165	1.2	14.8
	09-RT-001-GW	5/5/2009	6.59	5.09	0.255	---	---
	09-RT-078-GW	10/8/2009	---	8.43	0.137	0.56	-29.1
	10-RT-049-GW	5/14/2010	6.4	6	0.133	0.98	-55.5
	10-RT-080-GW	10/20/2010	6.2	7.64	0.236	0.98	-28.6
	12-RT-001-GW	5/9/2012	4.7	6.13	0.259	0.09	80.8
	13-RT-016-GW	4/11/2013	6.5	3.2	0.249	0.66	-64.2
	14-RT-001-GW	4/22/2014	6.5	5.9	0.216	0.27	-79.2

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-37	00-RT-102GW	9/27/2000	7.13	7.2	.446	1.75	---
	00-RT-137-GW	11/28/2000	5.72	7.2	1.14	0.49	---
	01-RT-007-GW	1/11/2001	5.77	6	1.21	0.64	-126
	01-RT-036-GW	3/8/2001	5.74	5.3	1.87	1.55	-10.5
	01-RT-072-GW	5/22/2001	5.62	5.9	.88	1.35	33.2
	01-RT-094-GW	10/16/2001	6.1	7.9	1.23	0.71	6.4
	01-RT-134-GW	1/16/2002	6.4	5.6	.682	1.54	6.55

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Date Sampled	pH	Temperature (degrees C)	Conductivity (mS)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-16	00-RT-040-GW	6/7/2000	6.36	5.3	.400	1.53	---
	00-RT-101GW	9/27/2000	6.87	6.8	.41	2.25	---
	00-RT-136-GW	11/28/2000	5.86	6.2	.741	1.65	---
	01-RT-008-GW	1/11/2001	6.35	5.5	.680	0.29	-27
	01-RT-037-GW	3/8/2001	6.66	4.8	0.958	1.16	-51.9
	01-RT-071-GW	5/22/2001	5.66	8.1	.299	0.81	54.8
	01-RT-095-GW	10/16/2001	6.15	8.1	0.901	0.7	23.4
	01-RT-135-GW	1/16/2002	6.46	5.4	.609	1.97	7.05
	02-RT-014-GW	3/13/2002	5.43	5.2	0.838	0.35	---
	02-RT-044-GW	6/18/2002	5.41	6.9	1.49	0.47	56.5
	02-RT-067-GW	9/27/2002	5.78	8	1.16	0.24	-26.1
	02-RT-109-GW	12/19/2002	5.76	6.4	1.48	0.3	80.8
	03-RT-011-GW	3/10/2003	6.21	4.8	1.12	0.32	840
	03-RT-041-GW	6/18/2003	6.44	6.5	1.2	0.2	52.1
	04-RT-002-GW	1/21/2004	6.34	6.43	0.324	1.5	-23.5
	04-RT-013-GW	3/31/2004	6.33	4.42	0.334	0.4	-18.5
	04-RT-024-GW	6/8/2004	5.51	7.32	0.720	0.73	29.8
	04-RT-048-GW	10/30/2004	5.76	8.08	0.463	0.81	100.5
	05-RT-028-GW	6/3/2005	---	6.31	0.726	0.37	-148.2
	05-RT-045-GW	10/12/2005	6.18	8.16	0.549	0.42	-35.4
	06-RT-008-GW	5/24/2006	5.93	6.87	1.096	0.7	-16
	06-RT-030-GW	9/12/2006	5.88	9.49	0.770	1.08	2.1
	07-RT-002-GW	5/29/2007	6.12	4.63	1.201	0.47	10.5
	07-RT-022-GW	9/20/2007	6.0	8.82	0.979	0.84	61.5
	08-RT-002-GW	5/13/2008	6.14	4.92	0.588	0.78	24.2
	08-RT-043-GW	9/19/2008	6.05	7.12	0.643	0.76	-7.4
	09-RT-002-GW	5/5/2009	6.53	4.18	0.614	---	---
	09-RT-079-GW	10/8/2009	---	7.28	0.377	0.56	-54.3
	10-RT-050-GW	5/14/2010	6.4	5.6	0.37	0.74	-55.3
	10-RT-081-GW	10/21/2010	6.2	6.82	0.812	0.59	-24.2
	12-RT-002-GW	5/9/2012	7.5	5.62	0.458	1.45	18.4
	13-RT-015-GW	4/11/2013	4.9	2.6	2.642	0.3	9.9
	14-RT-002-GW	4/22/2014	6.2	4.2	0.386	0.74	-43.1

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-38	00-RT-100GW	9/27/2000	7.21	6.7	.366	11	---
	00-RT-135-GW	11/28/2000	6.42	6.3	.346	2.3	---
	01-RT-006-GW	1/11/2001	6.76	5.4	.483	0.97	-75
	01-RT-038-GW	3/8/2001	7.35	4.7	.547	1.5	79.5
	01-RT-070-GW	5/22/2001	6.86	5.1	.59	1.59	83.3
	01-RT-093-GW	10/16/2001	7.09	7.2	0.666	1.15	-30.1
	01-RT-132-GW	1/16/2002	6.95	4.9	.501	0.8	7.46
	02-RT-013-GW	3/13/2002	5.76	4.3	0.733	0.4	---
	02-RT-043-GW	6/18/2002	6.54	7.3	0.754	0.67	-36.9
	02-RT-066-GW	9/27/2002	6.58	8.2	0.533	0.24	-80.2
	02-RT-111-GW	12/19/2002	6.77	6.1	0.665	0.54	26
	03-RT-014-GW	3/11/2003	6.85	4.8	.714	0.18	500
	03-RT-067-GW	6/18/2003	8.45	6	.583	0.11	-32.9
	04-RT-034-GW	6/9/2004	6.48	6.03	0.355	0.67	-84.7
	04-RT-082-GW	10/22/2004	7.2	7.59	0.383	0.69	-152.4
	05-RT-031-GW	6/3/2005	---	5.76	0.562	0.28	-157.8
	05-RT-066-GW	10/12/2005	6.36	8.14	0.527	0.34	-57
	06-RT-023-GW	5/26/2006	6.61	5.52	0.619	0.64	-55.8
	06-RT-056-GW	9/12/2006	7.12	9.2	0.490	0.3	-137.1
	07-RT-015-GW	5/30/2007	7.22	4.01	0.524	0.82	-41.6
	07-RT-025-GW	9/20/2007	6.68	7.69	0.377	0.37	-15.8
	08-RT-046-GW	9/19/2008	7.17	6.78	0.563	0.62	-96.4
	09-RT-082-GW	10/8/2009	---	7.03	0.565	0.45	-129.8
	10-RT-102-GW	10/22/2010	7.3	6.63	0.688	0.37	-132.1
	12-RT-024-GW	5/10/2012	9.7	4.79	0.517	0.2	-21.3
	13-RT-004-GW	4/11/2013	5.4	1.2	0.842	0.41	-8.8
	14-RT-023-GW	4/22/2014	7.2	5.8	0.809	0.15	-170.8

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-25	00-RT-068-GW	6/9/2000	6.51	4.7	.338	5.9	---
	00-RT-126-GW	9/29/2000	6.17	6.8	.44	5	---
	01-RT-020-GW	1/10/2001	6.46	5.1	.344	2.72	269
	01-RT-022-GW	1/10/2001	6.46	5.1	.344	2.72	269
	01-RT-042-GW	3/22/2001	6.60	2.8	.422	1.9	86.8
	01-RT-077-GW	6/25/2001	8.8	7.4	.462	0.6	132
	01-RT-109-GW	10/17/2001	6.67	7	1.16	0.54	-0.7
	01-RT-133-GW	1/16/2002	6.97	2.1	.82	1.61	8.94
	02-RT-016-GW	3/13/2002	5.74	2.9	1.22	0.6	---
	02-RT-017-GW	3/13/2002	5.74	2.9	1.22	---	---
	02-RT-049-GW	6/18/2002	7.03	6.5	0.557	0.42	-59.6
	02-RT-071-GW	9/27/2002	6.65	8.1	0.860	0.25	-13.6
	02-RT-108-GW	12/19/2002	6.95	3.9	0.708	0.68	-30.6
	03-RT-013-GW	3/11/2003	6.9	4.1	.697	0.04	0
	03-RT-042-GW	6/18/2003	6.81	5.8	.47	0.04	-9
	04-RT-003-GW	1/21/2004	6.69	5.46	0.317	0.6	-70.7
	04-RT-014-GW	3/31/2004	6.81	2.78	0.275	0.2	-53.9
	04-RT-033-GW	6/8/2004	6.77	6.8	0.221	0.45	-69.1
	04-RT-049-GW	10/30/2004	6.28	8.14	0.327	0.41	116.2
	05-RT-003-GW	2/23/2005	---	3.98	0.205	1.35	-126.5
	05-RT-029-GW	6/3/2005	---	5.91	0.325	0.26	-170.1
	05-RT-046-GW	10/12/2005	6.22	8.16	0.495	1.07	-9.3
	06-RT-009-GW	5/24/2006	6.21	5.33	0.38	0.91	28.3
	06-RT-031-GW	9/12/2006	6.41	8.2	0.302	0.51	-31.3
	07-RT-003-GW	5/29/2007	6.49	3.87	0.257	1.88	45
	07-RT-023-GW	9/18/2007	6.26	7.76	0.177	0.43	89.6
	08-RT-003-GW	5/13/2008	8.69	3.47	0.287	1.33	11.8
	08-RT-044-GW	9/19/2008	6.38	8.71	0.228	0.71	43.4
	09-RT-003-GW	5/5/2009	6.39	2.76	0.238	---	---
	09-RT-080-GW	10/8/2009	---	8.33	0.197	1.42	-13
	10-RT-051-GW	5/14/2010	6.4	5.06	0.17	0.72	51.8
	10-RT-082-GW	10/21/2010	5.6	6.73	0.203	0.5	-0.3
	12-RT-023-GW	5/10/2012	8.1	5.28	0.284	0.45	128.1
	13-RT-003-GW	4/11/2013	6.3	2	0.253	0.87	87.7
	14-RT-022-GW	4/24/2014	6.3	3.2	0.143	0.45	15.4

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Date Sampled	pH	Temperature (degrees C)	Conductivity (mS)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-21	00-RT-067-GW	6/9/2000	7.16	4.8	.389	0.91	---
	01-RT-023-GW	1/10/2001	7.23	4.4	.988	6.4	165
	01-RT-041-GW	3/22/2001	6.73	3.6	.459	1.05	-108.7
	01-RT-107-GW	10/17/2001	6.97	6.1	0.876	0.54	-91.8
	01-RT-151-GW	1/16/2002	6.63	5.1	.671	0.9	8.6
	02-RT-050-GW	6/18/2002	6.93	7	0.652	0.39	-104
	02-RT-092-GW	9/27/2002	6.72	8.5	0.576	0.38	68.5
	03-RT-065-GW	6/18/2003	7.51	7.4	1.15	0.12	-12.5
	03-RT-100-GW	10/7/2003	6.56	8.53	0.764	---	-160
	04-RT-031-GW	6/8/2004	6.62	6.1	0.697	0.59	-107
	04-RT-075-GW	10/22/2004	6.57	8.19	0.631	0.4	-143.6
	05-RT-030-GW	6/3/2005	---	6.8	1.252	0.38	-176.9
	05-RT-062-GW	10/12/2005	6.38	8.8	0.967	0.74	-73.8
	06-RT-050-GW	9/13/2006	5.83	7.68	0.350	0.54	-12.7
	07-RT-024-GW	9/20/2007	6.60	8.43	0.424	0.53	-13.5
	08-RT-045-GW	9/20/2008	6.29	7.21	0.314	0.79	-37.1
	09-RT-081-GW	10/8/2009	---	7.01	0.361	0.56	-79.9
	10-RT-101-GW	10/22/2010	6.2	7	0.358	1.64	-31.7
	12-RT-021-GW	5/10/2012	9.0	5.66	0.331	2.33	40.4

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Date Sampled	pH	Temperature (degrees C)	Conductivity (mS)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-42	02-RT-099-GW	11/2/2002	6.34	9.7	0.56	---	44.9
	02-RT-112-GW	12/19/2002	6.54	7.4	.392	0.24	-15.5
	03-RT-030-GW	3/11/2003	6.12	6.9	0.321	0.05	1
	03-RT-069-GW	6/18/2003	7.29	7.9	.31	0.85	-18.2
	03-RT-097-GW	10/7/2003	6.26	9.47	0.419	---	-109
	04-RT-035-GW	6/9/2004	6.21	7.41	0.237	0.83	-45.5
	04-RT-084-GW	10/22/2004	6.56	8.6	0.196	0.69	-119
	05-RT-032-GW	6/3/2005	---	8.17	0.326	0.31	-159.9
	05-RT-067-GW	10/12/2005	6.19	9.6	0.287	0.23	-32.9
	06-RT-024-GW	5/26/2006	5.88	7.27	0.370	0.43	18.1
	06-RT-058-GW	9/12/2006	6.09	9.88	0.314	0.53	9.9
	07-RT-016-GW	5/30/2007	6.60	6.07	0.429	0.68	-5.6
	07-RT-026-GW	9/20/2007	6.38	9.01	0.266	0.59	88.5
	08-RT-004-GW	5/13/2008	7.10	7.16	0.281	0.81	6
	08-RT-048-GW	9/18/2008	6.31	8.69	0.208	0.68	76.9
	09-RT-004-GW	5/5/2009	6.02	5.66	0.289	---	---
	09-RT-083-GW	10/8/2009	---	8.31	0.198	0.54	-8.9
	10-RT-052-GW	5/14/2010	6.4	6.14	0.199	0.78	14.8
	10-RT-083-GW	10/18/2010	6.2	7.94	0.126	0.41	-190.4
	12-RT-003-GW	5/9/2012	4.4	5.89	0.164	1.6	73.5
	13-RT-017-GW	4/11/2013	6.6	2.9	0.267	0.48	-62.9
	14-RT-003-GW	4/22/2014	6.4	5.1	0.135	1.6	-122.4

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Lower (Phase II) Plume

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-10	00-RT-053-GW	6/7/2000	6.71	5.2	.385	0.69	---
	00-RT-118-GW	9/28/2000	6.67	7.2	.405	0.5	---
	01-RT-013-GW	1/10/2001	6.61	4.6	1.07	5.15	-29
	01-RT-048-GW	3/22/2001	6.47	2.1	.839	1.08	-78
	01-RT-081-GW	6/25/2001	---	5.9	.971	0.67	-56
	01-RT-100-GW	10/16/2001	4.88	6.8	2.42	0.55	-13
	01-RT-140-GW	1/15/2002	4.5	5	.8	1.31	104
	02-RT-010-GW	3/13/2002	6.10	3.5	2.98	0.55	---
	02-RT-051-GW	6/19/2002	5.58	6.3	1.6	0.33	54.1
	02-RT-076-GW	9/26/2002	5.66	8	0.755	0.68	34.6
	02-RT-120-GW	12/19/2002	6.05	3.8	0.595	0.24	8
	03-RT-021-GW	3/11/2003	6.45	3.8	.99	0.23	16
	03-RT-044-GW	6/18/2003	7.8	7.7	1.39	0.08	24.2
	03-RT-118-GW	10/8/2003	5.95	7.82	0.433	---	-18
	04-RT-005-GW	1/20/2004	6.24	4.9	0.514	0.1	-48.1
	04-RT-016-GW	3/30/2004	6.21	1.78	0.208	1	-1.7
	04-RT-039-GW	6/8/2004	6.20	5.09	0.314	0.53	-43.9
	04-RT-050-GW	10/29/2004	6.11	7.17	0.350	1.3	18.5
	05-RT-004-GW	2/24/2005	---	4.12	0.321	0.71	-50
	05-RT-033-GW	6/2/2005	9.08	6.14	0.891	0.44	-138.3
	05-RT-047-GW	10/11/2005	5.95	8.12	0.560	0.44	-13.7
	06-RT-010-GW	5/25/2006	6.38	5.14	1.310	1.06	-45.8
	06-RT-043-GW	9/13/2006	5.70	7.52	0.487	0.4	12.8
	07-RT-037-GW	9/18/2007	6.14	9.71	0.162	0.7	22.4
	08-RT-054-GW	9/19/2008	5.73	9.51	0.196	0.58	81.6
	09-RT-088-GW	10/7/2009	---	8.69	0.129	3.28	45.4
	10-RT-107-GW	10/21/2010	6.3	8.01	0.347	0.27	-89
	12-RT-031-GW	5/10/2012	8.7	5.25	0.586	1.11	84.9

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-4A	00-RT-048-GW	6/7/2000	6.16	5.8	.203	0.8	---
	00-RT-119-GW	9/28/2000	6.2	9.1	.24	2.7	---
	01-RT-017-GW	1/10/2001	6.21	5.2	.364	0.47	253
	01-RT-019-GW	1/10/2001	6.21	5.2	.364	0.47	253
	01-RT-047-GW	3/22/2001	6.05	2.9	.215	2.14	113.9
	01-RT-080-GW	6/25/2001	---	7.4	.228	0.47	169
	01-RT-097-GW	10/15/2001	5.64	8.6	0.673	5.93	-37.7
	01-RT-139-GW	1/15/2002	6.34	5	.409	1.25	-7.5
	02-RT-012-GW	3/13/2002	6.42	4.3	0.607	0	---
	02-RT-048-GW	6/19/2002	6.26	7	0.376	0.5	-2.6
	02-RT-065-GW	9/27/2002	6.22	8.6	0.496	0.42	34.2
	02-RT-115-GW	12/19/2002	6.13	5.5	.554	0.24	8.01
	03-RT-015-GW	3/11/2003	5.85	4	.243	0.15	49.3
	03-RT-034-GW	6/17/2003	6.28	6.3	.449	0.23	14.4
	04-RT-004-GW	1/20/2004	6.14	5.81	0.377	0.2	-54.2
	04-RT-015-GW	3/31/2004	6.05	3.91	0.552	0.2	-0.3
	04-RT-036-GW	6/8/2004	5.78	5.48	0.486	1	7.8
	04-RT-051-GW	10/29/2004	5.90	8.25	0.576	0.51	-46.3
	05-RT-005-GW	2/23/2005	---	5.39	0.389	0.96	-108
	05-RT-048-GW	10/11/2005	5.90	8.32	0.664	0.53	-27.3
	06-RT-011-GW	5/25/2006	6.00	4.68	1.306	0.75	22.5
	06-RT-044-GW	9/12/2006	5.66	7.27	0.547	0.42	56.3
	07-RT-027-GW	9/18/2007	6.4	7.55	0.752	0.66	-38.3
	08-RT-016-GW	5/13/2008	4.64	3.85	0.632	0.58	26.5
	08-RT-030-GW	9/17/2008	6.27	9.75	0.63	0.54	10.4
	09-RT-084-GW	10/7/2009	---	9.05	0.494	0.32	24.4
	10-RT-103-GW	10/21/2010	5.8	8.48	0.533	1.09	78.2
	12-RT-027-GW	5/9/2012	6.6	6.16	0.365	0.38	150.3
	13-RT-036-GW	4/10/2013	6.1	0.5	.081	7.8	81.9

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
	Lower Plume						
MW-26	00-RT-059-GW	6/8/2000	6.78	6.5	.130	0.81	---
	01-RT-115-GW	10/17/2001	6.83	7.6	.133	0.66	52.9
	02-RT-085-GW	9/26/2002	6.8	10.4	0.051	6.33	102.9
	04-RT-057-GW	10/30/2004	6.29	8.33	0.049	8.74	168
	05-RT-064-GW	10/12/2005	6.28	10.84	0.071	6.9	61.6
	06-RT-053-GW	9/13/2006	6.15	12.14	0.072	9.15	115.2
	08-RT-059-GW	9/18/2008	6.06	11.46	0.142	7.55	73.9
	10-RT-113-GW	10/21/2010	6.4	8.41	0.129	5.2	-48.4
	13-RT-005-GW	4/10/2013	6.8	2	0.439	1.52	36.9
	14-RT-024-GW	4/22/2014	6.4	4.9	0.110	7.1	13.4

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-39	00-RT-106GW	9/27/2000	6.41	8.5	.287	1.25	---
	00-RT-134-GW	11/28/2000	6.26	6.6	.459	5.44	---
	01-RT-005-GW	1/11/2001	6.31	6.1	.318	1.63	29.1
	01-RT-034-GW	3/8/2001	6.23	5.7	.293	1.14	98.2
	01-RT-074-GW	5/22/2001	6.57	8.3	.16	0.87	6.8
	01-RT-092-GW	10/16/2001	5.14	7.2	1.347	0.64	3
	01-RT-131-GW	1/15/2002	5.4	5	.38	0.78	28.9
	02-RT-063-GW	9/27/2002	6.23	7.6	1.17	0.62	-3.76
	02-RT-104-GW	12/18/2002	6.29	5	0.820	0.38	-6.5
	03-RT-003-GW	2/4/2003	6.75	5.7	1.02	0.67	-8.6
	03-RT-027-GW	3/11/2003	6.54	5.2	.902	0.31	6.98
	03-RT-039-GW	6/17/2003	6.3	6.3	.72	0.13	-6.9
	04-RT-008-GW	1/21/2004	6.22	6.1	0.412	0.15	-49.3
	04-RT-019-GW	3/31/2004	6.32	3.31	0.394	0.6	-28.7
	04-RT-028-GW	6/8/2004	6.20	5.44	0.408	---	-41.3
	04-RT-055-GW	10/29/2004	6.00	7.82	0.384	1.35	-18.6
	05-RT-009-GW	2/23/2005	---	5.25	0.449	0.72	-113
	05-RT-023-GW	6/2/2005	---	5.72	0.715	0.53	-300.3
	05-RT-051-GW	10/11/2005	5.82	9.04	0.566	0.56	-37.3
	06-RT-003-GW	3/8/2006	5.54	3.98	0.644	0.65	55.4
	06-RT-014-GW	5/24/2006	5.83	5.33	0.798	0.72	-9.9
	06-RT-035-GW	9/11/2006	5.85	8.07	0.424	0.32	-3.4
	07-RT-006-GW	5/30/2007	6.57	5.42	2.901	0.79	-23.7
	07-RT-033-GW	9/18/2007	5.70	6.68	1.346	0.74	-6.2
	08-RT-006-GW	5/12/2008	6.83	5.1	1.003	0.94	23.2
	08-RT-032-GW	9/17/2008	6.04	7.8	0.624	1.15	-36.3
	09-RT-008-GW	5/6/2009	6.34	4.26	1.11	---	---
	09-RT-067-GW	10/6/2009	---	6.39	0.571	1.58	-41.7
	10-RT-042-GW	5/12/2010	5.5	4.78	1.271	0.4	-9.9
	10-RT-086-GW	10/20/2010	6.4	6.05	1.972	2.8	-32.1
	12-RT-006-GW	5/8/2012	6.6	8.26	0.716	0.1	58
	13-RT-020-GW	4/9/2013	6.1	2.6	1.294	1.45	-37.2
	14-RT-006-GW	4/23/2014	6.3	5.2	0.868	0.36	-49.4

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-44	02-RT-100-GW	11/2/2002	7.97	6.9	0.910	---	32
	02-RT-105-GW	12/18/2002	7.67	4.7	0.811	2.5	200.6
	03-RT-029-GW	3/11/2003	8.37	5.5	.736	7.65	7
	03-RT-052-GW	6/19/2003	8.92	6.9	.621	2.02	89
	04-RT-042-GW	6/8/2004	7.33	6.18	0.253	2.39	-45.8
	04-RT-058-GW	10/29/2004	7.88	6.69	0.466	0.82	54.2
	05-RT-037-GW	6/3/2005	8.78	6.18	0.758	0.9	-185.2
	05-RT-053-GW	10/12/2005	7.83	6.23	0.461	0.34	-102.8
	06-RT-005-GW	3/7/2006	7.82	5.08	0.666	0.3	37
	06-RT-017-GW	5/24/2006	7.43	7.12	0.419	0.58	-96.2
	06-RT-037-GW	9/12/2006	7.43	7.49	0.246	0.31	-109.8
	07-RT-009-GW	5/30/2007	7.89	6.03	0.825	1.09	-157.7
	07-RT-035-GW	9/18/2007	7.3	6.42	1.051	0.63	45.1
	08-RT-008-GW	5/12/2008	7.51	5.3	0.438	1.17	31.9
	08-RT-034-GW	9/17/2008	7.59	7.07	0.807	0.38	-179.8
	09-RT-010-GW	5/6/2009	6.21	4.3	0.395	---	---
	09-RT-069-GW	10/6/2009	---	5.95	0.512	0.44	-132.2
	10-RT-044-GW	5/12/2010	7.0	5.77	0.662	0.21	-73.2
	10-RT-088-GW	10/20/2010	7.6	4.63	1.166	0.58	-55.5
	12-RT-008-GW	5/8/2012	7.2	8	1.652	0.07	-15.3
	13-RT-018-GW	4/9/2013	7.0	3	1.218	0.26	-51.2
	14-RT-008-GW	4/23/2014	7.1	4.1	0.122	0.82	-25.8
MW-45	03-RT-093-GW	10/9/2003	8.3	6.99	0.616	---	-68
	04-RT-043-GW	6/8/2004	7.77	5.62	0.445	0.17	-111.9
	04-RT-059-GW	10/29/2004	7.79	6.31	0.468	0.55	-9.1
	05-RT-038-GW	6/3/2005	---	5.96	0.785	0.26	-229.6
	06-RT-039-GW	9/12/2006	7.58	5.82	0.443	2.64	-27.8
	12-RT-035-GW	5/9/2012	8.3	6.13	0.949	0.31	32.4
	13-RT-011-GW	4/9/2013	7.8	3.3	0.776	0.18	-120.9
MW-46	04-RT-044-GW	6/8/2004	6.95	6.02	0.111	1.97	-31.9
	04-RT-060-GW	10/29/2004	7.60	6.65	0.304	3.26	66.2
	05-RT-039-GW	6/3/2005	8.68	7.81	0.219	0.58	-209.7
	06-RT-040-GW	9/12/2006	7.44	6.04	0.425	0.42	-59.9
	12-RT-036-GW	5/9/2012	4.1	5.36	0.414	0.14	91.8

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Date Sampled	pH	Temperature (degrees C)	Conductivity (mS)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-47	06-RT-038-GW	10/4/2006	6.35	7.87	0.866	1.41	-54.3
	07-RT-010-GW	5/30/2007	6.88	6.66	3.351	0.82	-74.9
	07-RT-036-GW	9/19/2007	6.25	8.53	2.062	0.66	-68.4
	08-RT-009-GW	5/12/2008	6.98	4.41	1.912	1.43	13.4
	08-RT-035-GW	9/17/2008	6.07	8.04	2.429	1.9	-44.8
	09-RT-011-GW	5/6/2009	6.19	4.86	3.579	---	---
	09-RT-070-GW	10/6/2009	---	6.65	2.1	0.47	-97.1
	10-RT-045-GW	5/11/2010	5.7	5.83	2.137	1.37	-94.2
	10-RT-089-GW	10/19/2010	5.4	5.59	3.398	0.33	-49.5
	11-RT-001-GW	5/17/2011	5.6	7.28	5.795	0.68	-40.9
	12-RT-009-GW	5/8/2012	5.8	10.2	6.294	0.05	4.7
	13-RT-025-GW	4/10/2013	5.6	3.5	2.136	1.35	50.9
	14-RT-009-GW	4/23/2014	6.5	5.4	0.365	0.3	-106.9
MW-48	09-RT-043-GW	8/17/2009	7.43	8.08	0.46	1.54	-86.3
	09-RT-071-GW	10/6/2009	---	6.9	3.9	0.4	152.1
	10-RT-046-GW	5/12/2010	5.6	6.23	0.468	0.21	5.2
	10-RT-090-GW	10/19/2010	6.3	7.35	0.126	0.49	-148.7
	11-RT-002-GW	5/18/2011	5.7	5.28	1.496	0.88	17.9
	12-RT-010-GW	5/8/2012	5.6	7.34	1.928	0.05	50.6
	13-RT-026-GW	4/10/2013	5.7	3.2	1.450	0.67	-0.2
	14-RT-010-GW	4/22/2014	6.0	5.2	4.033	1.7	-84.3
MW-49	09-RT-044-GW	8/17/2009	7.34	8.7	0.72	4.28	-102.4
	09-RT-072-GW	10/6/2009	---	6.24	1.34	0.4	-88.6
	10-RT-047-GW	5/13/2010	6.6	5.7	2.693	0.64	-78.7
	10-RT-091-GW	10/19/2010	6.4	6.26	3.040	0.14	-155.7
	11-RT-003-GW	5/18/2011	6.5	6.4	3.773	0.62	-127
	12-RT-011-GW	5/9/2012	8.5	5.12	5.466	0.86	-31.1
	13-RT-027-GW	4/10/2013	6.4	3.4	4.842	1.3	-82.1
	14-RT-011-GW	4/23/2014	6.8	5.3	3.506	0.78	-84.5

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-50	09-RT-045-GW	8/17/2009	8.2	8.21	0.646	8.43	0.7
	09-RT-073-GW	10/6/2009	---	6.33	0.672	0.41	-147.7
	10-RT-048-GW	5/12/2010	7.9	6.33	0.836	0.4	-107.4
	10-RT-092-GW	10/20/2010	6.6	5.52	0.662	0.7	-156.3
	11-RT-004-GW	5/17/2011	6.8	6.5	1.346	1.05	-99.8
	12-RT-012-GW	5/8/2012	9.1	7.65	1.329	0.29	-56.5
	13-RT-028-GW	4/10/2013	7.0	3.7	1.365	0.69	-25.8
	14-RT-012-GW	4/22/2014	6.3	5.2	0.132	2.1	-33.4
MW-51	10-RT-093-GW	10/19/2010	7.0	7	1.575	5.14	-103.8
	11-RT-005-GW	5/18/2011	7.0	5.94	1.599	0.75	-161
	12-RT-013-GW	5/9/2012	5.2	5.17	1.230	0.28	120.9
	13-RT-029-GW	4/10/2013	7.0	2.4	0.890	0.2	-69.4
	14-RT-013-GW	4/22/2014	6.4	5.2	0.051	3.1	27.1
MW-52	10-RT-094-GW	10/19/2010	7.6	6.37	0.637	0.24	-152.1
	11-RT-006-GW	5/17/2011	8.2	8.77	1.029	0.56	-168
	12-RT-014-GW	5/8/2012	10.9	7.64	0.875	0.21	-116
	13-RT-030-GW	4/10/2013	8.1	2.6	1.673	0.21	-84.2
	14-RT-014-GW	4/23/2014	6.3	5.4	0.303	0.26	-20.7
L-13	03-RT-008-GW	3/10/2003	6.44	3.7	.74	---	74.7
	03-RT-037-GW	6/17/2003	6.13	6.5	.697	0.47	22.7
L-78	08-RT-010-GW	6/26/2008	6.53	8.58	0.458	0.11	-22.1
	08-RT-036-GW	9/18/2008	5.79	7.32	5.840	2.07	-125.2
	09-RT-074-GW	10/7/2009	---	6.66	5.12	0.68	-98.6
	10-RT-062-GW	5/13/2010	6.1	6.29	5.304	0.68	-117.7
	10-RT-095-GW	10/20/2010	5.7	7.58	5.778	0.57	-152
	11-RT-010-GW	5/17/2011	5.0	7.03	12.11	1.5	-245
	12-RT-015-GW	5/9/2012	5.6	11.75	7.728	1.43	152.5
	13-RT-031-GW	4/9/2013	6.1	2.9	10.54	0.39	-162.9
	14-RT-015-GW	4/23/2014	6.1	6.6	8.532	0.15	-147.7
L-79	08-RT-011-GW	5/13/2008	4.93	5.95	6.402	0.91	83.1

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
L-100	10-RT-054-GW	5/12/2010	5.3	5.57	4.895	1.27	-85.1
	10-RT-096-GW	10/20/2010	4.5	6.53	3.400	0.3	-77.6
	11-RT-007-GW	5/17/2011	5.0	7.44	3.152	0.75	-128
	12-RT-016-GW	5/9/2012	5.8	7.74	2.079	0.1	126.4
	13-RT-023-GW	4/10/2013	5.0	3	0.876	0.49	75.2
	14-RT-016-GW	4/22/2014	6.8	7.4	0.300	0.25	-104
L-101	10-RT-097-GW	10/20/2010	7.4	6.78	1.001	0.48	-126.7
	11-RT-011-GW	5/17/2011	7.1	6.78	1.306	1.06	-170
	12-RT-017-GW	5/8/2012	7.2	13.33	7.653	1.18	1.8
	13-RT-024-GW	4/10/2013	4.9	1.9	10.61	1.28	-76
	14-RT-017-GW	4/23/2014	5.8	5.5	6.425	0.22	-205.3
L-102	14-RT-019-GW	4/22/2014	5.0	5.8	7.42	0.48	-119.1
L-103	14-RT-020-GW	4/23/2014	5.1	4.4	4.466	1.23	-335.6

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Date Sampled	pH	Temperature (degrees C)	Conductivity (mS)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-9	00-RT-051-GW	6/7/2000	6.43	5.2	.294	2.3	---
	00-RT-107GW	9/27/2000	6.38	7.2	.359	0.75	---
	00-RT-133-GW	11/28/2000	5.57	6.6	1.07	0.67	---
	01-RT-003-GW	1/11/2001	5.67	6.4	1.11	1.18	35.8
	01-RT-004-GW	1/11/2001	5.67	6.4	1.11	1.18	35.8
	01-RT-033-GW	3/8/2001	5.57	5	1.01	1.32	48.9
	01-RT-068-GW	5/22/2001	5.98	5.8	.437	0.82	6.4
	01-RT-091-GW	10/16/2001	5.4	6.7	2.86	0.88	-11.1
	01-RT-129-GW	1/15/2002	5.41	5.4	2.15	0.48	32.6
	02-RT-001-GW	3/13/2002	6.02	2.1	1.10	0.4	---
	02-RT-041-GW	6/19/2002	5.31	5.9	1.5	0.36	63.9
	02-RT-062-GW	9/27/2002	5.75	7.2	0.859	0.06	5.91
	02-RT-102-GW	12/18/2002	5.86	5.1	0.753	0.35	0.4
	03-RT-001-GW	2/4/2003	5.79	6	0.752	4.37	27.8
	03-RT-007-GW	3/10/2003	5.71	4.4	1.04	0.52	74.8
	03-RT-036-GW	6/17/2003	6.23	5.7	.715	0.2	27.4
	03-RT-095-GW	10/8/2003	6.02	6.93	0.925	---	-64
	04-RT-007-GW	1/21/2004	5.92	5.77	1.09	0.05	-70.6
	04-RT-018-GW	3/31/2004	5.91	4.11	0.873	0.2	7.1
	04-RT-027-GW	6/8/2004	5.61	4.96	0.979	0.6	7.6
	04-RT-054-GW	10/29/2004	5.51	7.19	0.966	0.6	21.7
	05-RT-008-GW	2/24/2005	---	4.79	0.767	0.6	-51.5
	05-RT-022-GW	6/2/2005	7.56	5.23	1.001	0.68	-84.2
	05-RT-050-GW	10/11/2005	5.55	7.08	0.963	0.54	-11.7
	06-RT-002-GW	3/8/2006	5.94	4.34	1.129	0.29	22.5
	06-RT-013-GW	5/25/2006	5.98	6.29	0.842	0.63	33.8
	06-RT-034-GW	9/11/2006	5.77	6.6	0.656	0.67	-13.8
	07-RT-005-GW	5/30/2007	5.74	4.5	1.937	1.04	61.4
	07-RT-032-GW	9/19/2007	5.54	6.16	0.846	1.18	-3.2
	08-RT-005-GW	5/12/2008	6.44	3.69	0.901	1.54	74.6
	08-RT-031-GW	9/16/2008	5.08	6.3	0.95	2.02	73.8
	09-RT-007-GW	5/6/2009	5.43	4.1	1.214	---	---
	09-RT-066-GW	10/5/2009	7.52	7.24	0.583	0.39	-18.6
	10-RT-041-GW	5/11/2010	5.9	4.84	0.537	0.16	1.9
	10-RT-085-GW	10/20/2010	5.4	5.61	0.321	0.46	-163.2
	12-RT-005-GW	5/8/2012	6.3	5.32	0.424	0.27	101.4

Table C-1: June 2000 through April 2014 Performance Monitoring
Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-9	13-RT-019-GW	4/9/2013	6.1	3.5	0.979	0.24	-48
	14-RT-005-GW	4/23/2014	6.8	4.2	0.994	0.71	-83
MW-40	00-RT-108GW	9/27/2000	6.36	6.8	.344	0.75	---
	00-RT-132-GW	11/28/2000	5.59	6.6	0.91	0.61	---
	01-RT-002-GW	1/11/2001	5.52	6.5	1.08	4.38	95
	01-RT-032-GW	3/8/2001	5.53	4.8	1.06	0.89	39.2
	01-RT-075-GW	5/22/2001	6.03	6.7	.477	0.47	-22.1
	01-RT-090-GW	10/16/2001	5.4	6	2.0	0.76	10.4
	01-RT-130-GW	1/15/2002	5.58	4.8	2.11	1.03	55.6
	02-RT-042-GW	6/19/2002	5.44	5.6	2.12	0.2	26.8
	02-RT-064-GW	9/27/2002	5.89	7.3	.737	0.66	6.09
	02-RT-103-GW	12/18/2002	5.96	3.5	1.18	0.19	-52.6
	03-RT-002-GW	2/4/2003	6.37	5.5	1.59	0.21	46
	03-RT-028-GW	3/11/2003	5.86	4.9	1.60	0.59	52.8
	03-RT-035-GW	6/17/2003	6.31	5.5	1.18	0.51	31.5
	04-RT-009-GW	1/21/2004	6.11	5.56	0.841	0.1	-62.3
	04-RT-020-GW	3/30/2004	6.13	1.79	0.659	0.8	-19.2
	04-RT-029-GW	6/8/2004	6.00	5.06	0.858	0.32	-49.3
	04-RT-056-GW	10/29/2004	5.93	7.13	0.880	0.56	24.2
	05-RT-010-GW	2/24/2005	---	4.41	0.714	0.73	-81.8
	05-RT-024-GW	6/2/2005	7.34	5.34	1.221	0.37	-125.5
	05-RT-052-GW	10/12/2005	6.01	7.22	0.931	0.28	-33.7
	06-RT-004-GW	3/8/2006	6.20	4.76	0.986	0.25	-32.4
	06-RT-015-GW	5/25/2006	6.16	5.11	0.817	1.42	-8.8
	06-RT-036-GW	9/12/2006	6.02	5.95	0.315	0.43	-25.6
	07-RT-007-GW	5/30/2007	6.48	3.98	1.135	0.88	-19.3
	07-RT-034-GW	9/19/2007	6.33	6.84	0.625	0.57	-63.7
	08-RT-007-GW	5/12/2008	7.21	4.49	0.769	1.05	5.4
	08-RT-033-GW	9/17/2008	6.11	6.16	0.627	1.29	-55
	09-RT-009-GW	5/6/2009	6.32	3.99	1.153	---	---
	09-RT-068-GW	10/7/2009	---	5.66	0.341	0.43	-33.5
	10-RT-043-GW	5/13/2010	6.3	4.47	0.365	0.6	-27.2
	10-RT-087-GW	10/20/2010	6.9	6.83	0.286	0.25	-130.8
	12-RT-007-GW	5/7/2012	6.8	4.58	0.279	0.79	72.9
	13-RT-021-GW	4/9/2013	6.3	2.3	0.754	0.51	-55
	14-RT-007-GW	4/23/2014	6.3	4.9	0.601	0.4	-66.3

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Date Sampled	pH	Temperature (degrees C)	Conductivity (mS)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-6	00-RT-045-GW	6/7/2000	6.39	5.3	.237	0.68	---
	00-RT-109GW	9/27/2000	6.4	7.2	.303	4	---
	00-RT-130-GW	11/28/2000	6.36	4.9	1.08	0.6	---
	00-RT-131-GW	11/28/2000	6.36	4.9	1.08	0.6	---
	00-RT-139-GW	11/28/2000	6.36	4.9	1.08	0.6	---
	01-RT-001-GW	1/11/2001	6.04	3.4	1.54	1.27	26.5
	01-RT-030-GW	3/8/2001	6.28	2.9	1.20	0.84	-29.2
	01-RT-076-GW	5/22/2001	6.31	4.6	.535	0.35	-45.7
	01-RT-089-GW	10/16/2001	6.05	6.7	3.02	0.78	-49.3
	01-RT-128-GW	1/15/2002	5.24	2.9	1.87	3.3	8.5
	02-RT-002-GW	3/13/2002	5.56	2.1	1.75	0.1	---
	02-RT-040-GW	6/19/2002	5.92	6.2	1.39	0.2	-4.1
	02-RT-061-GW	9/27/2002	6.04	8.7	1.71	0.22	-43.2
	02-RT-116-GW	12/18/2002	5.90	3.7	1.19	0.18	-37.3
	03-RT-004-GW	2/4/2003	6.31	3.8	1.3	0.17	32.8
	03-RT-016-GW	3/11/2003	6.21	3	1.39	0.48	19.9
	03-RT-032b-G	6/17/2003	6.48	5.8	1.00	0.32	-15.4
	04-RT-010-GW	1/20/2004	6.24	3.81	0.512	0.8	-67.7
	04-RT-021-GW	3/29/2004	6.33	1.93	0.002	0.6	-24.8
	04-RT-025-GW	6/7/2004	6.15	5.41	0.436	0.68	-73.2
	04-RT-052-GW	10/30/2004	5.84	7.12	0.641	0.99	199.9
	05-RT-006-GW	2/24/2005	---	2.78	0.441	0.79	-36.7
	05-RT-020-GW	6/2/2005	---	6.32	0.737	0.36	-131.7
	05-RT-049-GW	10/11/2005	6.07	9.14	0.757	0.45	-23.6
	06-RT-012-GW	5/25/2006	6.17	4.3	0.628	0.47	-20.7
	06-RT-033-GW	9/11/2006	5.39	8.27	0.442	0.79	-20.1
	07-RT-004-GW	5/30/2007	6.70	2.16	1.235	1.34	-41.4
	07-RT-031-GW	9/19/2007	6.31	8.62	0.621	0.45	-58.2
	08-RT-018-GW	5/13/2008	4.85	3.21	0.784	0.53	3.7
	08-RT-051-GW	9/19/2008	6.05	8.51	0.525	0.35	5.8
	09-RT-005-GW	5/6/2009	6.24	2.49	0.842	---	---
	09-RT-065-GW	10/7/2009	---	7.42	0.469	0.34	-49.7
	10-RT-040-GW	5/13/2010	6.5	2.78	0.384	0.94	-36.5
	10-RT-084-GW	10/20/2010	6.7	7.55	0.417	0.35	-89.6
	12-RT-004-GW	5/8/2012	8.8	5.4	0.315	0.65	3.9
	13-RT-022-GW	4/11/2013	6.0	2.4	0.588	1.2	-8.5

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-6	14-RT-004-GW	4/24/2014	6.2	2.7	0.360	0.71	-81.6
MW-5	00-RT-054-GW	6/7/2000	6.39	8.1	.14	6.28	---
	01-RT-119-GW	10/18/2001	6.23	5.2	0.315	0.89	9.8
	02-RT-073-GW	9/26/2002	5.60	9.3	0.154	0.39	80.7
	03-RT-115-GW	10/8/2003	5.60	8.56	0.157	---	174
	04-RT-068-GW	10/23/2004	6.17	6.8	0.122	3.62	37.4
	06-RT-045-GW	9/13/2006	5.65	10.62	0.214	0.93	71.4
	07-RT-028-GW	9/20/2007	5.76	8.77	0.142	2.35	101.2
	08-RT-050-GW	9/20/2008	5.77	8.61	0.198	0.69	47.8
MW-7	00-RT-046-GW	6/7/2000	6.22	5.4	.245	0.7	---
	01-RT-016-GW	1/11/2001	6.41	4	.691	1.38	-8.1
	01-RT-055-GW	3/22/2001	6.38	3.7	.480	1.27	27.7
	01-RT-123-GW	10/18/2001	6.13	6.9	1.22	0.8	-50.8
	01-RT-144-GW	1/16/2002	6.21	2.6	.681	5	-33
	02-RT-011-GW	3/14/2002	5.81	4.5	2.82	0.15	---
	02-RT-053-GW	6/19/2002	6.12	8	1.2	0.09	-24.5
	02-RT-074-GW	9/26/2002	6.02	8.7	0.783	0.25	-38.4
	02-RT-117-GW	12/18/2002	6.23	2.7	0.614	0.26	-38.2
	03-RT-019-GW	3/11/2003	6.32	2.9	.793	0.76	38
	03-RT-046-GW	6/18/2003	8.64	5.6	.610	0.26	13
	03-RT-120-GW	10/9/2003	6.25	7.68	0.543	---	-90
	04-RT-037-GW	6/7/2004	6.17	5.01	0.586	0.45	-92.5
	04-RT-069-GW	10/23/2004	6.29	7.35	0.433	0.88	-36.8
	05-RT-036-GW	6/2/2005	7.36	5.37	0.966	0.75	-93
	05-RT-057-GW	10/12/2005	6.02	8.29	0.799	0.32	-9.7
	06-RT-020-GW	5/25/2006	6.75	4.49	0.554	0.58	-12.5
	06-RT-032-GW	9/11/2006	6.26	8.24	0.449	0.59	-52.8
	07-RT-029-GW	9/19/2007	6.33	8.32	0.841	0.4	-63.4
	08-RT-052-GW	9/19/2008	6.16	8.06	0.693	0.85	-18.5
	09-RT-086-GW	10/8/2009	---	7.05	0.458	0.34	-52.5
	10-RT-105-GW	10/21/2010	6.3	6.81	0.494	0.36	-83.8
	12-RT-029-GW	5/10/2012	8.9	4.44	0.404	0.5	29.3

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	Sample ID	Date Sampled	pH	Temperature (degrees C)	Conductivity (mS)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-8	00-RT-052-GW	6/7/2000	6.28	5.6	.287	0.5	---
	01-RT-014-GW	1/10/2001	6.03	3.7	2.03	0.7	85
	01-RT-051-GW	3/22/2001	5.96	2	.827	---	57.4
	01-RT-124-GW	10/18/2001	5.49	4.3	2.53	0.36	25.6
	01-RT-147-GW	1/16/2002	5.91	2.9	1.58	2.06	6.46
	02-RT-003-GW	3/13/2002	5.08	2.6	2.52	0.2	---
	02-RT-054-GW	6/19/2002	5.86	6.9	1.48	0.17	-1.7
	02-RT-119-GW	12/18/2002	5.97	3.9	1.34	0.14	29.3
	03-RT-020-GW	3/11/2003	6.26	3.3	1.63	0.34	27.9
	03-RT-045-GW	6/18/2003	8.32	6.6	1.46	0.11	18
	03-RT-117-GW	10/8/2003	6.36	7.92	0.718	---	-98
	04-RT-038-GW	6/7/2004	6.67	6.18	0.359	0.5	-51.5
	04-RT-070-GW	10/23/2004	6.45	7.39	0.362	0.47	-64.8
	05-RT-013-GW	2/22/2005	8.72	3.65	0.638	0.58	-120.5
	05-RT-058-GW	10/12/2005	5.95	8.07	0.534	0.38	-7.8
	06-RT-046-GW	9/13/2006	6.38	7.04	0.890	0.52	-74.5
	07-RT-030-GW	9/19/2007	6.13	8.74	0.268	2.06	-5.3
	08-RT-053-GW	9/19/2008	6.02	9.97	0.437	0.44	12.8
	09-RT-087-GW	10/8/2009	---	8.59	0.264	0.38	24.2
	10-RT-106-GW	10/21/2010	6.1	8.07	1.100	1.06	13.8
	12-RT-030-GW	5/10/2012	9.4	4.96	1.067	0.16	3.5

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-12	00-RT-056-GW	6/8/2000	5.92	5.4	.199	0.95	---
	01-RT-120-GW	10/18/2001	6.32	6.9	0.563	0.59	-4.7
	01-RT-143-GW	1/16/2002	6.02	2.6	0.389	1.92	6.5
	02-RT-007-GW	3/13/2002	6.47	2.2	0.513	0.25	---
	02-RT-052-GW	6/19/2002	6.25	6.9	0.391	0.72	-15.9
	02-RT-078-GW	9/26/2002	5.78	8.8	0.511	0.13	21.8
	02-RT-121-GW	12/19/2002	6.22	4.5	0.503	0.65	-33.5
	03-RT-022-GW	3/11/2003	6.47	3.7	.507	0.43	24.3
	03-RT-049-GW	6/18/2003	7.32	7.3	.603	0.09	12
	03-RT-110-GW	10/8/2003	6.08	7.7	0.533	---	-9
	04-RT-032-GW	6/8/2004	6.15	4.95	0.265	0.81	-21.7
	04-RT-072-GW	10/23/2004	6.29	7.32	0.210	0.58	-23.3
	05-RT-014-GW	2/22/2005	8.33	3.61	0.222	1.55	-33.6
	05-RT-059-GW	10/12/2005	5.90	8.38	0.528	0.62	48.2
	07-RT-038-GW	9/19/2007	5.81	10.31	0.141	2.54	23.3
	08-RT-055-GW	9/19/2008	5.73	10.51	0.199	0.39	111.5
	09-RT-089-GW	10/7/2009	---	7.98	0.272	0.36	-30.5
	10-RT-108-GW	10/21/2010	6.1	8.27	0.379	1.25	14.5
	12-RT-032-GW	5/10/2012	8.5	3.45	0.443	0.32	85
	13-RT-008-GW	4/9/2013	6.1	1.7	0.451	1.89	83.6
	14-RT-026-GW	4/24/2014	5.6	3.2	0.675	4.6	88.8

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-20	00-RT-044-GW	6/7/2000	6.41	5.5	.276	1.38	---
	01-RT-015-GW	1/11/2001	6.2	3.2	1.24	1.17	69
	01-RT-052-GW	3/22/2001	6.17	1.9	.700	---	---
	01-RT-126-GW	10/18/2001	6.21	4.9	1.44	1.07	-5.6
	01-RT-149-GW	1/16/2002	6.13	1.8	.287	4.92	6.6
	02-RT-004-GW	3/13/2002	5.23	1.7	1.46	0.25	---
	02-RT-005-GW	3/13/2002	5.23	1.7	1.46	0.25	---
	02-RT-056-GW	6/18/2002	6.37	8	1.09	0.26	-54.9
	02-RT-081-GW	9/26/2002	5.87	9.1	0.678	0.25	-12.9
	02-RT-124-GW	12/18/2002	6.05	2.1	0.771	0.16	-39.9
	03-RT-024-GW	3/11/2003	6.52	1.9	.791	0.23	-0.6
	03-RT-033-GW	6/17/2003	6.5	6.4	.451	0.6	7.2
	04-RT-006-GW	1/20/2004	6.01	2.64	0.227	0.6	47.6
	04-RT-017-GW	3/30/2004	6.53	0.77	0.117	0.4	-32.2
	04-RT-026-GW	6/8/2004	6.43	5.87	0.664	0.42	-94.8
	04-RT-053-GW	10/29/2004	6.11	6.32	0.477	1.05	98.5
	05-RT-007-GW	2/24/2005	---	2.45	0.269	0.53	-7.1
	05-RT-021-GW	6/2/2005	8.55	6.11	0.510	0.65	-66.3
	05-RT-061-GW	10/11/2005	5.91	8.12	0.456	0.7	20.2
	06-RT-016-GW	5/26/2006	6.29	5.5	0.807	1.14	-4
	06-RT-049-GW	9/13/2006	6.16	8.04	1.092	0.57	-39.6
	07-RT-039-GW	9/19/2007	5.86	9.22	0.532	3.85	16.1
	08-RT-017-GW	5/13/2008	5.57	6.6	0.971	3.42	28.1
	08-RT-057-GW	9/19/2008	5.67	10.42	0.420	0.48	87.9
	09-RT-090-GW	10/8/2009	---	8.37	0.491	0.99	-5
	10-RT-109-GW	10/21/2010	6.2	7.61	0.310	0.81	-80.9
	12-RT-033-GW	5/10/2012	8.5	5.68	0.426	1.94	71.1
	13-RT-010-GW	4/9/2013	6.1	0.6	0.068	9	462

Table C-1: June 2000 through April 2014 Performance Monitoring Groundwater Field Screening Data

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*pH*	*Temperature (degrees C)*	*Conductivity (mS)*	*Dissolved Oxygen (mg/L)*	*ORP (mV)*
MW-35	00-RT-074-GW	6/9/2000	6.4	8.2	.281	2.05	---
	01-RT-118-GW	10/18/2001	6.33	7	0.348	1.49	36.9
	02-RT-089-GW	9/26/2002	5.63	9.1	0.262	0.47	5.86
	03-RT-113-GW	10/8/2003	5.92	8.49	0.334	---	26
	04-RT-081-GW	10/23/2004	6.08	7.21	0.240	0.48	51.8
	05-RT-065-GW	10/12/2005	5.76	8.53	0.381	0.32	42.7
	06-RT-022-GW	5/25/2006	6.17	4.9	0.486	2.53	27.8
	06-RT-055-GW	9/13/2006	6.00	9.79	0.291	0.63	36
	07-RT-014-GW	5/31/2007	5.93	2.76	0.333	2.67	65.9
	07-RT-040-GW	9/20/2007	6.05	8.73	0.258	0.82	78.2
	08-RT-060-GW	9/20/2008	6.04	8.36	0.282	0.61	58.9
	09-RT-091-GW	10/8/2009	---	7.59	0.208	0.41	2.9
	10-RT-110-GW	10/21/2010	6.0	6.95	0.235	0.38	-44.6
	12-RT-034-GW	5/10/2012	8.6	3.21	0.325	1.2	74.7
	13-RT-006-GW	4/9/2013	5.0	1.8	0.397	0.66	81.1

Note: --- indicates that measurement is not available (No ORP data available for September or November 2000 or March 2002 due to ORP probe malfunction; no pH data available for June 2001 due to probe malfunction; no DO data available for September/October 2003 due to malfunction; no DO or ORP data available for May 2009 due to probe malfunction).

One set of historical (pre-performance monitoring) data is provided for comparison with data collected during Phase I and II performance monitoring.

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
Upper Plume																	
MW-36	00-RT-103GW	9/27/2000	144000	11000	5400	20000	<100	380	3870 VJ	34	235000		6200 VJ	8900	20	<10	<10
	00-RT-104GW	9/27/2000	142000	10000	4900	20000	<100	380	5240 VJ	39	223000		7580 VJ	9100	20	<10	<10
	00-RT-138-GW	11/28/2000	114000	15000	2000	20000	<100	580	1830	3420	79300	4210	6560	127000	10	<10	<10
	01-RT-009-GW	1/11/2001	235000	38000	6700	4000	<100	540	2860	40200	274000		27400	1160000	20	<5	<5
	01-RT-035-GW	3/8/2001	174000	22000	2400	7600	<200	480	2170	25800	111000	14200	17300	394000	40	<20	<20
	01-RT-073-GW	5/22/2001	96000	11700	5800	13000	1100	500	5330	11700	189000		7000	37700	31	<5	<5
	01-RT-096-GW	10/16/2001	374000	22500	2100	<1000	6200	330	6100	97600	192000		64800	187000	86	<10	<10
	01-RT-136-GW	1/16/2002	287000	41800	<1000	1300	2500	300	5310	54400	57100		32700	661000	688	<4	<4
	01-RT-137-GW	1/16/2002	276000	42600	<1000	1700	2300	390	600	54400	60300		37000	756000	551	<4	<4
	02-RT-045-GW	6/18/2002	---	---	---	1500	3100	---	---	24100	---		---	388000	1270	<10	<10
	02-RT-046-GW	6/18/2002	---	---	---	1600	3100	---	---	27900	---		---	388000	1120	<10	<10
	02-RT-068-GW	9/27/2002	---	---	---	---	<200	---	---	29600	---		---	443000	1850	<10	<10
	02-RT-069-GW	9/27/2002	---	---	---	---	<200	---	---	25700	---		---	169000	2430	<10	<10
	03-RT-012-GW	3/10/2003	---	---	---	---	---	---	---	13100	---		---	71400	257	<10	<10
	03-RT-040-GW	6/17/2003	---	---	---	1400	<200 J	---	---	37000	34400	11000	11000	156000	7430	<10	<10
	03-RT-092-GW	10/7/2003	---	---	---	5600	<200	---	---	24200	22600	9140	8320	97400	7560	<10	<10
	04-RT-001-GW	1/21/2004	---	---	---	1500	200	---	---	44600	42200	17200	15100	122000	9060	<14	<14
	04-RT-012-GW	3/31/2004	---	---	---	3300	3800	---	---	8590	7840		---	12900	1450	<10	<10
	04-RT-023-GW	6/8/2004	---	---	---	7000	<200	---	---	7140	8040		---	7200	1090	<10	<10
	04-RT-047-GW	10/30/2004	---	---	---	5300	<200	---	---	14800	14900		---	27900	139	<14	<14
	05-RT-001-GW	2/23/2005	---	---	---	5800 VJ	<200	---	---	11400	12000	4450 VJ	4150	6400	2500	<8	<8
	05-RT-044-GW	10/11/2005	---	---	---	<10000	<200	---	---	23400	19500		---	120000	4810	<13	<13
	06-RT-007-GW	5/24/2006	---	---	---	---	<200	---	---	11600 VM	11800		---	13600	6360	<7	15
	06-RT-029-GW	9/12/2006	---	---	---	---	---	---	---	3510	3130		---	10400	437	<10	<10
	07-RT-001-GW	5/30/2007	---	---	---	---	---	---	---	19700	18800	8800	8670	50900 VM	5540	<8	16
	07-RT-021-GW	9/20/2007	---	---	---	---	---	---	---	19700	104000		---	103000	3980	<10	13
	08-RT-001-GW	5/13/2008	---	---	---	---	---	---	---	20400	18200		---	47500	6480	<10	14
	09-RT-001-GW	5/5/2009	---	---	---	---	---	---	---	16900	13500	3400	3170	60600	4020	<10	13
	10-RT-049-GW	5/14/2010	---	---	---	---	---	---	---	4690	4280	1440	1340	10100	<7	<10	<10
	10-RT-080-GW	10/20/2010	---	---	---	---	---	---	---	5740	6000	2970	2910	47700	4060	<10	<10
	12-RT-001-GW	5/9/2012	---	---	---	---	---	---	---	4970	5200	4040	4110	5510	1930	<10	<10
	13-RT-016-GW	4/11/2013	---	---	---	---	---	---	---	5430	5320	6740	6640	12500	1200	<0.23	3.6
	14-RT-001-GW	4/22/2014	---	---	---	---	---	---	---	4080	4310	4180	4270	4510	3200	0.14	5.8

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos- phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang- anese*	*Total Mang- anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-37	00-RT-102GW	9/27/2000	125000	62000	1200	19000	700	220	1530	<30	48000		3700	4600	40	<20	<20
	00-RT-137-GW	11/28/2000	160000	60000	1500	22000	<1000	1170	1270	3850	26300	23800	21000	3050000	50	<10	<10
	01-RT-007-GW	1/11/2001	303000	31000	1700	14000	<100	400	2020	10200	77300		36300	2670000	50	<4	<4
	01-RT-036-GW	3/8/2001	490000	52300	<1000	1500	<200	410	2110	27600	44900	50800	46300	1060000	80	<10	<10
	01-RT-072-GW	5/22/2001	442000	52800	<1000	<1000	8800	400	2300	25600	48800		29900	862000	19	<2	<2
	01-RT-094-GW	10/16/2001	770000	24000	2300	1200	<200	410	3740	52400	104000		28000	198000	168	<10	<10
	01-RT-134-GW	1/16/2002	381000	56700	<1000	2700	500	780	3210	24100	24000		32200	262000	133	<3	<3

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-16	00-RT-040-GW	6/7/2000	---	74600	---	10100	940	---	---	---	---		---	4300	8.7	---	---
	00-RT-101GW	9/27/2000	81000	70000	<1000	24000	500	310	900	<30	18400		3630	3800	<30	<20	<20
	00-RT-136-GW	11/28/2000	144000	41000	<1000	22000	<100	1360	1630	205	7520	11500	12300	921000	30	<10	<10
	01-RT-008-GW	1/11/2001	251000	32000	1200	10000	<100	290	1240	5290	28600		15100	467000	20	<10	<10
	01-RT-037-GW	3/8/2001	370000	34200	<1000	3800	<200	200	1210	10800	33000	27400	28400	215000	60	<20	<10
	01-RT-071-GW	5/22/2001	244000	47500	<1000	1100	7600	290	1150	44000	45500		31300	561000	11	<4	<4
	01-RT-095-GW	10/16/2001	302000	43600	<1000	<1000	900	190	1120	30000	34000		29100	197000	28	<10	<10
	01-RT-135-GW	1/16/2002	317000	54900	<1000	1200	400	280	2210	21700	21900		32700	125000	168	<7	<7
	02-RT-044-GW	6/18/2002	---	---	---	<5000	<1000	---	---	158000	---		---	906000	4720	<13	<13
	02-RT-067-GW	9/27/2002	---	---	---	---	<200	---	---	69200	---		---	120000	3730	<13	<13
	03-RT-011-GW	3/10/2003	---	---	---	---	---	---	---	73400	---		---	385000	4810	<10	<10
	03-RT-041-GW	6/18/2003	---	---	---	1300	<200 J	---	---	131000	86000	50000	39600	357000	11100	<10	<10
	03RT-078-GW	9/18/2003	---	---	---	1700	<200	---	---	31900	29400		---	75200	11400	<10	<10
	04-RT-002-GW	1/21/2004	---	---	---	8500	<200	---	---	22200	22200	14500	13600	27700	12700	<13	<13
	04-RT-013-GW	3/31/2004	---	---	---	8100	300	---	---	31900	32400		---	65800	8300	<7	<7
	04-RT-024-GW	6/8/2004	---	---	---	3400	<200	---	---	98200	90200		---	321000	9150	<13	<13
	04-RT-048-GW	10/30/2004	---	---	---	5800	<200	---	---	47500	46300		---	114000	9390	<10	<10
	05-RT-045-GW	10/12/2005	---	---	---	<10000	<200	---	---	27900	26400		---	45200	10200	<10	<10
	06-RT-008-GW	5/24/2006	---	---	---	---	<200	---	---	109000	109000		---	492000	10700	<10	<10
	06-RT-030-GW	9/12/2006	---	---	---	---	---	---	---	94400	75800		---	505000	6290	<10	<10
	07-RT-002-GW	5/29/2007	---	---	---	---	---	---	---	176000	185000	53600	54300	991000 VM	9920	<10	16
	07-RT-022-GW	9/20/2007	---	---	---	---	---	---	---	90800	90900		---	376000	6380	<6	14
	08-RT-002-GW	5/13/2008	---	---	---	---	---	---	---	44700	39800		---	135000	13500	<10	27
	09-RT-002-GW	5/5/2009	---	---	---	---	---	---	---	60700	45900	21600	16300	114000	18300	<13	35
	10-RT-050-GW	5/14/2010	---	---	---	---	---	---	---	21000	20900	10200	9810	14500	11000	<10	28
	10-RT-081-GW	10/21/2010	---	---	---	---	---	---	---	152000	157000	52100	53400	377000	8420	<8	30
	12-RT-002-GW	5/9/2012	---	---	---	---	---	---	---	40500	36700	8000	6730	203000	8470	<10	15
	13-RT-015-GW	4/11/2013	---	---	---	---	---	---	---	336000	381000	37900	41100	2290000	4200	0.26	13
	14-RT-002-GW	4/22/2014	---	---	---	---	---	---	---	55300	49300	11700	10800	185000	3700	0.27	7.4

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-38	00-RT-100GW	9/27/2000	125000	28000	<1000	35000	2100	230	840	<30	17800		492	5200	<10	<20	<20
	00-RT-135-GW	11/28/2000	102000	25000	<1000	30000	200	200	700	72	15000	91	723	27100	9	<20	<20
	01-RT-006-GW	1/11/2001	157000	22000	2000	28000	<100	280	1440	360	73800		2790	5000	3	<3	<3
	01-RT-038-GW	3/8/2001	178000	29700	3500	34000	200	470	2160	82	115000	474	3590	3800	10	<10	<10
	01-RT-070-GW	5/22/2001	290000	62400	<1000	7500	600	260	850	970	10100		12600	62800	6	<1	<1
	01-RT-093-GW	10/16/2001	291000	54100	<1000	11300	<200	190	1490	4330	18000		16400	53500	125	<10	<10
	01-RT-132-GW	1/16/2002	270000	69500	<1000	6500	<200	420	2150	5410	5180		15000	29400	42	<4	<4
	02-RT-043-GW	6/18/2002	---	---	---	<1000	1400	---	---	22500	---		---	208000	630	<13	<13
	02-RT-066-GW	9/27/2002	---	---	---	---	500	---	---	9350	---		---	19700	421	<13	<13
	03RT-079-GW	9/18/2003	---	---	---	3500	<200	---	---	10600	9510		---	10100	4850	<10	<10
	07-RT-025-GW	9/20/2007	---	---	---	---	---	---	---	12100	13400		---	10500	2610	<10	15
MW-25	01-RT-133-GW	1/16/2002	537000	105000	<1000	<1000	500	160	1830	3650	4030		38800	160000	5	<2	<2
	02-RT-049-GW	6/18/2002	---	---	---	1400	500	---	---	4980	---		---	69500	52	<10	<10
	02-RT-071-GW	9/27/2002	---	---	---	---	<200	---	---	12500	---		---	96900	1110	<10	<10
	03-RT-042-GW	6/18/2003	---	---	---	<1000	<200 J	---	---	10000	---	16200	---	20400	2920	<10	<10
	04-RT-003-GW	1/21/2004	---	---	---	1200	300	---	---	11100	11100	15200	13800	5800	2590	<10	<10
	04-RT-014-GW	3/31/2004	---	---	---	<1000	<200	---	---	12700	12900		---	13200	3360	<14	<14
	04-RT-049-GW	10/30/2004	---	---	---	3900	<200	---	---	10200	10800		---	5200	2410	<10	<10
	05-RT-003-GW	2/23/2005	---	---	---	4700 VJ	<200	---	---	5960	6210	8550 VJ	8380	3900	840	<10	<10
	05-RT-046-GW	10/12/2005	---	---	---	<10000	<200	---	---	13200	12300		---	7660	641	<10	<10
	06-RT-009-GW	5/24/2006	---	---	---	---	<200	---	---	10500 VM	10400		---	12100	3310	<10	<10
	06-RT-031-GW	9/12/2006	---	---	---	---	---	---	---	8050	7090		---	3260	1610	<10	<10
	07-RT-003-GW	5/29/2007	---	---	---	---	---	---	---	890	1400	5580	6080	2520 VM	150	<10	<10
	07-RT-023-GW	9/18/2007	---	---	---	---	---	---	---	694	2160		---	2280	159	<7	<7
	08-RT-003-GW	5/13/2008	---	---	---	---	---	---	---	298	752		---	3460	1140	<14	28
	09-RT-003-GW	5/5/2009	---	---	---	---	---	---	---	<30	18800	363	611	1840	31 VJ	<10	<10
	10-RT-051-GW	5/14/2010	---	---	---	---	---	---	---	<100	137	1810	1890	1450	65	<10	<10
	10-RT-082-GW	10/21/2010	---	---	---	---	---	---	---	1410	1900	6270	6050	1110	151	<8	<8
MW-21	07-RT-024-GW	9/20/2007	---	---	---	---	---	---	---	11400	12100		---	8240	2030	<6	<6

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-42	02-RT-099-GW	11/2/2002	---	---	---	11900	1200	---	---	5010	---		---	252000	23	<15	<15
	07-RT-026-GW	9/20/2007	---	---	---	---	---	---	---	4990	5680		---	18500	1650	<8	<8
	08-RT-004-GW	5/13/2008	---	---	---	---	---	---	---	6580	5830		---	16800	3170	<10	18
	09-RT-004-GW	5/5/2009	---	---	---	---	---	---	---	12000	15000	2010	2130	60000	2590	<13	13
	10-RT-052-GW	5/14/2010	---	---	---	---	---	---	---	813	1150	620	619	5260	372	<10	<10
	10-RT-083-GW	10/18/2010	---	---	---	---	---	---	---	2780	2630	886	822	3210	2030	<10	<10
	12-RT-003-GW	5/9/2012	---	---	---	---	---	---	---	1500	1810	1260	1340	4440	631	<10	<10
	13-RT-017-GW	4/11/2013	---	---	---	---	---	---	---	10200	9800	4180	3790	19700	1300	<0.23	6.4
	14-RT-003-GW	4/22/2014	---	---	---	---	---	---	---	3510	3420	1300	1200	5130	300	<0.24	6.5

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Lower (Phase II) Plume

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-10	00-RT-053-GW	6/7/2000	---	16200	---	7700	<50	---	---	---	---		---	9100	330	---	---
	01-RT-100-GW	10/16/2001	520000	113000	3700	<10000	<2000	570	1050	392000	410000		31400	4700000	414	<10	<10
	01-RT-140-GW	1/15/2002	481000	93400	1400	10100	10600	280	3140	401000	422000		460000	2210000	475	<5	<5
	01-RT-141-GW	1/15/2002	768000	127000	1800	11800	8900	230	3010	527000	560000		581000	2120000	150	<3	<3
	04-RT-005-GW	1/20/2004	---	---	---	<1000	<200	---	---	79200	80400	9180	8280	46700	14000	<13	<13
	04-RT-016-GW	3/30/2004	---	---	---	4700	<200	---	---	41400	39300		---	94800	1720	<10	<10
	04-RT-039-GW	6/8/2004	---	---	---	<1000	<200	---	---	42500	44900		---	23900	21000	<13	<13
	04-RT-050-GW	10/29/2004	---	---	---	1100	<200	---	---	42700	41100		---	34500	394	<7	<7
	05-RT-004-GW	2/24/2005	---	---	---	<1000	<200	---	---	46400	51600	6020 VJ	6510	16100	8370	<10	<10
	05-RT-047-GW	10/11/2005	---	---	---	<10000	<200	---	---	47800	42700		---	50400	6060	<10	<10
	06-RT-010-GW	5/25/2006	---	---	---	---	<200	---	---	207000 VM	203000		---	422000	2850	<10	<10
	07-RT-037-GW	9/18/2007	---	---	---	---	---	---	---	1450	6420		---	10900	20	<5	<5
MW-4A	00-RT-048-GW	6/7/2000	---	13000	---	7700	<50	---	---	---	---		---	9100	100	---	---
	00-RT-049-GW	6/7/2000	---	13000	---	7800	<50	---	---	---	---		---	9100	64	---	---
	01-RT-097-GW	10/15/2001	198000	29400	4900	2700	200	360	5370	20500	167000		12500	118000	390	<8	<8
	01-RT-098-GW	10/15/2001	187000	29900	2800	2600	200	560	6180	18700	95500		8660	106000	389	<13	<13
	01-RT-139-GW	1/15/2002	209000	38700	<1000	3800	400	590	5680	22400	25100		11600	101000	88	<4	<4
	02-RT-048-GW	6/19/2002	---	---	---	9200	<200	---	---	19700	---		---	23700	275	<10	<10
	02-RT-065-GW	9/27/2002	---	---	---	---	<200	---	---	18000	---		---	17300	713	<14	<14
	03-RT-034-GW	6/17/2003	---	---	---	19500	<200 J	---	---	14200	15100	5980	6000	6900	536	<10	<10
	03RT-080-GW	9/18/2003	---	---	---	22000	<200	---	---	15400	61900		---	10700	1450	<10	<10
	04-RT-004-GW	1/20/2004	---	---	---	10500	200	---	---	22400	19400	11000	8100	38700	1600	<15	<15
	04-RT-015-GW	3/31/2004	---	---	---	7100	<200	---	---	73900	72400		---	723000	551	<10	<10
	04-RT-036-GW	6/8/2004	---	---	---	1300	<200	---	---	63800	61200		---	293000	1230	<10	<10
	04-RT-051-GW	10/29/2004	---	---	---	3400	<200	---	---	81800	76600		---	239000	5960	<10	<10
	05-RT-005-GW	2/23/2005	---	---	---	13700 VJ	<200	---	---	27700	22500	11800 V	10600	13300	9310	<10	<10
	05-RT-011-GW	2/23/2005	---	---	---	21100 VJ	<200	---	---	29400	22800	14300 V	10500	16300	8600	<10	<10
	05-RT-048-GW	10/11/2005	---	---	---	12100	<200	---	---	44500	44000		---	50700	1520	<10	<10
	06-RT-011-GW	5/25/2006	---	---	---	---	<200	---	---	30900 VM	33100		---	11900	3010	<10	<10
	07-RT-027-GW	9/18/2007	---	---	---	---	---	---	---	13700	11700		---	11600 VM	2470	<10	<10
	08-RT-030-GW	9/17/2008	---	---	---	---	---	---	---	5220	5330	5670	5760	3510	6170	<13	<13

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Lower Plume

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-26	04-RT-057-GW	10/30/2004	---	---	---	3500	1800	---	---	247	15500		---	2300	<7	<10	<10
	14-RT-032-GW	4/22/2014	---	---	---	---	---	---	---	3170	3690	1130	1290	5810	400	<0.24	6.6

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-39	00-RT-106GW	9/27/2000	112000	22000	4700	2000	<100	820	2310	3640	146000		4720	12600	1620	<20	<20
	00-RT-134-GW	11/28/2000	73000	68000	12100	19000	<100	1500	8630	1160	382000	2610	12600	33500	30	<20	<20
	01-RT-005-GW	1/11/2001	109000	26000	3400	4000	<100	800	2730	3040	113000		4230	8500	80	<10	<10
	01-RT-034-GW	3/8/2001	200000	26000	8000	4100	<200	970	5100	1230	284000	1470	7600	16600	14	<5	<5
	01-RT-074-GW	5/22/2001	84000	20600	5000	3200	1600	930	3770	326	157000		4200	10300	557	<6	<6
	01-RT-092-GW	10/16/2001	374000	44000	6300	<1000	<200	2210	16200	117000	354000		16800	743000	3630	<8	<8
	01-RT-131-GW	1/15/2002	211000	37800	<1000	1600	1200	1860	6560	50500	51200		9240	119000	7620	<21	<21
	02-RT-063-GW	9/27/2002	---	---	---	---	<200	---	---	48300	---		---	57200	8610	<10	<10
	02-RT-104-GW	12/18/2002	---	---	---	1600	<200	---	---	64400	---		---	75100	4460	<6	<6
	03-RT-003-GW	2/4/2003	---	---	---	1400	<200	---	---	85500	---		---	258000	2980	<8	<8
	03-RT-039-GW	6/17/2003	---	---	---	<1000	<200 J	---	---	61600	71600	7400	7580	27200	6520	<10	<10
	03RT-081-GW	9/18/2003	---	---	---	<1000	<200	---	---	39700	41000		---	14400	8820	<10	<10
	04-RT-008-GW	1/21/2004	---	---	---	1100	<200	---	---	60200	59800	6680	5500	23900	10700	<10	<10
	04-RT-019-GW	3/31/2004	---	---	---	<1000	<200	---	---	57500	112000		---	88900	3420	<10	44
	04-RT-028-GW	6/8/2004	---	---	---	2600	200	---	---	72800	67800		---	80500	8160	<10	16
	04-RT-055-GW	10/29/2004	---	---	---	<1000	<200	---	---	46300	47400		---	98300	9930	<10	36
	05-RT-009-GW	2/23/2005	---	---	---	<1000	<200	---	---	88400	89700	7430 VJ	7460	44700	14400	<10	67
	05-RT-023-GW	6/2/2005	---	---	---	<1000	<200	---	---	61600	101000		---	64300	3290	<10	126
	05-RT-051-GW	10/11/2005	---	---	---	<10000	<200	---	---	43000	42800		---	104000	2680	<10	31
	06-RT-003-GW	3/8/2006	---	---	---	---	210	---	---	65800	70400	7010	6760	28300	8080	<10	94
	06-RT-014-GW	5/24/2006	---	---	---	---	<200	---	---	234000 VM	242000		---	627000	9870	<10	208
	06-RT-035-GW	9/11/2006	---	---	---	---	---	---	---	55000	51900		---	143000	13400	<10	54
	07-RT-006-GW	5/30/2007	---	---	---	---	---	---	---	226000	248000	24600	26700	529000 VM	11000	<7	65
	07-RT-033-GW	9/18/2007	---	---	---	---	---	---	---	386000	429000		---	1260000	7770	<7	68
	08-RT-006-GW	5/12/2008	---	---	---	---	---	---	---	120000	114000		---	172000	10900	<10	33
	08-RT-032-GW	9/17/2008	---	---	---	---	---	---	---	89000	91200	9700	9940	46300	9660	<10	45
	09-RT-008-GW	5/6/2009	---	---	---	---	---	---	---	29300	52100	7500	7850	10200	3290	<10	14
	09-RT-067-GW	10/6/2009	---	---	---	---	---	---	---	105000	119000	9470	10500	138000	7960	<7	98
	10-RT-042-GW	5/12/2010	---	---	---	---	---	---	---	395000	373000	33800	29500	1280000	9730	<10	60
	10-RT-086-GW	10/20/2010	---	---	---	---	---	---	---	327000	323000	25900	24200	163000	8400	<10	40
	12-RT-006-GW	5/8/2012	---	---	---	---	---	---	---	80800	87300	8210	8980	70700	14500	<10	48
	13-RT-020-GW	4/9/2013	---	---	---	---	---	---	---	159000	176000	13800	13800	86300	6400	0.13	69
	14-RT-006-GW	4/23/2014	---	---	---	---	---	---	---	209000	207000	17800	17600	42700	1800	0.094	15

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-44	02-RT-100-GW	11/2/2002	---	---	---	10300	<200	---	---	554	---		---	59300	300	<10	<10
	02-RT-105-GW	12/18/2002	---	---	---	5200	<200	---	---	657	---		---	20600	312	<10	<10
	03RT-082-GW	9/18/2003	---	---	---	4800	<200	---	---	314	852		---	7400	1080	<10	<10
	04-RT-058-GW	10/29/2004	---	---	---	4300	<200	---	---	340	502		---	10200	1350	<15	<15
	05-RT-053-GW	10/12/2005	---	---	---	<10000	<200	---	---	60	13400		---	13200	289	<10	<10
	06-RT-005-GW	3/7/2006	---	---	---	---	<200	---	---	1610	1550	332	262	14500	1010	<13	<13
	06-RT-017-GW	5/24/2006	---	---	---	---	<200	---	---	650 VM	1790		---	8180	437	<10	<10
	06-RT-037-GW	9/12/2006	---	---	---	---	---	---	---	310	990		---	4650	337	<10	<10
	07-RT-009-GW	5/30/2007	---	---	---	---	---	---	---	1280	11200	214	2490	27300	828	<8	118
	07-RT-035-GW	9/18/2007	---	---	---	---	---	---	---	<30	2380		---	36500	2980	<10	812
	08-RT-008-GW	5/12/2008	---	---	---	---	---	---	---	417	1130		---	5630	140	<10	47
	08-RT-034-GW	9/17/2008	---	---	---	---	---	---	---	2750	3120	477	496	---	3190	<10	977
	09-RT-010-GW	5/6/2009	---	---	---	---	---	---	---	3860	3790	459	446	13200	5200	<13	1010
	09-RT-069-GW	10/6/2009	---	---	---	---	---	---	---	2450	3680	347	409	15600	2660	<10	665
	10-RT-044-GW	5/12/2010	---	---	---	---	---	---	---	1340	2980	375	411	11000	9460	<10	670
	10-RT-088-GW	10/20/2010	---	---	---	---	---	---	---	2750	4040	469	483	5520	10700	<10	663
	12-RT-008-GW	5/8/2012	---	---	---	---	---	---	---	6930	7500	787	822	64500	7990	<10	2220
	13-RT-018-GW	4/9/2013	---	---	---	---	---	---	---	4350	4980	591	675	14400	4600	0.19	660
	14-RT-008-GW	4/23/2014	---	---	---	---	---	---	---	1790	4180	381	401	50000	6000	0.21	1900
MW-45	03-RT-093-GW	10/9/2003	---	---	---	6500	<200	---	---	1020	94500	97	1880	8800	114	<10	<10
	04-RT-059-GW	10/29/2004	---	---	---	11200	<200	---	---	314	652		---	8600	<7	<10	<10
MW-46	03-RT-094-GW	10/9/2003	---	---	---	1500	<200	---	---	795	20200	275	705	6800	955	<10	<10
	04-RT-060-GW	10/29/2004	---	---	---	4200	<200	---	---	215	9030		---	7600	148	<10	<10

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-47	06-RT-038-GW	10/4/2006	---	---	---	---	---	---	---	62700	66900		---	238000	11000	<10	<10
	07-RT-010-GW	5/30/2007	---	---	---	---	---	---	---	216000	267000	33500	39300	648000 VM	9930	<8	14
	07-RT-036-GW	9/19/2007	---	---	---	---	---	---	---	309000	287000		---	826000	10300	<8	<8
	08-RT-009-GW	5/12/2008	---	---	---	---	---	---	---	328000	266000		---	550000	8370	<10	<10
	08-RT-035-GW	9/17/2008	---	---	---	---	---	---	---	329000	425000	53900	72800	970000	7470	<8	<8
	09-RT-011-GW	5/6/2009	---	---	---	---	---	---	---	388000	383000	74600	74900	1310000	7660	<10	<10
	09-RT-070-GW	10/6/2009	---	---	---	---	---	---	---	376000	469000	65100	78500	1090000	7210	<10	<10
	10-RT-045-GW	5/11/2010	---	---	---	---	---	---	---	754000	698000	116000	79900	3220000	6780	<10	23
	10-RT-089-GW	10/19/2010	---	---	---	---	---	---	---	1960000	960000	282000	128000	2150000	4520	<6	14
	11-RT-001-GW	5/17/2011	---	---	---	---	---	---	---	1140000	1130000	87300	176000	5800000	8450	<10	41
	12-RT-009-GW	5/8/2012	---	---	---	---	---	---	---	2460000	2500000	273000	273000	9390000	2620	<7	21
	13-RT-025-GW	4/10/2013	---	---	---	---	---	---	---	915000	896000	89800	89800	6070000	3200	0.72	14
	14-RT-009-GW	4/23/2014	---	---	---	---	---	---	---	1680000	10100000	127000	81900	5050000	820	0.64	8.2
MW-48	09-RT-071-GW	10/6/2009	---	---	---	---	---	---	---	207000	262000	26100	28300	3100000	1220	27	39
	10-RT-046-GW	5/12/2010	---	---	---	---	---	---	---	57900	59000	8680	8030	476000	1910	<10	10
	10-RT-090-GW	10/19/2010	---	---	---	---	---	---	---	58500	68600	7650	8170	374000	2120	<10	12
	11-RT-002-GW	5/18/2011	---	---	---	---	---	---	---	86600	75800	11500	9710	699000	2140	<10	11
	12-RT-010-GW	5/8/2012	---	---	---	---	---	---	---	75400	93300	14300	15200	820000	4130	9	17
	13-RT-026-GW	4/10/2013	---	---	---	---	---	---	---	26200	286	4290	16.6	323000	2400	2.4	5.6
	14-RT-010-GW	4/22/2014	---	---	---	---	---	---	---	53900	164000	8020	21400	1730000	3300	1.2	9.1
MW-49	09-RT-072-GW	10/6/2009	---	---	---	---	---	---	---	1440	1830	5370	6250	395000	2810	62	72
	10-RT-047-GW	5/13/2010	---	---	---	---	---	---	---	26300	56500	18800	23500	796000	9280	64	114
	10-RT-091-GW	10/19/2010	---	---	---	---	---	---	---	29100	43300	21600	22400	603000	12100	43	98
	11-RT-003-GW	5/18/2011	---	---	---	---	---	---	---	63800	6160	23600	2680	801000	9730	8	28
	12-RT-011-GW	5/9/2012	---	---	---	---	---	---	---	92200	150000	29000	35900	1060000	11300	<8	36
	13-RT-027-GW	4/10/2013	---	---	---	---	---	---	---	2240	2400	641	725	138000	12000	0.56	1100
	14-RT-011-GW	4/23/2014	---	---	---	---	---	---	---	147000	153000	29700	29800	1310000	5500	0.57	510

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-50	09-RT-073-GW	10/6/2009	---	---	---	---	---	---	---	<100	838	67	99	20000	1120	34	88
	10-RT-048-GW	5/12/2010	---	---	---	---	---	---	---	<100	626	247	248	23800	1980	93	246
	10-RT-092-GW	10/20/2010	---	---	---	---	---	---	---	330	841	180	181	29100	568	20	49
	11-RT-004-GW	5/17/2011	---	---	---	---	---	---	---	1650 VJ	1140	487	366	8850 VJ	1690	46 VJ	130
	11-RT-008-GW	5/17/2011	---	---	---	---	---	---	---	2700 VJ	1400	537	392	6340 VJ	1520	31 VJ	100
	12-RT-012-GW	5/8/2012	---	---	---	---	---	---	---	3660	3980	760	818	20600	3700	43	244
	13-RT-028-GW	4/10/2013	---	---	---	---	---	---	---	11200	36100	538	1100	14800	770	4.9	87
	14-RT-012-GW	4/22/2014	---	---	---	---	---	---	---	767	2140	218	246	10600	230	0.94	110
MW-51	10-RT-093-GW	10/19/2010	---	---	---	---	---	---	---	151	1450	3700	3670	396000	1140	<10	14
	11-RT-005-GW	5/18/2011	---	---	---	---	---	---	---	6520	6840	1170	1150	90900	1690	<10	30
	12-RT-013-GW	5/9/2012	---	---	---	---	---	---	---	10100	12500	1820	2270	99900	8660	<10	999
	13-RT-029-GW	4/10/2013	---	---	---	---	---	---	---	4190	4620	804	909	44600	2500	1.3	590
	14-RT-013-GW	4/22/2014	---	---	---	---	---	---	---	128	1910	53.9	92.3	2640	2.2	<0.24	1.3
MW-52	10-RT-094-GW	10/19/2010	---	---	---	---	---	---	---	<100	2020	167	201	55500	201	<10	<10
	11-RT-006-GW	5/17/2011	---	---	---	---	---	---	---	668	792	605	637	14400	1110	<4	4
	12-RT-014-GW	5/8/2012	---	---	---	---	---	---	---	657	937	395	414	111000	7300	<10	377
	13-RT-030-GW	4/10/2013	---	---	---	---	---	---	---	83800	95600	24400	25200	848000	8700	1.1	1000
	14-RT-014-GW	4/23/2014	---	---	---	---	---	---	---	1690	2030	243	246	36700	3200	0.2	310
L-13	03-RT-008-GW	3/10/2003	---	---	---	---	---	---	---	68300	---		---	327000	10600	<10	<10
	03-RT-010-GW	3/10/2003	---	---	---	---	---	---	---	---	---		---	---	11900	<5	<5
	03-RT-037-GW	6/17/2003	---	---	---	---	---	---	---	---	---		---	---	15100	<10	18
	03-RT-074-GW	6/17/2003	---	---	---	---	---	---	---	---	---		---	---	16600	<5	<5
L-17	03-RT-076-GW	6/17/2003	---	---	---	---	---	---	---	---	---		---	---	6010	<5	<5
L-78	08-RT-036-GW	9/18/2008	---	---	---	---	---	---	---	1860000	2400000	51500	76400	10200000	2570	20	46
	09-RT-074-GW	10/7/2009	---	---	---	---	---	---	---	1550000	2000000	44300	56600	8060000	3030	19	108
	10-RT-095-GW	10/20/2010	---	---	---	---	---	---	---	1750000	1490000	411000	165000	59700000	165	<7	8 VH
	12-RT-015-GW	5/9/2012	---	---	---	---	---	---	---	2730000	3030000	202000	193000	127000000	21	<4	<4
	13-RT-031-GW	4/9/2013	---	---	---	---	---	---	---	4040000	3790000	145000	136000	21600000	2300	8	180
	14-RT-015-GW	4/23/2014	---	---	---	---	---	---	---	6430000	5500000	136000	120000	15400000	1500	2.2	110
L-79	08-RT-011-GW	5/13/2008	---	---	---	---	---	---	---	---	1920000		---	---	86	<6	<6

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
L-100	10-RT-054-GW	5/12/2010	---	---	---	---	---	---	---	1140000	1170000	72400	71200	25400000	420	<10	<10
	10-RT-096-GW	10/20/2010	---	---	---	---	---	---	---	1100000	1710000	65400	90000	49100000	47	<7	<7
	11-RT-007-GW	5/17/2011	---	---	---	---	---	---	---	875000	945000	40800	56000	27700000	55	<2	<2
	12-RT-016-GW	5/9/2012	---	---	---	---	---	---	---	70900	76100	9310	10400	417000	9250	<10	<10
	13-RT-023-GW	4/10/2013	---	---	---	---	---	---	---	108000	112000	7880	7470	571000	7800	0.35	5.5
	13-RT-035-GW	4/10/2013	---	---	---	---	---	---	---	106000	94700	7630	7030	548000	9200	0.41	6
	14-RT-016-GW	4/22/2014	---	---	---	---	---	---	---	14300	16100	2920	2930	12800	4600	0.16	1.5
L-101	10-RT-055-GW	5/12/2010	---	---	---	---	---	---	---	1490000	1640000	107000	112000	71800000	10	<7	<7
	12-RT-017-GW	5/8/2012	---	---	---	---	---	---	---	2140000	2740000	197000	229000	37000000	107	<8	<8
	13-RT-024-GW	4/10/2013	---	---	---	---	---	---	---	2390000	2980000	205000	207000	34000000	120	2.7	78
	14-RT-017-GW	4/23/2014	---	---	---	---	---	---	---	4940000	5260000	178000	181000	15400000	90	2.1	79
L-102	14-RT-019-GW	4/22/2014	---	---	---	---	---	---	---	1580000	1640000	194000	164000	30700000	110	6.1	28
L-103	14-RT-020-GW	4/23/2014	---	---	---	---	---	---	---	4050000	4930000	250000	293000	17400000	640	3.8	14

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-9	00-RT-051-GW	6/7/2000	---	16200	---	4300	<50	---	---	---	---		---	19500	3100	---	---
	00-RT-107GW	9/27/2000	144000	22000	<1000	6000	300	1690	3300	6520	28400		5830	11200	1290	<20	<20
	00-RT-133-GW	11/28/2000	240000	38000	4000	<1000	<100	860	1970	94100	185000	40800	44500	773000	1300	<20	<10
	01-RT-003-GW	1/11/2001	307000	33000	8300	28000	<100	540	11300	90200	264000		47400	668000	930	<10	<10
	01-RT-004-GW	1/11/2001	344000	33000	7100	<1000	<100	580	12100	90600	257000		47400	634000	1570	<20	<20
	01-RT-033-GW	3/8/2001	260000	59100	3800	<1000	<200	830	5850	75800	166000	45500	51600	635000	1050	<10	<10
	01-RT-068-GW	5/22/2001	140000	27400	7400	1400	1500	1240	10400	25900	142000		22900	186000	926 VJ	<1	<1
	01-RT-069-GW	5/22/2001	146000	27400	4700	<1000	1500	1110	11200	---	145000		23900	209000	83 VJ	<2	<2
	01-RT-091-GW	10/16/2001	855000	50400	5200	<1000	<200	1580	9260	624000	665000		146000	3100000	3380	<10	<10
	01-RT-129-GW	1/15/2002	1030000	87900	<1000	2400	9200	2420	6560	604000	572000		112000	2580000	1200	<3	<3
	02-RT-041-GW	6/19/2002	---	---	---	<5000	<1000	---	---	284000	---		---	1310000	1890	<10	<10
	02-RT-062-GW	9/27/2002	---	---	---	---	<1000	---	---	163000	---		---	374000	10800	<10	<10
	02-RT-102-GW	12/18/2002	---	---	---	<1000	<200	---	---	137000	---		---	306000	5470	<10	<10
	03-RT-001-GW	2/4/2003	---	---	---	<1000	<200	---	---	112000	---		---	223000	8560	<10	<10
	03-RT-007-GW	3/10/2003	---	---	---	---	---	---	---	157000	---		---	400000	6190	<10	<10
	03-RT-032a-G	3/12/2003	---	---	---	---	---	---	---	---	---		---	---	10000	<5	<5
	03-RT-036-GW	6/17/2003	---	---	---	<1000	<200 J	---	---	112000	86200	13700	13200	83700	12400	<16	<16
	03-RT-043-GW	6/17/2003	---	---	---	---	---	---	---	---	---		---	---	10200	<5	<5
	03RT-083-GW	9/19/2003	---	---	---	<1000	<200	---	---	95000	100000		---	125000	13600	<10	10
	04-RT-007-GW	1/21/2004	---	---	---	<1000	300	---	---	234000	212000	30200	28000	444000	12300	<16	112
	04-RT-018-GW	3/31/2004	---	---	---	<1000	<200	---	---	215000	204000		---	524000	5970	<5	61
	04-RT-027-GW	6/8/2004	---	---	---	<1000	<200	---	---	232000	233000		---	668000	7640	<10	193
	04-RT-054-GW	10/29/2004	---	---	---	<1000	<200	---	---	228000	221000		---	695000	8650	<13	160
	05-RT-008-GW	2/24/2005	---	---	---	<1000	<200	---	---	187000	197000	20500 V	20700	451000	13900	<10	349
	05-RT-022-GW	6/2/2005	---	---	---	<1000	<200	---	---	133000	134000		---	262000	8670	<10	369
	05-RT-050-GW	10/11/2005	---	---	---	<10000	<200	---	---	122000	114000		---	263000	9070	<10	329
	06-RT-002-GW	3/8/2006	---	---	---	---	210	---	---	140000	133000	15800	14900	176000	10500	<10	258
	06-RT-013-GW	5/25/2006	---	---	---	---	<200	---	---	97000 VM	97800		---	130000	7490	<10	254
	06-RT-034-GW	9/11/2006	---	---	---	---	---	---	---	106000	90600		---	273000	11600	<14	226
	07-RT-005-GW	5/30/2007	---	---	---	---	---	---	---	404000	444000	39700	43400	2010000	6070	<10	129
	07-RT-032-GW	9/19/2007	---	---	---	---	---	---	---	195000	170000		---	469000	7760	<10	94
	08-RT-005-GW	5/12/2008	---	---	---	---	---	---	---	284000	271000		---	945000	12100	<13	118
	08-RT-014-GW	5/12/2008	---	---	---	---	---	---	---	303000	249000		---	1080000	10300	<10	85
	08-RT-031-GW	9/16/2008	---	---	---	---	---	---	---	201000	237000	17000	19200	840000	9680	<10	108
	09-RT-007-GW	5/6/2009	---	---	---	---	---	---	---	150000	155000	15000	15400	425000	7270	<10	55

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-9	09-RT-013-GW	5/6/2009	---	---	---	---	---	---	---	179000	156000	16400	15200	442000	7930	<10	60
	09-RT-066-GW	10/5/2009	---	---	---	---	---	---	---	110000	122000	11600	12800	185000 VJ	9810	<8	61
	09-RT-075-GW	10/5/2009	---	---	---	---	---	---	---	110000	120000	11600	12600	283000 VJ	11200	<10	79
	10-RT-041-GW	5/11/2010	---	---	---	---	---	---	---	118000	122000	14400	14200	253000	10600	<10	57
	10-RT-085-GW	10/20/2010	---	---	---	---	---	---	---	129000	122000 VJ	13600	11600 VJ	151000	8210	<10	37
	10-RT-098-GW	10/20/2010	---	---	---	---	---	---	---	137000	166000 VJ	14400	16100 VJ	174000	9490	<10	47
	12-RT-005-GW	5/8/2012	---	---	---	---	---	---	---	71300	73400	8360	8670	34100	13300	<10	65
	12-RT-018-GW	5/8/2012	---	---	---	---	---	---	---	70900	71200	8210	8500	35100	13000	<10	57
	13-RT-019-GW	4/9/2013	---	---	---	---	---	---	---	77300	75800	10300	9940	68700	7000	0.25	55
	14-RT-005-GW	4/23/2014	---	---	---	---	---	---	---	136000	141000	20500	21400	98300	3200	0.13	19

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-40	00-RT-108GW	9/27/2000	148000	21000	5300	3000	<100	4110	8600	3320	241000		6660	19600	1010	<20	<20
	00-RT-132-GW	11/28/2000	227000	37000	1500	1000	<100	1630	5140	103000	154000	19500	20100	628000	1370	<20	<20
	01-RT-002-GW	1/11/2001	299000	30000	1600	<1000	<100	730	3680	121000	160000		26500	598000	1190	<20	<20
	01-RT-032-GW	3/8/2001	260000	50400	1600	<1000	<200	1220	5750	108000	168000	27800	26600	475000	1720	<20	<20
	01-RT-075-GW	5/22/2001	198000	31100	1800	<1000	1200	2280	6160	60500	106000		15500	170000	1290	<2	<2
	01-RT-090-GW	10/16/2001	574000	40700	1300	<1000	<200	1820	7040	396000	464000		66800	1720000	3040	<10	<10
	01-RT-130-GW	1/15/2002	1030000	94500	<1000	2000	7800	3050	7860	512000	513000		99000	1730000	1380	<3	<3
	02-RT-042-GW	6/19/2002	---	---	---	<5000	<1000	---	---	422000	---		---	1270000	6090	<10	<10
	02-RT-064-GW	9/27/2002	---	---	---	---	<1000	---	---	170000	---		---	344000	6150	<13	<13
	02-RT-103-GW	12/18/2002	---	---	---	<1000	<200	---	---	304000	---		---	648000	7020	<17	<17
	03-RT-002-GW	2/4/2003	---	---	---	<1000	<200	---	---	254000	---		---	537000	8940	<10	<10
	03-RT-035-GW	6/17/2003	---	---	---	<1000	<200 J	---	---	167000	183000	31000	37000	397000	13300	<10	<10
	03RT-084-GW	9/19/2003	---	---	---	<1000	<200	---	---	210000	192000		---	205000	13200	<10	<10
	04-RT-009-GW	1/21/2004	---	---	---	2400	<200	---	---	230000	222000	27600	24000	232000	12200	10	67
	04-RT-020-GW	3/30/2004	---	---	---	<1000	<200	---	---	205000	197000		---	404000	9790	<6	10
	04-RT-029-GW	6/8/2004	---	---	---	<1000	<200	---	---	291000	290000		---	491000	6420	<15	37
	04-RT-056-GW	10/29/2004	---	---	---	<1000	200	---	---	241000	247000		---	231000	3170	<10	39
	05-RT-010-GW	2/24/2005	---	---	---	<1000	<200	---	---	212000	225000	21400 V	22800	224000	10300	<10	143
	05-RT-024-GW	6/2/2005	---	---	---	<1000	<200	---	---	200000	218000		---	262000	10500	<13	125
	05-RT-052-GW	10/12/2005	---	---	---	<10000	<200	---	---	172000	159000		---	66300	10600	<14	140
	06-RT-004-GW	3/8/2006	---	---	---	---	450	---	---	166000	173000	14000	14200	68800	8430	<10	77
	06-RT-015-GW	5/25/2006	---	---	---	---	<200	---	---	96000 VM	95300		---	104000	7870	<13	78
	06-RT-036-GW	9/12/2006	---	---	---	---	---	---	---	99800	81300		---	109000	11800	<14	155
	07-RT-007-GW	5/30/2007	---	---	---	---	---	---	---	130000	144000	15700	17400	119000 VM	7950	<6	61
	07-RT-034-GW	9/19/2007	---	---	---	---	---	---	---	158000	169000		---	46900	8490	<10	72
	08-RT-007-GW	5/12/2008	---	---	---	---	---	---	---	189000	180000		---	228000	12500	<10	108
	08-RT-033-GW	9/17/2008	---	---	---	---	---	---	---	145000	142000	9540	9690	55900	12400	<10	90
	08-RT-039-GW	9/17/2008	---	---	---	---	---	---	---	142000	146000	9340	9850	55000	13400	<10	90
	09-RT-009-GW	5/6/2009	---	---	---	---	---	---	---	118000	129000	14000	17400	23800	4380	<14	72
	09-RT-068-GW	10/7/2009	---	---	---	---	---	---	---	107000	128000	8390	9770	58400	5960	<10	21
	10-RT-043-GW	5/13/2010	---	---	---	---	---	---	---	93100	88300	12800	12200	67200 VJ	8940	<10	45
	10-RT-056-GW	5/13/2010	---	---	---	---	---	---	---	91100	93900	12600	12300	40900 VJ	11000	<13	71
	10-RT-087-GW	10/20/2010	---	---	---	---	---	---	---	86400	85600	7020	6530	77400	4020	<10	10
	12-RT-007-GW	5/7/2012	---	---	---	---	---	---	---	52000	47100	6200	5680	22900	7640	<10	33
	13-RT-021-GW	4/9/2013	---	---	---	---	---	---	---	74100	79300	9220	9630	23100	5600	0.43	62

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-40	14-RT-007-GW	4/23/2014	---	---	---	---	---	---	---	128000	120000	15300	14300	26600	2500	0.17	16
MW-6	00-RT-045-GW	6/7/2000	---	12900	---	2300	<50	---	---	---	---		---	20700	2800	---	---
	00-RT-109GW	9/27/2000	114000	22000	1600	2000	<100	3270	5510	3390	67300		4950	20100	1590	<20	<20
	00-RT-130-GW	11/28/2000	349000	29000	<1000	1000	<100	4760	7410	114000	122000	38000	35800	435000	1010	<10	<10
	00-RT-131-GW	11/28/2000	227000	29000	<1000	1000	<100	6560	7010	116000	117000	37900	34100	435000	1310	<20	<20
	01-RT-001-GW	1/11/2001	492000	31000	<1000	<1000	<100	6190	9950	225000	219000		38200	689000	970	<20	<20
	01-RT-030-GW	3/8/2001	306000	45400	1200	<1000	<200	1020	6900	223000	250000	27800	25200	397000	1130	<20	<10
	01-RT-031-GW	3/8/2001	400000	52600	2300	<1000	<200	1010	7080	220000	286000	27600	28100	387000	1050	<10	<10
	01-RT-076-GW	5/22/2001	228000	25500	1100	<1000	800	2790	5590	54300	144000		12400	145000	1860	<5	<5
	01-RT-089-GW	10/16/2001	959000	56600	<1000	<1000	<200	5780	10300	630000	632000		92800	1710000	7000	<8	<8
	01-RT-128-GW	1/15/2002	952000	81700	<1000	1300	5100	3520	6920	478000	478000		84600	1010000	4060	<3	<3
	02-RT-040-GW	6/19/2002	---	---	---	<5000	<1000	---	---	302000	---		---	552000	8250	<15	<15
	02-RT-061-GW	9/27/2002	---	---	---	---	<1000	---	---	---	---		---	654000	11400	<15	<15
	03-RT-004-GW	2/4/2003	---	---	---	<1000	<200	---	---	300000	---		---	475000	9620	<6	<6
	03-RT-032b-G	6/17/2003	---	---	---	11700	<200 J	---	---	194000	182000	33200	31200	129000	12000	<10	<10
	03RT-085-GW	9/19/2003	---	---	---	<1000	<200	---	---	168000	150000		---	157000	12300	<10	<10
	04-RT-010-GW	1/20/2004	---	---	---	<1000	<200	---	---	158000	166000	26600	24000	48200	15600	<14	<14
	04-RT-021-GW	3/29/2004	---	---	---	<1000	<200	---	---	158000	141000		---	82000	9670	<6	<6
	04-RT-025-GW	6/7/2004	---	---	---	<1000	<200	---	---	120000	125000		---	41300	6880	<15	<15
	04-RT-052-GW	10/30/2004	---	---	---	1500	<200	---	---	161000	160000		---	62300	8320	<10	14
	05-RT-006-GW	2/24/2005	---	---	---	<1000	<200	---	---	132000	124000	27700 V	26200	67000	9900	<10	72
	05-RT-020-GW	6/2/2005	---	---	---	4300	<200	---	---	105000	68900		---	31400	4400	<10	48
	05-RT-049-GW	10/11/2005	---	---	---	<10000	<200	---	---	109000	103000		---	55700	7130	<10	96
	06-RT-012-GW	5/25/2006	---	---	---	---	<200	---	---	71600 VM	79700		---	27400	7590	<7	41
	06-RT-033-GW	9/11/2006	---	---	---	---	---	---	---	90300	79400		---	28400	5150	<10	82
	07-RT-004-GW	5/30/2007	---	---	---	---	---	---	---	173000	192000	37200	41600	645000 VM	8520	<10	51
	07-RT-031-GW	9/19/2007	---	---	---	---	---	---	---	147000	162000		---	59700	6650	<10	33
	09-RT-005-GW	5/6/2009	---	---	---	---	---	---	---	101000	104000	19900	22100	12000	7650	<10	50
	09-RT-065-GW	10/7/2009	---	---	---	---	---	---	---	70800	82200	16700	18700	13000	21300	<10	62
	10-RT-040-GW	5/13/2010	---	---	---	---	---	---	---	63700	61100	15200	13900	8000 VJ	2750	<8	27
	10-RT-057-GW	5/13/2010	---	---	---	---	---	---	---	59900	61400	14200	13600	17800 VJ	2050	<8	22
	10-RT-084-GW	10/20/2010	---	---	---	---	---	---	---	54200	51200	14200	13800	8020	4330	<10	57
	12-RT-004-GW	5/8/2012	---	---	---	---	---	---	---	45600	49700	7380	7880	12000	3230	<7	14
	13-RT-022-GW	4/11/2013	---	---	---	---	---	---	---	50100	54200	8100	8140	25200	2600	0.24	19
	14-RT-004-GW	4/24/2014	---	---	---	---	---	---	---	82800	81000	11300	10700	18700	1400	0.086	11

Table C-2: June 2000 through April 2014 Performance Monitoring Groundwater Natural Attenuation Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

Location	*Sample ID*	*Date Sampled*	*Alkalinity*	*Chloride*	*Phos-phorus*	*Sulfate*	*Nitrate+ Nitrite as Nitrogen*	*Nitrogen, Ammonia*	*Nitrogen, Total Kjeldahl*	*Dissolved Iron*	*Total Iron*	*Diss. Mang-anese*	*Total Mang-anese*	*TOC*	*Methane*	*Ethane*	*Ethene*
MW-5	07-RT-028-GW	9/20/2007	---	---	---	---	---	---	---	2290	15700		---	9080	77	<10	<10
MW-7	00-RT-046-GW	6/7/2000	---	15600	---	2100	<50	---	---	---	---		---	21600	1900	---	---
	06-RT-032-GW	9/11/2006	---	---	---	---	---	---	---	64100	55400		---	23500	4580	<10	58
	07-RT-029-GW	9/19/2007	---	---	---	---	---	---	---	163000	180000		---	178000	10700	<8	39
MW-8	00-RT-052-GW	6/7/2000	---	20500	---	4800	<50	---	---	---	---		---	12700	1400	---	---
	07-RT-030-GW	9/19/2007	---	---	---	---	---	---	---	18500	20000		---	19400	3170	<10	<10
MW-12	00-RT-056-GW	6/8/2000	---	17200	---	5700	<50	---	---	---	---		---	8900	110	---	---
	07-RT-038-GW	9/19/2007	---	---	---	---	---	---	---	332	424		---	15500	<7	<10	<10
MW-20	03-RT-033-GW	6/17/2003	---	---	---	5000	<200 J	---	---	48100	34600	10000	9710	18300	4480	<15	<15
	03RT-090-GW	9/19/2003	---	---	---	2400	<200	---	---	39200	36500		---	24600	6680	<10	<10
	04-RT-006-GW	1/20/2004	---	---	---	1700	<200	---	---	44000	44400	9200	8400	19000	16300	<47	<47
	04-RT-017-GW	3/30/2004	---	---	---	<1000	<200	---	---	80500	73800		---	28400	296	<10	<10
	04-RT-026-GW	6/8/2004	---	---	---	<1000	<200	---	---	146000	166000		---	93800	6900	<10	<10
	04-RT-053-GW	10/29/2004	---	---	---	<1000	<200	---	---	100000	84900		---	31500	8800	<7	<7
	05-RT-007-GW	2/24/2005	---	---	---	1800 VJ	<200	---	---	62000	49900	10300 V	8680	18500	4610	<10	17
	05-RT-021-GW	6/2/2005	---	---	---	5300	<200	---	---	55700	53100		---	13300	1230	<10	<10
	06-RT-016-GW	5/26/2006	---	---	---	---	<200	---	---	123000 VM	120000		---	61300	3340	<10	42
	07-RT-039-GW	9/19/2007	---	---	---	---	---	---	---	10800	12600		---	11700	610	<7	<7
	09-RT-006-GW	5/6/2009	---	---	---	---	---	---	---	58500	85400	8860	8790	8200	2080	<10	12
MW-35	07-RT-040-GW	9/20/2007	---	---	---	---	---	---	---	6300	7650		---	11800	56	<14	<14

VJ: Estimated value

--- = Not analyzed; QA split samples are not analyzed for natural attenuation parameter data, and Phase II performance monitoring began in October 2001. Beginning in June 2002, alkalinity, chloride, phosphorus, sulfide, ammonia, TKN, total iron, and total manganese analyses were discontinued.

One set of historical (pre-performance monitoring) data is provided (6/7/00) for comparison with data collected during Phase I and II performance monitoring.

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	Lactic Acid	Pyruvic Acid	Acetic Acid	Butyric Acid	Propionic Acid
Upper Plume								
MW-36	00-RT-103GW	Project Sample	9/27/2000	<1000	<100	<1000	<1000	<1000
	00-RT-104GW	QC Duplicate	9/27/2000	<1000	<100	<1000	<1000	<1000
	00-RT-138-GW	Project Sample	11/28/2000	<1000	122	54000	3000	47000
	01-RT-009-GW	Project Sample	1/11/2001	600000	1100	340000	99000	281000
	01-RT-035-GW	Project Sample	3/8/2001	584000	600	231000	116000	229000
	01-RT-073-GW	Project Sample	5/22/2001	<1000	500	43700	10700	55200
	01-RT-096-GW	Project Sample	10/16/2001	3200000	2900	1220000	966000	1160000
	01-RT-136-GW	Project Sample	1/16/2002	180000	1300	249000	84500	404000
	01-RT-137-GW	QC Duplicate	1/16/2002	169000	1700	254000	79600	397000
	02-RT-045-GW	Project Sample	6/18/2002	259000	<100	93700	90000	128000
	02-RT-046-GW	QC Duplicate	6/18/2002	182000	<100	76100	87100	116000
	02-RT-068-GW	Project Sample	9/27/2002	376000	3900	77100	27200	60500
	02-RT-069-GW	QC Duplicate	9/27/2002	356000	3800	66000	10700	67000
	03-RT-012-GW	Project Sample	3/10/2003	37100	<100	35800	45700	56800
	03-RT-040-GW	Project Sample	6/17/2003	21400	<100	77000	53700	130000
	03-RT-092-GW	Project Sample	10/7/2003	50600	<100	119000	25600	65300
	04-RT-001-GW	Project Sample	1/21/2004	<1000	<100	144000	8900	73600
	04-RT-012-GW	Project Sample	3/31/2004	<1000	<100	22200	<1000	5700
	04-RT-023-GW	Project Sample	6/8/2004	<1000	<100	1800	<1000	<1000
	04-RT-047-GW	Project Sample	10/30/2004	<1000	<100	38900	13200	20200
	05-RT-001-GW	Project Sample	2/23/2005	<1000	<100	<1000	<1000	<1000
	05-RT-044-GW	Project Sample	10/11/2005	49700	<100	47000	16100	108000
	06-RT-007-GW	Project Sample	5/24/2006	<1000	<100	6400	<1000	6500
	06-RT-029-GW	Project Sample	9/12/2006	<1000	<100	3500	<1000	2900
	07-RT-001-GW	Project Sample	5/30/2007	<1000	<100	32000	8100	47600
	07-RT-021-GW	Project Sample	9/20/2007	52600	<100	27500	12000	38200
	08-RT-001-GW	Project Sample	5/13/2008	15600	<100	32700	13100	56100
	09-RT-001-GW	Project Sample	5/5/2009	22000	<100	<1000	<1000	<1000
	10-RT-049-GW	Project Sample	5/14/2010	<1000	<100	4200	<1000	<1000
	10-RT-080-GW	Project Sample	10/20/2010	<1000	<100	18500	21300	26300
	12-RT-001-GW	Project Sample	5/9/2012	2500	<100	2700	<1000	6200
	13-RT-016-GW	Project Sample	4/11/2013	<25000	<10000	10000	<5000	7500
	14-RT-001-GW	Project Sample	4/22/2014	<25000	<10000	<5000	<5000	<5000

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*Lactic Acid*	*Pyruvic Acid*	*Acetic Acid*	*Butyric Acid*	*Propionic Acid*
MW-37	00-RT-102GW	Project Sample	9/27/2000	<1000	<100	<1000	<1000	<1000
	00-RT-137-GW	Project Sample	11/28/2000	1520000	4400	<5000	14000	32000
	01-RT-007-GW	Project Sample	1/11/2001	543000	2200	284000	103000	239000
	01-RT-036-GW	Project Sample	3/8/2001	812000	3000	451000	255000	518000
	01-RT-072-GW	Project Sample	5/22/2001	575000	800	649000	559000	596000
	01-RT-094-GW	Project Sample	10/16/2001	38700	500	603000	147000	573000
	01-RT-134-GW	Project Sample	1/16/2002	<1000	300	179000	24100	203000
MW-16	00-RT-101GW	Project Sample	9/27/2000	<1000	<100	<1000	<1000	<1000
	00-RT-136-GW	Project Sample	11/28/2000	950000	7100	<1000	4000	2000
	01-RT-008-GW	Project Sample	1/11/2001	32000	<100	60000	23000	78000
	01-RT-037-GW	Project Sample	3/8/2001	<1000	<100	57800	10000	164000
	01-RT-071-GW	Project Sample	5/22/2001	423000	100	361000	364000	411000
	01-RT-095-GW	Project Sample	10/16/2001	9600	<100	189000	42200	253000
	01-RT-135-GW	Project Sample	1/16/2002	<1000	300	94700	15300	136000
	02-RT-044-GW	Project Sample	6/18/2002	<1000	<100	320000	282000	821000
	02-RT-067-GW	Project Sample	9/27/2002	<1000	<100	191000	60800	335000
	03-RT-011-GW	Project Sample	3/10/2003	<1000	<100	110000	72800	238000
	03-RT-041-GW	Project Sample	6/18/2003	<5000	<500	164000	89900	327000
	04-RT-002-GW	Project Sample	1/21/2004	<1000	<100	19900	18300	18600
	04-RT-013-GW	Project Sample	3/31/2004	<1000	<100	52900	4100	23100
	04-RT-024-GW	Project Sample	6/8/2004	27100	<100	201000	57000	394000
	04-RT-048-GW	Project Sample	10/30/2004	<1000	<100	108000	26000	117000
	05-RT-045-GW	Project Sample	10/12/2005	<1000	<100	32200	<1000	15800
	06-RT-008-GW	Project Sample	5/24/2006	<1000	<100	85600	65700	213000
	06-RT-030-GW	Project Sample	9/12/2006	127000	600	131000	109000	198000
	07-RT-002-GW	Project Sample	5/29/2007	46500	<100	310000	267000	448000
	07-RT-022-GW	Project Sample	9/20/2007	3100	<100	129000	112000	166000
	08-RT-002-GW	Project Sample	5/13/2008	<1000	200	73400	32700	113000
	09-RT-002-GW	Project Sample	5/5/2009	<1000	<100	81400	<1000	66700
	10-RT-050-GW	Project Sample	5/14/2010	<1000	<100	14600	<1000	15500
	10-RT-081-GW	Project Sample	10/21/2010	<1000	800	359000	260000	595000
	12-RT-002-GW	Project Sample	5/9/2012	66200	<100	40700	48300	76500
	13-RT-015-GW	Project Sample	4/11/2013	1200000	8900	310000	620000	890000
	14-RT-002-GW	Project Sample	4/22/2014	<25000	<10000	73000	49000	140000

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	Lactic Acid	Pyruvic Acid	Acetic Acid	Butyric Acid	Propionic Acid
MW-38	00-RT-100GW	Project Sample	9/27/2000	<1000	<100	<1000	<1000	<1000
	00-RT-135-GW	Project Sample	11/28/2000	<1000	<100	<1000	<1000	<1000
	01-RT-006-GW	Project Sample	1/11/2001	<1000	<100	<1000	<1000	<1000
	01-RT-038-GW	Project Sample	3/8/2001	<1000	<100	<1000	<1000	<1000
	01-RT-070-GW	Project Sample	5/22/2001	<1000	1200	11200	<1000	20000
	01-RT-093-GW	Project Sample	10/16/2001	<1000	<100	33300	<1000	45900
	01-RT-132-GW	Project Sample	1/16/2002	<1000	300	19100	<1000	18800
	02-RT-043-GW	Project Sample	6/18/2002	<1000	<100	137000	132000	257000
	02-RT-066-GW	Project Sample	9/27/2002	10200	<100	16200	9800	17900
	07-RT-025-GW	Project Sample	9/20/2007	<1000	<100	8600	<1000	24400
MW-25	01-RT-133-GW	Project Sample	1/16/2002	<1000	<100	66900	6900	144000
	02-RT-049-GW	Project Sample	6/18/2002	<1000	<100	34900	6200	60500
	02-RT-071-GW	Project Sample	9/27/2002	<1000	<100	48500	<1000	93900
	03-RT-042-GW	Project Sample	6/18/2003	<1000	<100	11900	58500	21500
	04-RT-003-GW	Project Sample	1/21/2004	<1000	<100	2100	<1000	<1000
	04-RT-014-GW	Project Sample	3/31/2004	<1000	<200	23400	<2000	2500
	04-RT-049-GW	Project Sample	10/30/2004	<1000	<100	<1000	<1000	<1000
	05-RT-003-GW	Project Sample	2/23/2005	<1000	<100	<1000	<1000	<1000
	05-RT-046-GW	Project Sample	10/12/2005	<1000	<100	<1000	<1000	<1000
	06-RT-009-GW	Project Sample	5/24/2006	<1000	<100	4500	<1000	2800
	06-RT-031-GW	Project Sample	9/12/2006	<1000	<100	<1000	14500	1700
	07-RT-003-GW	Project Sample	5/29/2007	<1000	<100	<1000	<1000	17000
	07-RT-023-GW	Project Sample	9/18/2007	<1000	<100	<1000	<1000	<1000
	08-RT-003-GW	Project Sample	5/13/2008	<1000	<100	<1000	<1000	<1000
	09-RT-003-GW	Project Sample	5/5/2009	<1000	<100	<1000	<1000	<1000
	10-RT-051-GW	Project Sample	5/14/2010	<1000	<100	<1000	<1000	<1000
	10-RT-082-GW	Project Sample	10/21/2010	<1000	<100	<1000	<1000	<1000
MW-21	07-RT-024-GW	Project Sample	9/20/2007	<1000	<100	5100	<1000	<1000

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	Lactic Acid	Pyruvic Acid	Acetic Acid	Butyric Acid	Propionic Acid
MW-42	02-RT-099-GW	Project Sample	11/2/2002	168000	<100	67800	<1000	84800
	07-RT-026-GW	Project Sample	9/20/2007	<1000	<100	15900	3000	6100
	08-RT-004-GW	Project Sample	5/13/2008	<1000	<100	9500	2800	7700
	09-RT-004-GW	Project Sample	5/5/2009	<1000	<100	18300	49400	23400
	10-RT-052-GW	Project Sample	5/14/2010	<1000	<100	<1000	<1000	<1000
	10-RT-083-GW	Project Sample	10/18/2010	<1000	<100	9000	<1000	14200
	12-RT-003-GW	Project Sample	5/9/2012	<1000	<100	<1000	<1000	<1000
	13-RT-017-GW	Project Sample	4/11/2013	<25000	<10000	9400	1400	4500
	14-RT-003-GW	Project Sample	4/22/2014	<25000	<10000	<5000	<5000	<5000
Lower (Phase II) Plume								
MW-10	01-RT-100-GW	Project Sample	10/16/2001	189000	1100	527000	229000	647000
	01-RT-140-GW	Project Sample	1/15/2002	332000	3900	499000	849000	828000
	01-RT-141-GW	QC Duplicate	1/15/2002	338000	5700	488000	797000	831000
	04-RT-005-GW	Project Sample	1/20/2004	<1000	<200	1000	<1000	22300
	04-RT-016-GW	Project Sample	3/30/2004	8400	<100	24100	27300	31700
	04-RT-039-GW	Project Sample	6/8/2004	<2000	<200	<1000	<1000	<1000
	04-RT-050-GW	Project Sample	10/29/2004	<1000	<100	<1000	31400	42100
	05-RT-004-GW	Project Sample	2/24/2005	<1000	<100	<1000	<1000	<1000
	05-RT-047-GW	Project Sample	10/11/2005	<1000	<100	34200	15500	75400
	06-RT-010-GW	Project Sample	5/25/2006	45800	<100	214000	45400	218000
	07-RT-037-GW	Project Sample	9/18/2007	<1000	<100	<1000	<1000	<1000

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*Lactic Acid*	*Pyruvic Acid*	*Acetic Acid*	*Butyric Acid*	*Propionic Acid*
MW-4A	01-RT-097-GW	Project Sample	10/15/2001	3100	<100	41400	17700	113000
	01-RT-098-GW	QC Duplicate	10/15/2001	<1000	<100	35800	18800	110000
	01-RT-139-GW	Project Sample	1/15/2002	<1000	200	33200	9800	53400
	02-RT-048-GW	Project Sample	6/19/2002	<1000	<100	<1000	<1000	9800
	02-RT-065-GW	Project Sample	9/27/2002	<2000	<200	<1000	69500	<1000
	03-RT-034-GW	Project Sample	6/17/2003	<1000	<100	<1000	<1000	<1000
	04-RT-004-GW	Project Sample	1/20/2004	<1000	<100	7300	8000	24100
	04-RT-015-GW	Project Sample	3/31/2004	533000	14600	193000	37500	164000
	04-RT-036-GW	Project Sample	6/8/2004	1800	600	133000	69500	226000
	04-RT-051-GW	Project Sample	10/29/2004	93200	<100	133000	75700	206000
	05-RT-005-GW	Project Sample	2/23/2005	<1000	<100	<1000	<1000	3200
	05-RT-011-GW	QC Duplicate	2/23/2005	1500	<100	1700	<1000	6400
	05-RT-048-GW	Project Sample	10/11/2005	<1000	<100	<1000	<1000	<1000
	06-RT-011-GW	Project Sample	5/25/2006	<1000	<100	<1000	<1000	<1000
	07-RT-027-GW	Project Sample	9/18/2007	<1000	<100	<1000	<1000	<1000
	08-RT-030-GW	Project Sample	9/17/2008	<1000	<100	<1000	<1000	<1000
	Lower Plume							
MW-26	04-RT-057-GW	Project Sample	10/30/2004	<1000	<100	<1000	<1000	<1000
	14-RT-032-GW	QC Duplicate	4/22/2014	8900	<10000	<5000	<5000	<5000

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	Lactic Acid	Pyruvic Acid	Acetic Acid	Butyric Acid	Propionic Acid
MW-39	00-RT-106GW	Project Sample	9/27/2000	<5000	<500	<5000	<5000	<5000
	00-RT-134-GW	Project Sample	11/28/2000	<1000	<500	<1000	<1000	<1000
	01-RT-005-GW	Project Sample	1/11/2001	<1000	<100	<1000	<1000	<1000
	01-RT-034-GW	Project Sample	3/8/2001	<1000	700	<1000	<1000	<1000
	01-RT-074-GW	Project Sample	5/22/2001	<1000	<100	<1000	<1000	<1000
	01-RT-092-GW	Project Sample	10/16/2001	<5000	<500	269000	267000	376000
	01-RT-131-GW	Project Sample	1/15/2002	<1000	500	76500	41200	129000
	02-RT-063-GW	Project Sample	9/27/2002	<2000	<200	12700	70300	16300
	02-RT-104-GW	Project Sample	12/18/2002	<10000	<1000	24100	<10000	71000
	03-RT-003-GW	Project Sample	2/4/2003	<10000	<1000	120000	<1000	124000
	03-RT-039-GW	Project Sample	6/17/2003	<1000	<500	<1000	<5000	<1000
	04-RT-008-GW	Project Sample	1/21/2004	<1000	<200	<1000	<1000	<1000
	04-RT-019-GW	Project Sample	3/31/2004	<1000	<100	89700	2700	72000
	04-RT-028-GW	Project Sample	6/8/2004	<2000	<200	35200	17100	32900
	04-RT-055-GW	Project Sample	10/29/2004	<1000	<100	97400	15600	77200
	05-RT-009-GW	Project Sample	2/23/2005	<1000	<100	33800	<1000	15200
	05-RT-023-GW	Project Sample	6/2/2005	<1000	<100	53800	1200	26900
	05-RT-051-GW	Project Sample	10/11/2005	<1000	<100	55200	<1000	121000
	06-RT-003-GW	Project Sample	3/8/2006	<1000	<100	<1000	<1000	<1000
	06-RT-014-GW	Project Sample	5/24/2006	<1000	<100	141000	103000	264000
	06-RT-035-GW	Project Sample	9/11/2006	<1000	<100	41800	58900	59900
	07-RT-006-GW	Project Sample	5/30/2007	5800	<100	459000	102000	264000
	07-RT-033-GW	Project Sample	9/18/2007	<10000	<1000	518000	749000	507000
	08-RT-006-GW	Project Sample	5/12/2008	<1000	<100	188000	31600	76700
	08-RT-032-GW	Project Sample	9/17/2008	<1000	<100	60400	<1000	19900
	09-RT-008-GW	Project Sample	5/6/2009	<1000	<100	<1000	<1000	<1000
	09-RT-067-GW	Project Sample	10/6/2009	<10000	<1000	165000	<10000	143000
	10-RT-042-GW	Project Sample	5/12/2010	<10000	<1000	691000	704000	642000
	10-RT-086-GW	Project Sample	10/20/2010	<10000	<1000	568000	426000	353000
	12-RT-006-GW	Project Sample	5/8/2012	<10000	<1000	84100	<10000	54800
	13-RT-020-GW	Project Sample	4/9/2013	<25000	<10000	100000	2200	21000
	14-RT-006-GW	Project Sample	4/23/2014	<25000	<10000	36000	<5000	2200

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	Lactic Acid	Pyruvic Acid	Acetic Acid	Butyric Acid	Propionic Acid
MW-44	02-RT-100-GW	Project Sample	11/2/2002	<1000	<500	18500	<1000	19300
	02-RT-105-GW	Project Sample	12/18/2002	<10000	<1000	19500	<10000	<10000
	03-RT-096-GW	Project Sample	10/8/2003	<1000	<200	<1000	<2000	<1000
	04-RT-058-GW	Project Sample	10/29/2004	<1000	<100	<1000	<1000	<1000
	05-RT-053-GW	Project Sample	10/12/2005	19900	<100	11800	<1000	<1000
	06-RT-005-GW	Project Sample	3/7/2006	14800	<100	5600	<1000	4400
	06-RT-017-GW	Project Sample	5/24/2006	<1000 VM	<100 VM	3300	<1000	7300
	06-RT-037-GW	Project Sample	9/12/2006	<1000	<100	<1000	<1000	<1000
	07-RT-009-GW	Project Sample	5/30/2007	4200	<100	14700	3600	39700
	07-RT-035-GW	Project Sample	9/18/2007	<1000	<100	18400	<1000	53900
	08-RT-008-GW	Project Sample	5/12/2008	<1000	<100	2900	<1000	<1000
	08-RT-034-GW	Project Sample	9/17/2008	<1000	<100	76000	6000	47900
	09-RT-010-GW	Project Sample	5/6/2009	<1000	<100	34500	<1000	13000
	09-RT-069-GW	Project Sample	10/6/2009	<1000	<100	26500	<1000	8600
	10-RT-044-GW	Project Sample	5/12/2010	<1000	<100	24800	<1000	<1000
	10-RT-088-GW	Project Sample	10/20/2010	<1000	<100	86000	<1000	<1000
	12-RT-008-GW	Project Sample	5/8/2012	<5000	<500	109000	<5000	35300
	13-RT-018-GW	Project Sample	4/9/2013	<25000	<10000	<5000	<5000	<5000
	14-RT-008-GW	Project Sample	4/23/2014	<25000	<10000	43000	2600	9900
MW-45	03-RT-093-GW	Project Sample	10/9/2003	<1000	<100	<1000	<1000	<1000
	04-RT-059-GW	Project Sample	10/29/2004	<1000	<100	<1000	<1000	<1000
MW-46	03-RT-094-GW	Project Sample	10/9/2003	<1000	<100	<1000	<1000	<1000
	04-RT-060-GW	Project Sample	10/29/2004	<1000	<100	<1000	<1000	<1000

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*Lactic Acid*	*Pyruvic Acid*	*Acetic Acid*	*Butyric Acid*	*Propionic Acid*
MW-47	06-RT-038-GW	Project Sample	10/4/2006	1200	<100	51900	<1000	59100
	07-RT-010-GW	Project Sample	5/30/2007	<1000	<100	415000	144000	342000
	07-RT-036-GW	Project Sample	9/19/2007	<1000	<100	471000	166000	448000
	08-RT-009-GW	Project Sample	5/12/2008	<10000	<1000	577000	104000	420000
	08-RT-035-GW	Project Sample	9/17/2008	<10000	<1000	666000	159000	512000
	09-RT-011-GW	Project Sample	5/6/2009	<1000	<100	939000	357000	850000
	09-RT-070-GW	Project Sample	10/6/2009	29900	<1000	534000	181000	512000
	10-RT-045-GW	Project Sample	5/11/2010	504000	<1000	1060000	1510000	1310000
	10-RT-089-GW	Project Sample	10/19/2010	<20000	<2000	1420000	2120000	1980000
	11-RT-001-GW	Project Sample	5/17/2011	392000	<1000	1480000	3710000	1700000
	12-RT-009-GW	Project Sample	5/8/2012	7650000	<10000	1390000	4360000	1960000
	13-RT-025-GW	Project Sample	4/10/2013	2500000	<100000	680000	1300000	970000
	14-RT-009-GW	Project Sample	4/23/2014	6200000	<200000	650000	1300000	850000
MW-48	09-RT-071-GW	Project Sample	10/6/2009	3960000	<1000	<10000	<10000	472000
	10-RT-046-GW	Project Sample	5/12/2010	151000	<100	170000	295000	243000
	10-RT-090-GW	Project Sample	10/19/2010	<1000	<100	193000	404000	265000
	11-RT-002-GW	Project Sample	5/18/2011	<1000	<100	259000	408000	286000
	12-RT-010-GW	Project Sample	5/8/2012	<10000	<1000	371000	308000	337000
	13-RT-026-GW	Project Sample	4/10/2013	4100	<10000	170000	160000	100000
	14-RT-010-GW	Project Sample	4/22/2014	<120000	6000	1000000	1000000	560000
MW-49	09-RT-072-GW	Project Sample	10/6/2009	19600	<100	261000	171000	141000
	10-RT-047-GW	Project Sample	5/13/2010	<10000	<1000	487000	94400	375000
	10-RT-091-GW	Project Sample	10/19/2010	<1000	<100	655000	210000	347000
	11-RT-003-GW	Project Sample	5/18/2011	<1000	<100	803000	239000	410000
	12-RT-011-GW	Project Sample	5/9/2012	<100000	<10000	1050000	201000	955000
	13-RT-027-GW	Project Sample	4/10/2013	4100	<10000	270000	1500	41000
	14-RT-011-GW	Project Sample	4/23/2014	<120000	<50000	1200000	260000	630000
MW-50	09-RT-073-GW	Project Sample	10/6/2009	<1000	<100	20000	<1000	13100
	10-RT-048-GW	Project Sample	5/12/2010	<1000	<100	27400	<1000	19100
	10-RT-092-GW	Project Sample	10/20/2010	<1000	<100	16500	<1000	11000
	11-RT-004-GW	Project Sample	5/17/2011	<1000	<100	9700	<1000	<1000
	11-RT-008-GW	QC Duplicate	5/17/2011	<1000	<100	9200	<1000	<1000
	12-RT-012-GW	Project Sample	5/8/2012	<5000	<500	16800	<5000	15900
	13-RT-028-GW	Project Sample	4/10/2013	<25000	<10000	<5000	<5000	<5000
	14-RT-012-GW	Project Sample	4/22/2014	14000	<10000	3900	<5000	<5000

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	Lactic Acid	Pyruvic Acid	Acetic Acid	Butyric Acid	Propionic Acid
MW-51	10-RT-093-GW	Project Sample	10/19/2010	262000	9400	256000	163000	195000
	11-RT-005-GW	Project Sample	5/18/2011	<1000	<100	66800	<1000	38200
	12-RT-013-GW	Project Sample	5/9/2012	<1000	<100	136000	12100	46500
	13-RT-029-GW	Project Sample	4/10/2013	5700	<10000	57000	950	6500
	14-RT-013-GW	Project Sample	4/22/2014	<25000	<10000	1100	<5000	<5000
MW-52	10-RT-094-GW	Project Sample	10/19/2010	<1000	<100	53600	<1000	50000
	11-RT-006-GW	Project Sample	5/17/2011	<1000	<100	34500	<1000	11000
	12-RT-014-GW	Project Sample	5/8/2012	<1000	<100	147000	<1000	39900
	13-RT-030-GW	Project Sample	4/10/2013	<100000	<40000	1000000	130000	490000
	14-RT-014-GW	Project Sample	4/23/2014	<25000	<10000	67000	1100	4600
L-13	03-RT-008-GW	Project Sample	3/10/2003	85100	7500	77200	51000	71900
L-78	08-RT-036-GW	Project Sample	9/18/2008	13300000	19800	1400000	4880000	2930000
	09-RT-074-GW	Project Sample	10/7/2009	<10000	<1000	1310000	6310000	2360000
	10-RT-095-GW	Project Sample	10/20/2010	70500000	77000	<200000	663000	865000
	12-RT-015-GW	Project Sample	5/9/2012	144000000	<10000	<100000	1650000	3160000
	13-RT-031-GW	Project Sample	4/9/2013	16000000	<500000	1700000	8100000	2000000
	14-RT-015-GW	Project Sample	4/23/2014	7000000	<500000	4600000	14000000	3400000
L-79	08-RT-011-GW	Project Sample	5/13/2008	153000000	70000	4740000	1380000	2690000
L-80	08-RT-012-GW	Project Sample	5/13/2008	116000000	33800	3760000	1300000	2300000
	08-RT-037-GW	Project Sample	9/18/2008	32500000	82600	<50000	1230000	723000
	14-RT-018-GW	Project Sample	4/23/2014	56000000	300000	1000000	780000	1900000
L-81	08-RT-038-GW	Project Sample	9/18/2008	1930000	<5000	1390000	3510000	1440000
L-100	10-RT-054-GW	Project Sample	5/12/2010	14100000	16400	<100000	3050000	955000
	10-RT-096-GW	Project Sample	10/20/2010	47000000	43600	<200000	4190000	5820000
	11-RT-007-GW	Project Sample	5/17/2011	20000000	29800	16800000	1980000	1570000
	12-RT-016-GW	Project Sample	5/9/2012	254000	<1000	103000	290000	140000
	13-RT-023-GW	Project Sample	4/10/2013	520000	8800	120000	160000	210000
	13-RT-035-GW	QC Duplicate	4/10/2013	440000	7800	95000	150000	180000
	14-RT-016-GW	Project Sample	4/22/2014	<25000	<10000	5600	4600	1400

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	Lactic Acid	Pyruvic Acid	Acetic Acid	Butyric Acid	Propionic Acid
L-101	10-RT-055-GW	Project Sample	5/12/2010	76300000	152000	<500000	1280000	<500000
	10-RT-097-GW	Project Sample	10/20/2010	<10000	<1000	270000	211000	233000
	12-RT-017-GW	Project Sample	5/8/2012	59100000	152000	<100000	864000	1120000
	13-RT-024-GW	Project Sample	4/10/2013	49000000	<2000000	2000000	3000000	1400000
	14-RT-017-GW	Project Sample	4/23/2014	18000000	<500000	1400000	9900000	1700000
L-102	14-RT-019-GW	Project Sample	4/22/2014	61000000	290000	780000	700000	920000
L-103	14-RT-020-GW	Project Sample	4/23/2014	32000000	150000	1000000	3900000	1500000

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	Lactic Acid	Pyruvic Acid	Acetic Acid	Butyric Acid	Propionic Acid
MW-9	00-RT-107GW	Project Sample	9/27/2000	<5000	<500	<5000	<5000	<5000
	00-RT-133-GW	Project Sample	11/28/2000	310000	300	237000	117000	384000
	01-RT-003-GW	Project Sample	1/11/2001	62000	100	221000	213000	410000
	01-RT-004-GW	QC Duplicate	1/11/2001	41000	200	211000	191000	393000
	01-RT-033-GW	Project Sample	3/8/2001	303000	1500	242000	149000	455000
	01-RT-068-GW	Project Sample	5/22/2001	<1000	200	93000	35500	126000
	01-RT-069-GW	QC Duplicate	5/22/2001	<1000	<100	101000	40200	138000
	01-RT-091-GW	Project Sample	10/16/2001	551000	1800	599000	985000	912000
	01-RT-129-GW	Project Sample	1/15/2002	<1000	1300	510000	741000	854000
	02-RT-041-GW	Project Sample	6/19/2002	<1000	<100	264000	806000	611000
	02-RT-062-GW	Project Sample	9/27/2002	<5000	<500	166000	293000	259000
	02-RT-102-GW	Project Sample	12/18/2002	<10000	<1000	151000	149000	211000
	03-RT-001-GW	Project Sample	2/4/2003	<10000	<1000	93400	58700	112000
	03-RT-007-GW	Project Sample	3/10/2003	11200	<500	72900	206000	147000
	03-RT-036-GW	Project Sample	6/17/2003	<5000	<500	95000	155000	84000
	03-RT-095-GW	Project Sample	10/8/2003	<5000	<500	164000	62000	148000
	04-RT-007-GW	Project Sample	1/21/2004	<1000	<200	279000	150000	457000
	04-RT-018-GW	Project Sample	3/31/2004	<1000	<100	301000	209000	323000
	04-RT-027-GW	Project Sample	6/8/2004	<1000	<200	281000	234000	408000
	04-RT-054-GW	Project Sample	10/29/2004	<1000	<100	298000	240000	354000
	05-RT-008-GW	Project Sample	2/24/2005	<1000	<100	270000	162000	210000
	05-RT-022-GW	Project Sample	6/2/2005	<1000	<100	186000	54100	101000
	05-RT-050-GW	Project Sample	10/11/2005	<1000	<100	141000	82100	133000
	06-RT-002-GW	Project Sample	3/8/2006	<25000	<2500	180000	25400	64500
	06-RT-013-GW	Project Sample	5/25/2006	<1000	<100	57300	9400	48500
	06-RT-034-GW	Project Sample	9/11/2006	<1000	<100	87900	23800	94600
	07-RT-005-GW	Project Sample	5/30/2007	<1000	<100	532000	1010000	903000
	07-RT-032-GW	Project Sample	9/19/2007	<10000	<1000	207000	151000	227000
	08-RT-005-GW	Project Sample	5/12/2008	147000	<1000	274000	576000	387000
	08-RT-014-GW	QC Duplicate	5/12/2008	102000	<1000	276000	550000	440000
	08-RT-031-GW	Project Sample	9/16/2008	<1000	<100	277000	493000	326000
	09-RT-007-GW	Project Sample	5/6/2009	<1000	<100	167000	162000	167000
	09-RT-013-GW	QC Duplicate	5/6/2009	<1000	<100	177000	187000	202000
	09-RT-066-GW	Project Sample	10/5/2009	<10000	<1000	162000	62200	128000
	09-RT-075-GW	QC Duplicate	10/5/2009	<10000	<1000	148000	53300	117000
	10-RT-041-GW	Project Sample	5/11/2010	<1000	<100	249000	44600	139000

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	Lactic Acid	Pyruvic Acid	Acetic Acid	Butyric Acid	Propionic Acid
MW-9	10-RT-085-GW	Project Sample	10/20/2010	<1000	<100	239000 VJ	52900 VJ	126000 VJ
	10-RT-098-GW	QC Duplicate	10/20/2010	<10000	<1000	576000 VJ	24400 VJ	527000 VJ
	12-RT-005-GW	Project Sample	5/8/2012	<1000	<100	38600	<1000	6600
	12-RT-018-GW	QC Duplicate	5/8/2012	<1000	<100	32700	<1000	7500
	13-RT-019-GW	Project Sample	4/9/2013	<25000	<10000	80000	<5000	6000
	14-RT-005-GW	Project Sample	4/23/2014	<25000	<10000	120000	1300	19000

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	Lactic Acid	Pyruvic Acid	Acetic Acid	Butyric Acid	Propionic Acid
MW-40	00-RT-108GW	Project Sample	9/27/2000	<5000	<500	<5000	<5000	<5000
	00-RT-132-GW	Project Sample	11/28/2000	<1000	700	164000	88000	404000
	01-RT-002-GW	Project Sample	1/11/2001	<1000	<100	265000	150000	516000
	01-RT-032-GW	Project Sample	3/8/2001	<5000	900	234000	98500	399000
	01-RT-075-GW	Project Sample	5/22/2001	<1000	<100	109000	29300	128000
	01-RT-090-GW	Project Sample	10/16/2001	26700	<500	343000	689000	763000
	01-RT-130-GW	Project Sample	1/15/2002	<1000	1800	583000	396000	992000
	02-RT-042-GW	Project Sample	6/19/2002	<10000	<1000	439000	995000	1170000
	02-RT-064-GW	Project Sample	9/27/2002	<2000	<200	99000	131000	153000
	02-RT-103-GW	Project Sample	12/18/2002	<10000	<1000	358000	311000	440000
	03-RT-002-GW	Project Sample	2/4/2003	<1000	<1000	174000	297000	242000
	03-RT-035-GW	Project Sample	6/17/2003	<5000	<500	202000	295000	307000
	04-RT-009-GW	Project Sample	1/21/2004	<2000	<200	153000	39300	98600
	04-RT-020-GW	Project Sample	3/30/2004	<1000	<100	198000	146000	220000
	04-RT-029-GW	Project Sample	6/8/2004	<5000	<500	255000	85500	276000
	04-RT-056-GW	Project Sample	10/29/2004	<1000	<100	206000	87800	186000
	05-RT-010-GW	Project Sample	2/24/2005	<1000	<100	178000	13100	66800
	05-RT-024-GW	Project Sample	6/2/2005	<1000	<100	201000	38100	101000
	05-RT-052-GW	Project Sample	10/12/2005	<1000	<100	111000	30600	97700
	06-RT-004-GW	Project Sample	3/8/2006	<1000	<100	<1000	<1000	<1000
	06-RT-015-GW	Project Sample	5/25/2006	<1000	<100	27100	<1000	28300
	06-RT-036-GW	Project Sample	9/12/2006	<1000	<100	42800	35800	25400
	07-RT-007-GW	Project Sample	5/30/2007	<1000	<100	95000	6100	72200
	07-RT-034-GW	Project Sample	9/19/2007	<1000	<100	<1000	<1000	<1000
	08-RT-007-GW	Project Sample	5/12/2008	<1000	<100	206000	92600	110000
	08-RT-033-GW	Project Sample	9/17/2008	<1000	<100	27900	<1000	<1000
	08-RT-039-GW	QC Duplicate	9/17/2008	<1000	<100	35600	<1000	<1000
	09-RT-009-GW	Project Sample	5/6/2009	<1000	<100	93800	<1000	54200
	09-RT-068-GW	Project Sample	10/7/2009	<10000	<1000	75400	<10000	54600
	10-RT-043-GW	Project Sample	5/13/2010	<1000	<100	37600	<1000	<1000
	10-RT-056-GW	QC Duplicate	5/13/2010	<1000	<100	35400	<1000	<1000
	10-RT-087-GW	Project Sample	10/20/2010	<10000	<1000	115000	<10000	<10000
	12-RT-007-GW	Project Sample	5/7/2012	<10000	<1000	22500	<10000	47200
	13-RT-021-GW	Project Sample	4/9/2013	<25000	<10000	<5000	<5000	<5000
	14-RT-007-GW	Project Sample	4/23/2014	<25000	<10000	7200	<5000	<5000

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*Lactic Acid*	*Pyruvic Acid*	*Acetic Acid*	*Butyric Acid*	*Propionic Acid*
MW-6	00-RT-109GW	Project Sample	9/27/2000	<5000	<500	<5000	<5000	<5000
	00-RT-130-GW	Project Sample	11/28/2000	<5000	<500	92000	19000	320000
	00-RT-131-GW	QC Duplicate	11/28/2000	<10000	<1000	88000	20000	315000
	01-RT-001-GW	Project Sample	1/11/2001	<10000	<1000	323000	80000	677000
	01-RT-030-GW	Project Sample	3/8/2001	<1000	<100	231000	61800	371000
	01-RT-031-GW	QC Duplicate	3/8/2001	<1000	1000	211000	56200	332000
	01-RT-076-GW	Project Sample	5/22/2001	<1000	<100	108000	10600	95500
	01-RT-089-GW	Project Sample	10/16/2001	<5000	<500	820000	584000	1430000
	01-RT-128-GW	Project Sample	1/15/2002	<1000	1400	390000	327000	988000
	02-RT-040-GW	Project Sample	6/19/2002	<1000	<100	331000	84400	451000
	02-RT-061-GW	Project Sample	9/27/2002	<5000	<500	448000	109000	559000
	03-RT-004-GW	Project Sample	2/4/2003	<1000	<1000	205000	59500	208000
	03-RT-032b-GW	Project Sample	6/17/2003	<10000	<1000	71700	<10000	141000
	04-RT-010-GW	Project Sample	1/20/2004	<1000	<200	<1000	<1000	<1000
	04-RT-021-GW	Project Sample	3/29/2004	<5000	<500	44700	<1000	23000
	04-RT-025-GW	Project Sample	6/7/2004	<10000	<1000	<10000	<10000	<10000
	04-RT-052-GW	Project Sample	10/30/2004	<1000	<100	<1000	<1000	<1000
	05-RT-006-GW	Project Sample	2/24/2005	<1000	<100	64500	<1000	6100
	05-RT-020-GW	Project Sample	6/2/2005	<1000	<100	<1000	<1000	<1000
	05-RT-049-GW	Project Sample	10/11/2005	<1000	<100	96300	<1000	<1000
	06-RT-012-GW	Project Sample	5/25/2006	<1000	<100	<1000	<1000	<1000
	06-RT-033-GW	Project Sample	9/11/2006	<1000	<100	<1000	<1000	<1000
	07-RT-004-GW	Project Sample	5/30/2007	<1000	<100	224000	18600	115000
	07-RT-031-GW	Project Sample	9/19/2007	<1000	<100	35600	<1000	<1000
	09-RT-005-GW	Project Sample	5/6/2009	<1000	<100	<1000	<1000	<1000
	09-RT-065-GW	Project Sample	10/7/2009	<1000	<100	<1000	<1000	<1000
	10-RT-040-GW	Project Sample	5/13/2010	<1000	<100	<1000	<1000	<1000
	10-RT-057-GW	QC Duplicate	5/13/2010	<1000	<100	<1000	<1000	<1000
	10-RT-084-GW	Project Sample	10/20/2010	<1000	<100	<1000	<1000	<1000
	12-RT-004-GW	Project Sample	5/8/2012	<1000	<100	<1000	<1000	<1000
	13-RT-022-GW	Project Sample	4/11/2013	<25000	<10000	5500	<5000	<5000
	14-RT-004-GW	Project Sample	4/24/2014	<25000	<10000	<5000	<5000	<5000
MW-5	07-RT-028-GW	Project Sample	9/20/2007	<1000	<100	<1000	<1000	<1000
MW-7	06-RT-032-GW	Project Sample	9/11/2006	<1000	<100	<1000	<1000	<1000
	07-RT-029-GW	Project Sample	9/19/2007	<1000	<100	216000	6900	37800

Table C-3: September 2000 through April 2014 Performance Monitoring Groundwater Volatile Acid Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	***Sample ID***	***Sample Type***	***Date Sampled***	***Lactic Acid***	***Pyruvic Acid***	***Acetic Acid***	***Butyric Acid***	***Propionic Acid***
MW-8	07-RT-030-GW	Project Sample	9/19/2007	<1000	<100	<1000	<1000	<1000
MW-12	07-RT-038-GW	Project Sample	9/19/2007	<1000	<100	<1000	<1000	<1000
MW-20	03-RT-033-GW	Project Sample	6/17/2003	<10000	<1000	<1000	<1000	<1000
	04-RT-006-GW	Project Sample	1/20/2004	<1000	<200	<1000	<1000	<1000
	04-RT-017-GW	Project Sample	3/30/2004	<1000	<100	<1000	<1000	<1000
	04-RT-022-GW	QC Duplicate	3/30/2004	<1000	<500	<1000	<5000	<1000
	04-RT-026-GW	Project Sample	6/8/2004	<5000	<500	46200	10500	18300
	04-RT-053-GW	Project Sample	10/29/2004	<1000	<100	<1000	<1000	<1000
	05-RT-007-GW	Project Sample	2/24/2005	<1000	<100	<1000	<1000	<1000
	05-RT-021-GW	Project Sample	6/2/2005	<1000	<100	<1000	<1000	<1000
	06-RT-016-GW	Project Sample	5/26/2006	<1000 VM	<100 VM	9800	<1000	32300
	07-RT-039-GW	Project Sample	9/19/2007	<1000	<100	<1000	<1000	<1000
	09-RT-006-GW	Project Sample	5/6/2009	<1000	<100	<1000	<1000	<1000
	10-RT-053-GW	Project Sample	5/13/2010	<1000	<100	<1000	<1000	<1000
MW-35	07-RT-040-GW	Project Sample	9/20/2007	<1000	<100	<1000	<1000	<1000

Notes: --- indicates that no volatile acid analysis was performed

Phase II performance monitoring began in October 2001.

Historical (pre-performance monitoring) data for the year 2000 is provided for monitoring wells MW-4A, MW-6, MW-9, MW-10, MW-16, MW-24, and MW-25 for comparison with data collected during Phase I and II performance monitoring.

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	PCE MCL=5; ACL=840	TCE MCL=5; ACL=21,900	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=100; ACL=11,600	Vinyl chloride MCL=2; ACL=2	1,2-DCA
	Upper Plume								
MW-36	00-RT-103-GW	Project Sample	9/27/2000	3420	209 VJ	27.2	<1	<1	<0.4
	00-RT-104-GW	QC Duplicate	9/27/2000	3230	205 VJ	28	<1	<1	<0.4
	00-RT-105-GW	QA Duplicate	9/27/2000	3600	170	25	<1	<2	
	00-RT-138-GW	Project Sample	11/28/2000	2880	1710	842	30.8	<5	<2
	01-RT-009-GW	Project Sample	1/11/2001	198	604	1480	28.5	<10	<4
	01-RT-035-GW	Project Sample	3/8/2001	628	1000	3990	87.5	<50	<50
	01-RT-073-GW	Project Sample	5/22/2001	3090	390	1640	28.5	<25	<25
	01-RT-096-GW	Project Sample	10/16/2001	<10	26.3	1170	<10	<10	<10
	01-RT-136-GW	Project Sample	1/16/2002	18.9	36.5	1330	<10	<10	<10
	01-RT-137-GW	QC Duplicate	1/16/2002	16.6	39	1330	<10	<10	<10
	01-RT-138-GW	QA Split	1/16/2002	24.4 J	41.5 J	1420 J	14.6 J	<2 J,H	
	02-RT-015-GW	Project Sample	3/13/2002	5.25	7.76	1170	<2	<2	
	02-RT-045-GW	Project Sample	6/18/2002	7.38 J	23.9 J	3340 J	28 J	<2 J	
	02-RT-046-GW	QC Duplicate	6/18/2002	7.32 J	27 J	2650 J	23.8 J	<2 J	
	02-RT-047-GW	QA Split	6/18/2002	<10	21.2	2610	24.9	<10	<10
	02-RT-068-GW	Project Sample	9/27/2002	320	370	810	5.4	<1	
	02-RT-069-GW	QC Duplicate	9/27/2002	310	380	800	5.4	<1	
	02-RT-070-GW	QA Split	9/27/2002	346	415	727	<10	<10	<10
	02-RT-110-GW	Project Sample	12/19/2002	2.81	4.43	716	<1	<1	
	03-RT-012-GW	Project Sample	3/10/2003	<10	<10	969	<10	<10	<10
	03-RT-040-GW	Project Sample	6/17/2003	26	21.7	2220	27.3	<10	<10
	03-RT-092-GW	Project Sample	10/7/2003	41	68.6	901	8.2	<1	<1
	04-RT-001-GW	Project Sample	1/21/2004	1.3	<1	717	5.8	1.3	<1
	04-RT-012-GW	Project Sample	3/31/2004	1.9	<1	484	4.7	<1	<1
	04-RT-023-GW	Project Sample	6/8/2004	10.1	7.3	1620	17.4	<5	<5
	04-RT-047-GW	Project Sample	10/30/2004	6	9.8	1330	13.6	<1	<1
	05-RT-001-GW	Project Sample	2/23/2005	8.9	<5	914	8.2	<5	<5
	05-RT-027-GW	Project Sample	6/3/2005	8.28	82.2	1850	13.7	<2	
	05-RT-043-GW	QC Duplicate	6/3/2005	8.14	61.6	1970	14.7	<2	
	05-RT-044-GW	Project Sample	10/11/2005	<1	<1	636 VM	5.9	6.6	<1
	06-RT-007-GW	Project Sample	5/24/2006	<1	<1	547	7.6	93.6	<1
	06-RT-029-GW	Project Sample	9/12/2006	414	110	139	<10	<10	<10
	07-RT-001-GW	Project Sample	5/30/2007	8.3	23.1	257	<5	29.1	<5
	07-RT-021-GW	Project Sample	9/20/2007	54.3	62.7	339	<5	18	<5
	07-RT-042-GW	QC Duplicate	9/20/2007	62.6	64.1	337	<5	18.8	<5

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE* *MCL=5; ACL=840*	*TCE* *MCL=5; ACL=21,900*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=100; ACL=11,600*	*Vinyl chloride* *MCL=2; ACL=2*	*1,2-DCA*
MW-36	07-RT-044-GW	QA Split	9/20/2007	33.5 VJ	50	251	0.69 VM	12.6 VJ	<0.5
	08-RT-001-GW	Project Sample	5/13/2008	25.4	24.4	202	4.4	64.1	<1
	08-RT-040-GW	QA Split	9/18/2008	95.6 VJ	<1 VJ	32.5	<1	1.5	<1
	08-RT-042-GW	Project Sample	9/18/2008	71.7	26.9 VM	27.2 VM	<1	0.77 VJ	<0.5
	08-RT-064-GW	QC Duplicate	9/18/2008	70	26.8	30.4	<1	1.7 VJ	<0.5
	09-RT-001-GW	Project Sample	5/5/2009	98.9	37.7	221	1.71	34.3	<0.5
	09-RT-078-GW	Project Sample	10/8/2009	125	77.2	192	3.04	55.8	<0.15
	10-RT-049-GW	Project Sample	5/14/2010	175	61.9	207	1.82	32.3 VJ	<0.15
	10-RT-080-GW	Project Sample	10/20/2010	51.6	42.6	168	1.2	17.4	<0.15
	12-RT-001-GW	Project Sample	5/9/2012	1.81	9.35	85.5	0.46	4.38	<0.15
	13-RT-016-GW	Project Sample	4/11/2013	11.3	8.69	41	<0.62	4.97	<0.3
	14-RT-001-GW	Project Sample	4/22/2014	7.09	64.1	355	<0.5	10.8	<0.25
MW-37	00-RT-102-GW	Project Sample	9/27/2000	1910	55.3	19.1	<1	<1	<0.4
	00-RT-137-GW	Project Sample	11/28/2000	982	1280	655	<5	<5	<2
	01-RT-007-GW	Project Sample	1/11/2001	314	462	1240	<10	<10	<4
	01-RT-036-GW	Project Sample	3/8/2001	209	219	1430	<10	<10	<10
	01-RT-072-GW	Project Sample	5/22/2001	53.3	144	1530	16.2	<10	<10
	01-RT-094-GW	Project Sample	10/16/2001	7.5 J,H	8.6 J,H	544 J,H	<5 J,H	<5 J,H	<5 J,H
	01-RT-134-GW	Project Sample	1/16/2002	5.3 J,H	2.4 J,H	384 J,H	2.5 J,H	<2 J,H	<2 J,H
MW-16	00-RT-040-GW	Project Sample	6/7/2000	1300	37	8.5	<1	<2	
	00-RT-101-GW	Project Sample	9/27/2000	2450	73.7	17.6	<1	<1	<0.4
	00-RT-136-GW	Project Sample	11/28/2000	3110	968	113	<5	<5	<2
	01-RT-008-GW	Project Sample	1/11/2001	60.7	889	578	10.8	<10	<4
	01-RT-037-GW	Project Sample	3/8/2001	17.8	46	1210	10.2	<5	<5
	01-RT-071-GW	Project Sample	5/22/2001	25.2	121	2700	31.7	<10	<10
	01-RT-095-GW	Project Sample	10/16/2001	<5 J,H	6 J,H	476 J,H	<5 J,H	<5 J,H	<5 J,H
	01-RT-135-GW	Project Sample	1/16/2002	3.9 J,H	<2 J,H	306 J,H	2.2 J,H	<2 J,H	<2 J,H
	02-RT-014-GW	Project Sample	3/13/2002	2.48	2.58	383	2.78	<2	
	02-RT-044-GW	Project Sample	6/18/2002	12.8 J	25.3 J	2410 J	15.7 J	<2 J	
	02-RT-067-GW	Project Sample	9/27/2002	8.2	8.2	1200	7	1.1	
	02-RT-109-GW	Project Sample	12/19/2002	17.1	28.2	864	<1	<1	
	03-RT-011-GW	Project Sample	3/10/2003	16.1	21.7	681	<10	<10	<10
	03-RT-041-GW	Project Sample	6/18/2003	<10	<10	635	<10	<10	<10
	03RT-078-GW	Project Sample	9/18/2003	<5	<5	352	<5	<5	<5
	04-RT-002-GW	Project Sample	1/21/2004	2	1.3	380	3.7	1	<1
	04-RT-013-GW	Project Sample	3/31/2004	2.2	<1	557	5.6	1.9	<1

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE MCL=5; ACL=840*	*TCE MCL=5; ACL=21,900*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=100; ACL=11,600*	*Vinyl chloride MCL=2; ACL=2*	*1,2-DCA*
MW-16	04-RT-024-GW	Project Sample	6/8/2004	<5	<5	844	5.6	<5	<5
	04-RT-048-GW	Project Sample	10/30/2004	2.4	<1	1040	7.9	2.9	<1
	04-RT-064-GW	QA Split	10/30/2004	16.5	5.36	1080	5.17	2.11	
	05-RT-028-GW	Project Sample	6/3/2005	<2	<2	920	4.28	<2	
	05-RT-045-GW	Project Sample	10/12/2005	1	1.6	509 VM	4.1	1.7	<1
	06-RT-008-GW	Project Sample	5/24/2006	<1	<1	115	5.5	36.6	<1
	06-RT-030-GW	Project Sample	9/12/2006	30.6	<5	271	<5	22.8	<5
	07-RT-002-GW	Project Sample	5/29/2007	9.8	8	422	5.8	78.9	<1
	07-RT-022-GW	Project Sample	9/20/2007	12.6 VH	9.8 VH	158 VH	2.6 VH	37.8 VH	<1
	08-RT-002-GW	Project Sample	5/13/2008	14.5	7.6	58.8	1.4	11.2	<1
	08-RT-043-GW	Project Sample	9/19/2008	4.36	3.74	61.5	1.91	21.7 VJ	<0.5
	08-RT-065-GW	QC Duplicate	9/19/2008	5.19	4.59	58.7	1.84	20.3	<0.5
	09-RT-002-GW	Project Sample	5/5/2009	1.04	1.92	35.9	3.15	16.7	<0.5
	09-RT-079-GW	Project Sample	10/8/2009	2.35	7.52 VB	22.6	1.54	7.62	<0.15
	10-RT-050-GW	Project Sample	5/14/2010	10.1	13.3	960	1.26	6.1 VJ	<0.15
	10-RT-081-GW	Project Sample	10/21/2010	9.99	11.5	18.6	2.13	10.7	0.35
	10-RT-099-GW	QA Split	10/21/2010	9.7	12.2	18.7	2.2	8.1	<1
	12-RT-002-GW	Project Sample	5/9/2012	30.4 VH	7.76 VH	13.8 VH	0.42 VH	3.73 VH	<0.15 VH
	13-RT-015-GW	Project Sample	4/11/2013	47.7	13.4	297 VJM	3.93	35.3	<0.3
	13-RT-034-GW	QC Duplicate	4/11/2013	48	13.4	153 VJM	3.67	31.7	<0.3
	14-RT-002-GW	Project Sample	4/22/2014	6.61	5.02	26.5	0.83	8.03	<0.25
MW-38	00-RT-100-GW	Project Sample	9/27/2000	804	19.7	3.3	<1	<1	<0.4
	00-RT-135-GW	Project Sample	11/28/2000	1210	37.4	16.3	<5	<5	<2
	01-RT-006-GW	Project Sample	1/11/2001	226	54.1	18.9	<10	<10	<4
	01-RT-038-GW	Project Sample	3/8/2001	178	17.9	1.5	<1	<1	<1
	01-RT-070-GW	Project Sample	5/22/2001	84.7	53.4	535	4.8	<1	<1
	01-RT-093-GW	Project Sample	10/16/2001	52.7 J,H	9.5 J,H	117 J,H	<1 J,H	<1 J,H	<1 J,H
	01-RT-132-GW	Project Sample	1/16/2002	12.2	4.6	82	<1	<1	<1
	02-RT-013-GW	Project Sample	3/13/2002	9.19	4.1	91.1	<2	<2	
	02-RT-043-GW	Project Sample	6/18/2002	2.52 J	2.18 J	635 J	3.19 J	<2 J	
	02-RT-066-GW	Project Sample	9/27/2002	53	14	150	<1	<1	
	02-RT-111-GW	Project Sample	12/19/2002	5.69	4.94	376	<1	<1	
	03-RT-014-GW	Project Sample	3/11/2003	5.77	3.8	279	2.31	<1	
	03-RT-067-GW	Project Sample	6/18/2003	3.49	3.67	182	1.05	<1	
	03RT-079-GW	Project Sample	9/18/2003	6.3	4.6	159	1	<1	<1
	04-RT-034-GW	Project Sample	6/9/2004	1.05	<1	326	1	<1	<0.5

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE MCL=5; ACL=840*	*TCE MCL=5; ACL=21,900*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=100; ACL=11,600*	*Vinyl chloride MCL=2; ACL=2*	*1,2-DCA*
MW-38	04-RT-082-GW	Project Sample	10/22/2004	2.12	1.6	72.6	<1	<1	<0.5
	05-RT-031-GW	Project Sample	6/3/2005	1.83 VB	1.86	240	<1	<1	
	05-RT-066-GW	Project Sample	10/12/2005	2.22	1.73	141	<1	<1	<0.5
	06-RT-023-GW	Project Sample	5/26/2006	<1	1.72	122	1.35	1.69	<0.5
	06-RT-056-GW	Project Sample	9/12/2006	14	5.5	260	2.2	23	
	06-RT-063-GW	QC Duplicate	9/12/2006	14	5.7	250	2.3	24	
	07-RT-015-GW	Project Sample	5/30/2007	6.05	3.28	89	3.22	43.1	<0.5
	07-RT-025-GW	Project Sample	9/20/2007	1.4	1.2	35.2	1.3	4.5	<1
	08-RT-046-GW	Project Sample	9/19/2008	12.9	1.02	4.77	<1	1.59	<0.5
	09-RT-082-GW	Project Sample	10/8/2009	<0.31	<0.31	21.8	1.72	7.67	<0.15
	10-RT-102-GW	Project Sample	10/22/2010	<0.31	<0.31	3.61	<0.31	2.79	<0.15
	12-RT-024-GW	Project Sample	5/10/2012	1.39	2.23 VJ	93.1	1.21 VJ	12.4 VJ	<0.15
	13-RT-004-GW	Project Sample	4/11/2013	1.14	5.97	27.4	1.39	7.47	<0.3
	14-RT-023-GW	Project Sample	4/22/2014	0.373	0.986	29	2.32	16.5	<0.25
	14-RT-033-GW	QC Duplicate	4/22/2014	<50	<50	61.6	<50	<50	<25
MW-25	00-RT-068-GW	Project Sample	6/9/2000	310	11	7.1	<1	<2	
	00-RT-069-GW	QC Duplicate	6/9/2000	280	11	6.7	<1	<2	
	00-RT-070-GW	QA Duplicate	6/9/2000	290	10	6.4	<0.5	<0.5	
	00-RT-126-GW	Project Sample	9/29/2000	540	18	11	<1	<2	
	00-RT-127-GW	QC Duplicate	9/29/2000	500	16	7.4	<1	<2	
	00-RT-129-GW	QA Split	9/29/2000	395	14.9	10	<1	<1	
	01-RT-020-GW	Project Sample	1/10/2001	480	120	58	<20	<20	
	01-RT-021-GW	QC Duplicate	1/10/2001	510	130	57	<20	<20	
	01-RT-022-GW	QA Split	1/10/2001	792	171	72.8	<10	<10	<4
	01-RT-042-GW	Project Sample	3/22/2001	425	84	284	7.93	<2	
	01-RT-077-GW	Project Sample	6/25/2001	156	25.6	142	2.3	<2	
	01-RT-109-GW	Project Sample	10/17/2001	17.9 J	10 J	801 J	4.23 J	<2 J	
	01-RT-133-GW	Project Sample	1/16/2002	5.4 J,H	<5 J,H	752 J,H	<5 J,H	<5 J,H	<5 J,H
	02-RT-016-GW	Project Sample	3/13/2002	3.22	2.28	956	<2	<2	
	02-RT-017-GW	QC Duplicate	3/13/2002	4.07	2.49	933	<2	<2	
	02-RT-018-GW	QA Split	3/13/2002	3.7	2.21	804	4.12	<2	
	02-RT-049-GW	Project Sample	6/18/2002	2.89 J	<2 J	721 J	4.12 J	<2 J	
	02-RT-071-GW	Project Sample	9/27/2002	2.5	<1	980	6.2	1.3	
	02-RT-108-GW	Project Sample	12/19/2002	3.28	1.61	796	<1	<1	
	03-RT-013-GW	Project Sample	3/11/2003	1.4	<1	1320	9.82	1.2	
	03-RT-042-GW	Project Sample	6/18/2003	<10	<10	563	<10	<10	<10

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE* *MCL=5; ACL=840*	*TCE* *MCL=5; ACL=21,900*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=100; ACL=11,600*	*Vinyl chloride* *MCL=2; ACL=2*	*1,2-DCA*
MW-25	03-RT-088-GW	Project Sample	9/18/2003	<1 J	<1 J	765 J	13.9 J	<1 J	
	04-RT-003-GW	Project Sample	1/21/2004	<1	4.1	867	7.9	1	<1
	04-RT-014-GW	Project Sample	3/31/2004	<1	1.3	932	6.5	1.3	<1
	04-RT-033-GW	Project Sample	6/8/2004	<1	<1	301	1.73	<1	<0.5
	04-RT-046-GW	QC Duplicate	6/8/2004	<1	<1	325	1.93	<1	<0.5
	04-RT-049-GW	Project Sample	10/30/2004	<1	5	1020	7	<1	<1
	05-RT-003-GW	Project Sample	2/23/2005	<1	6.9	566	4.2	<1	<1
	05-RT-029-GW	Project Sample	6/3/2005	<1	6.49	358	2.69	<1	
	05-RT-046-GW	Project Sample	10/12/2005	<1	<1	1030 VM	9.2	1.8	<1
	06-RT-009-GW	Project Sample	5/24/2006	<10	<10	949	<10	48.5	<10
	06-RT-031-GW	Project Sample	9/12/2006	<5	<5	451	<5	34.7	<5
	07-RT-003-GW	Project Sample	5/29/2007	7.9	5	137	1.1	12.4	<1
	07-RT-023-GW	Project Sample	9/18/2007	7	5.9	141	1.4	14.2 VM	<1
	08-RT-003-GW	Project Sample	5/13/2008	3.5	2.8	126	1.9	29.2	<1
	08-RT-044-GW	Project Sample	9/19/2008	4.41	3.34	127	2.03	26.8	<0.5
	09-RT-003-GW	Project Sample	5/5/2009	9.66	1.9	15.8	<1	0.42	<0.5
	09-RT-080-GW	Project Sample	10/8/2009	8.94	1.98 VB	58.8	0.95	11	<0.15
	10-RT-051-GW	Project Sample	5/14/2010	3.35	5.22	49.7	1.3	10.1 VJ	<0.15
	10-RT-082-GW	Project Sample	10/21/2010	8.76	8.46	84.8	1.26	9.5 VJ	<0.15
	10-RT-100-GW	QA Split	10/21/2010	8.8	8.2	83.5	1.4	6.8 VJ	<1
	12-RT-023-GW	Project Sample	5/10/2012	11.1	11.8 VJ	43.4 VJM	0.93 VJ	5	<0.15
	12-RT-042-GW	QC Duplicate	5/10/2012	10.8	13.4	49.4 VM	1.25	6.52	<0.15
	13-RT-003-GW	Project Sample	4/11/2013	6	6.61	37.2	0.53	1.48	<0.3
	14-RT-022-GW	Project Sample	4/24/2014	3.73	13.7	44	0.905	3.2	<0.25
MW-21	00-RT-067-GW	Project Sample	6/9/2000	130	25	42	<1	<2	
	00-RT-125-GW	Project Sample	9/29/2000	130	19	29	<1	<2	
	01-RT-023-GW	Project Sample	1/10/2001	53	16	36	<2	<2	
	01-RT-041-GW	Project Sample	3/22/2001	53.8	16.9	45.2	<1	<1	
	01-RT-078-GW	Project Sample	6/25/2001	28.4	11.2	73	<2	<2	
	01-RT-107-GW	Project Sample	10/17/2001	11 J	3.13 J	73.9 J	<1 J	<1 J	
	01-RT-151-GW	Project Sample	1/16/2002	8.57 J	3.16 J	104 J	0.788 J	<1 J	
	02-RT-050-GW	Project Sample	6/18/2002	11.3 J	2.95 J	84.3 J	<1 J	<1 J	
	02-RT-092-GW	Project Sample	9/27/2002	32	9.5	99	<2	<1	
	03-RT-065-GW	Project Sample	6/18/2003	45.7	13	177	<1	<1	
	03-RT-100-GW	Project Sample	10/7/2003	21.4	3.64	72.7	<1	<1	
	04-RT-031-GW	Project Sample	6/8/2004	1.26	1.24	89.8	<1	<1	<0.5

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE* *MCL=5; ACL=840*	*TCE* *MCL=5; ACL=21,900*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=100; ACL=11,600*	*Vinyl chloride* *MCL=2; ACL=2*	*1,2-DCA*
MW-21	04-RT-045-GW	QC Duplicate	6/8/2004	1.43	1.46	97.5	<1	<1	<0.5
	04-RT-075-GW	Project Sample	10/22/2004	7.36	3.22	91.7	<1	<1	<0.5
	05-RT-030-GW	Project Sample	6/3/2005	27.5	14.6	144	<1	<1	
	05-RT-062-GW	Project Sample	10/12/2005	1.27	<1	116	<1	<1	<0.5
	06-RT-050-GW	Project Sample	9/13/2006	88	42	170	<0.5	<0.5	
	07-RT-024-GW	Project Sample	9/20/2007	23.6	7.5	121	<1	<1	<1
	08-RT-045-GW	Project Sample	9/20/2008	148	62.8	389	0.69	<1	<0.5
	09-RT-081-GW	Project Sample	10/8/2009	9.2 F	6.95 VJ	341	0.54	0.34	<0.15
	10-RT-101-GW	Project Sample	10/22/2010	47.7	23.9	549	1.44	<0.62	<0.3
	10-RT-119-GW	QC Duplicate	10/22/2010	55.5	27.7	575	1.5	0.31	<0.15
	12-RT-021-GW	Project Sample	5/10/2012	38.1	18.6 VJ	34.9 VJ	<0.31	<0.31	<0.15
MW-42	02-RT-099-GW	Project Sample	11/2/2002	39.7	17.7	129	1.3	<1	<1
	02-RT-112-GW	Project Sample	12/19/2002	44.5	19.2	976	9.76	<1	
	03-RT-030-GW	Project Sample	3/11/2003	69.4	43.8	940	12.9	<1	
	03-RT-069-GW	Project Sample	6/18/2003	23.1	11.6	355	3.67	<1	
	03-RT-070-GW	QC Duplicate	6/18/2003	20.5	10.8	387	3.75	<1	
	03-RT-071-GW	QA Split	6/18/2003	32.9	18.5	373	5.1	<1	<1
	03-RT-097-GW	Project Sample	10/7/2003	298	309	<1	<1	<1	
	04-RT-035-GW	Project Sample	6/9/2004	31.6	9.69	181	1.84	<1	<0.5
	04-RT-084-GW	Project Sample	10/22/2004	15.6	35.5	400	<1	<1	<0.5
	05-RT-032-GW	Project Sample	6/3/2005	23.1	21.3	93	1.37	<1	
	05-RT-067-GW	Project Sample	10/12/2005	127	21.3	634	7.39	<1	<0.5
	06-RT-024-GW	Project Sample	5/26/2006	41.9	14.9	472	5.53	23	<0.5
	06-RT-058-GW	Project Sample	9/12/2006	13	5.8	140	1.3	1.3	
	07-RT-016-GW	Project Sample	5/30/2007	27.9	10.9	259 VH	3.06	18.3	<0.5
	07-RT-026-GW	Project Sample	9/20/2007	16.8 VH	7.3 VH	18 VH	<1 VH	1.1 VH	<1
	08-RT-004-GW	Project Sample	5/13/2008	1.7	11.2	241	2.4	59.4	<1
	08-RT-048-GW	Project Sample	9/18/2008	194	57	48.5	0.69	11.1 VJ	<0.5
	09-RT-004-GW	Project Sample	5/5/2009	409	176	234	3.74	52.5	<0.5
	09-RT-083-GW	Project Sample	10/8/2009	27.7	11.1	25.3	1.57	9.45	<0.15
	10-RT-052-GW	Project Sample	5/14/2010	40.8	8.07	12.6	<0.31	1.55 VJ	<0.15
	10-RT-083-GW	Project Sample	10/18/2010	17.3	2.84	17.5	<0.31	6.63	<0.15
	12-RT-003-GW	Project Sample	5/9/2012	48 VJH	16.1 VJH	60.7 VJH	.62 VJH	7.01 VJH	<0.15 VJ
	13-RT-017-GW	Project Sample	4/11/2013	11.3	25.5	256	2.17	18.3	<0.3
	14-RT-003-GW	Project Sample	4/22/2014	7	4.8	58.5	1.66	7.95	<0.25
	14-RT-034-GW	QC Duplicate	4/22/2014	141	<50	180	<50	<50	<25

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE MCL=5; ACL=840*	*TCE MCL=5; ACL=21,900*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=100; ACL=11,600*	*Vinyl chloride MCL=2; ACL=2*	*1,2-DCA*
Lower (Phase II) Plume									
MW-10	00-RT-053-GW	Project Sample	6/7/2000	610 J	82	460	<10	<20	
	00-RT-118-GW	Project Sample	9/28/2000	690	86	460 VJ	<1	<2	
	01-RT-013-GW	Project Sample	1/10/2001	31	24 H	780	4.9 H	<2 H	
	01-RT-050-GW	QA Split	3/7/2001	<10	13.9	1740	<10	<10	<10
	01-RT-048-GW	Project Sample	3/22/2001	21.5	26.2	1020	40.3	<2	
	01-RT-049-GW	QC Duplicate	3/22/2001	12.5	21	974	25.3	<2	
	01-RT-050-GW	QA Split	3/22/2001	12.2	20.1	816	<10	<10	<10
	01-RT-081-GW	Project Sample	6/25/2001	17.6	11.7	801	2.46	---	
	01-RT-100-GW	Project Sample	10/16/2001	95.5	116	954	<10	<10	<10
	01-RT-140-GW	Project Sample	1/15/2002	144	135	986	<10	<10	<10
	01-RT-141-GW	QC Duplicate	1/15/2002	172	187	1110	<10	<10	<10
	01-RT-142-GW	QA Split	1/15/2002	160 J	123 J	858 J	<2 J,H	2.22 J,H	
	02-RT-010-GW	Project Sample	3/13/2002	180	127	994	5.89	3.47	
	02-RT-051-GW	Project Sample	6/19/2002	34.7 J	58.1 J	724 J	3.11 J	<2 J	
	02-RT-076-GW	Project Sample	9/26/2002	20	15	330	1.2	<1	
	02-RT-120-GW	Project Sample	12/19/2002	1.69	1.25	363	1.57	<1	
	03-RT-021-GW	Project Sample	3/11/2003	<1	<1	489	2	1.69	
	03-RT-044-GW	Project Sample	6/18/2003	1	<1	443	1.79	1.9	
	03-RT-118-GW	Project Sample	10/8/2003	9.42	1.74	115	<1	<1	
	03-RT-119-GW	QC Duplicate	10/8/2003	7.72	1.54	181	<1	<1	
	04-RT-005-GW	Project Sample	1/20/2004	1.6	2.2	820	15.1	3.3	<1
	04-RT-016-GW	Project Sample	3/30/2004	2.4	1.9	286	<1	1.3	<1
	04-RT-039-GW	Project Sample	6/8/2004	<1	<1	258	1.1	1	<1
	04-RT-050-GW	Project Sample	10/29/2004	<5	<5	258	<5	<5	<5
	05-RT-004-GW	Project Sample	2/24/2005	<5	<5	269	<5	<5	<5
	05-RT-033-GW	Project Sample	6/2/2005	<1	<1	359	<1	1.59	
	05-RT-047-GW	Project Sample	10/11/2005	<1	<1	159 VM	<1	<1	<1
	06-RT-010-GW	Project Sample	5/25/2006	<1	<1	339	1.2	1.8	<1
	06-RT-043-GW	Project Sample	9/13/2006	9.9	2.6	11	<0.5	<0.5	
	07-RT-037-GW	Project Sample	9/18/2007	8.2	<1	19.5	<1	<1	<1
	08-RT-054-GW	Project Sample	9/19/2008	10.5	<1	1.18	<1	<1	<0.5
	09-RT-088-GW	Project Sample	10/7/2009	7.2	0.36	1.67	<0.31	<0.31	<0.15
	10-RT-107-GW	Project Sample	10/21/2010	6.69	0.85	10.1	<0.31	<0.31	<0.15
	12-RT-031-GW	Project Sample	5/10/2012	9.23	0.42	3.81 VJ	<0.31	<0.31	<0.15
MW-4A	00-RT-048-GW	Project Sample	6/7/2000	410	91	630	10	<2	

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	PCE MCL=5; ACL=840	TCE MCL=5; ACL=21,900	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=100; ACL=11,600	Vinyl chloride MCL=2; ACL=2	1,2-DCA
MW-4A	00-RT-049-GW	QC Duplicate	6/7/2000	1000	160	850	<10	<20	
	00-RT-050-GW	QA Duplicate	6/7/2000	900	160	780	22	<0.5	
	00-RT-119-GW	Project Sample	9/28/2000	490	190	690 VJ	9.7	<2	
	01-RT-017-GW	Project Sample	1/10/2001	530	140	600	<20	<20	
	01-RT-018-GW	QC Duplicate	1/10/2001	530	140	600	<20	<20	
	01-RT-019-GW	QA Split	1/10/2001	799	188	856	10	<10	<4
	01-RT-047-GW	Project Sample	3/22/2001	969	114	649	33.6	<2	
	01-RT-080-GW	Project Sample	6/25/2001	623	102	638	8.43	<2	
	01-RT-097-GW	Project Sample	10/15/2001	27.2	15.1	1310	<10	<10	<10
	01-RT-098-GW	QC Duplicate	10/15/2001	27.1	16.6	1270	<10	<10	<10
	01-RT-099-GW	QA Split	10/15/2001	31 J,H	16.7 J,H	1370 J	<10 J,H	<10 J,H	
	01-RT-139-GW	Project Sample	1/15/2002	54.6	68.9	2290	16.6	<10	<10
	02-RT-012-GW	Project Sample	3/13/2002	44.8	114	3100	24	<2	
	02-RT-048-GW	Project Sample	6/19/2002	38.3 J	59.4 J	1180 J	9.32 J	<2 J	
	02-RT-065-GW	Project Sample	9/27/2002	100	180	1300	10	<1	
	02-RT-115-GW	Project Sample	12/19/2002	342	110	658	11.5	<1	
	03-RT-015-GW	Project Sample	3/11/2003	61.2	47.8	271	3.44	<1	
	03-RT-034-GW	Project Sample	6/17/2003	45	57.4	617	7.8	<5	<5
	03RT-080-GW	Project Sample	9/18/2003	116	139	950	8.2	<5	<5
	04-RT-004-GW	Project Sample	1/20/2004	110	95.7	1320	11.8	<1	<1
	04-RT-015-GW	Project Sample	3/31/2004	24.3	28.2	625	5.4	<1	<1
	04-RT-030-GW	QC Duplicate	6/8/2004	<5	<5	854	6.8	<5	<5
	04-RT-036-GW	Project Sample	6/8/2004	<5	<5	808	6.4	<5	<5
	04-RT-051-GW	Project Sample	10/29/2004	8.1	22.3	798	7.1	1	<1
	05-RT-005-GW	Project Sample	2/23/2005	<1	4.8 VJ	970	9	1.2	<1
	05-RT-011-GW	QC Duplicate	2/23/2005	<5	21.8 VJ	979	7.3	<5	<5
	05-RT-012-GW	QA Split	2/23/2005	<1	7.63 VJ	879	9.81	1.55	<0.5
	05-RT-019-GW	QA Duplicate	2/23/2005	2.76	21.6 VJ	906	8.93	1.58	<0.5
	05-RT-048-GW	Project Sample	10/11/2005	<10	<10	274 VM	<10	<10	<10
	06-RT-011-GW	Project Sample	5/25/2006	<1	2	395	4.8	2.1	<1
	06-RT-044-GW	Project Sample	9/12/2006	28	48	200	1.9	<0.5	
	07-RT-027-GW	Project Sample	9/18/2007	22.9	2.7	151	1.5	<1	<1
	08-RT-016-GW	Project Sample	5/13/2008	41.2	50	98	1.63	0.84	<0.5
	08-RT-030-GW	Project Sample	9/17/2008	4.14	25.5 VM	312	2.92	3.25 VJ	<0.5
	09-RT-084-GW	Project Sample	10/7/2009	7.9 VJ	3.78	243	3.32	5.28	<0.15
	10-RT-103-GW	Project Sample	10/21/2010	6.04	3.35	253	2.18	4.17	<0.15
	12-RT-020-GW	QA Split	5/9/2012	16.9	5.9	21.6	<1	<1	<1

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE* *MCL=5; ACL=840*	*TCE* *MCL=5; ACL=21,900*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=100; ACL=11,600*	*Vinyl chloride* *MCL=2; ACL=2*	*1,2-DCA*
MW-4A	12-RT-027-GW	Project Sample	5/9/2012	15 VH	7.15 VH	23.7 VH	0.41 VH	0.61 VH	<0.15 VH
	12-RT-041-GW	QC Duplicate	5/9/2012	14.8	3.96 VJ	18.1	<0.31	0.55	<0.15
	13-RT-032-GW	QC Duplicate	4/10/2013	2.1	<0.62	9.16 VR	<0.62	<0.62	<0.3
	13-RT-036-GW	Project Sample	4/10/2013	1.68	<0.62	<0.62	<0.62	<0.62	<0.3
	Lower Plume								
MW-26	00-RT-059-GW	Project Sample	6/8/2000	170	52	710 E	13	<20	
	01-RT-115-GW	Project Sample	10/17/2001	73 J	59.8 J	297 J	<8 J	<8 J	
	01-RT-116-GW	QC Duplicate	10/17/2001	107 J	31.4 J	344 J	9.72 J	<4 J	
	01-RT-117-GW	QA Split	10/17/2001	112 J,H	28.2 J,H	265 J,H	7.8 J,H	<2 J,H	<2 J,H
	02-RT-085-GW	Project Sample	9/26/2002	68	11	53	2	<1	
	02-RT-086-GW	QC Duplicate	9/26/2002	68	11	53	1.9	<1	
	02-RT-087-GW	QA Split	9/26/2002	86.4	13.2	52.3	<1	<1	<1
	03-RT-087-GW	Project Sample	9/18/2003	124 J	31.3 J	231 J	10.4 J	<1 J	
	04-RT-057-GW	Project Sample	10/30/2004	72.3	9.3	44.2	2	<1	<1
	05-RT-064-GW	Project Sample	10/12/2005	56.9	8.84	44.8	1.85	<1	<0.5
	06-RT-053-GW	Project Sample	9/13/2006	78	13	56	2.5	<0.5	
	08-RT-059-GW	Project Sample	9/18/2008	135	23.7	148	5.48	<1	<0.5
	10-RT-113-GW	Project Sample	10/21/2010	148	31.5	192	5.8	<0.31	<0.15
	13-RT-005-GW	Project Sample	4/10/2013	146	24.4	262	<6.2	0.86	<0.3
	14-RT-024-GW	Project Sample	4/22/2014	134	26	175	3.51	<0.5	<0.25
	14-RT-032-GW	QC Duplicate	4/22/2014	<50	<50	75.7	<50	<50	<25
MW-39	00-RT-106-GW	Project Sample	9/27/2000	62.9	93.5	726	9	2.5	<0.4
	00-RT-134-GW	Project Sample	11/28/2000	36.4	81	594	5.2	<5	<2
	01-RT-005-GW	Project Sample	1/11/2001	27.6	74.4	625	<10	<10	<4
	01-RT-034-GW	Project Sample	3/8/2001	30.6	41	394	<5	<5	<5
	01-RT-074-GW	Project Sample	5/22/2001	29.4	62.2	622	6	<5	<5
	01-RT-092-GW	Project Sample	10/16/2001	<20 J,H	31.8 J,H	2500 J,H	<20 J,H	<20 J,H	<20 J,H
	01-RT-131-GW	Project Sample	1/15/2002	<20	<20	1860	23.4	<20	<20
	02-RT-063-GW	Project Sample	9/27/2002	6.3	7.4	3400	36	9.1	
	02-RT-104-GW	Project Sample	12/18/2002	16.4	<5	2530	25.9	6.5	<5
	02-RT-107-GW	QA Split	12/18/2002	18.7	1.78	2950	28.5	5.85	
	03-RT-003-GW	Project Sample	2/4/2003	<50	<50	11400	39.5 J	<50	<50
	03-RT-006-GW	Pre-purge Sample	2/4/2003	<50	<50	6720	50.5	<50	<50
	03-RT-027-GW	Project Sample	3/11/2003	<1	2.54	4720	36.4	12.7	
	03-RT-039-GW	Project Sample	6/17/2003	<10	<10	3830	39.5	<25	<10
	03RT-081-GW	Project Sample	9/18/2003	25	<5	2360	22.4	19.4	<5

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE MCL=5; ACL=840*	*TCE MCL=5; ACL=21,900*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=100; ACL=11,600*	*Vinyl chloride MCL=2; ACL=2*	*1,2-DCA*
MW-39	04-RT-008-GW	Project Sample	1/21/2004	<50	<50	6370	74	214	<50
	04-RT-019-GW	Project Sample	3/31/2004	<1	<1	3100	44.6	456	<1
	04-RT-028-GW	Project Sample	6/8/2004	9.4	<5	4230	56.5	65.4	<5
	04-RT-055-GW	Project Sample	10/29/2004	<1	<1	3590	81.8	116	<1
	04-RT-061-GW	QC Duplicate	10/29/2004	11.5	2.3	3530	82.4	120	<1
	05-RT-009-GW	Project Sample	2/23/2005	<20	<20	3550	61	651	<20
	05-RT-023-GW	Project Sample	6/2/2005	<1	<1	1620	<1	460	<1
	05-RT-051-GW	Project Sample	10/11/2005	<5	<5	2160 VM	53.2	226	<5
	06-RT-003-GW	Project Sample	3/8/2006	11.4	<5	3090	67.9	255	<5
	06-RT-014-GW	Project Sample	5/24/2006	<1	<1	1160 VH	55	435	<1
	06-RT-035-GW	Project Sample	9/11/2006	<10	<10	1500	48.9	158	<10
	07-RT-006-GW	Project Sample	5/30/2007	<1	<1	660	40	300	<1
	07-RT-033-GW	Project Sample	9/18/2007	<1	<1	1820	64.1	134	<1
	08-RT-006-GW	Project Sample	5/12/2008	<1	<1	888	45.5	174	<1
	08-RT-032-GW	Project Sample	9/17/2008	0.34	<1 VM	1140	47.4	216	<0.5
	09-RT-008-GW	Project Sample	5/6/2009	2.11	0.32	330	14.4	41.1	<0.5
	09-RT-067-GW	Project Sample	10/6/2009	1.55 VJ	0.81	902	43.8	187	<0.15
	10-RT-042-GW	Project Sample	5/12/2010	0.94	3.08	518	47.4	132	<0.15
	10-RT-086-GW	Project Sample	10/20/2010	3.59	1.84	585	52.2	115	<0.15
	10-RT-117-GW	QC Duplicate	10/20/2010	3.64	1.64	589	46	114	<0.3
	12-RT-006-GW	Project Sample	5/8/2012	<0.31	<0.31	<3.1	18.9	53.7	<0.15
	13-RT-020-GW	Project Sample	4/9/2013	<0.62	<0.62	25	34.1	14.1	<0.3
	14-RT-006-GW	Project Sample	4/23/2014	<0.5	<0.5	13.1	27.6	4.55	<0.25
MW-44	02-RT-100-GW	Project Sample	11/2/2002	31300	1480	556	<10	<10	<10
	02-RT-105-GW	Project Sample	12/18/2002	19800	3170	326	2.4	10.6	<1
	03-RT-029-GW	Project Sample	3/11/2003	29500	2390	147	<5	9	
	03-RT-054-GW	QA Split	6/18/2003	26300	5730	1750	9.6	<5	<5
	03-RT-052-GW	Project Sample	6/19/2003	20600	5390	2180	9.01	10.5	
	03-RT-053-GW	QC Duplicate	6/19/2003	23100	5440	1840	8.61	9.86	
	03RT-082-GW	Project Sample	9/18/2003	18900	4970	894	3.6	11.6	<1
	04-RT-042-GW	Project Sample	6/8/2004	15800	3740	1050	6.01	8.3	<0.5
	04-RT-058-GW	Project Sample	10/29/2004	13500	4460	1760	9.9	49.7	<1
	04-RT-063-GW	QA Split	10/29/2004	8160	3310	1510	7	31.3	
	05-RT-037-GW	Project Sample	6/3/2005	9250	3990	1160	2.56	9.16	
	05-RT-053-GW	Project Sample	10/12/2005	11500	4570	1890 VM	<10	14.7	<10
	06-RT-005-GW	Project Sample	3/7/2006	3530	3220	8080	104	187	<1

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	***Sample ID***	***Sample Type***	***Date Sampled***	***PCE*** *MCL=5; ACL=840*	***TCE*** *MCL=5; ACL=21,900*	***cis-1,2-DCE*** *MCL=70; ACL=11,600*	***trans-1,2-DCE*** *MCL=100; ACL=11,600*	***Vinyl chloride*** *MCL=2; ACL=2*	***1,2-DCA***
MW-44	06-RT-017-GW	Project Sample	5/24/2006	416	720	6170 VH	28	45.6	<10
	06-RT-037-GW	Project Sample	9/12/2006	26.5	<25	3990	<25	<25	<25
	07-RT-009-GW	Project Sample	5/30/2007	26.2	34.8	7500	84.4	1630	<5
	07-RT-035-GW	Project Sample	9/18/2007	1.8	3.6	18600	88.5	5910	<1
	08-RT-008-GW	Project Sample	5/12/2008	67.5	15.2	1020	10.4	393	<1
	08-RT-034-GW	Project Sample	9/17/2008	0.88	0.57 VM	6220	43.7	4340	<0.5
	09-RT-010-GW	Project Sample	5/6/2009	5.04	1.61	104	8	72.7 VJ	<0.5
	09-RT-069-GW	Project Sample	10/6/2009	1.98 VJ	0.69	188	6.03	171 VJ	<0.15
	10-RT-044-GW	Project Sample	5/12/2010	11.8 VH	4.55 VH	482 VH	5.16 VH	204 VH	<0.15 VH
	10-RT-088-GW	Project Sample	10/20/2010	0.85	0.46	380	4.37	609	<0.15
	12-RT-008-GW	Project Sample	5/8/2012	0.58	<0.31	131	11	109	<0.15
	13-RT-018-GW	Project Sample	4/9/2013	1.1	0.73	87	1.4	<6.2	<0.3
	14-RT-008-GW	Project Sample	4/23/2014	1.78	0.91	41.9	5.78	52.7	<0.25
MW-45	03-RT-093-GW	Project Sample	10/9/2003	<1	2.5	6.1	<1	<1	<1
	04-RT-043-GW	Project Sample	6/8/2004	8.41	10.7	2.32	<1	<1	<0.5
	04-RT-059-GW	Project Sample	10/29/2004	2.2	3.7	1.7	<1	<1	<1
	05-RT-038-GW	Project Sample	6/3/2005	2.76	7.62	4.89	<1	<1	
	06-RT-039-GW	Project Sample	9/12/2006	<1	1.9	2.4	<1	<1	<1
	12-RT-035-GW	Project Sample	5/9/2012	0.58 VH	9.43 VH	18.7 VH	0.72 VH	8.04 VH	<0.15 VH
	13-RT-011-GW	Project Sample	4/9/2013	0.47	2.52	2.61	<0.62	0.92	<0.3
MW-46	03-RT-094-GW	Project Sample	10/9/2003	<1	<1	51.4	<1	<1	<1
	04-RT-044-GW	Project Sample	6/8/2004	73.6 VH	13.4 VH	9.95 VH	<1	<1	<0.5
	04-RT-060-GW	Project Sample	10/29/2004	3.9	<1	10.1	<1	<1	<1
	05-RT-039-GW	Project Sample	6/3/2005	40.1	<1	1.45	<1	<1	
	06-RT-040-GW	Project Sample	9/12/2006	<1	<1	10.1	<1	1.9	<1
	12-RT-036-GW	Project Sample	5/9/2012	0.59 VH	<0.31 VH	3.48 VH	0.31 VH	1.32 VH	<0.15 VH
MW-47	06-RT-038-GW	Project Sample	10/4/2006	16100	2270	18700	193	71	<1
	07-RT-010-GW	Project Sample	5/30/2007	<10	<10	47700	777	139	<10
	07-RT-036-GW	Project Sample	9/19/2007	<10	<10	45500	485	142	<10
	08-RT-009-GW	Project Sample	5/12/2008	<5	<5	21400	260	83.8	<5
	08-RT-035-GW	Project Sample	9/17/2008	0.43	1.1 VM	40600	1330	165	<0.5
	09-RT-011-GW	Project Sample	5/6/2009	1	48.4	55900	490	268 VJ	<0.5
	09-RT-019-GW	QC Duplicate	5/6/2009	<10	40.5	62300	494	256 VJ	<5
	09-RT-070-GW	Project Sample	10/6/2009	0.35 F	2.5	32800	309	413	<0.15
	10-RT-045-GW	Project Sample	5/11/2010	55.3	232	38700 VH	410	1980	<0.15
	10-RT-089-GW	Project Sample	10/19/2010	278	2280	67700	612	2080	<3

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE MCL=5; ACL=840*	*TCE MCL=5; ACL=21,900*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=100; ACL=11,600*	*Vinyl chloride MCL=2; ACL=2*	*1,2-DCA*
MW-47	11-RT-001-GW	Project Sample	5/17/2011	1610	4140	34900	384	1430	<3
	12-RT-009-GW	Project Sample	5/8/2012	4050	5120	34400	345	370	<0.15
	13-RT-025-GW	Project Sample	4/10/2013	3990 VH	1950 VH	10900 VH	181 VH	304 VH	<30 VH
	14-RT-009-GW	Project Sample	4/23/2014	2500	790	6170	62.2	112	<5
MW-48	09-RT-043-GW	Project Sample	8/17/2009	120000	16800	12100	42.9	57.9	<1.5
	09-RT-071-GW	Project Sample	10/6/2009	333 VJ	4090	23700	119	128	<0.15
	10-RT-046-GW	Project Sample	5/12/2010	26 VJ	292 VJ	3310	13.5	16.5 VJ	<0.15
	10-RT-068-GW	QC Duplicate	5/12/2010	616 VR	617 VR	3100	14.2	16.2	<0.15
	10-RT-090-GW	Project Sample	10/19/2010	2.78	7.39	1220	6.78	7.22 VJ	<0.15
	11-RT-002-GW	Project Sample	5/18/2011	30	<620	14600	37.4	54.1	0.32
	12-RT-010-GW	Project Sample	5/8/2012	3.42	4.57	31500	<155	<155	0.62
	13-RT-026-GW	Project Sample	4/10/2013	0.64	0.72	4700	14.6	17.1	<0.3
	14-RT-010-GW	Project Sample	4/22/2014	<50	<50	25400	70.7	<50	<25
MW-49	09-RT-044-GW	Project Sample	8/17/2009	986	309	7660	17	25.9	<1.5
	09-RT-072-GW	Project Sample	10/6/2009	137 VJ	1490	16300	73.9 VJ	78.8 VJ	<0.15
	10-RT-047-GW	Project Sample	5/13/2010	29.2	<6.2	92900	203	359 VJ	<3
	10-RT-091-GW	Project Sample	10/19/2010	0.93 VH	1.76 VH	63200 VH	120 VH	314 VH	<0.15
	11-RT-003-GW	Project Sample	5/18/2011	2.65	5.25	50700	96	876	<0.15
	12-RT-011-GW	Project Sample	5/9/2012	<62	<62	79300	94	2700	<30
	13-RT-027-GW	Project Sample	4/10/2013	<0.62	<0.62	382	4.57	109	<0.3
	14-RT-011-GW	Project Sample	4/23/2014	14.8	<10	37800	182	8390	<5
MW-50	09-RT-045-GW	Project Sample	8/17/2009	3550	2340	8840	44.1	25.4	<1.5
	09-RT-073-GW	Project Sample	10/6/2009	44000 VJ	9360	12600	58.7	81.6 VJ	<0.15
	10-RT-048-GW	Project Sample	5/12/2010	64400	26900	28900	67.5	285	0.25
	10-RT-059-GW	QA Split	5/12/2010	64900	20100	23000	52.5	146 VJ	<1
	10-RT-067-GW	QC Duplicate	5/12/2010	73100	26100	30700	78	294	<0.15
	10-RT-092-GW	Project Sample	10/20/2010	54700	17900	21400	45	77	<0.15
	11-RT-004-GW	Project Sample	5/17/2011	38100 VJ	15500 VJ	117000 VJ	103 VJ	354 VJ	<0.15
	11-RT-009-GW	QA Split	5/17/2011	18000 VJ	6050 VJ	48800 VJ	219 VJ	258 VJ	<1
	12-RT-012-GW	Project Sample	5/8/2012	4.69	22.2	3890	654	1180	<0.15
	13-RT-028-GW	Project Sample	4/10/2013	2710	1080	19600	51	1400	<0.3
	14-RT-012-GW	Project Sample	4/22/2014	128	81.8	7440	28.6	1680	<5
MW-51	10-RT-093-GW	Project Sample	10/19/2010	59000	5200	79400	254	184	<0.15
	11-RT-005-GW	Project Sample	5/18/2011	793	236	30300	180	2220	<0.15
	12-RT-013-GW	Project Sample	5/9/2012	<62	<62	73600	256	11400	<30
	13-RT-029-GW	Project Sample	4/10/2013	4.73	2.54	10500	49	3870	<0.3

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	PCE MCL=5; ACL=840	TCE MCL=5; ACL=21,900	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=100; ACL=11,600	Vinyl chloride MCL=2; ACL=2	1,2-DCA
MW-51	14-RT-013-GW	Project Sample	4/22/2014	5.81	0.749	34.6	0.655	12.5	<0.25
MW-52	10-RT-094-GW	Project Sample	10/19/2010	1410	2320	18200	81.8	26.5	<0.15
	11-RT-006-GW	Project Sample	5/17/2011	2.78	1.75	1130	5.05	53.5	<0.15
	12-RT-014-GW	Project Sample	5/8/2012	0.7	<0.31	1220	8.71	475	<0.15
	13-RT-030-GW	Project Sample	4/10/2013	<0.62	1.17	30500	152	10900	<0.3
	14-RT-014-GW	Project Sample	4/23/2014	15.2	0.776	11.7	1.02	2.74	<0.25
L-13	03-RT-008-GW	Project Sample	3/10/2003	<10	<10	3040	42.2	166	<10
	03-RT-010-GW	QA Split	3/10/2003	1.15	1.39	3240	42.8	193	
	03-RT-037-GW	Project Sample	6/17/2003	<10	<10	3690	51.5	599	<10
	03-RT-077-GW	QA Split	6/17/2003	<1	<1	4360	<1	610	
L-17	03-RT-038-GW	Project Sample	6/17/2003	161	111	1490	20.2	11.6	<10
L-74	06-RT-076-GW	Project Sample	10/1/2006	700 F	<310	1030	1.8	4.89	<0.5
L-75	06-RT-077-GW	Project Sample	10/1/2006	3860	720 F	39100	51.6	<620	<0.5
L-76	06-RT-078-GW	Project Sample	10/1/2006	139000 VH	1740 F	700 F	<620	49.7	<0.5
	06-RT-081-GW	QC Duplicate	10/1/2006	139000	1780 F	640	<620	<620	<0.5
L-78	08-RT-010-GW	Project Sample	6/26/2008	12300	5800	7630	70.5	44.5	<25
	08-RT-036-GW	Project Sample	9/18/2008	22800	9620	14500	101 VJ	208 VJ	<0.5
	09-RT-020-GW	Project Sample	5/7/2009	5900	3350	5520	39.2	257 VJ	<10
	09-RT-074-GW	Project Sample	10/7/2009	19600 VJ	5610	14300 VJ	107 VJ	61.8	<0.15
	10-RT-062-GW	Project Sample	5/13/2010	26100	9220	28400	160	1380 VJ	<15
	10-RT-095-GW	Project Sample	10/20/2010	21200 VH	834 VH	5470 VH	16.1 VH	66.3 VH	<0.15 VH
	11-RT-010-GW	Project Sample	5/17/2011	8750	3090	15100	<310	570	<150
	12-RT-015-GW	Project Sample	5/9/2012	12700	472	4040	<62	<62	<30
	13-RT-031-GW	Project Sample	4/9/2013	6510 VH	3150 VH	21800 VH	31 VH	1280 VH	<0.3 VH
	14-RT-015-GW	Project Sample	4/23/2014	4350	2560	19900	38.6	1070	<25
L-79	08-RT-011-GW	Project Sample	5/13/2008	2710	918	1240	9.2	13.4	<5
L-80	08-RT-012-GW	Project Sample	5/13/2008	48900	4450	8850	68	77.8	<5
	08-RT-037-GW	Project Sample	9/18/2008	41300	3920	11700	60.9	93.6 VJ	<0.5
	09-RT-021-GW	Project Sample	5/7/2009	13300	4150	11600	53.8	138 VJ	<10
	14-RT-018-GW	Project Sample	4/23/2014	63500	3670	20000	41.6	284	<25
L-81	08-RT-013-GW	Project Sample	6/26/2008	2950	978	11700	108	77	<25
	08-RT-038-GW	Project Sample	9/18/2008	480	490	23100	184	302	<0.5
	09-RT-022-GW	Project Sample	5/7/2009	791	761	16600	156	303 VJ	<10
L-100	09-RT-050-GW	Project Sample	8/19/2009	128	163	1350	6.43	3.3	<0.15

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE MCL=5; ACL=840*	*TCE MCL=5; ACL=21,900*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=100; ACL=11,600*	*Vinyl chloride MCL=2; ACL=2*	*1,2-DCA*
L-100	09-RT-092-GW	Project Sample	10/7/2009	93	121	1870	7.2	23.5	<0.15
	10-RT-054-GW	Project Sample	5/12/2010	91.3 VH	65.7 VH	1200 VH	3.9 VH	16.5 J,H	<0.15 VH
	10-RT-096-GW	Project Sample	10/20/2010	110	225	1700	7.6	18	<3
	11-RT-007-GW	Project Sample	5/17/2011	151	216	3010	<31	50	<15
	12-RT-016-GW	Project Sample	5/9/2012	<31	61	2450	<31	<31	<15
	13-RT-023-GW	Project Sample	4/10/2013	17.5	38.8	1720	17	15.4	<0.3
	13-RT-035-GW	QC Duplicate	4/10/2013	19.6	42.3	1690	16.7	11.9	<0.3
	14-RT-016-GW	Project Sample	4/22/2014	47.5	88.6	1610	<50	<50	<25
L-101	09-RT-059-GW	Project Sample	8/19/2009	18700	8580	2730	16	21.1	<0.15
	09-RT-093-GW	Project Sample	10/7/2009	7100	5730	31200	197	47.1	<0.15
	10-RT-055-GW	Project Sample	5/12/2010	57600 VH	4680 VH	16700 VH	53.9 VH	33.1 J,H	<0.15 VH
	10-RT-097-GW	Project Sample	10/20/2010	110	173	55500	217	83.6	<3
	11-RT-011-GW	Project Sample	5/17/2011	<31	<31	54300	182	1440	<15
	11-RT-012-GW	QC Duplicate	5/17/2011	<31	<31	61800	203	1530	<15
	12-RT-017-GW	Project Sample	5/8/2012	406	62	28800	118	76	<30
	12-RT-019-GW	QA Split	5/8/2012	363	95.8	27600	123	462 VR	<5
	12-RT-040-GW	QC Duplicate	5/8/2012	344	<62	26200	180	62	<30
	13-RT-024-GW	Project Sample	4/10/2013	582 VH	266 VH	25200 VH	<62 VH	1120 VH	<0.3 VH
	14-RT-017-GW	Project Sample	4/23/2014	644	337	29800	98	1470	<25
L-102	14-RT-019-GW	Project Sample	4/22/2014	61500	6600	36700	62.4	375	<25
L-103	14-RT-020-GW	Project Sample	4/23/2014	8340	3050	24600	185	317	<25
MW-9	00-RT-051-GW	Project Sample	6/7/2000	1200	230	1000	<10	<20	
	00-RT-107-GW	Project Sample	9/27/2000	2320	345	1140	7	2.8	<0.4
	00-RT-133-GW	Project Sample	11/28/2000	113	150	2900	25.9	<5	<2
	01-RT-003-GW	Project Sample	1/11/2001	95.3	99.1	2260	15.6	<10	<4
	01-RT-004-GW	QC Duplicate	1/11/2001	90.6	92.1	2130	15.2	<10	<4
	01-RT-010-GW	QA Split	1/11/2001	<50	<50	1600	<50	<50	
	01-RT-033-GW	Project Sample	3/8/2001	86.2	103	1570	<25	<25	<25
	01-RT-067-GW	QA Duplicate	5/22/2001	22.6	5.02	1260	8.19	2.6	
	01-RT-068-GW	Project Sample	5/22/2001	24.5	<10	1580	13.5	<10	<10
	01-RT-069-GW	QC Duplicate	5/22/2001	29.9	<10	1910	15.5	<10	<10
	01-RT-091-GW	Project Sample	10/16/2001	63.2	58.9	2050	<10	<10	<10
	01-RT-129-GW	Project Sample	1/15/2002	129	125	2210	21.7	<10	<10
	02-RT-001-GW	Project Sample	3/13/2002	588	326	3280	20.8	8.19	
	02-RT-041-GW	Project Sample	6/19/2002	<200 J	<200 J	2830 J	<200 J	9.51 J	
	02-RT-062-GW	Project Sample	9/27/2002	190	68	2300	18	7.1	

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River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	PCE MCL=5; ACL=840	TCE MCL=5; ACL=21,900	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=100; ACL=11,600	Vinyl chloride MCL=2; ACL=2	1,2-DCA
MW-9	02-RT-102-GW	Project Sample	12/18/2002	21.9	7.9	2670	30.2	42.5	<1
	03-RT-001-GW	Project Sample	2/4/2003	17 J	<20	3030	18.4 J	30	<20
	03-RT-007-GW	Project Sample	3/10/2003	27.8	13.2	3460	28.1	66.2	<10
	03-RT-036-GW	Project Sample	6/17/2003	40.8	<20	2540	37.8	171	<20
	03RT-083-GW	Project Sample	9/19/2003	62.3	<10	3150	38.3	306	<10
	03-RT-095-GW	Project Sample	10/8/2003	37.8	<5	2980	28.3	450	<5
	04-RT-007-GW	Project Sample	1/21/2004	160	4	1460	34.8	434	<1
	04-RT-011-GW	QC Duplicate	1/21/2004	139	<10	1460	30.5	441	<10
	04-RT-018-GW	Project Sample	3/31/2004	21.1	3.5	2490	46.6	413	<1
	04-RT-027-GW	Project Sample	6/8/2004	35.2	<20	1260	24.8	436	<20
	04-RT-054-GW	Project Sample	10/29/2004	4.7	<1	1600	40.6	358	<1
	04-RT-062-GW	QC Duplicate	10/29/2004	15.9	10.3	2070	38.6	372	<1
	05-RT-008-GW	Project Sample	2/24/2005	<5	<5	844	<5	176	<5
	05-RT-022-GW	Project Sample	6/2/2005	<1	<1	410	<1	135	<1
	05-RT-025-GW	QC Duplicate	6/2/2005	<1	<1	361	<1	140	<1
	05-RT-026-GW	QA Split	6/2/2005	<1	<1	421	28.8 VJ	103	
	05-RT-050-GW	Project Sample	10/11/2005	93.8	<5	537 VM	18.9	105	<5
	05-RT-055-GW	QA Split	10/11/2005	79.8	4.06	681	19.7	113	<0.5
	06-RT-002-GW	Project Sample	3/8/2006	<1	<1	280	20	68.6	<1
	06-RT-006-GW	QC Duplicate	3/8/2006	<1	<1	270	20.4	67.2	<1
	06-RT-013-GW	Project Sample	5/25/2006	<1	<1	123	30.3	62.3	<1
	06-RT-034-GW	Project Sample	9/11/2006	<5	<5	594	15.8	98.3	<5
	07-RT-005-GW	Project Sample	5/30/2007	33	34.4	544	35.2	152	<1
	07-RT-011-GW	QC Duplicate	5/30/2007	30.2	32.4	492	29.9	147	<1
	07-RT-012-GW	QA Split	5/30/2007	38.5	33.7	476 VH	23.7 VJ	97.9 VJ	<0.5
	07-RT-032-GW	Project Sample	9/19/2007	<10	<10	536	16.7	85.5	<10
	07-RT-041-GW	QC Duplicate	9/19/2007	8.3 VJ	9.2	529	21.2	108	<1
	07-RT-043-GW	QA Split	9/19/2007	5.29 VJ	8.23	397 VM	11.9 VJ	88.4 VM	<0.5
	08-RT-005-GW	Project Sample	5/12/2008	24.4	27.3	408	18	84.2	<1
	08-RT-014-GW	QC Duplicate	5/12/2008	24.7	26.6	453	17	80.4	<5
	08-RT-015-GW	QA Split	5/12/2008	29.6	33.1	520	20.9	106	<0.5
	08-RT-031-GW	Project Sample	9/16/2008	39.1	34.3 VM	431	11.7	95	<0.5
	09-RT-007-GW	Project Sample	5/6/2009	13.8	16.7	240	15.7	47.1	<0.5
	09-RT-014-GW	QA Split	5/6/2009	14.7	17	224	14.8	49.3	<1
	09-RT-018-GW	QC Duplicate	5/6/2009	15.2	15.2	259	14.6	44.7	<0.5
	09-RT-066-GW	Project Sample	10/5/2009	1.49 VJ	0.89	194	12.6	38.7	<0.15
	09-RT-076-GW	QA Split	10/5/2009	<5	<5	149 VJ	9.3 VJ	25.4 VJ	<5

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE* *MCL=5; ACL=840*	*TCE* *MCL=5; ACL=21,900*	*cis-1,2-DCE* *MCL=70; ACL=11,600*	*trans-1,2-DCE* *MCL=100; ACL=11,600*	*Vinyl chloride* *MCL=2; ACL=2*	*1,2-DCA*
MW-9	09-RT-097-GW	QC Duplicate	10/5/2009	1.68 VJ	0.83	207	12.7	38.2	<0.15
	10-RT-041-GW	Project Sample	5/11/2010	1.12	0.68	202	15	56.8 VJ	<0.15
	10-RT-058-GW	QA Split	5/11/2010	1.2	<1	173	15.1	37.6 VJ	<1
	10-RT-066-GW	QC Duplicate	5/11/2010	29.6 VR	4.11 VR	256	15.2	52.7 VJ	<0.15
	10-RT-085-GW	Project Sample	10/20/2010	28.8	12.9	332	6.71	38.5	<0.15
	12-RT-005-GW	Project Sample	5/8/2012	0.91	0.72	19.7	10.1	19.2	<0.15
	12-RT-018-GW	QC Duplicate	5/8/2012	1.72	1	24.3	10.5	18.7	<0.15
	13-RT-019-GW	Project Sample	4/9/2013	1.84	<0.62	17.2	6.25	4.16	<0.3
	14-RT-005-GW	Project Sample	4/23/2014	2.96	<0.5	7.47	8.52	2.05	<0.25
MW-40	00-RT-108-GW	Project Sample	9/27/2000	641	158	1120	10.2	2.6	<0.4
	00-RT-132-GW	Project Sample	11/28/2000	76.9	43	1940	19.4	<5	<2
	01-RT-002-GW	Project Sample	1/11/2001	52.9	<10	2440	15.9	<10	<4
	01-RT-032-GW	Project Sample	3/8/2001	30.5	<25	1270	<25	<25	<25
	01-RT-075-GW	Project Sample	5/22/2001	28.6	<10	1540	13.4	<10	<10
	01-RT-090-GW	Project Sample	10/16/2001	39.4	64.1	1930	<10	<10	<10
	01-RT-130-GW	Project Sample	1/15/2002	43.3	75.2	2330	22.1	<10	<10
	02-RT-042-GW	Project Sample	6/19/2002	<0.4 J	<0.4 J	2720 J	8.23 J	2.41 J	
	02-RT-064-GW	Project Sample	9/27/2002	470	100	1600	11	3.9	
	02-RT-103-GW	Project Sample	12/18/2002	29.9	25.6	2350	28.4	24.3	<1
	03-RT-002-GW	Project Sample	2/4/2003	27.6	68	2860	24.6	33.4	<20
	03-RT-028-GW	Project Sample	3/11/2003	48.8	55.8	3810	36.4	53.4	
	03-RT-035-GW	Project Sample	6/17/2003	35.8	70.9	2690	33.9	96.6	<5
	03RT-084-GW	Project Sample	9/19/2003	31.1	45.6	2760	30.5	144	<10
	04-RT-009-GW	Project Sample	1/21/2004	<20	27	2030	39.8	363	<20
	04-RT-020-GW	Project Sample	3/30/2004	13.5	145	2620	39.8	173	<1
	04-RT-029-GW	Project Sample	6/8/2004	26.8	12	1810	36.8	341	<10
	04-RT-056-GW	Project Sample	10/29/2004	5.1	22.1	1220	37.6	235	<1
	05-RT-010-GW	Project Sample	2/24/2005	<5	<5	507	21.4	101	<5
	05-RT-024-GW	Project Sample	6/2/2005	2.2	21.4	521	1.1	201	<1
	05-RT-052-GW	Project Sample	10/12/2005	<10	<10	468 VM	15.7	78.5	<10
	06-RT-004-GW	Project Sample	3/8/2006	<1	<1	118	13.1	57.2	<1
	06-RT-015-GW	Project Sample	5/25/2006	7.7	<1	144	13	43.5	<1
	06-RT-018-GW	QC Duplicate	5/25/2006	<10	<10	144	11	36	<10
	06-RT-036-GW	Project Sample	9/12/2006	108	52.1	180	15.2	38.7	<1
	06-RT-041-GW	QC Duplicate	9/12/2006	96.3	44.4	174	15.1	38.8	<1
	06-RT-042-GW	QA Split	9/12/2006	81	49	170	12	28 VJ	

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE MCL=5; ACL=840*	*TCE MCL=5; ACL=21,900*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=100; ACL=11,600*	*Vinyl chloride MCL=2; ACL=2*	*1,2-DCA*
MW-40	07-RT-007-GW	Project Sample	5/30/2007	<1	<1	72.4	15.3	43.1	<1
	07-RT-034-GW	Project Sample	9/19/2007	3.2	<1	28.5	7.9	13.3	<1
	08-RT-007-GW	Project Sample	5/12/2008	<1	<1	3	<1	<1	<1
	08-RT-033-GW	Project Sample	9/17/2008	12	1.29 VM	44.4 VM	10	20.7 VJ	<0.5
	09-RT-009-GW	Project Sample	5/6/2009	4.45	7.79	17.8	9.76	9.4	<0.5
	09-RT-068-GW	Project Sample	10/7/2009	12.1 VJ	1.27	33.2	6.52	9.39	<0.15
	09-RT-077-GW	QA Split	10/7/2009	7.6	<5	23 VJ	<5	5.3 VJ	<5
	09-RT-098-GW	QC Duplicate	10/7/2009	7.45	1.3	35.9	5.07	9.1	<0.15
	10-RT-043-GW	Project Sample	5/13/2010	5.54	1.99	21.9	10.5	17.6 VJ	<0.15
	10-RT-087-GW	Project Sample	10/20/2010	7.26	3.72	103	3.78	8.95	<0.15
	10-RT-118-GW	QC Duplicate	10/20/2010	7	3.66	108	3.52	10.4	<0.15
	12-RT-007-GW	Project Sample	5/7/2012	41.4	11.5	12.2	7.06	6.65	<0.15
	13-RT-021-GW	Project Sample	4/9/2013	2.3	0.82	10.8	6.95	2.48	<0.3
	14-RT-007-GW	Project Sample	4/23/2014	0.61	<0.5	3.99	15.4	1.99	<0.25
MW-6	00-RT-045-GW	Project Sample	6/7/2000	330	180	930	9.7	<2	
	00-RT-109-GW	Project Sample	9/27/2000	70.3	71.3	865	11.8	2.2	<0.4
	00-RT-130-GW	Project Sample	11/28/2000	<5	7.7	2230	27.4	<5	<2
	00-RT-131-GW	QC Duplicate	11/28/2000	<5	7.8	2440	24.9	<5	<2
	00-RT-139-GW	QA Duplicate	11/28/2000	2.5	4.1	1900	14	2 VJ	3
	01-RT-001-GW	Project Sample	1/11/2001	14.9	<10	1720	16.9	3.1 VJ	<4
	01-RT-030-GW	Project Sample	3/8/2001	<10	<10	1330	13.9	<10	<10
	01-RT-031-GW	QC Duplicate	3/8/2001	<10	<10	1280	14	<10	<10
	01-RT-039-GW	QA Split	3/8/2001	1.3 VJ	0.83 VJ	1100 VJ	15 VJ	2.3 VJ	
	01-RT-076-GW	Project Sample	5/22/2001	<10	<10	1390	12.1	<10	<10
	01-RT-089-GW	Project Sample	10/16/2001	<10	<10	1710	<10	<10	<10
	01-RT-128-GW	Project Sample	1/15/2002	<10	<10	1600	18.2	<10	<10
	02-RT-002-GW	Project Sample	3/13/2002	<2	2.33	1770	15.8	4.83	
	02-RT-040-GW	Project Sample	6/19/2002	<0.4 J	<0.4 J	2010 J	3.89 J	1.24 J	
	02-RT-061-GW	Project Sample	9/27/2002	<1	<1	2200	19	6	
	02-RT-116-GW	Project Sample	12/18/2002	<1	<1	2280	25.3	7.32	
	03-RT-004-GW	Project Sample	2/4/2003	<20	<20	2750	22.6	<20	<20
	03-RT-016-GW	Project Sample	3/11/2003	<1	<1	2870	43.3	15.5	
	03-RT-017-GW	QC Duplicate	3/11/2003	<1	<1	3030	36	17	
	03-RT-018-GW	QA Split	3/11/2003	<10	<10	2940	30	13.6	<10
	03-RT-032b-GW	Project Sample	6/17/2003	<25	<25	1930	<25	<25	<25
	03RT-085-GW	Project Sample	9/19/2003	18.5	<10	2230	24.4	16.5	<10

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	PCE MCL=5; ACL=840	TCE MCL=5; ACL=21,900	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=100; ACL=11,600	Vinyl chloride MCL=2; ACL=2	1,2-DCA
MW-6	04-RT-010-GW	Project Sample	1/20/2004	<20	<20	2740	28.6	98.8	<20
	04-RT-021-GW	Project Sample	3/29/2004	<1	<1	2640	35.2	148	<1
	04-RT-025-GW	Project Sample	6/7/2004	<5	<5	1440	15.7	77.8	<5
	04-RT-052-GW	Project Sample	10/30/2004	<1	<1	1270	27.1	439	<1
	05-RT-006-GW	Project Sample	2/24/2005	<1	<1	174	10.7	209	<1
	05-RT-020-GW	Project Sample	6/2/2005	<1	<1	212	<1	204	<1
	05-RT-049-GW	Project Sample	10/11/2005	<5	<5	58.4 VM	<5	25.4	<5
	06-RT-012-GW	Project Sample	5/25/2006	<1	<1	68.9	3.6	98.8	<1
	06-RT-019-GW	QA Split	5/25/2006	<1	<1	62.1	3.04	102	<0.5
	06-RT-033-GW	Project Sample	9/11/2006	<1	<1	32	2.9	16.6	<1
	07-RT-004-GW	Project Sample	5/30/2007	<1	<1	10.1	3.3	12.9	<1
	07-RT-031-GW	Project Sample	9/19/2007	<1	1.3	20	2.6	9.2	<1
	08-RT-018-GW	Project Sample	5/13/2008	<1	0.32	22.1	3.72	26.1	<0.5
	08-RT-022-GW	QC Duplicate	5/13/2008	<1	0.37	24	3.78	31.1	<0.5
	08-RT-041-GW	QA Split	9/19/2008	<1	<1	8	1.9	5.5 VJ	<1
	08-RT-051-GW	Project Sample	9/19/2008	<1	0.52	9.7	2.35	8.89	<0.5
	08-RT-066-GW	QC Duplicate	9/19/2008	<1	0.46	8.74	2.29	8.36	<0.5
	09-RT-005-GW	Project Sample	5/6/2009	<1	0.32	8.63	2.46	9.64	<0.5
	09-RT-065-GW	Project Sample	10/7/2009	<0.31	<0.31	6.27	2.18	7.72	<0.15
	09-RT-099-GW	QC Duplicate	10/7/2009	<0.31	<0.31	7.9	2.16	8.02	<0.15
	10-RT-040-GW	Project Sample	5/13/2010	<0.31	0.59	39.9	4.27	59.2 VJ	<0.15
	10-RT-084-GW	Project Sample	10/20/2010	0.41	0.67	9.89	4.27	14	<0.15
	12-RT-004-GW	Project Sample	5/8/2012	1.07	7.68	26.3	3.83	14.9	<0.15
	13-RT-022-GW	Project Sample	4/11/2013	3.17	3.11	13.3	3.9	4.87	<0.3
	13-RT-033-GW	QC Duplicate	4/11/2013	2.68	3.37	9.84	3.33	4.09	<0.3
	14-RT-004-GW	Project Sample	4/24/2014	<0.5	<0.5	9.61	5.21	2.19	<0.25
MW-5	00-RT-054-GW	Project Sample	6/7/2000	4.1 J	2.3	37	<1	<2	
	00-RT-121-GW	Project Sample	9/29/2000	2.3	2.1	100	<1	<2	
	01-RT-119-GW	Project Sample	10/18/2001	4.26 J	2.31 J	84.3 J	<2 J	<2 J	
	02-RT-073-GW	Project Sample	9/26/2002	12	5	210	<2	<1	
	03-RT-115-GW	Project Sample	10/8/2003	14.2	4.68	290	<1	<1	
	04-RT-068-GW	Project Sample	10/23/2004	4.06	3.1	289	<1	2.2	<0.5
	05-RT-056-GW	Project Sample	10/13/2005	2.92	2.15	205	<1	3.73	<0.5
	06-RT-045-GW	Project Sample	9/13/2006	0.95	3.5	72	0.68	0.68	
	07-RT-028-GW	Project Sample	9/20/2007	2.8 VH	2.8 VH	57.7 VH	<1 VH	3.9 VH	<1
	08-RT-050-GW	Project Sample	9/20/2008	1.52	1.99	22.4	<1	<1	<0.5

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	PCE MCL=5; ACL=840	TCE MCL=5; ACL=21,900	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=100; ACL=11,600	Vinyl chloride MCL=2; ACL=2	1,2-DCA
MW-5	13-RT-007-GW	Project Sample	4/10/2013	1.1	0.7	9.64	<0.62	<0.62	<0.3
MW-7	00-RT-046-GW	Project Sample	6/7/2000	250	35	470	4.2	<2	
	00-RT-120-GW	Project Sample	9/28/2000	88	18	430 VJ	3.9	<2	
	01-RT-016-GW	Project Sample	1/11/2001	6.2 H	2.5 H	390	8.5 H	2.3 H	
	01-RT-056-GW	QA Split	3/7/2001	<5	<5	364	5.4	<5	<5
	01-RT-055-GW	Project Sample	3/22/2001	1.49	<2	417	10.5	<2	
	01-RT-088-GW	Project Sample	6/25/2001	<2	<2	413	4.93	<2	
	01-RT-123-GW	Project Sample	10/18/2001	<4 J	<4 J	613 J	6.41 J	<4 J	
	01-RT-144-GW	Project Sample	1/16/2002	4.34 J	<10 J	440 J	8.66 J	<10 J	
	01-RT-145-GW	QC Duplicate	1/16/2002	4.56 J	<10 J	441 J	7.28 J	<10 J	
	01-RT-146-GW	QA Split	1/16/2002	<5 J,H	<5 J,H	413 J,H	<5 J,H	<5 J,H	<5 J,H
	02-RT-011-GW	Project Sample	3/14/2002	<2	<2	644	6.35	2.02	
	02-RT-053-GW	Project Sample	6/19/2002	<2 J	<2 J	1240 J	8.76 J	3.47 J	
	02-RT-074-GW	Project Sample	9/26/2002	<1	<1	830	7.3	3.8	
	02-RT-117-GW	Project Sample	12/18/2002	<1	1.41	822	6.7	2.73	
	02-RT-118-GW	QA Split	12/18/2002	<1	1.7	807	8.1	3.6	<1
	03-RT-019-GW	Project Sample	3/11/2003	<1	<1	1290	11.5	6.33	
	03-RT-046-GW	Project Sample	6/18/2003	<1	<1	893	8.47	5.51	
	03-RT-047-GW	QC Duplicate	6/18/2003	<1	<1	948	8.52	5.06	
	03-RT-048-GW	QA Split	6/18/2003	<10	<10	911	10.2	<10	<10
	03-RT-120-GW	Project Sample	10/9/2003	<1	<1	972	5.83 J	5.02	
	04-RT-037-GW	Project Sample	6/7/2004	<1	<1	1320	15.8	108	<0.5
	04-RT-069-GW	Project Sample	10/23/2004	<1	1.03	1140	10.7	193	<0.5
	05-RT-036-GW	Project Sample	6/2/2005	<1	<1	367	6.74	77.7	
	05-RT-057-GW	Project Sample	10/12/2005	<1	<1	193	5.93	76.7	<0.5
	06-RT-020-GW	Project Sample	5/25/2006	<1	37	101	2.54	53.5	<0.5
	06-RT-028-GW	QC Duplicate	5/25/2006	<1	36.7	99.3	2.66	62.8	<0.5
	06-RT-032-GW	Project Sample	9/11/2006	<1	<1	80.9	3.5	45	<1
	07-RT-029-GW	Project Sample	9/19/2007	<1	<1	3.7	2	5.3	<1
	08-RT-052-GW	Project Sample	9/19/2008	<1	<1	10.1	3.03	7.05	<0.5
	09-RT-086-GW	Project Sample	10/8/2009	<0.31	0.54	12.3	1.85	3.87	<0.15
	10-RT-105-GW	Project Sample	10/21/2010	<0.31	0.69	11.9	2.33	9.22	<0.15
	12-RT-029-GW	Project Sample	5/10/2012	4.67	24.9 VJ	21.4 VJ	3.69 VJ	8.51 VJ	<0.15
MW-8	00-RT-052-GW	Project Sample	6/7/2000	300	150	970	<10	<20	
	00-RT-117-GW	Project Sample	9/28/2000	230	170	940 VJ	6.5	<2	
	01-RT-014-GW	Project Sample	1/10/2001	9.5 H	7.9 H	1300	18 J	3.7 H	

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	PCE MCL=5; ACL=840	TCE MCL=5; ACL=21,900	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=100; ACL=11,600	Vinyl chloride MCL=2; ACL=2	1,2-DCA
MW-8	01-RT-051-GW	Project Sample	3/22/2001	<2	<2	772	25.7	<2	
	01-RT-084-GW	Project Sample	6/25/2001	2.39	<2	832	4.76	<2	
	01-RT-124-GW	Project Sample	10/18/2001	<4 J	20.2 J	1290 J	8.76 J	<4 J	
	01-RT-147-GW	Project Sample	1/16/2002	8.45 J,H	32.2 J	1150 J	5 J,H	1.71 J,H	
	02-RT-003-GW	Project Sample	3/13/2002	17.4	62.9	1500	12.6	3.47	
	02-RT-054-GW	Project Sample	6/19/2002	13.3 J	29.2 J	717 J	5.01 J	<2 J	
	02-RT-075-GW	Project Sample	9/26/2002	5.8	9.8	580	3.9	1.3	
	02-RT-119-GW	Project Sample	12/18/2002	5.04	7.16	658	4.86	<1	
	03-RT-020-GW	Project Sample	3/11/2003	1.25	1.78	746	4.56	2.51	
	03-RT-045-GW	Project Sample	6/18/2003	<1	<1	338	2.86	1.18	
	03-RT-117-GW	Project Sample	10/8/2003	<1	<1	259	1.75 J	1.11	
	04-RT-038-GW	Project Sample	6/7/2004	<1	<1	196 VR	1.57	<1	<0.5
	04-RT-070-GW	Project Sample	10/23/2004	<1	<1	208	1.38	<1	<0.5
	05-RT-013-GW	Project Sample	2/22/2005	<1	<1	168	1.86	<1	<0.5
	05-RT-058-GW	Project Sample	10/12/2005	<1	<1	209	1.63	<1	<0.5
	06-RT-021-GW	Project Sample	5/25/2006	<1	<1	327	2.8	4.04	<0.5
	06-RT-046-GW	Project Sample	9/13/2006	2.6	1.2	140	1.3	1.2	
	07-RT-030-GW	Project Sample	9/19/2007	3.2	<1	94.9	<1	1	<1
	08-RT-053-GW	Project Sample	9/19/2008	1.75	1.31	100	1.25	1.77	<0.5
	09-RT-087-GW	Project Sample	10/8/2009	2.56 VJ	1.87	94.3	1.04	3.55	<0.15
	10-RT-106-GW	Project Sample	10/21/2010	0.86	1.86	88.4	0.99	6.66	<0.15
	12-RT-030-GW	Project Sample	5/10/2012	<0.31	0.79	16.1 VJ	0.33	1.7 VJ	<0.15
MW-12	00-RT-056-GW	Project Sample	6/8/2000	100 J	83	480	<10	<20	
	00-RT-115-GW	Project Sample	9/28/2000	95	140	750 VJ	<1	<2	
	00-RT-116-GW	QC Duplicate	9/28/2000	93	120	780 VJ	<1	<2	
	00-RT-128-GW	QA Split	9/28/2000	64.3 VJ	96.8 VJ	692	3.78	<1	
	01-RT-120-GW	Project Sample	10/18/2001	<4 J	<4 J	489 J	<4 J	<4 J	
	01-RT-121-GW	QC Duplicate	10/18/2001	<4 J	<4 J	531 J	<4 J	<4 J	
	01-RT-122-GW	QA Split	10/18/2001	<10	<10	442	<10	<10	<10
	01-RT-143-GW	Project Sample	1/16/2002	5.26 J	4.32 J	95 J	0.78 J	<2 J	
	02-RT-007-GW	Project Sample	3/13/2002	5.95	3.91	71.4	<1	<1	
	02-RT-052-GW	Project Sample	6/19/2002	<2 J	<2 J	298 J	<2 J	<2 J	
	02-RT-078-GW	Project Sample	9/26/2002	<1	2.3	550	2.3	<1	
	02-RT-122-GW	QA Split	12/18/2002	<1	5.4	197	1.9	<1	<1
	02-RT-121-GW	Project Sample	12/19/2002	<1	4.48	244	1.71	<1	
	03-RT-022-GW	Project Sample	3/11/2003	<1	3.8	217	1.74	<1	

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	*Sample ID*	*Sample Type*	*Date Sampled*	*PCE MCL=5; ACL=840*	*TCE MCL=5; ACL=21,900*	*cis-1,2-DCE MCL=70; ACL=11,600*	*trans-1,2-DCE MCL=100; ACL=11,600*	*Vinyl chloride MCL=2; ACL=2*	*1,2-DCA*
MW-12	03-RT-049-GW	Project Sample	6/18/2003	<1	<1	273 H	1.42	<1	
	03-RT-110-GW	Project Sample	10/8/2003	<4	5.2	248	<1	<1	
	04-RT-032-GW	Project Sample	6/8/2004	<1	<1	189	1.17	<1	<0.5
	04-RT-072-GW	Project Sample	10/23/2004	<1	1.7	246	1.53	<1	<0.5
	05-RT-014-GW	Project Sample	2/22/2005	<1	<1	220	1.96	<1	<0.5
	05-RT-059-GW	Project Sample	10/12/2005	<1	2.81	262	1.96	<1	<0.5
	07-RT-038-GW	Project Sample	9/19/2007	5.2	<1	<1	<1	<1	<1
	08-RT-055-GW	Project Sample	9/19/2008	4.19	<1	2.7	<1	<1	<0.5
	09-RT-089-GW	Project Sample	10/7/2009	3 VJ	3.65 VJ	82.4	<0.31	<0.31	<0.15
	10-RT-108-GW	Project Sample	10/21/2010	2.95	3.23	84	0.9	2.01	<0.15
	12-RT-032-GW	Project Sample	5/10/2012	4.16	1.31 VJ	18.6 VJ	<0.31	0.56	<0.15
	13-RT-008-GW	Project Sample	4/9/2013	1.62	1.99	54.2	<0.62	3.09	<0.3
	14-RT-026-GW	Project Sample	4/24/2014	2.17	1.91	28.2	0.36	1.72	<0.25
MW-20	00-RT-044-GW	Project Sample	6/7/2000	420	540	3000	26	4.5	
	00-RT-110-GW	Project Sample	9/27/2000	200	370	3100 VJ	30	<2	
	01-RT-015-GW	Project Sample	1/11/2001	6 H	7 H	2600	35 H	7.3 H	
	01-RT-052-GW	Project Sample	3/22/2001	3.57	3.44	2270	69.8	<2	
	01-RT-053-GW	QC Duplicate	3/22/2001	2.66	2.69	2630	43.5	<2	
	01-RT-054-GW	QA Split	3/22/2001	<10	<10	2290	23.4	<10	<10
	01-RT-085-GW	Project Sample	6/25/2001	3.24	2.28	2090	20.7	5.3	
	01-RT-086-GW	QC Duplicate	6/25/2001	3.25	2.38	2380	21.4	5.09	
	01-RT-087-GW	QA Split	6/25/2001	2.99	2.33	2490	25.1	4.57	
	01-RT-126-GW	Project Sample	10/18/2001	<10 J,H	<10 J,H	2870 J	<10 J,H	5.87 J,H	
	01-RT-149-GW	Project Sample	1/16/2002	1.9 J,H	1.67 J,H	886 J	11.8 J	1.32 J,H	
	02-RT-004-GW	Project Sample	3/13/2002	<2	<2	4420 E	32	6.87	
	02-RT-005-GW	QC Duplicate	3/13/2002	<2	<2	3100	41.3	8.23	
	02-RT-006-GW	QA Split	3/13/2002	<1	<1	2150	21.3	<2	
	02-RT-056-GW	Project Sample	6/18/2002	<2 J	<2 J	1770 J	12.7 J	3.85 J	
	02-RT-057-GW	QC Duplicate	6/18/2002	<2 J	<2 J	2220 J	16.8 J	4.53 J	
	02-RT-058-GW	QA Split	6/18/2002	<10	<10	1820	20.7	<10	<10
	02-RT-081-GW	Project Sample	9/26/2002	<1	<1	1300	12	3.2	
	02-RT-082-GW	QC Duplicate	9/26/2002	<1	<1	1500	14	3.6	
	02-RT-083-GW	QA Split	9/26/2002	<10	<10	1060	<10	<10	<10
	02-RT-124-GW	Project Sample	12/18/2002	<1	<1	2000	22.5	5.1	
	03-RT-024-GW	Project Sample	3/11/2003	<1	<1	1090	16.4	4.39	
	03-RT-025-GW	QC Duplicate	3/11/2003	<1	<1	1210	18.3	4.58	

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	PCE MCL=5; ACL=840	TCE MCL=5; ACL=21,900	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=100; ACL=11,600	Vinyl chloride MCL=2; ACL=2	1,2-DCA
MW-20	03-RT-026-GW	QA Split	3/11/2003	<10	<10	1210	18.5	<10	<10
	03-RT-033-GW	Project Sample	6/17/2003	<5	<5	1260	18.6	<5	<5
	03RT-090-GW	Project Sample	9/19/2003	14.1	3.3	1020	15.5	3.6	<1
	04-RT-006v-GW	Project Sample	1/21/2004	1.4	1.6	1050	16	4	<1
	04-RT-017-GW	Project Sample	3/30/2004	<1	<1	895	12.9	3.3	<1
	04-RT-022-GW	QC Duplicate	3/30/2004	<1	<1	943	12.3	3.4	<1
	04-RT-026-GW	Project Sample	6/8/2004	<10	<10	857	11.4	<10	<10
	04-RT-053-GW	Project Sample	10/29/2004	32	6.5	1560	22	59.4	<1
	05-RT-007-GW	Project Sample	2/24/2005	<5	7.6	898	5.6	248	<5
	05-RT-021-GW	Project Sample	6/2/2005	<1	<1	582	<1	211	<1
	05-RT-061-GW	Project Sample	10/11/2005	<1	<1	231	8.5	113	<0.5
	06-RT-016-GW	Project Sample	5/26/2006	<1	<1	39.1	4.9	15.5	<1
	06-RT-049-GW	Project Sample	9/13/2006	<0.5	1.1	22	3.5	4.1	
	06-RT-064-GW	QC Duplicate	9/13/2006	<0.5	0.99	22	3.4	4.3	
	07-RT-039-GW	Project Sample	9/19/2007	3.6	1.4	6.1	<1	<1	<1
	08-RT-017-GW	Project Sample	5/13/2008	4.28	2.23	8.66	2.5	3.73	<0.5
	08-RT-057-GW	Project Sample	9/19/2008	3.49	1.32	10.1	0.77	1.42	<0.5
	09-RT-006-GW	Project Sample	5/6/2009	0.64	1.37	9.07	1.73	2.43	<0.5
	09-RT-090-GW	Project Sample	10/8/2009	0.83 F	1.33	16.4	3.1	6.21	<0.15
	10-RT-053-GW	Project Sample	5/13/2010	1.24	2.46	11.7	1.87	5.73 VJ	<0.15
	10-RT-109-GW	Project Sample	10/21/2010	0.91	1.65	24.6	2.85	12.7	<0.15
	12-RT-033-GW	Project Sample	5/10/2012	2.33	5.03 VJ	12.3 VJ	1.7 VJ	12.3 VJ	<0.15
	13-RT-010-GW	Project Sample	4/9/2013	0.64	0.58	2.12	<0.62	<0.62	<0.3
MW-35	00-RT-074-GW	Project Sample	6/9/2000	1.6	2.2	210 E	2.8	<2	
	00-RT-122-GW	Project Sample	9/28/2000	<1	1.7	210 VJ	1.9	<2	
	01-RT-118-GW	Project Sample	10/18/2001	<4 J	<4 J	197 J	<4 J	<4 J	
	02-RT-089-GW	Project Sample	9/26/2002	<2	3.3	160	<2	<1	
	03-RT-113-GW	Project Sample	10/8/2003	2.55	---	86.9	1.47	<1	
	04-RT-081-GW	Project Sample	10/23/2004	<1	2.79	403	2.31	2.42	<0.5
	05-RT-065-GW	Project Sample	10/12/2005	1.1	3.16	247	1.75	<1	<0.5
	06-RT-022-GW	Project Sample	5/25/2006	1.18	1.81	306	6.27	17	<0.5
	06-RT-055-GW	Project Sample	9/13/2006	1.1	2.2	290	3.4	12	
	07-RT-014-GW	Project Sample	5/31/2007	0.68 F	1.2	189 J,H	6.35 VJ	14.3	<0.5
	07-RT-020-GW	QC Duplicate	5/31/2007	0.97 F	1.27	328 VJ	3.75 VJ	11.2	<0.5
	07-RT-040-GW	Project Sample	9/20/2007	1.2	2	208	2.5	3.5	<1
	08-RT-060-GW	Project Sample	9/20/2008	1.65	1.51	294	3.07	6.41	<0.5

Table C-4: June 2000 through April 2014 Performance Monitoring Groundwater VOC Analytical Data (ug/L)

River Terrace RV Park, Soldotna, Alaska

LOCATION	Sample ID	Sample Type	Date Sampled	PCE MCL=5; ACL=840	TCE MCL=5; ACL=21,900	cis-1,2-DCE MCL=70; ACL=11,600	trans-1,2-DCE MCL=100; ACL=11,600	Vinyl chloride MCL=2; ACL=2	1,2-DCA
MW-35	09-RT-091-GW	Project Sample	10/8/2009	1.51 VJ	2.23	203	2.23	2.8	<0.15
	10-RT-110-GW	Project Sample	10/21/2010	1.92	2.16	208	2.5	3.48	<0.15
	12-RT-034-GW	Project Sample	5/10/2012	0.66	1.17 VJ	67.9	3.5 VJ	11.8 VJ	<0.15
	13-RT-006-GW	Project Sample	4/9/2013	0.92	1.38	142	2.59	8.94	<0.3
	14-RT-028-GW	Project Sample	4/24/2014	0.7	0.7	73.3	1.53	<0.5	<0.25

Notes:

J or VJ: Estimated value
VM: Matrix interference
F: Value below reporting limit

VR: Result is rejected and not useable
VH: Hold time exceeded or sample preservation incorrect

APPENDIX D

IDW Manifest and Drum Inspection Reports

1406 0403414

95-921-AK21933 LW

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) 000297387FLE Contract# 7619 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: AKR000002790

2. Page 1 of 3

3. Emergency Response Phone: 1-800-424-9300

4. Manifest Tracking Number: 000297387 FLE

5. Generator's Name and Mailing Address

ERM
825 WEST 8TH AVE
ANCHORAGE, AK 99501

Generator's Phone: (907) 258-4880

Generator's Site Address (if different than mailing address)

ADEC RIVER TERRACE RV PARK
44761 STERLING HWY
SOLDOTNA, AK 99669

6. Transporter 1 Company Name: EMERALD ALASKA, INC — U.S. EPA ID Number: AKR000004184

7. Transporter 2 Company Name: CARLILE TRANSPORTATION ~~WEAVER BROTHERS~~ — U.S. EPA ID Number: AKR000005611 ~~AKD002848372~~

RECEIVED

JUN 16 2014

8. Designated Facility Name and Site Address

US ECOLOGY IDAHO, INC.
20400 LEMLEY RD
GRAND VIEW, ID 83624

Facility's Phone: (800) 274-1516

U.S. EPA ID Number: IDD073114654

GENERATOR

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. RQ, UN3082, Waste environmentally hazardous substances,liquid, n.o.s.(TETRACHLOFOETHYLENE, VINYL CHLORIDE), 9, PGIII, RQ=10, ERG#171	1	DM	160	P	F002	D043	
X	2. RQ, UN3077, Waste environmentally hazardous substances, solid,n.o.s.(TRICHLOROETHENE, VINYL CHLORIDE), 9, PGIII, RQ=10, ERG#171	1	DM	30	P	F002	D043	
X	3. UN3077, Waste environmentally hazardous substances, solid,n.o.s.(TRICHLOROETHENE, VINYL CHLORIDE), 9, PGIII, ERG#171	1	DF	4	P	F002	D043	
	4.							

14. Special Handling Instructions and Additional Information

1)29617 PURGE WATER (DM55)
2)29616 DEBRIS (DM 30)
3)29616 DEBRIS (DF05)

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Paul Horwath for ADEC
Signature: Paul Horwath for ADEC
Month 5 Day 1 Year 14

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Thomas Robinson
Signature: Thomas R
Month 5 Day 7 Year 14

Transporter 2 Printed/Typed Name: TONY TIDESWELL 5222
Signature:
Month 5 Day 9 Year 14

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1. H132
2. H132
3. H132
4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Cynthia Rodriguez
Signature: Cynthia Rodriguez
Month 6 Day 4 Year 14

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

95-921-AK21933 LW

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: AKR000002790

22. Page: 2/ 3

23. Manifest Tracking Number: 000297387FLE

24. Generator's Name:
ADEC RIVER TERRACE RV PARK
44761 STERLING HWY
SOLDOTNA, AK 99669
(907) 258-4880

25. Transporter 3 Company Name: WEAVER BROTHERS — U.S. EPA ID Number: AKD002848372

26. Transporter 4 Company Name: TOTEM OCEAN TRAILER EXPRESS — U.S. EPA ID Number: WAD070397955

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

32. Special Handling Instructions and Additional Information

GENERATOR

TRANSPORTER

33. Transporter 3 Acknowledgment of Receipt of Materials

Printed/Typed Name: Daniel L Morris — Signature: Daniel L Morris — Month 05 Day 16 Year 14

34. Transporter 4 Acknowledgment of Receipt of Materials

Printed/Typed Name: Shannon Martindale — Signature: — Month 5 Day 18 Year 14

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

95-921-AK21933 LW

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: AKR000002790

22. Page: 3/ 3

23. Manifest Tracking Number: 000297387FLE

24. Generator's Name:
ADEC RIVER TERRACE RV PARK
44761 STERLING HWY
SOLDOTNA, AK 99669
(907) 258-4880

25. Transporter 5 Company Name: EMERALD SERVICES, INC. U.S. EPA ID Number: WAD058364647

26. Transporter 6 Company Name: STEVE FORLER TRUCKING U.S. EPA ID Number: IDR000205625

GENERATOR

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers		29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes
		No.	Type			

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter 5 Acknowledgment of Receipt of Materials

Printed/Typed Name: William J [illegible] Signature: Month Day Year: 5 28 14

34. Transporter 6 Acknowledgment of Receipt of Materials

Printed/Typed Name: Dustin Shank Signature: Month Day Year: 6 03 14

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

APPENDIX E

Cross-Section Figures

(from previous reports)

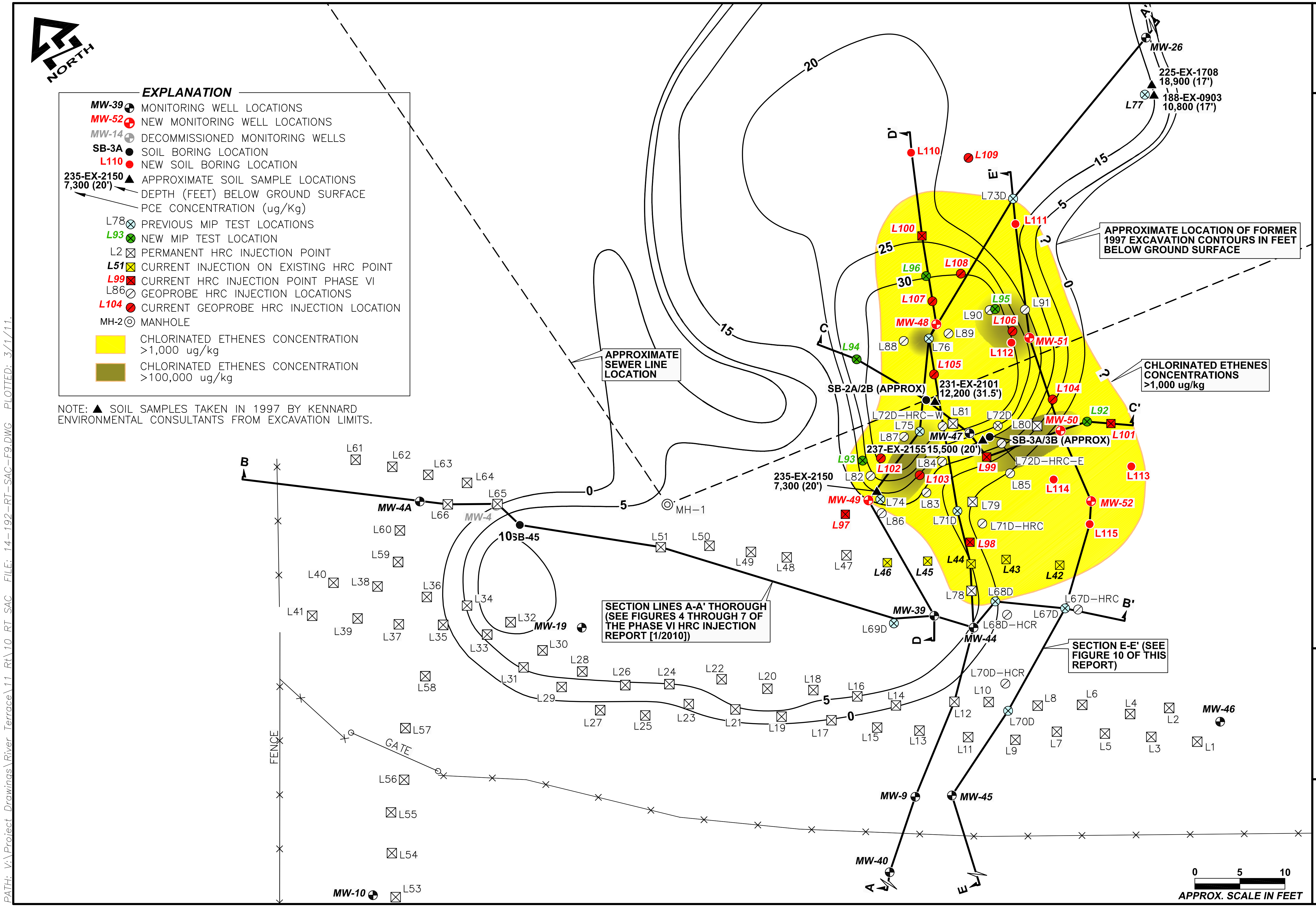

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FIGURE 9

SOURCE AREA CHARACTERIZATION

RIVER TERRACE RV PARK
2010 OCTOBER GROUNDWATER MONITORING REPORT
Soldotna, Alaska

DATE: MARCH 2011
CHKD: J.H.P.
DRAWN: C.E.H.
PROJ. No.: 14-192

oasis ENVIRONMENTAL
825 W. 8th Ave., Anchorage, AK 99501, (907) 258-4880

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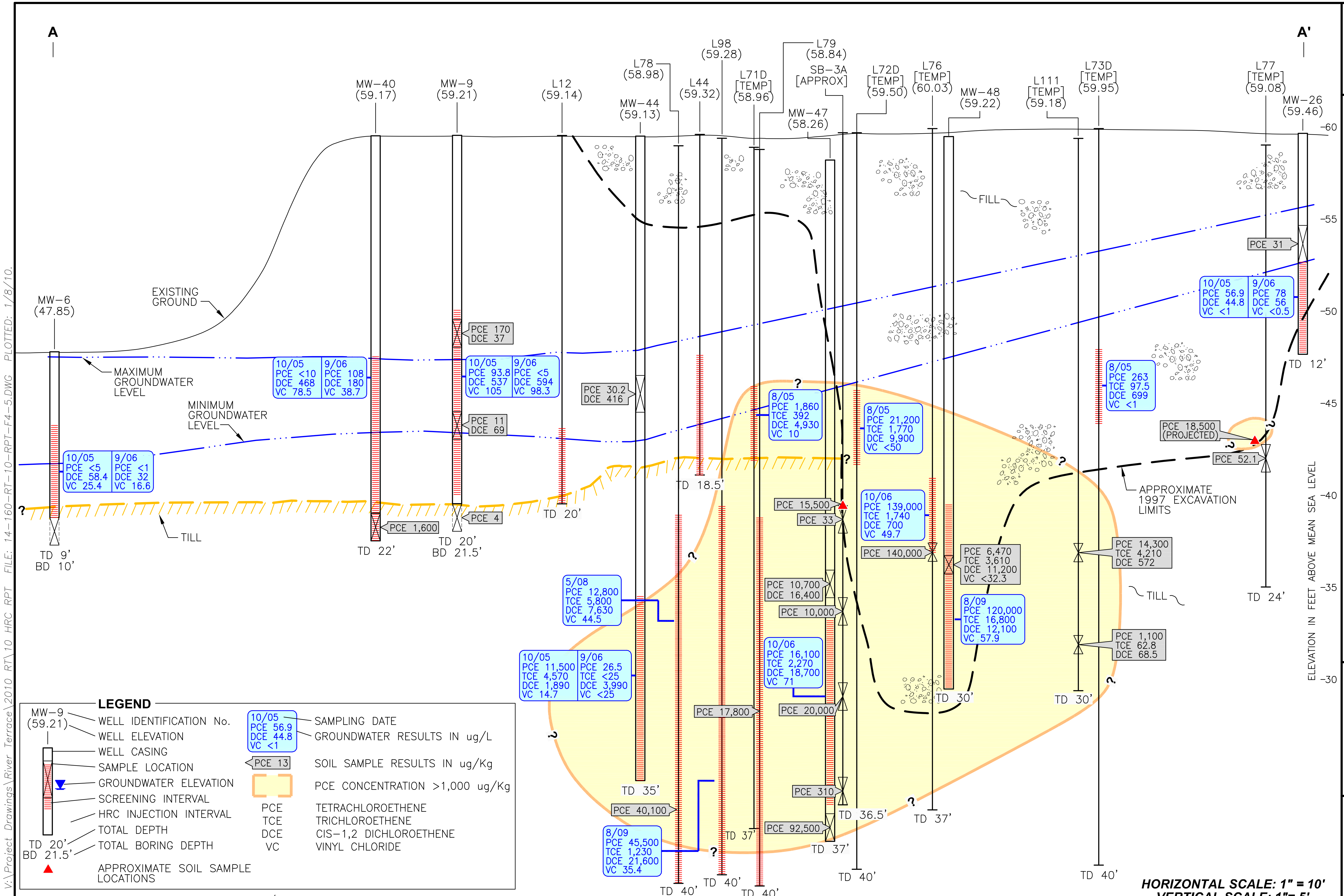


NOTE: A PCE CONCENTRATION OF 1,000 ug/Kg WAS ARBITRARILY SELECTED TO REPRESENT SOURCE CONTAMINATION AREAS.

HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1"= 5'
VERTICAL EXAGGERATION 2X

FIGURE
4

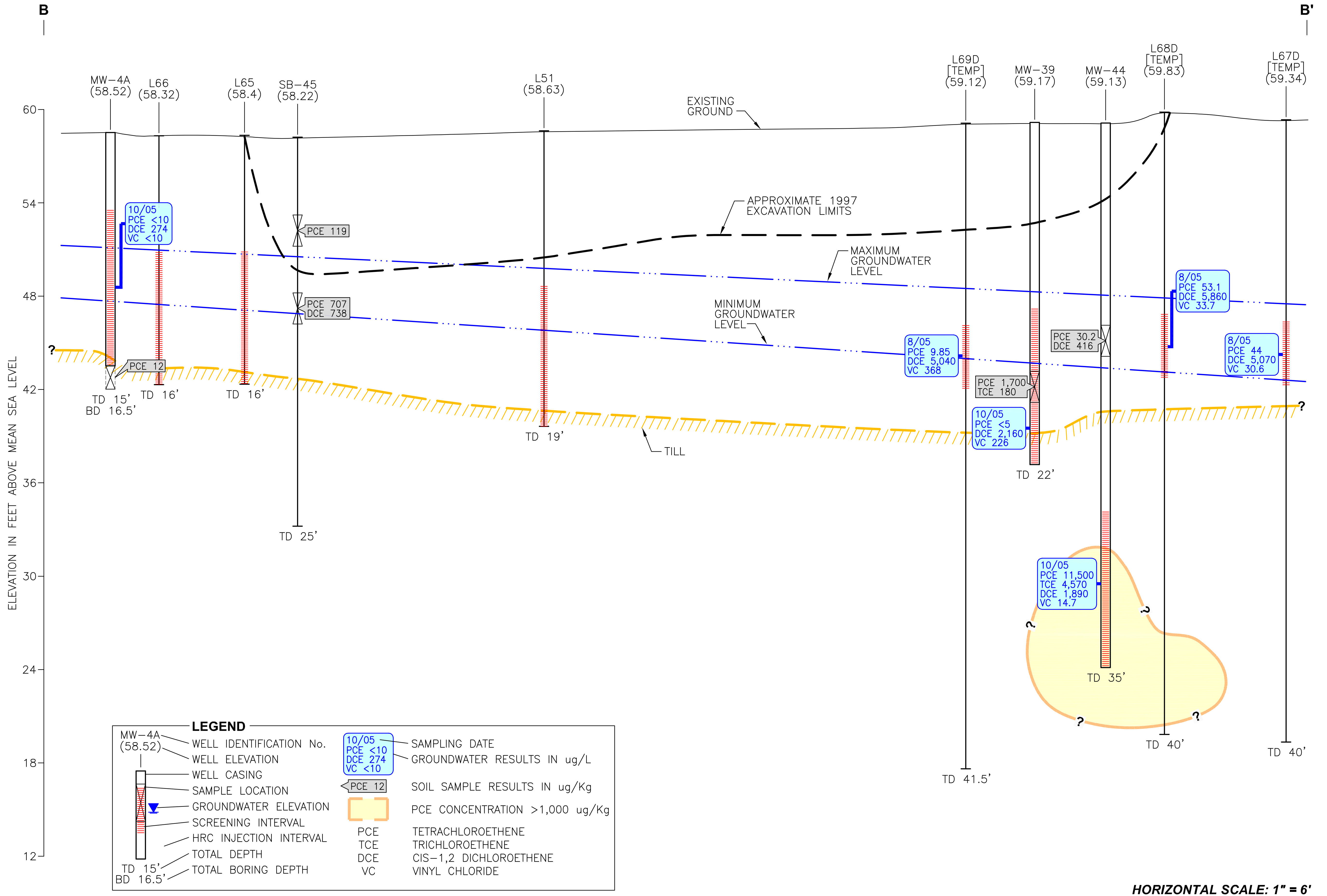
CROSS SECTION A-A'

RIVER TERRACE RV PARK
Soldatna, Alaska

DATE: JANUARY 2010
CHKD: T.M.
DRAWN: C.E.H.
PROJ. No.: 14-160

825 W. 8th Ave., Anchorage,
AK 99501, (907) 258-4880

oasis ENVIRONMENTAL



NOTE: A PCE CONCENTRATION OF 1,000 ug/Kg WAS ARBITRARILY SELECTED TO REPRESENT SOURCE CONTAMINATION AREAS.

HORIZONTAL SCALE: 1" = 6'
VERTICAL SCALE: 1"= 6'
NO VERTICAL EXAGGERATION

PATH: V:\Project Drawings\River Terrace\2010 RT\10 HRC RPT FILE: 14−160−RT−10−RPT−F4−5.DWG PLOTTED: 1/8/10.

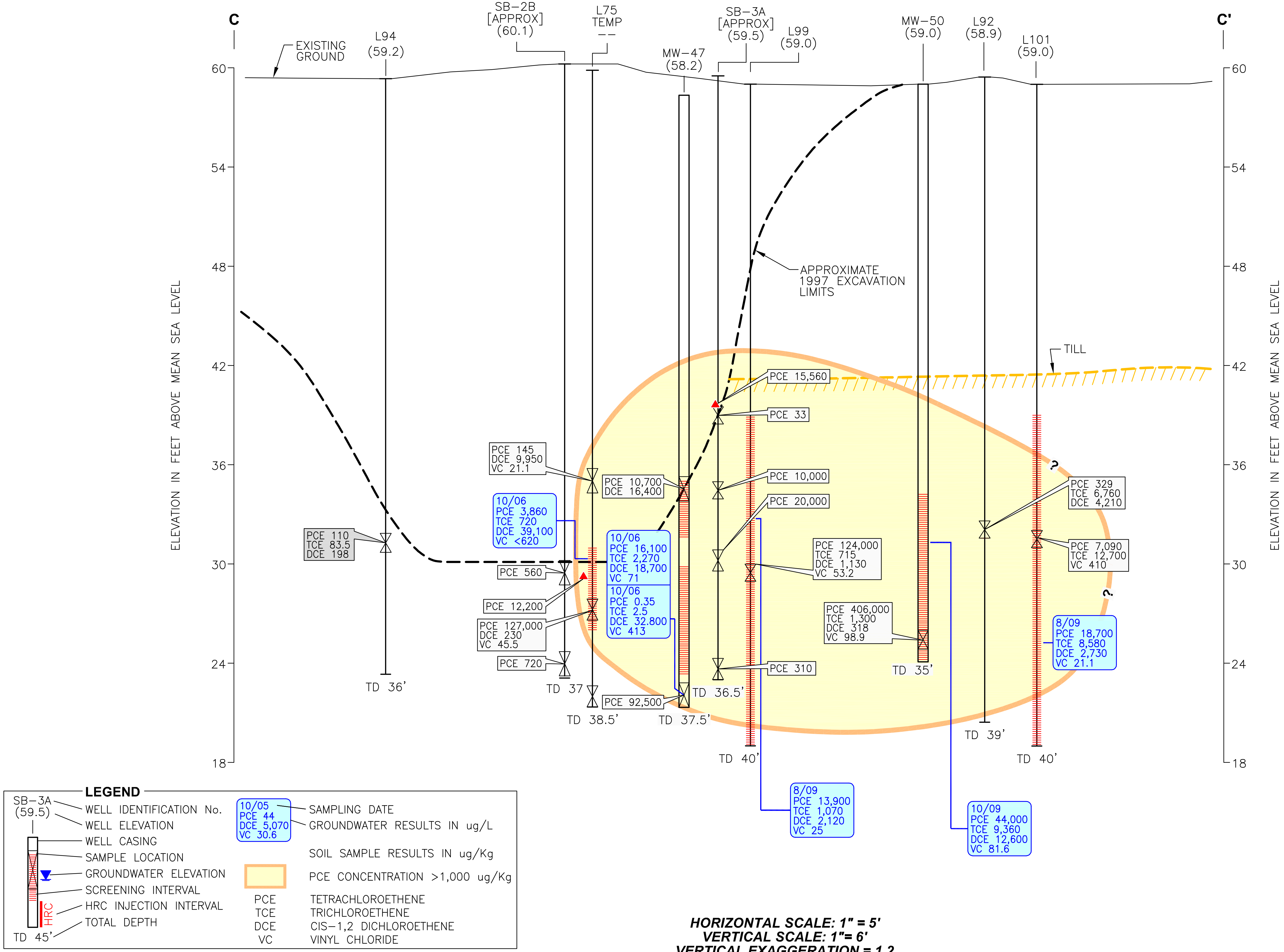
FIGURE
5

CROSS SECTION B-B'

RIVER TERRACE RV PARK
Soldatna, Alaska

DATE: JANUARY 2010
CHKD: T.M.
DRAWN: C.E.H.
PROJ. No.: 14−160
825 W. 8th Ave., Anchorage, AK 99501, (907) 258−4880

oasis ENVIRONMENTAL



LEGEND

SB-3A	WELL IDENTIFICATION No.
(59.5)	WELL ELEVATION
	WELL CASING
	SAMPLE LOCATION
▼	GROUNDWATER ELEVATION
	SCREENING INTERVAL
HRC	HRC INJECTION INTERVAL
TD 45'	TOTAL DEPTH
10/05	SAMPLING DATE
PCE 44 DCE 5,070 VC 30.6	GROUNDWATER RESULTS IN ug/L
	SOIL SAMPLE RESULTS IN ug/Kg
🟨	PCE CONCENTRATION >1,000 ug/Kg
PCE	TETRACHLOROETHENE
TCE	TRICHLOROETHENE
DCE	CIS-1,2 DICHLOROETHENE
VC	VINYL CHLORIDE

NOTE: A PCE CONCENTRATION OF 1,000 ug/Kg WAS ARBITRARILY SELECTED TO REPRESENT SOURCE CONTAMINATION AREAS.

HORIZONTAL SCALE: 1" = 5'
VERTICAL SCALE: 1"= 6'
VERTICAL EXAGGERATION = 1.2

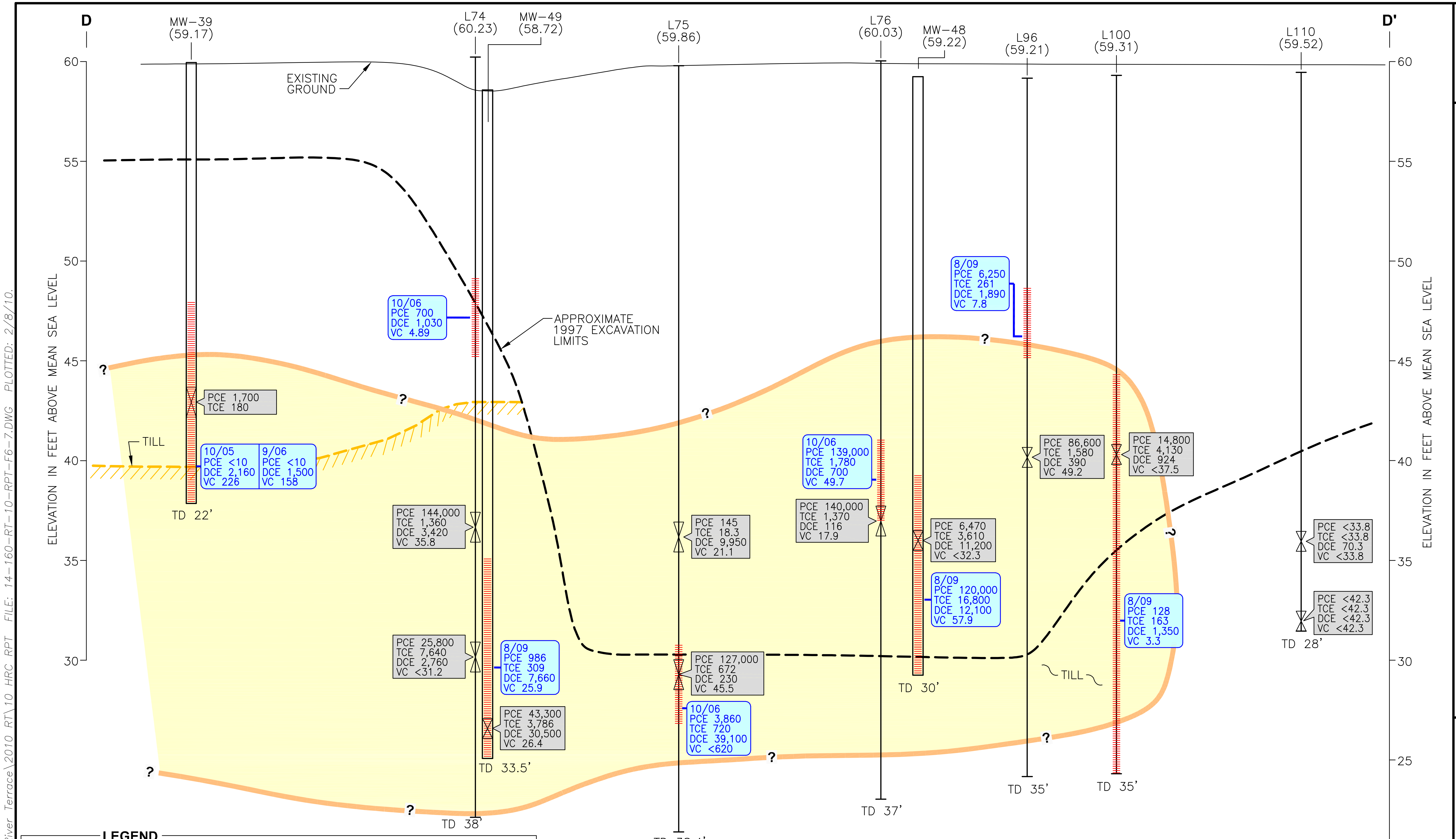
FIGURE
6

CROSS SECTION C-C'

RIVER TERRACE RV PARK
Soldatna, Alaska

DATE: FEB. 2010
CHKD: T.M.
DRAWN: C.E.H.
PROJ. No.: 14-160

825 W. 8th Ave., Anchorage,
AK 99501, (907) 258-4880



LEGEND

MW–48	WELL IDENTIFICATION No.
(59.22)	WELL ELEVATION
	WELL CASING
	SAMPLE LOCATION
▼	GROUNDWATER ELEVATION
	SCREENING INTERVAL
HRC	HRC INJECTION INTERVAL
TD 45'	TOTAL DEPTH
10/05	SAMPLING DATE
PCE 44 DCE 5,070 VC 30.6	GROUNDWATER RESULTS IN ug/L
PCE 12	SOIL SAMPLE RESULTS IN ug/Kg
🟨	PCE CONCENTRATION >1,000 ug/Kg
PCE	TETRACHLOROETHENE
TCE	TRICHLOROETHENE
DCE	CIS–1,2 DICHLOROETHENE
VC	VINYL CHLORIDE

NOTE: A PCE CONCENTRATION OF 1,000 ug/Kg WAS ARBITRARILY SELECTED TO REPRESENT SOURCE CONTAMINATION AREAS.

HORIZONTAL SCALE: 1" = 5'
VERTICAL SCALE: 1"= 5'
NO VERTICAL EXAGGERATION

FIGURE
7

CROSS SECTION D-D'

RIVER TERRACE RV PARK
Soldatna, Alaska

DATE: FEB. 2010
CHKD: T.M.
DRAWN: C.E.H.
PROJ. No.: 14–160

oasis ENVIRONMENTAL
825 W. 8th Ave., Anchorage, AK 99501, (907) 258–4880

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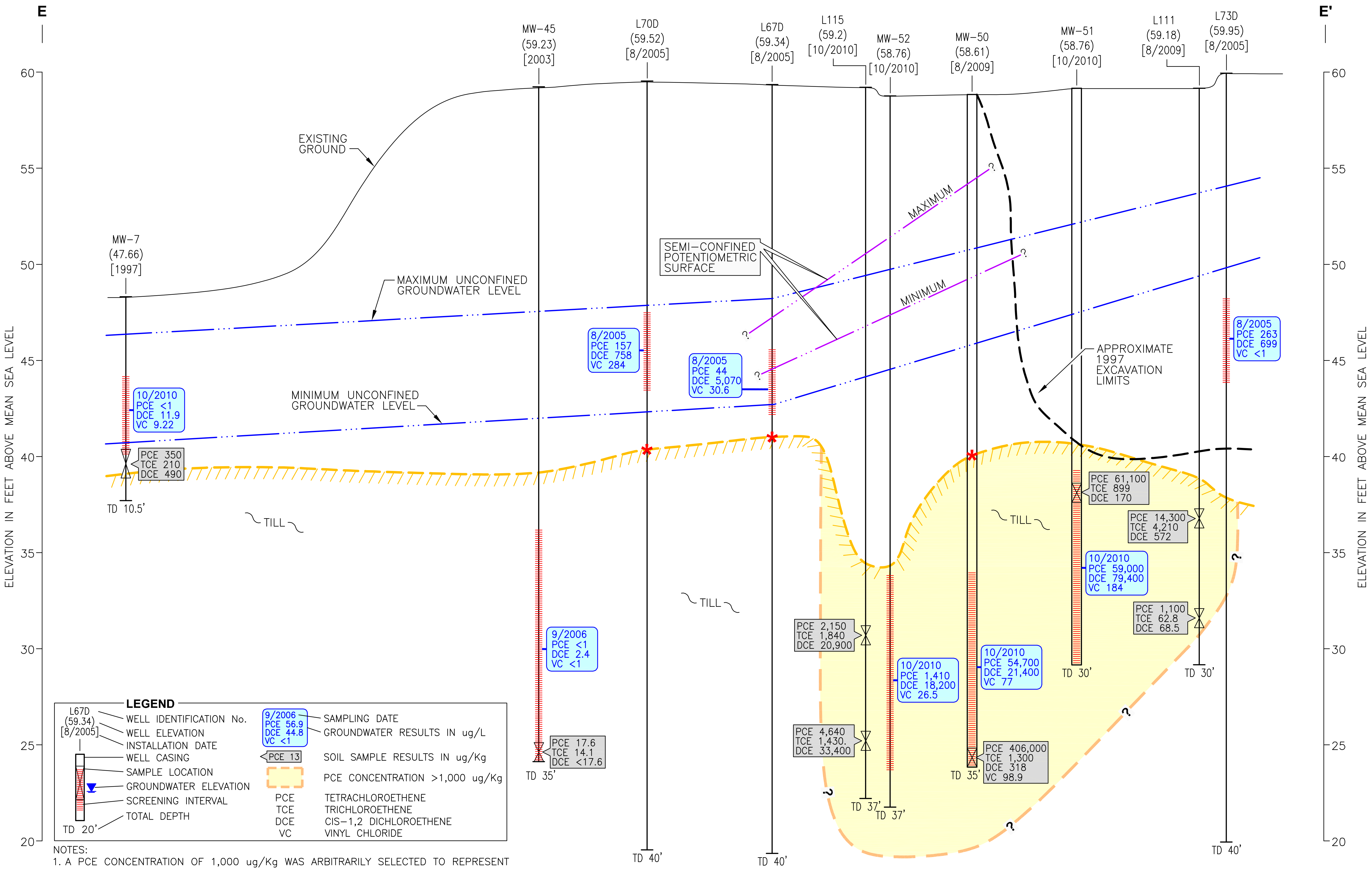


NOTES:

1. A PCE CONCENTRATION OF 1,000 ug/Kg WAS ARBITRARILY SELECTED TO REPRESENT SOURCE CONTAMINATION AREAS.
2. MINIMUM/MAXIMUM GROUNDWATER LEVELS EXTRAPOLATED FROM NEARBY WELLS AND DATALOGGERS. UNCONFINED AQUIFER: MW-20 DATA FOR MW-7, MW-39 FOR L67D, MW-26 [FROM SECTION A-A'] FOR L73D. SIMI-CONFINDED AQUIFER: MW-44 DATA FOR L67D, AND MW-47 FOR MW-50.
3. * TOP OF TILL AT THESE LOCATIONS (RED ASTERISKS) FROM NEARBY LOGS: L70D FROM L10; L67D FROM MW-44; MW-50 FROM L112.

HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1"= 5'
VERTICAL EXAGGERATION 2X

FIGURE
10

CROSS SECTION E-E'

RIVER TERRACE RV PARK
2010 OCTOBER GROUNDWATER MONITORING REPORT
Soldotna, Alaska

DATE: MARCH 2011
CHKD: J.H.P.
DRAWN: C.E.H.
PROJ. No.: 14-192

oasis
ENVIRONMENTAL

825 W. 8th Ave., Anchorage,
AK 99501, (907) 258-4880

PATH: V:\Project Drawings\River Terrace\2010 RT\10 HRC RPT FILE: 14-160-RT-10-RPT-E-E'.DWG PLOTTED: 3/1/11.

APPENDIX F

Nontarget Analyte Detection Summary
(December 1999 – April 2014)

Appendix F: Non-Target Analyte Detections
RTRVP Monitoring December 1999 -April 2013

Well	Analyte	Result	Units	Table C Cleanup Level (or other level, as footnoted)	Date	April 2014
MW-04A	methylene chloride	1.22JB	ug/L	5	3/22/2001	
MW-06	1,1,2-TCA	5.7	ug/L	5	6/7/2000	
MW-06	1,2-dichloropropane	1.4	ug/L	5	6/7/2000	
MW-06	1,2-dichloropropane	3	ug/L	5	11/28/2000	
MW-06	1,2-dichloropropane	2.41	ug/L	5	3/13/2002	
MW-06	1,2-dichloropropane	0.543	ug/L	5	6/19/2002	
MW-06	1,2-dichloropropane	2.9	ug/L	5	9/26/2002	
MW-06	1,2-dichloropropane	2.67	ug/L	5	3/11/2003	
MW-06 (Dupe)	1,2-dichloropropane	2.8	ug/L	5	3/11/2003	
MW-06	1,2-dichloropropane	0.51J	ug/L	5	5/13/2008	
MW-06 (Dupe)	1,2-dichloropropane	0.5J	ug/L	5	5/13/2008	
MW-06	methylene chloride	10	ug/L	5	12/15/1999	
MW-07	1,2-dichloropropane	14.7	ug/L	5	3/14/2002	
MW-07	1,2-dichloropropane	1.44	ug/L	5	3/11/2003	
MW-07	1,2-dichloropropane	1.27	ug/L	5	6/18/2003	
MW-07	1,2-dichloropropane	1.25	ug/L	5	10/23/2004	
MW-07	1,2-dichloropropane	0.76J	ug/L	5	10/21/2010	
MW-07	methylene chloride	1.24JB	ug/L	5	3/22/2001	
MW-08	1,2-dichloropropane	1.7J	ug/L	5	1/11/2001	
MW-08	1,2-dichloropropane	2.31	ug/L	5	3/13/2002	
MW-08	methylene chloride	1.8JB	ug/L	5	1/11/2001	
MW-08	methylene chloride	1.26JB	ug/L	5	3/22/2001	
MW-09	1,2-dichloropropane	11	ug/L	5	12/14/1999	
MW-09	1,2-dichloropropane	12	ug/L	5	3/23/2000	
MW-09	1,2-dichloropropane	3	ug/L	5	9/27/2000	
MW-09	1,2-dichloropropane	4.3	ug/L	5	9/26/2002	
MW-09	1,2-dichloropropane	4.11	ug/L	5	10/11/2005	
MW-09 (QA)	1,2-dichloropropane	5.93	ug/L	5	5/30/2007	
MW-09 (QA)	1,2-dichloropropane	3.09	ug/L	5	9/19/2007	
MW-09 (QA)	1,2-dichloropropane	2.58	ug/L	5	5/12/2008	
MW-09	1,2-dichloropropane	3.19	ug/L	5	9/16/2008	
MW-09	1,2-dichloropropane	2.55	ug/L	5	5/6/2009	
MW-09 (QC)	1,2-dichloropropane	2.34	ug/L	5	5/6/2009	
MW-09	1,2-dichloropropane	1.84	ug/L	5	10/5/2009	
MW-09 (QC)	1,2-dichloropropane	1.91	ug/L	5	10/5/2009	
MW-09	1,2-dichloropropane	1.94	ug/L	5	5/11/2010	
MW-09	1,2-dichloropropane	1.29	ug/L	5	10/20/2010	
MW-09	1,2-dichloropropane	3.34	ug/L	5	4/23/2014	*
MW-10	1,2-dichloropropane	3.1	ug/L	5	7/9/1999	
MW-10	1,2-dichloropropane	1.9	ug/L	5	3/25/2000	
MW-10	1,2-dichloropropane	1.4	ug/L	5	9/28/2000	
MW-10	1,2-dichloropropane	1.3	ug/L	5	1/11/2001	
MW-10	1,2-dichloropropane	5.87	ug/L	5	3/13/2002	
MW-10	acetone	547E	ug/L	3,650	3/13/2002	
MW-10	chloroethane	31.3	ug/L	290	6/19/2002	
MW-10	methylene chloride	10B	ug/L	5	1/11/2001	
MW-10	methylene chloride	1.19JB	ug/L	5	3/22/2001	
MW-12	1,2-dichloropropane	1	ug/L	5	10/26/1999	
MW-16	1,1,2-TCA	18	ug/L	5	6/7/2000	
MW-16	acetone	380	ug/L	3,650	6/18/2002	
MW-16	acetone	370	ug/L	3,650	10/30/2004	
MW-16	acetone	574J	ug/L	3,650	6/3/2005	
MW-16	methylene chloride	1.11J	ug/L	5	5/14/2010	

Appendix F: Non-Target Analyte Detections
RTRVP Monitoring December 1999 -April 2013

Well	Analyte	Result	Units	Table C Cleanup Level (or other level, as footnoted)	Date	April 2014
MW-20	1,1,2-TCA	7	ug/L	5	6/7/2000	
MW-20	1,2-dichloropropane	3.1	ug/L	5	12/14/1999	
MW-20	1,2-dichloropropane	4.4	ug/L	5	3/24/2000	
MW-20	1,2-dichloropropane	4.8	ug/L	5	6/7/2000	
MW-20	1,2-dichloropropane	3	ug/L	5	9/29/2000	
MW-20	1,2-dichloropropane	4.5	ug/L	5	1/11/2001	
MW-20	1,2-dichloropropane	2.12	ug/L	5	6/26/2001	
MW-20	1,2-dichloropropane	0.828J	ug/L	5	1/16/2002	
MW-20	1,2-dichloropropane	3.96	ug/L	5	3/13/2002	
MW-20	methylene chloride	2.1JB	ug/L	5	1/11/2001	
MW-24	1,1,2-TCA	1.9	ug/L	5	6/7/2000	
MW-25	1,1,2-TCA	5.2	ug/L	5	6/9/2000	
MW-25	hexachlorobutadiene	14	ug/L	7.3[1]	9/29/2000	
MW-25	methylene chloride	1.44JB	ug/L	5	3/22/2001	
MW-26	1,1,2-TCA	2.8	ug/L	5	6/7/2000	
MW-29	methylene chloride	1.19J	ug/L	5	5/14/2010	
MW-36	acrolein	57	ug/L	18[1]	9/26/2002	
MW-38	acetone	460	ug/L	3,650	6/18/2002	
MW-38	acrolein	16	ug/L	18[1]	9/26/2002	
MW-39	1,2-dichloropropane	3	ug/L	5	9/26/2002	
MW-39	1,2-dichloropropane	4.73	ug/L	5	3/11/2003	
MW-39	1,2-dichloropropane	0.62J	ug/L	5	9/17/2008	
MW-39	1,2-dichloropropane	0.92J	ug/L	5	5/6/2009	
MW-39	1,2-dichloropropane	0.99J	ug/L	5	10/6/2009	
MW-39	1,2-dichloropropane	1.14	ug/L	5	5/12/2010	
MW-39	1,2-dichloropropane	1.41	ug/L	5	10/20/2010	
MW-39	1,2-dichloropropane	0.79J	ug/L	5	4/23/2014	*
MW-40	1,2-dichloropropane	0.96	ug/L	5	6/19/2002	
MW-40	1,2-dichloropropane	1.7	ug/L	5	9/26/2002	
MW-40	1,2-dichloropropane	5.7	ug/L	5	3/11/2003	
MW-40 (split)	1,2-dichloropropane	1.1	ug/L	5	9/12/2006	
MW-40	1,2-dichloropropane	0.58J	ug/L	5	9/17/2008	
MW-40	1,2-dichloropropane	1.23	ug/L	5	5/6/2009	
MW-40	methylene chloride	1.06J	ug/L	5	5/13/2010	
MW-44	1,2-dichloropropane	117	ug/L	5	3/11/2003	
MW-44	1,2-dichloropropane	109	ug/L	5	6/19/2003	
MW-44	1,2-dichloropropane	61.3	ug/L	5	6/8/2004	
MW-44	1,2-dichloropropane	86	ug/L	5	10/29/2004	
MW-44	1,2-dichloropropane	85.2	ug/L	5	6/3/2005	
MW-44	1,2-dichloropropane	32.3	ug/L	5	9/17/2008	
MW-44	1,2-dichloropropane	9.94	ug/L	5	5/6/2009	
MW-44	1,2-dichloropropane	7.69	ug/L	5	10/6/2009	
MW-44	1,2-dichloropropane	7.96	ug/L	5	5/12/2010	
MW-44	1,2-dichloropropane	8.55	ug/L	5	10/20/2010	
MW-44	1,2-dichloropropane	11.3	ug/L	5	5/8/2012	
MW-44	1,2-dichloropropane	3.64	ug/L	5	4/9/2013	
MW-44	1,2-dichloropropane	4.45	ug/L	5	4/23/2014	*

Appendix F: Non-Target Analyte Detections
RTRVP Monitoring December 1999 -April 2013

Well	Analyte	Result	Units	Table C Cleanup Level (or other level, as footnoted)	Date	April 2014
MW-47	1,2-dichloropropane	32.3	ug/L	5	9/17/2008	
MW-47	1,2-dichloropropane	52.9	ug/L	5	5/6/2009	
MW-47	1,2-dichloropropane	40.7	ug/L	5	10/6/2009	
	methylene chloride	8.44	ug/L	5	10/6/2009	
MW-47	1,2-dichloropropane	42.3	ug/L	5	5/11/2010	
MW-47	1,2-dichloropropane	96.4	ug/L	5	10/19/2010	
MW-47	1,2-dichloropropane	51	ug/L	5	5/17/2011	
MW-47	1,2-dichloropropane	63.2	ug/L	5	5/8/2012	
MW-47	1,1-dichloroethene	7.24J	ug/L	7	4/23/2014	*
MW-47	1,2-dichloropropane	11.7J	ug/L	5	4/23/2014	*
MW-48	1,2-dichloropropane	14.8	ug/L	5	10/6/2009	
MW-48	1,2-dichloropropane	0.78J	ug/L	5	5/12/2010	
MW-48	1,2-dichloropropane	0.78J	ug/L	5	5/18/2011	
MW-48	1,2-dichloropropane	10.8	ug/L	5	5/8/2012	
MW-48	1,2-dichloropropane	1.14	ug/L	5	4/10/2013	
MW-48	1,1-dichloroethene	61.7J	ug/L	7	4/23/2014	*
MW-49	1,2-dichloropropane	19.1	ug/L	5	10/6/2009	
MW-49	1,2-dichloropropane	48	ug/L	5	5/13/2010	
MW-49	1,2-dichloropropane	45.2	ug/L	5	10/19/2010	
MW-49	1,2-dichloropropane	34.3	ug/L	5	5/18/2011	
MW-49	1,1-dichloroethene	31.2	ug/L	7	4/23/2014	*
MW-49	1,2-dichloropropane	36.0	ug/L	5	4/23/2014	*
MW-50	1,2-dichloropropane	185	ug/L	5	10/6/2009	
MW-50	1,2-dichloropropane	198	ug/L	5	5/12/2010	
MW-50	1,2-dichloropropane	165	ug/L	5	10/20/2010	
MW-50	1,2-dichloropropane	174	ug/L	5	5/8/2012	
MW-50	1,2-dichloropropane	27.7	ug/L	5	4/10/2013	
MW-50	1,1-dichloroethene	9.94J	ug/L	7	4/22/2014	*
MW-50	1,2-dichloropropane	6.84J	ug/L	5	4/22/2014	*
MW-51	1,2-dichloropropane	105	ug/L	5	10/19/2010	
MW-51	1,2-dichloropropane	12.7	ug/L	5	5/18/2011	
MW-51	1,1-dichloroethene	17.3	ug/L	7	4/10/2013	
MW-51	1,1-dichloroethene	9.94J	ug/L	7	4/23/2014	*
MW-51	1,2-dichloropropane	6.84J	ug/L	5	4/23/2014	*
MW-52	1,2-dichloropropane	69.3	ug/L	5	10/19/2010	
MW-52	1,2-dichloropropane	6.79	ug/L	5	5/17/2011	
MW-52	1,2-dichloropropane	7.99	ug/L	5	5/8/2012	
MW-52	1,2-dichloropropane	34.4	ug/L	5	4/10/2013	
MW-52	1,2-dichloropropane	1.21	ug/L	5	4/23/2014	*
L74	1,2-dichloropropane	1.92	ug/L	5	10/1/2006	
L75	1,2-dichloropropane	32.7	ug/L	5	10/1/2006	
L78	1,2-dichloropropane	139	ug/L	5	9/18/2008	
L78	1,2-dichloropropane	83.6	ug/L	5	5/7/2009	
L78	1,2-dichloropropane	12.7	ug/L	5	10/7/2009	
L78	1,2-dichloropropane	115	ug/L	5	5/12/2010	
L78	1,2-dichloropropane	52.8	ug/L	5	10/20/2010	
L78	1,2-dichloropropane	63.5	ug/L	5	4/10/2013	
L78	1,2-dichloropropane	50.1J	ug/L	5	4/23/2014	*
L80	1,2-dichloropropane	94.9	ug/L	5	9/18/2008	
L80	1,2-dichloropropane	82	ug/L	5	5/7/2009	
L80A	1,1-dichloroethene	66.2J	ug/L	7	4/23/2014	*
L80A	1,2-dichloropropane	257	ug/L	5	4/23/2014	*

Appendix F: Non-Target Analyte Detections
RTRVP Monitoring December 1999 -April 2013

Well	Analyte	Result	Units	Table C Cleanup Level (or other level, as footnoted)	Date	April 2014
L81	1,2-dichloropropane	15.3	ug/L	5	9/18/2008	
L81	1,2-dichloropropane	12.6	ug/L	5	5/7/2009	
L101	1,2-dichloropropane	52.4	ug/L	5	10/7/2009	
L101	1,2-dichloropropane	187	ug/L	5	5/12/2010	
L101	1,2-dichloropropane	37.6	ug/L	5	10/20/2010	
L101	1,2-dichloropropane	45.0J	ug/L	5	4/23/2014	*
L102	1,1-dichloroethene	88.4J	ug/L	7	4/22/2014	*
L102	1,2-dichloropropane	64.2J	ug/L	5	4/22/2014	*
L103	1,1-dichloroethene	36.6J	ug/L	7	4/23/2014	*
River (near MW-5)	methylene chloride	1.26J	ug/L	5	5/12/2010	
River (near MW-6)	methylene chloride	1.11J	ug/L	5	5/12/2010	

Notes:

Shaded cells indicate cleanup level exceedences.

E - estimated value (exceeds calibration range).

J - estimated value (below method reporting limit)

B- Analyte is found in the associated method blank.

H - holding time exceeded

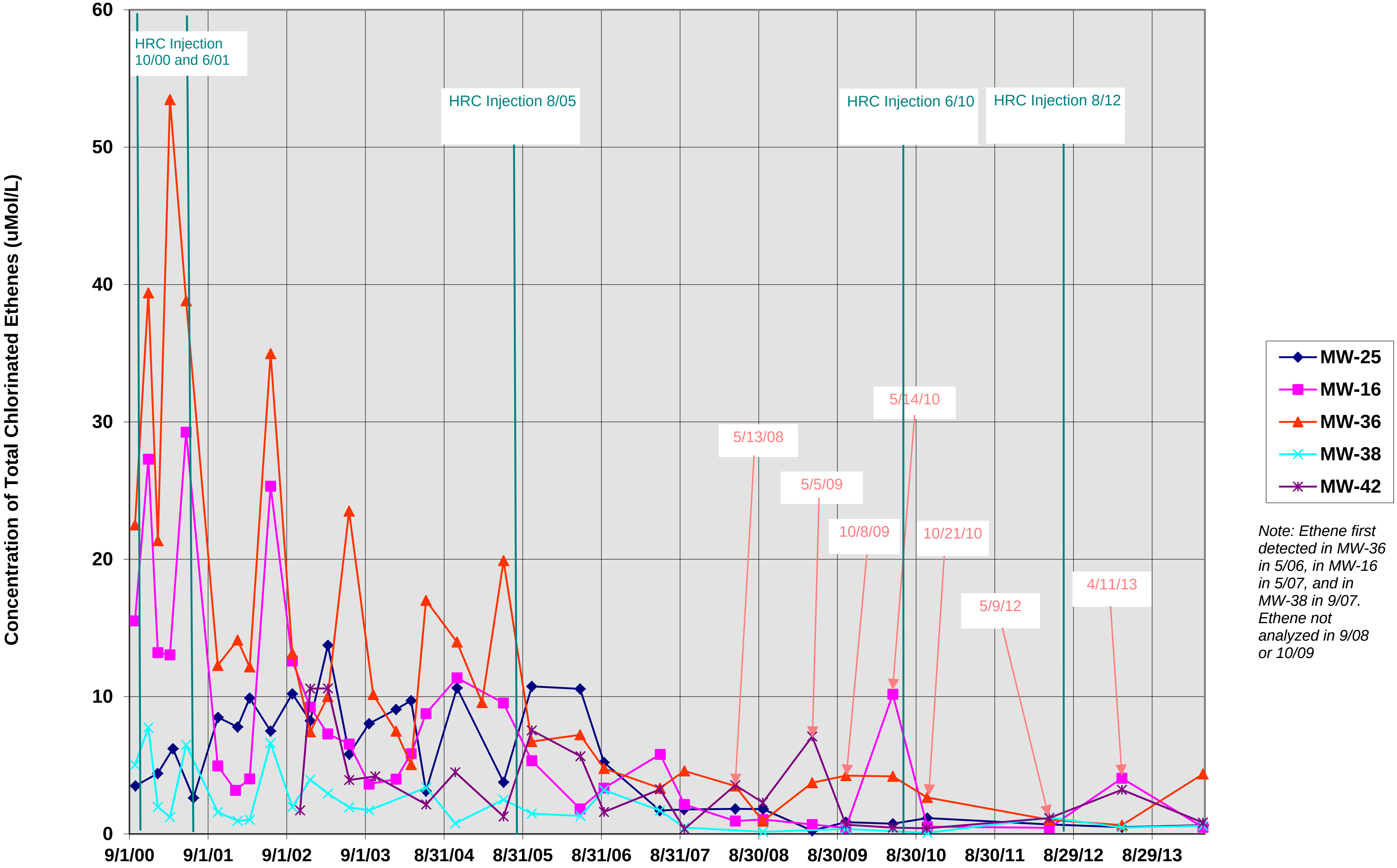
^{1} No Table C value available; cleanup level calculated using Equation 1 (ADEC's Guidance on Cleanup Standards Equations)

Table sorted by analyte and date.

APPENDIX G

Bioremediation Effectiveness Graphs

Chart G-1: MW-36, MW-42, MW-16, MW-38, and MW-25 Total Chlorinated Ethenes
River Terrace RV Park



Note: Ethene first detected in MW-36 in 5/06, in MW-16 in 5/07, and in MW-38 in 9/07. Ethene not analyzed in 9/08 or 10/09

Chart G-1b: Lower Plume Total Chlorinated Ethenes

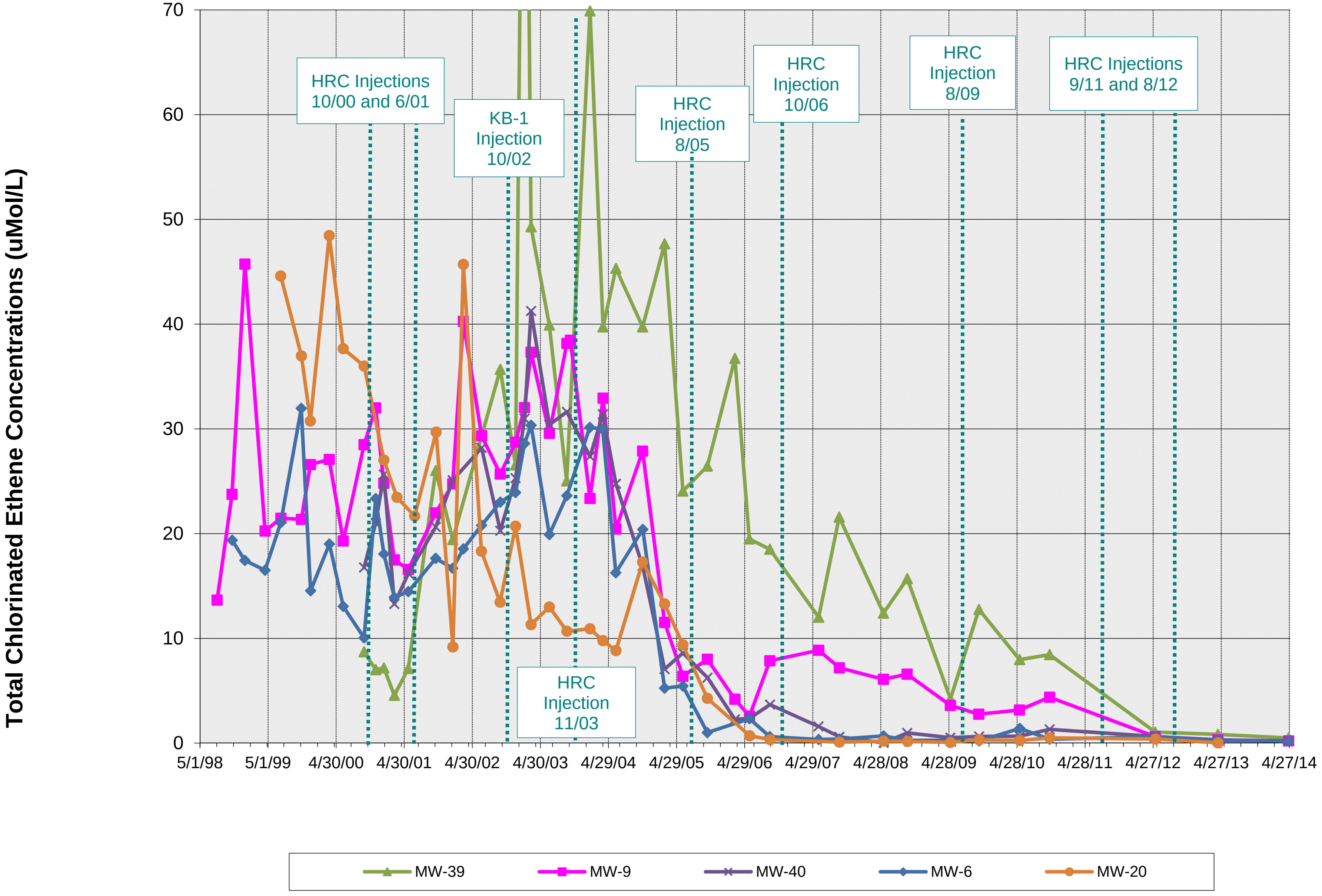


Chart G-1c: Lower Plume and Source Area Total Chlorinated Ethenes

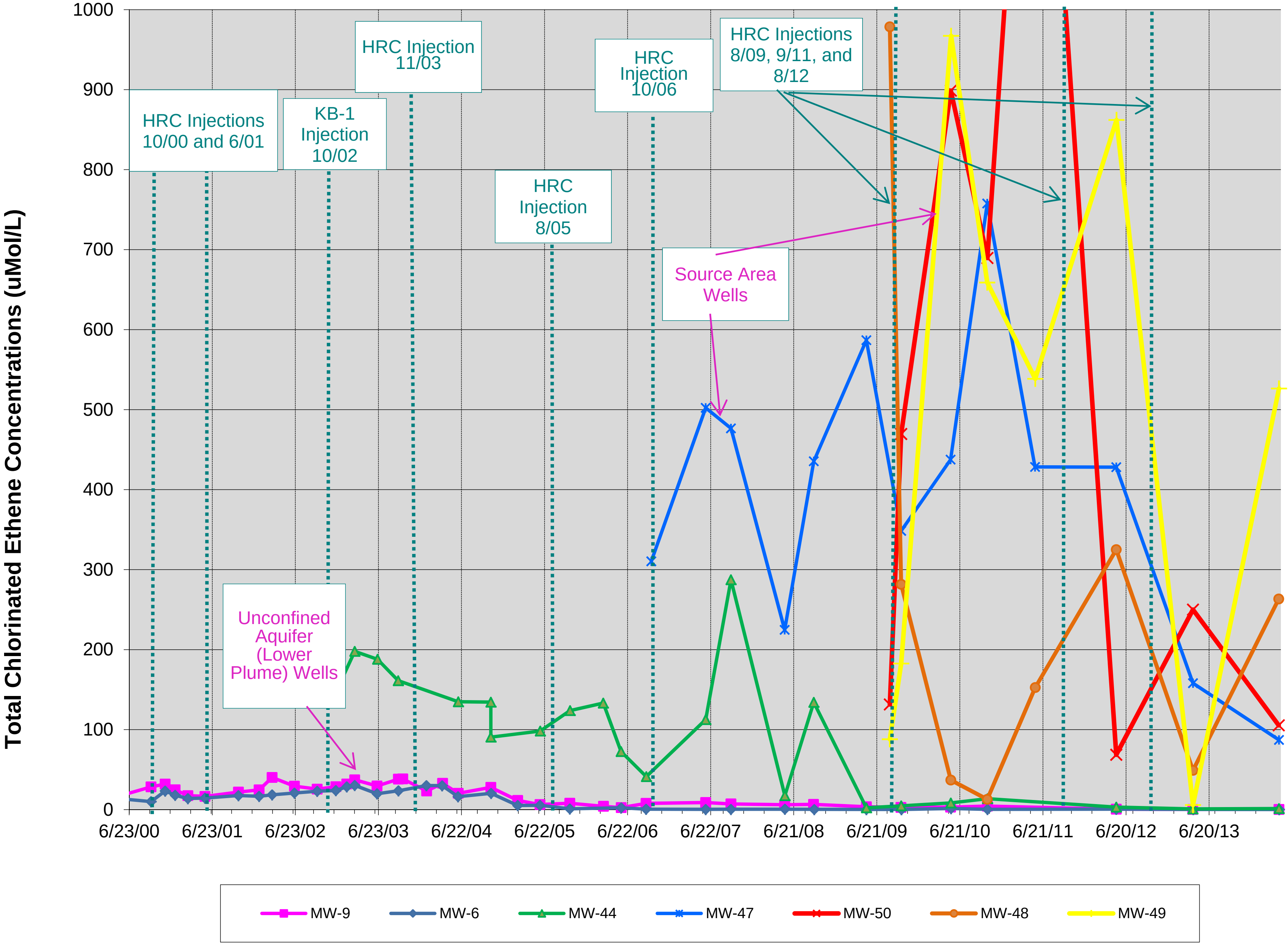


Chart G-2a: MW-16 VOCs

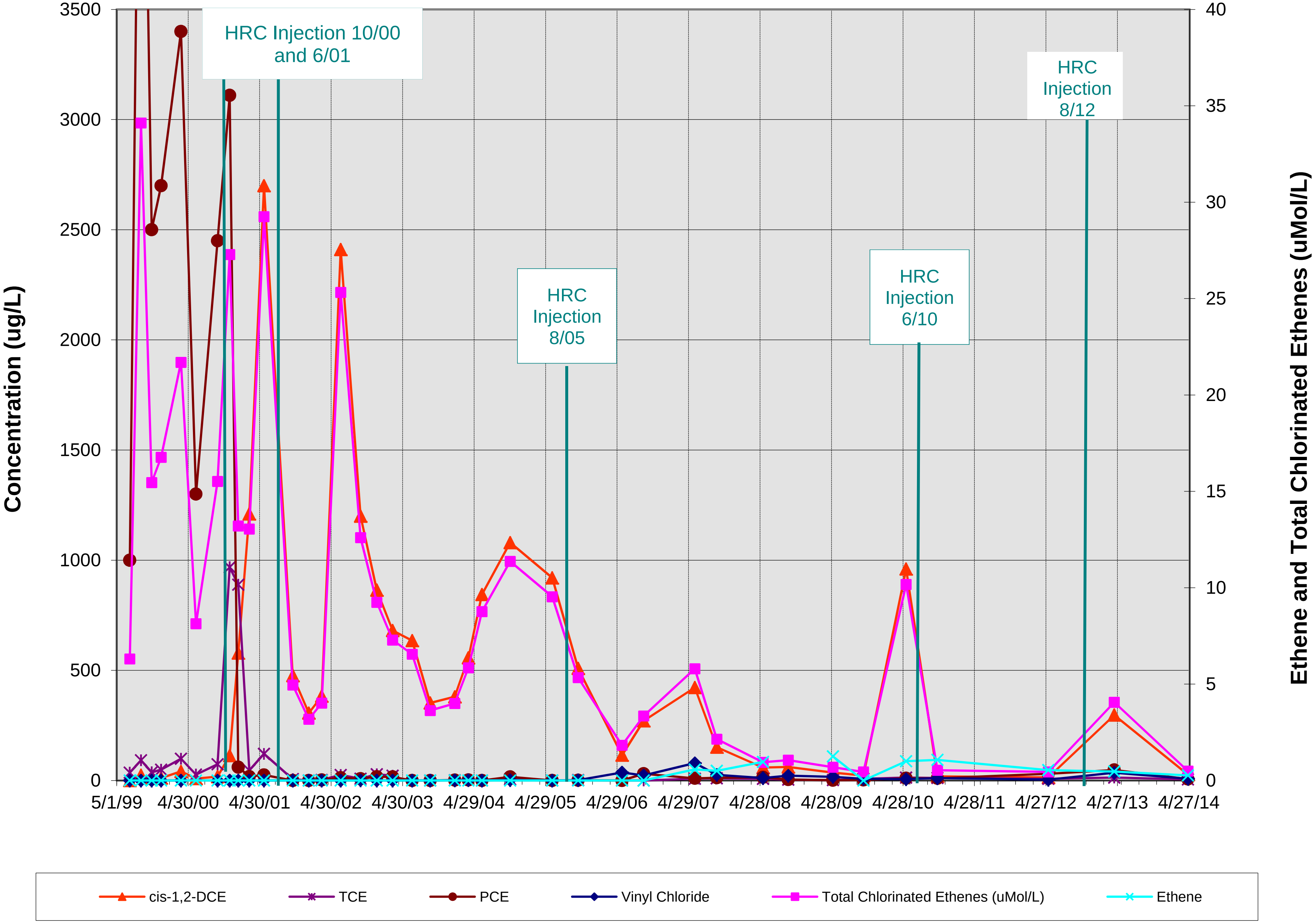
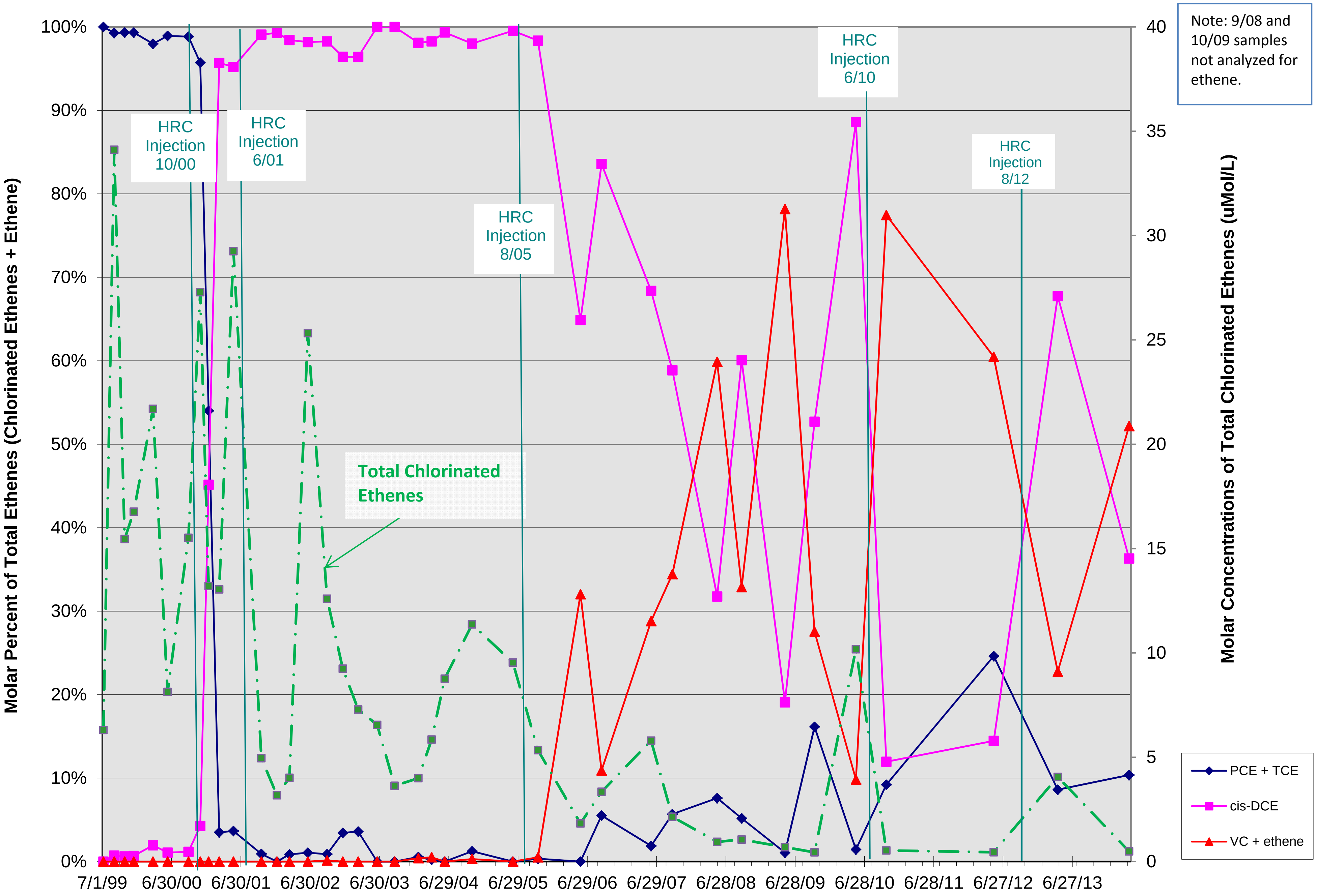


Chart G-2b: MW-16 Molar Percentages



Note: 9/08 and 10/09 samples not analyzed for ethene.

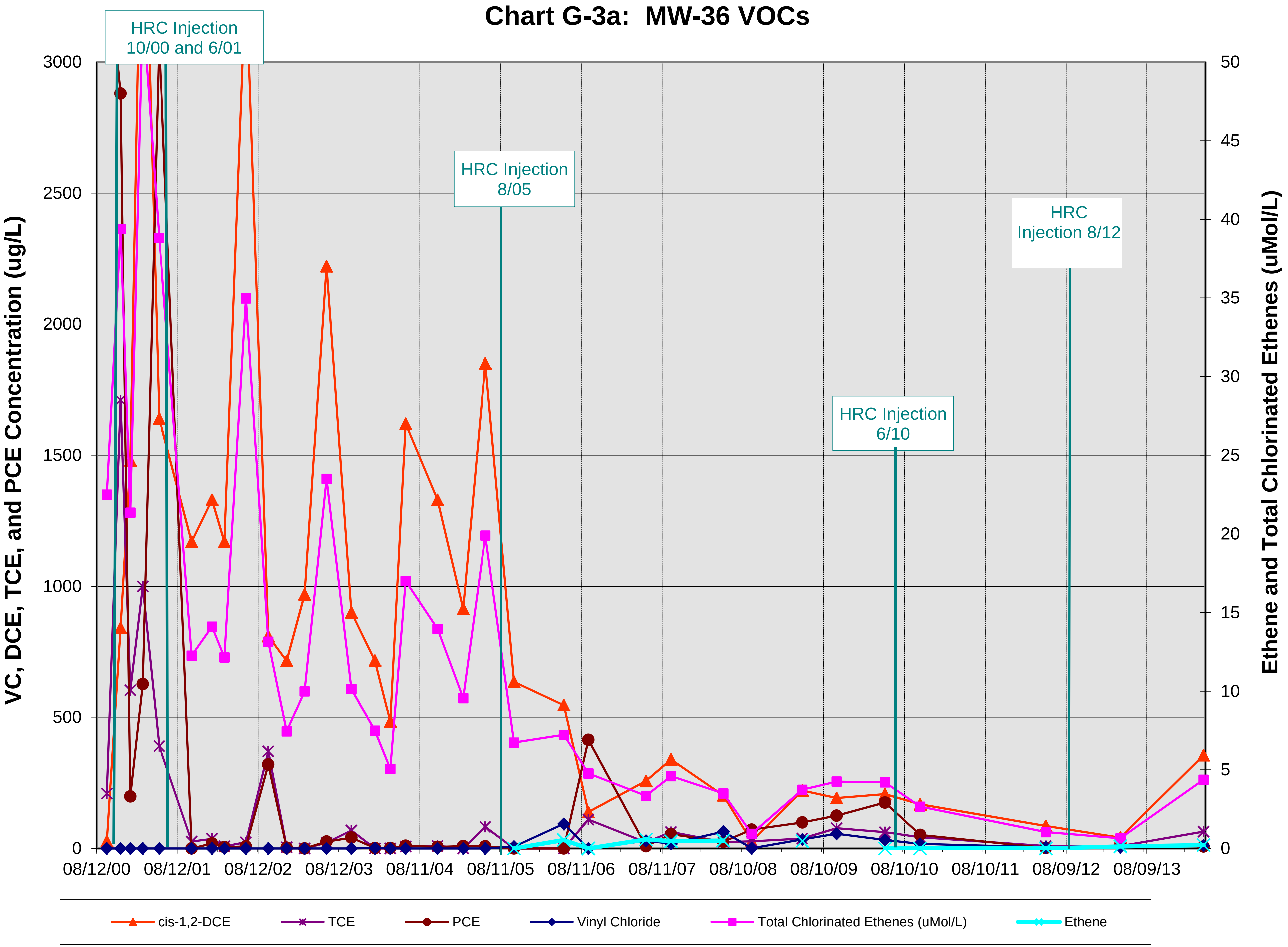


Chart G-3a: MW-36 VOCs
HRC Injection 10/00 and 6/01
HRC Injection 8/05
HRC Injection 6/10
HRC Injection 8/12
VC, DCE, TCE, and PCE Concentration (ug/L)
Ethene and Total Chlorinated Ethenes (uMol/L)
3000
2500
2000
1500
1000
500
0
50
45
40
35
30
25
20
15
10
5
0
08/12/00
08/12/01
08/12/02
08/12/03
08/11/04
08/11/05
08/11/06
08/11/07
08/10/08
08/10/09
08/10/10
08/10/11
08/09/12
08/09/13
cis-1,2-DCE
TCE
PCE
Vinyl Chloride
Total Chlorinated Ethenes (uMol/L)
Ethene

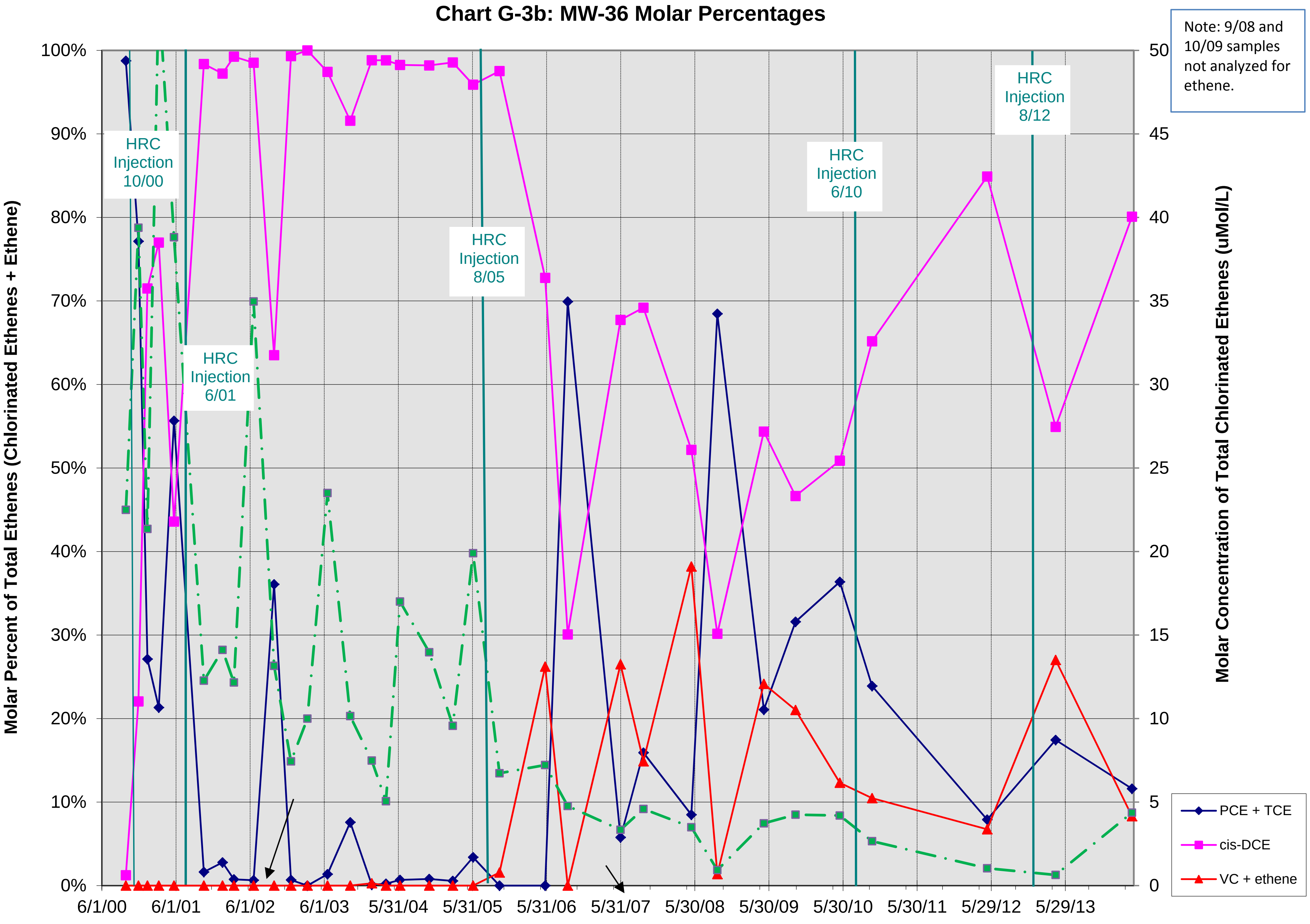


Chart G-3b: MW-36 Molar Percentages
Note: 9/08 and 10/09 samples not analyzed for ethene.
HRC Injection 10/00
HRC Injection 6/01
HRC Injection 8/05
HRC Injection 6/10
HRC Injection 8/12
Molar Percent of Total Ethenes (Chlorinated Ethenes + Ethene)
Molar Concentration of Total Chlorinated Ethenes (uMol/L)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
50
45
40
35
30
25
20
15
10
5
0
6/1/00
6/1/01
6/1/02
6/1/03
5/31/04
5/31/05
5/31/06
5/31/07
5/30/08
5/30/09
5/30/10
5/30/11
5/29/12
5/29/13
PCE + TCE
cis-DCE
VC + ethene

Chart G-4a: MW-39 VOCs

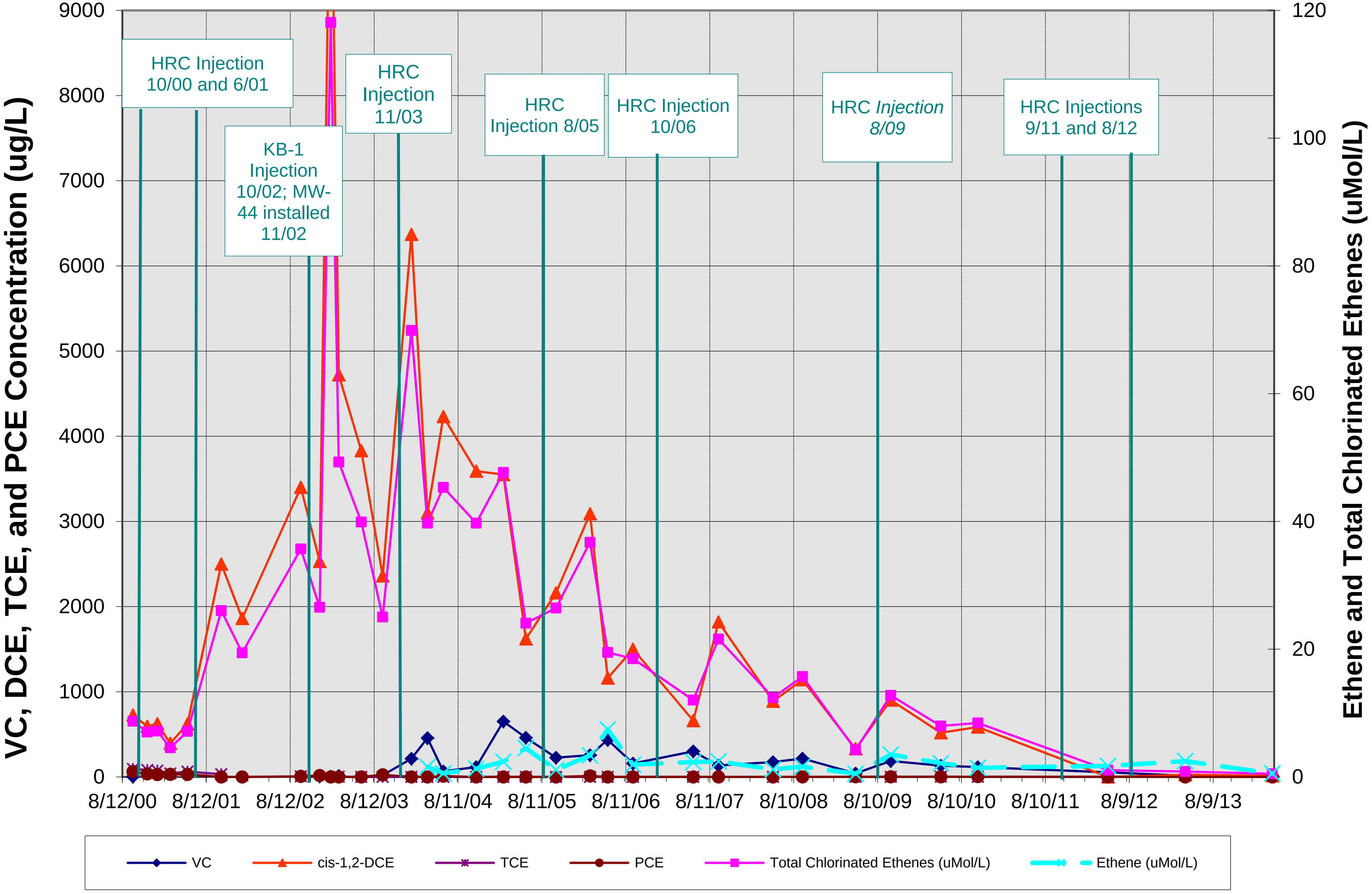


Chart G-4b: MW-39 Molar Percentages

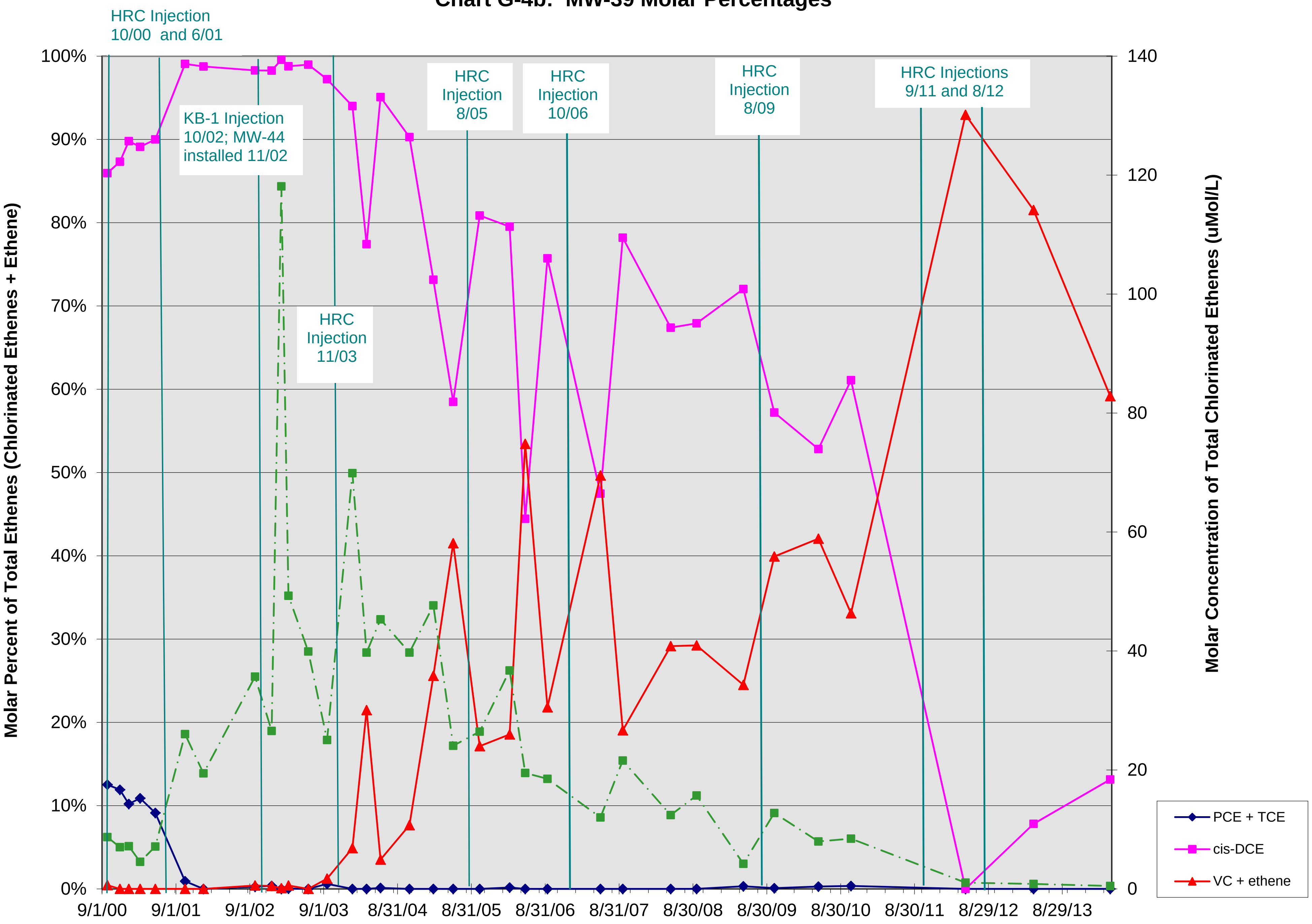


Chart G-5a: MW-9 VOCs

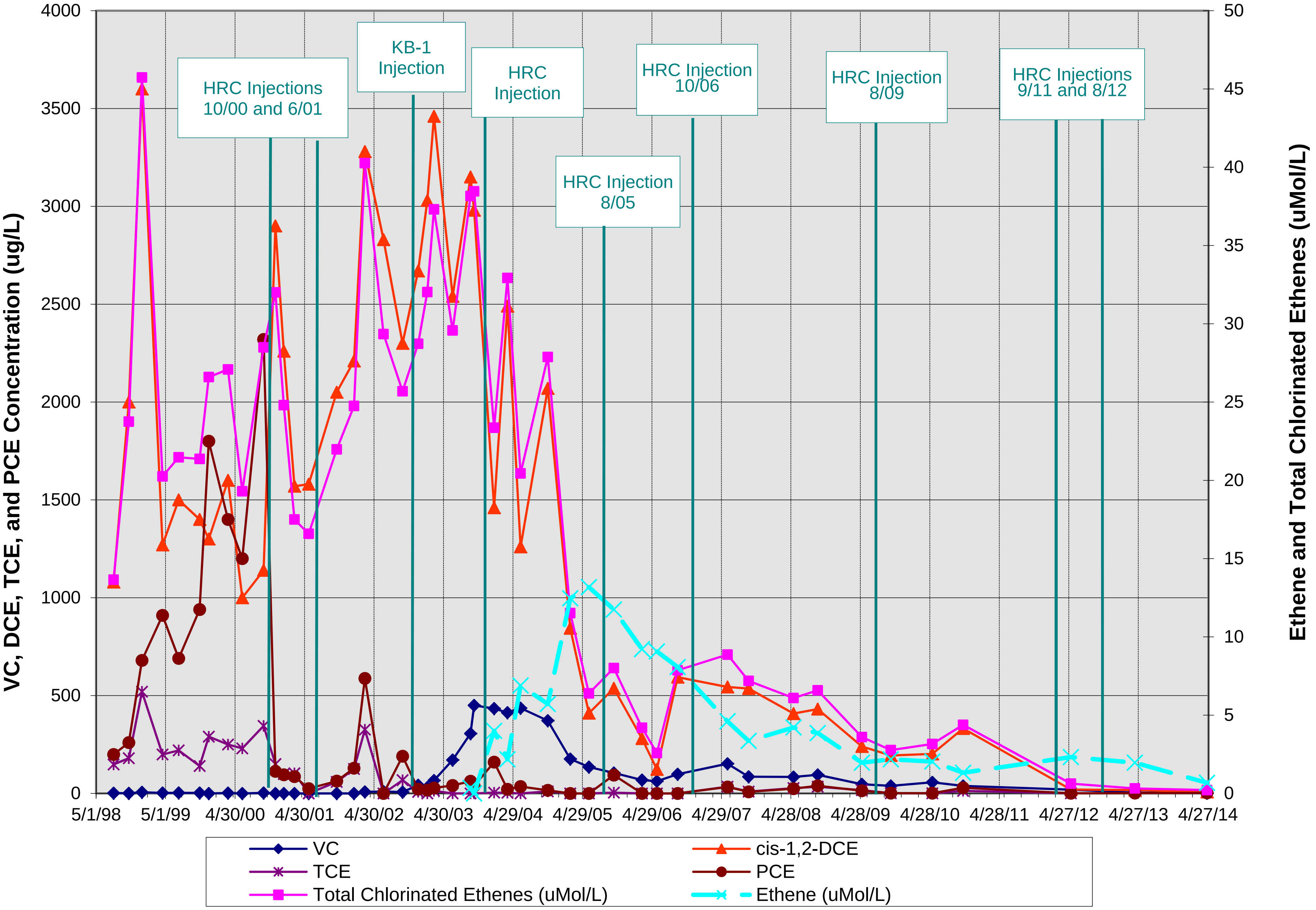


Chart G-5b: MW-9 Molar Percentages

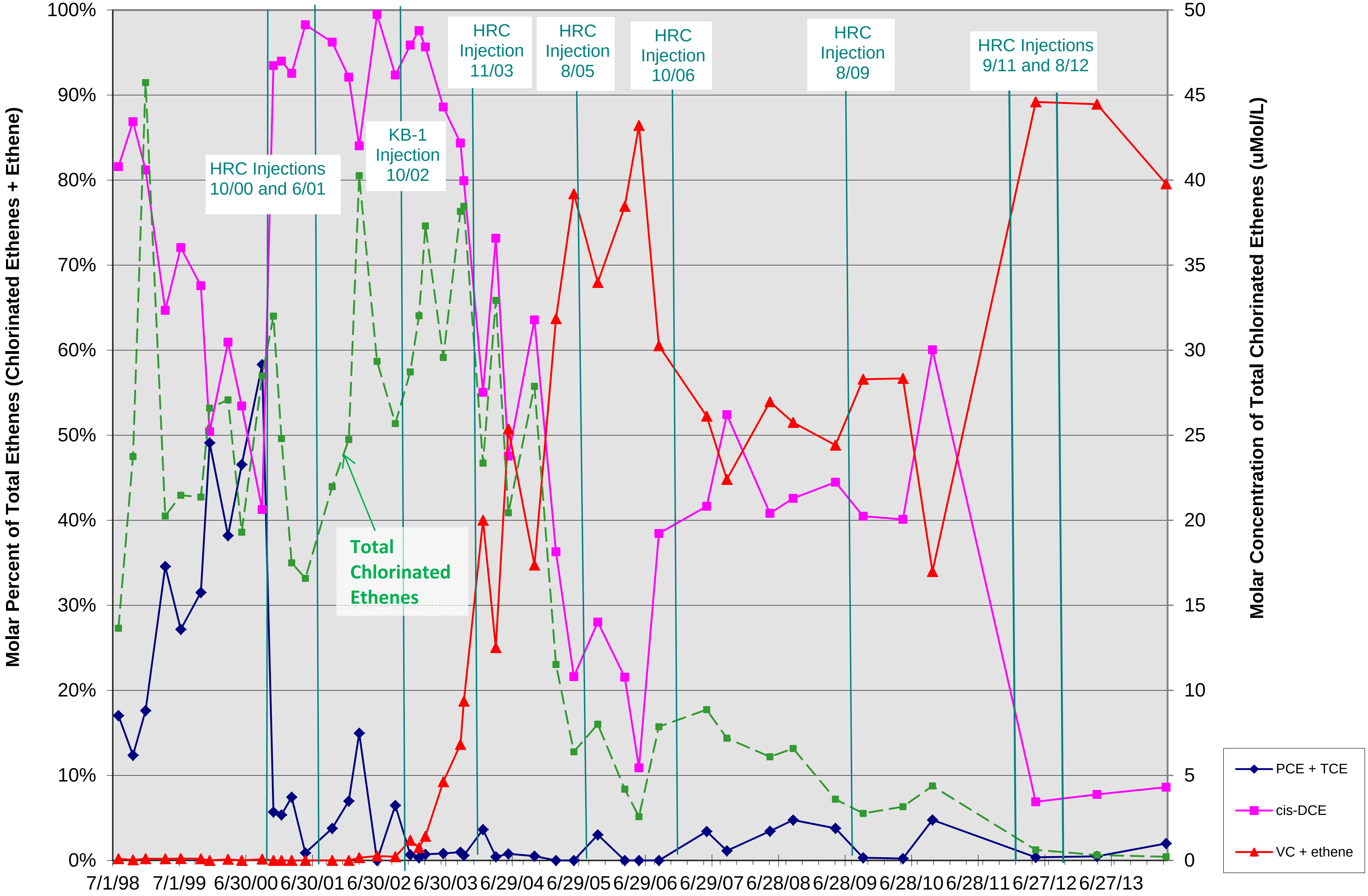


Chart G-6a: MW-40 VOCs

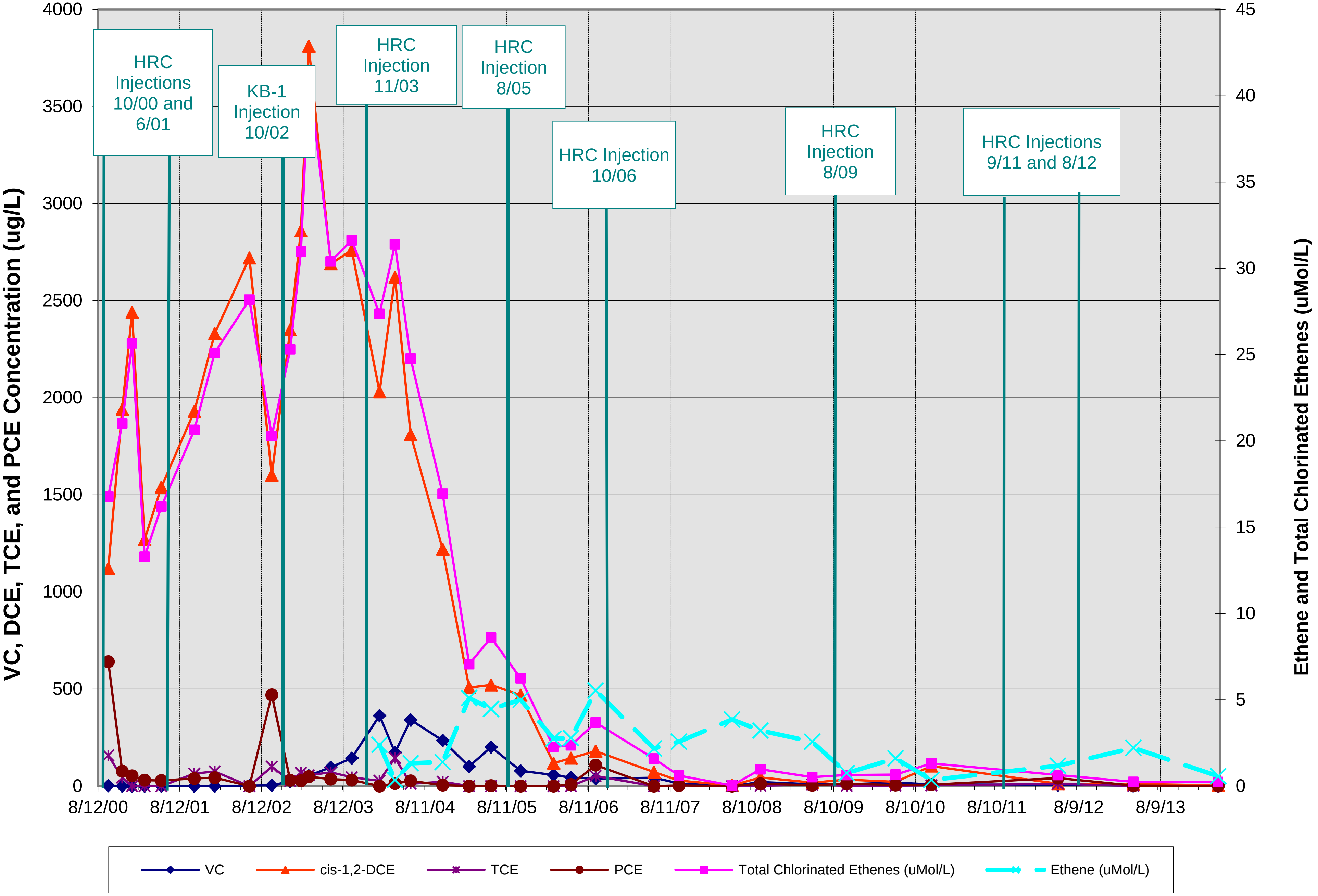


Chart G-6b: MW-40 Molar Percentages

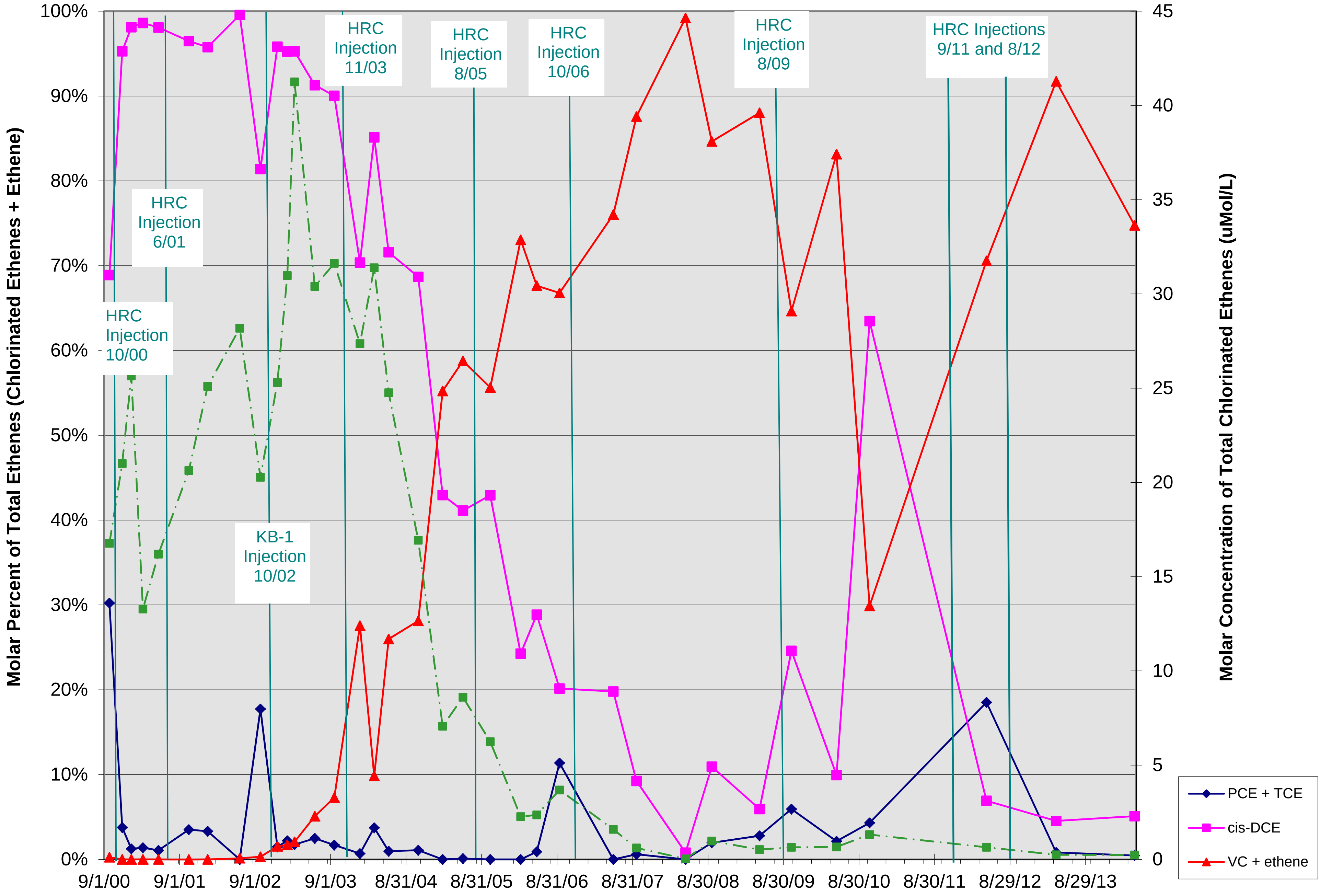


Chart G-7a: MW-6 VOCs

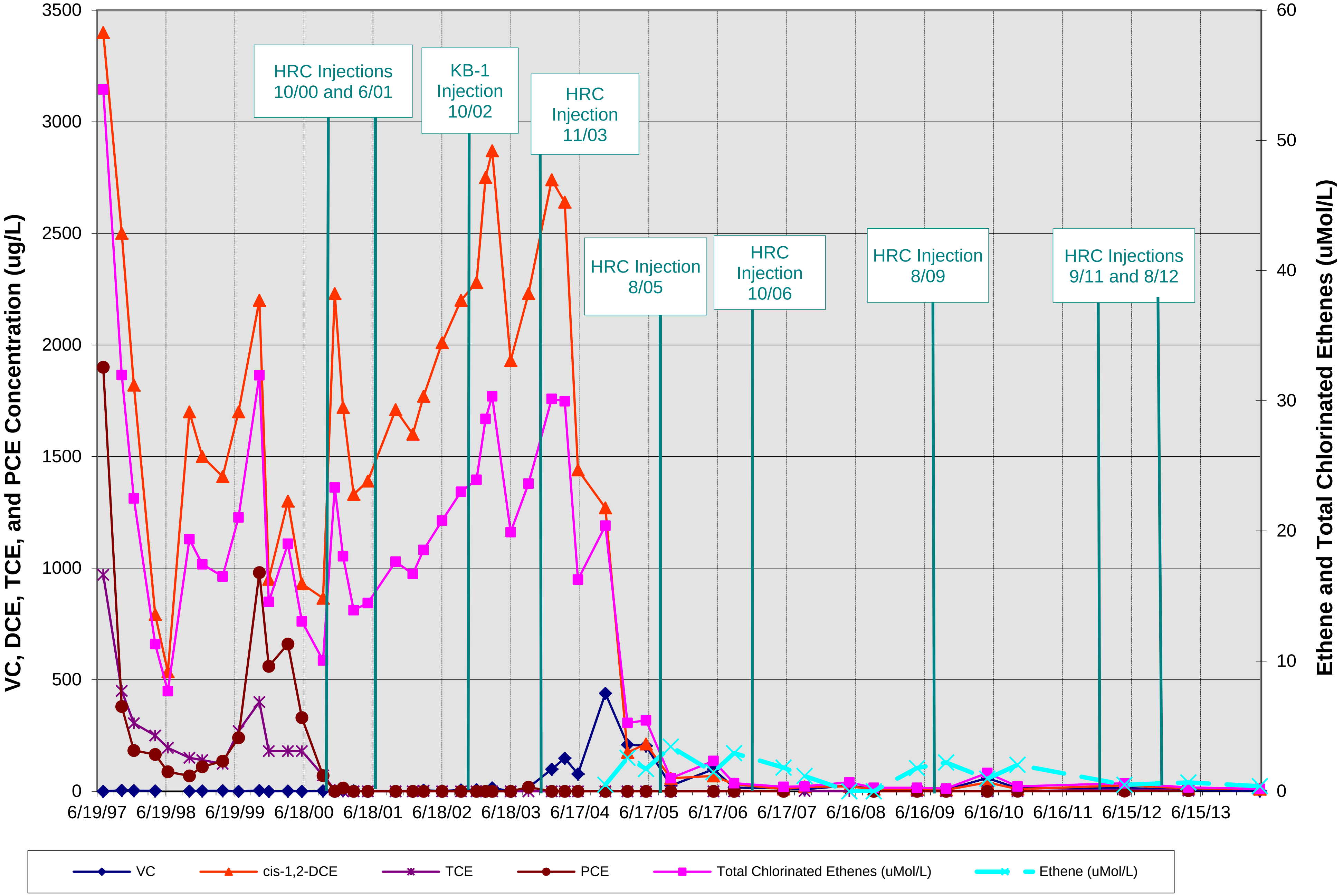


Chart G-7b: MW-6 Molar Percentages

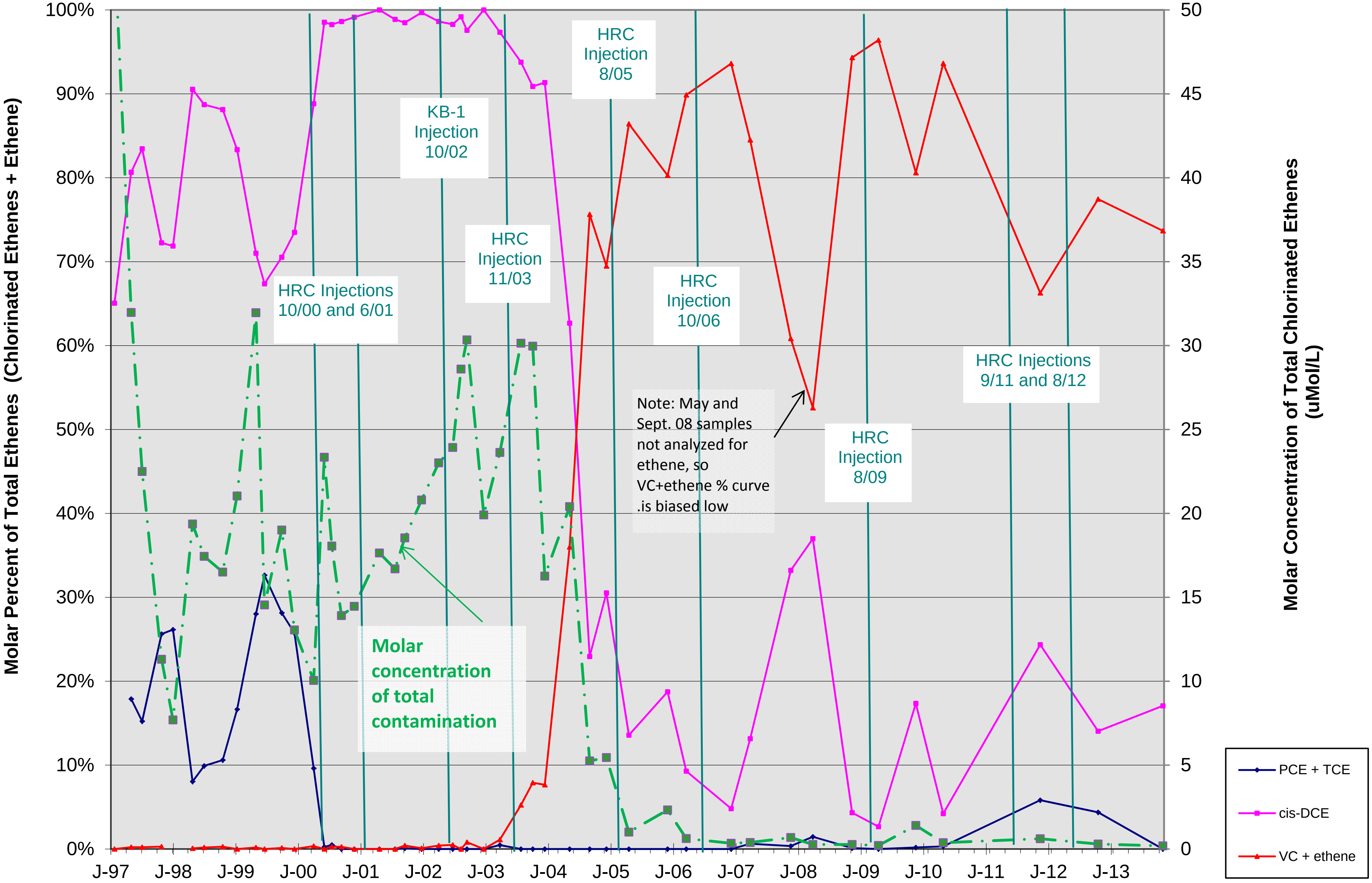


Chart G-9a: MW-44 VOCs

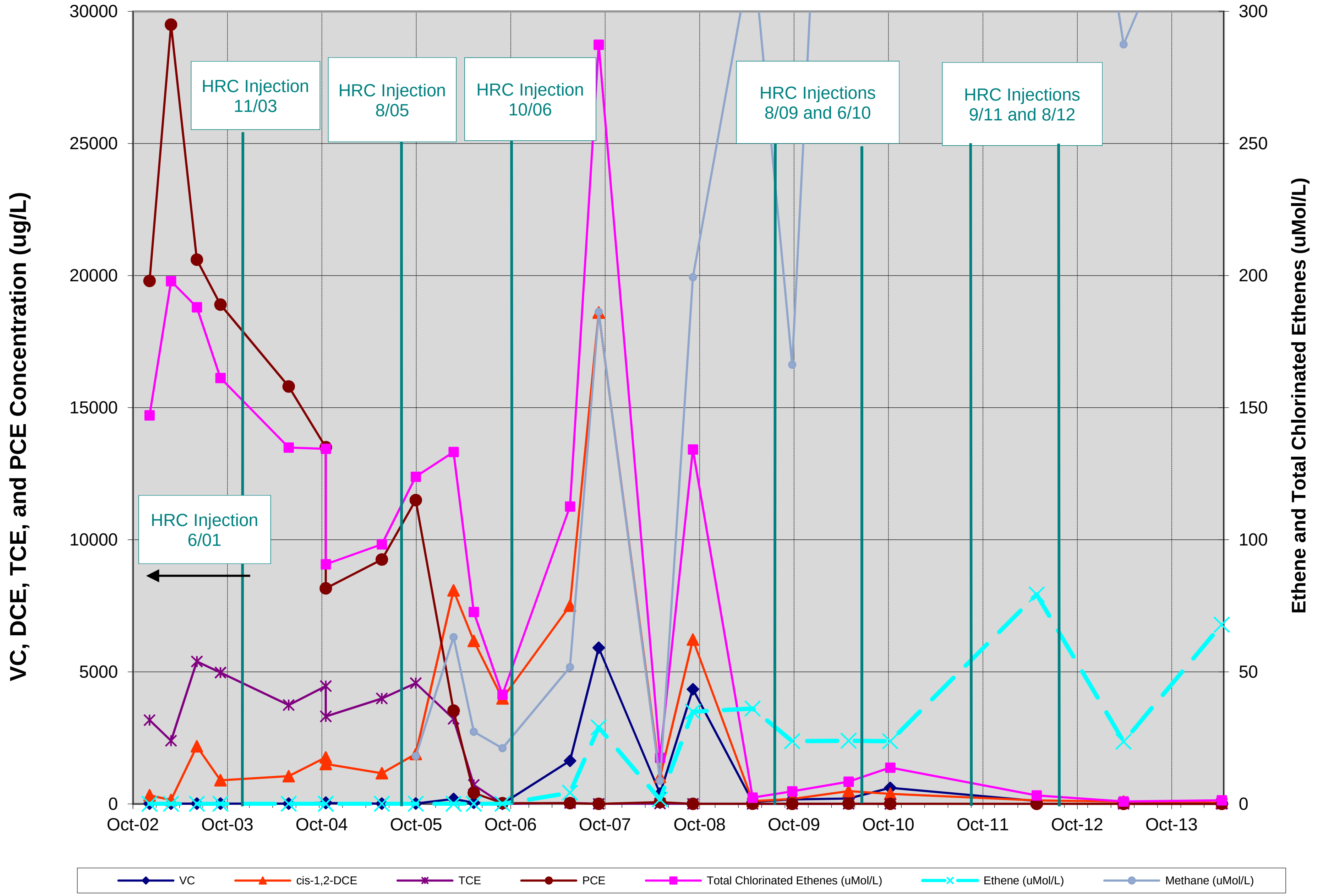


Chart G-9b: MW-44 Molar Percentages

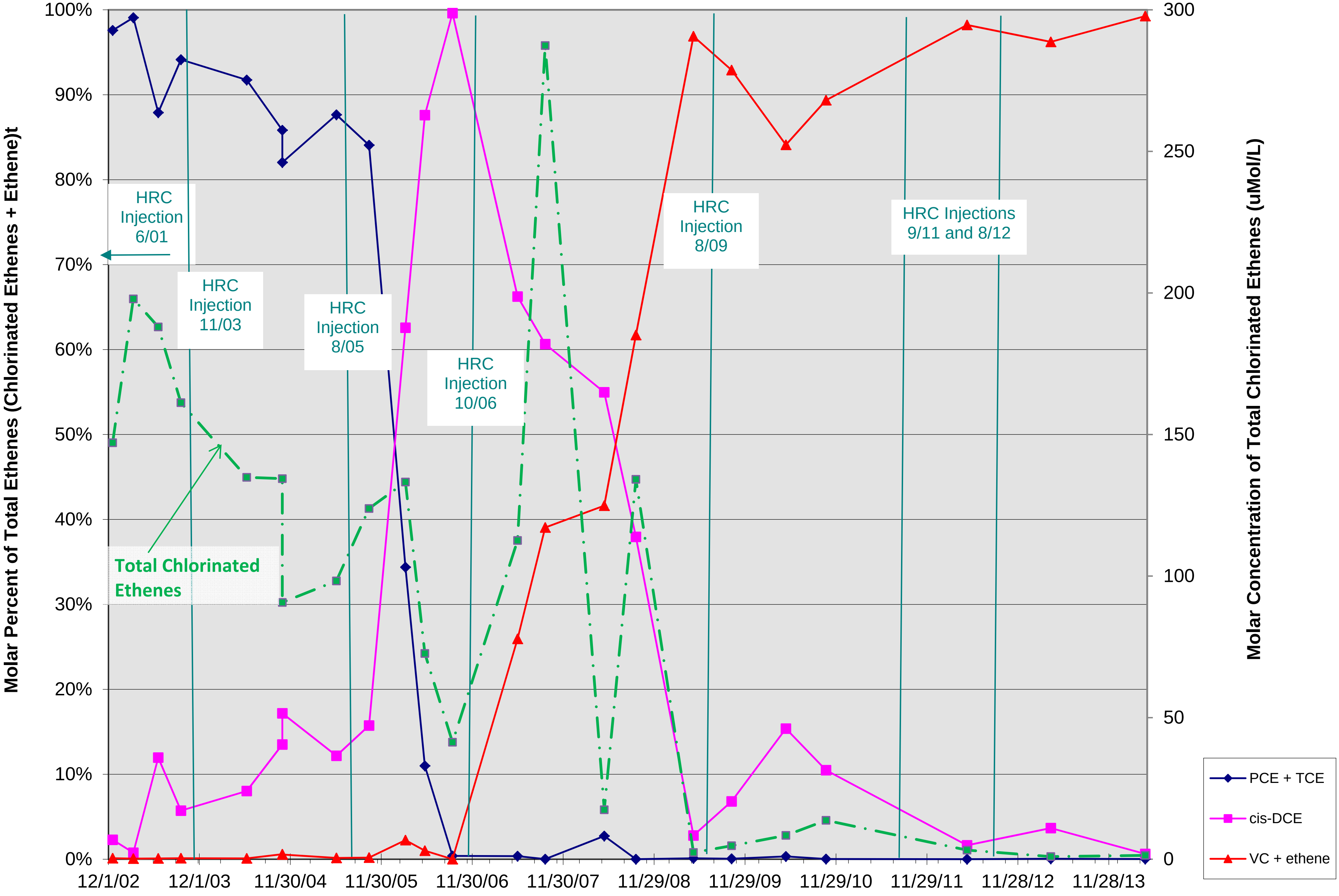


Chart G-10a: MW-47 VOCs

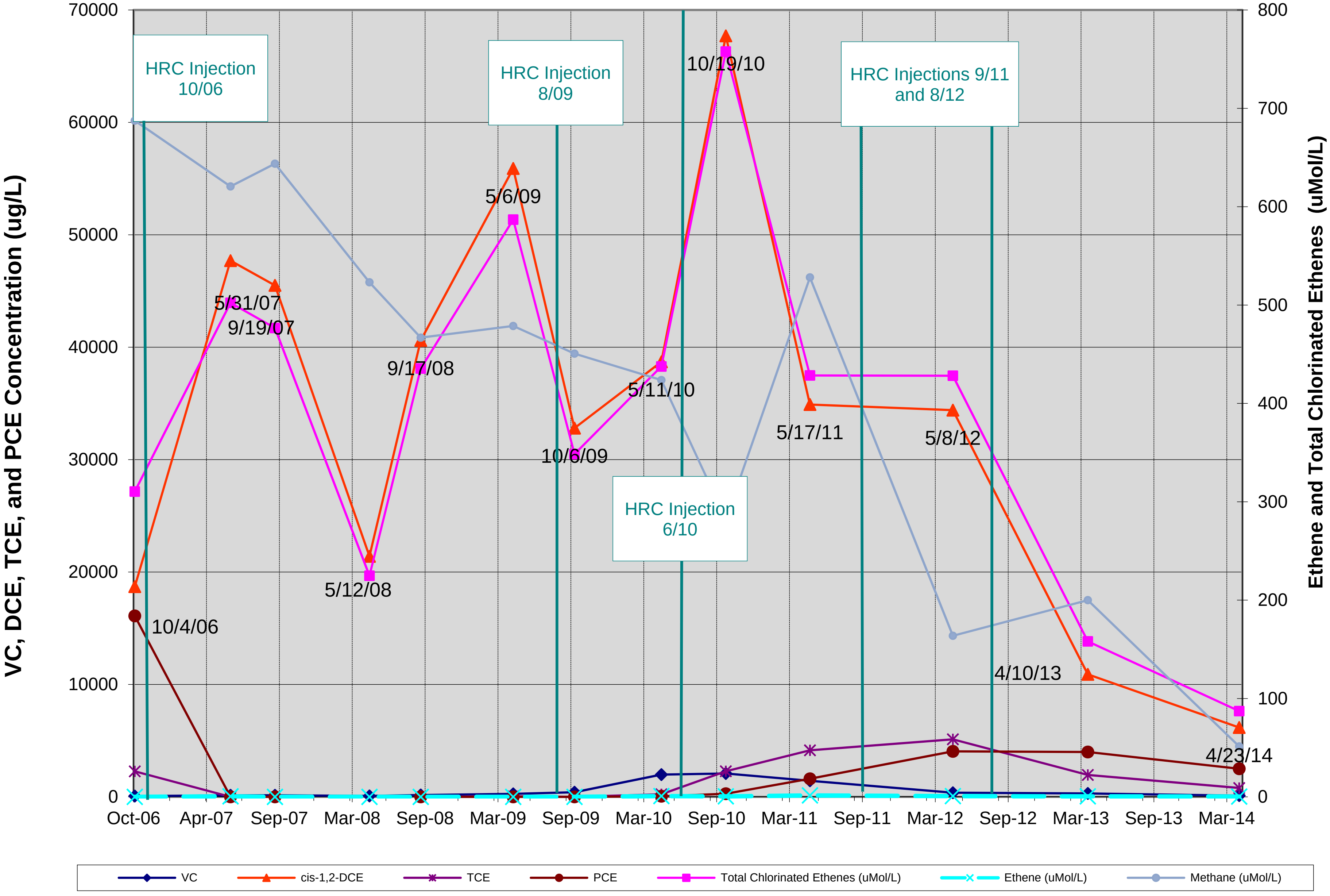


Chart G-10b: MW-47 Molar Percentages

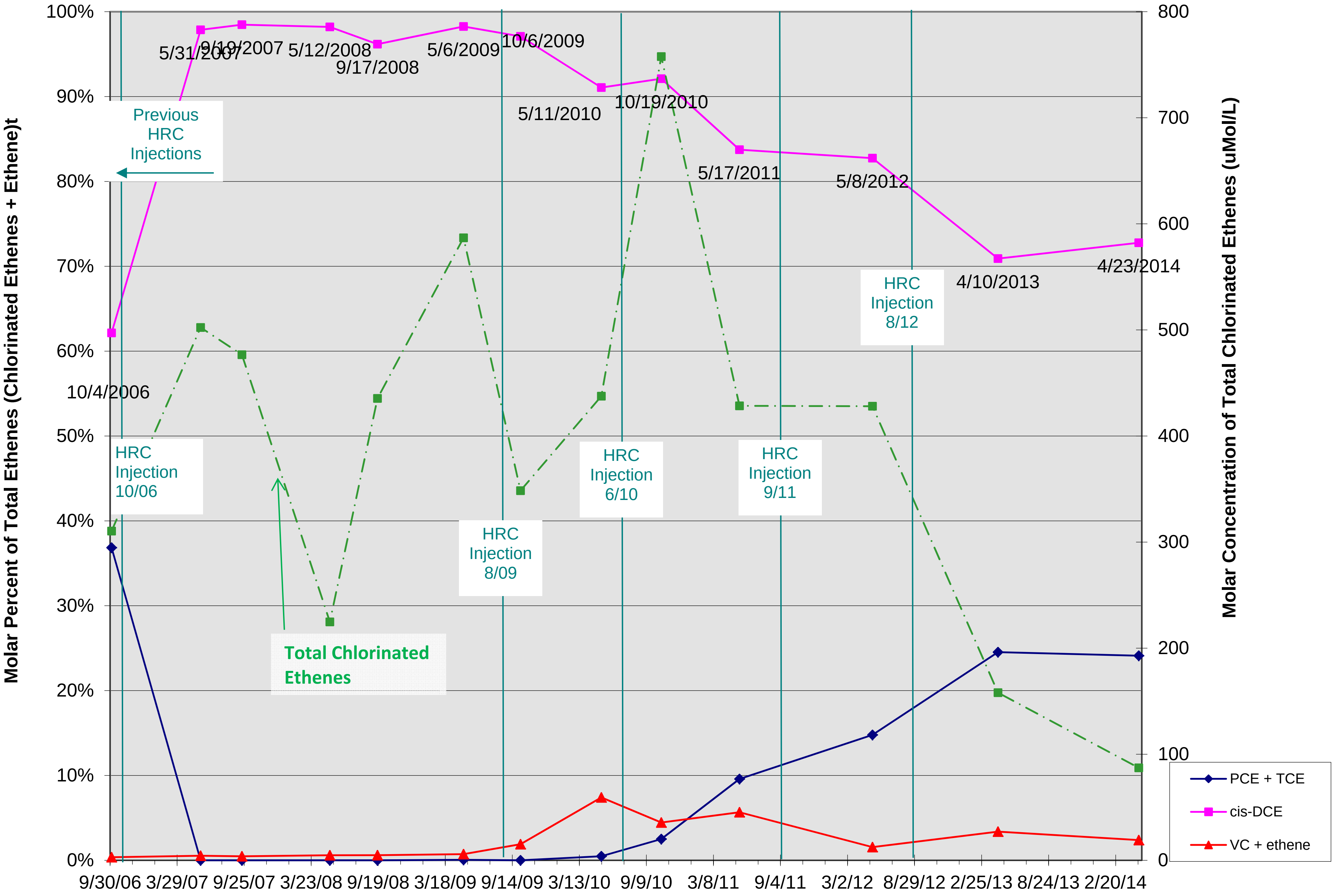


Chart G-11a: MW-48 VOCs

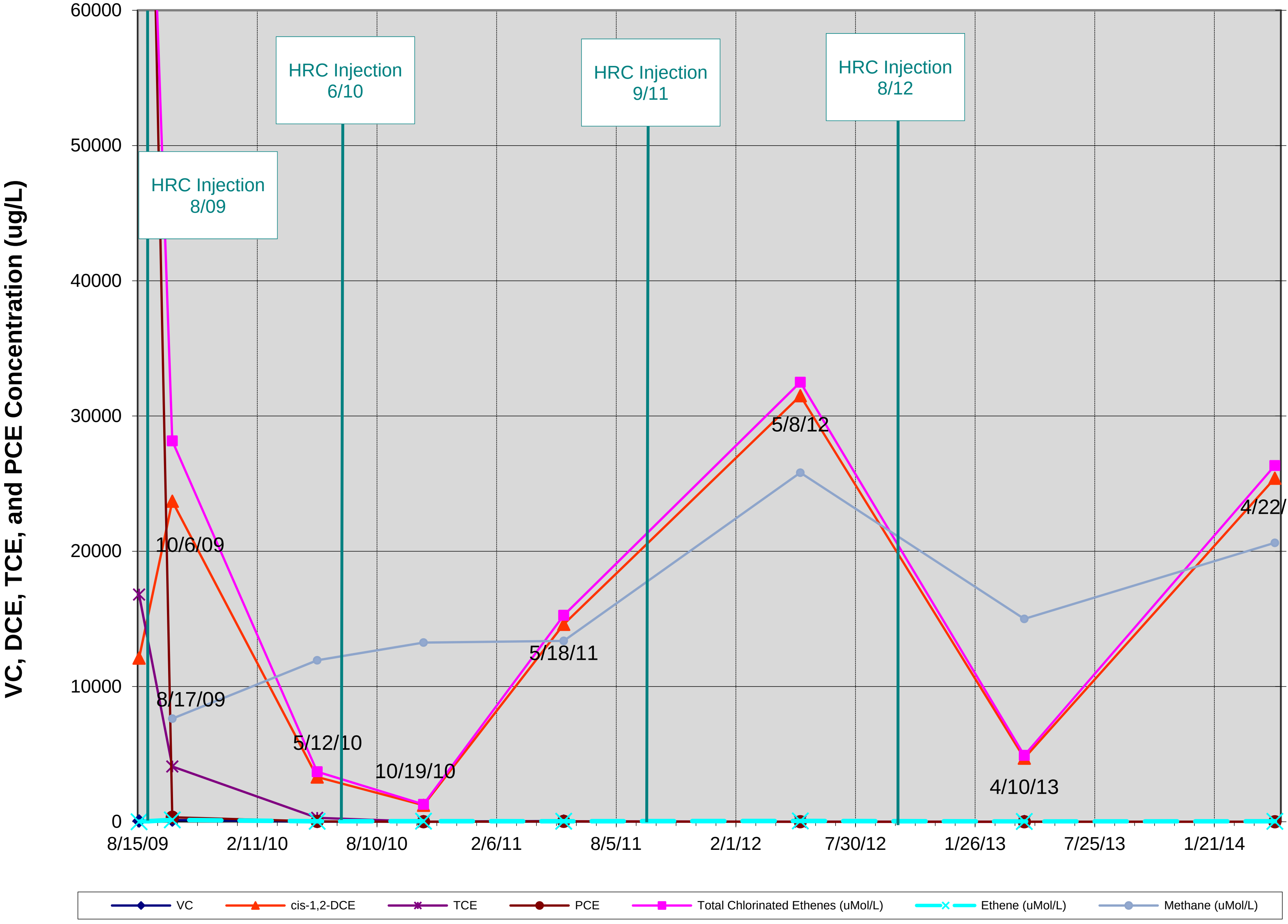


Chart G-11b: MW-48 Molar Percentages

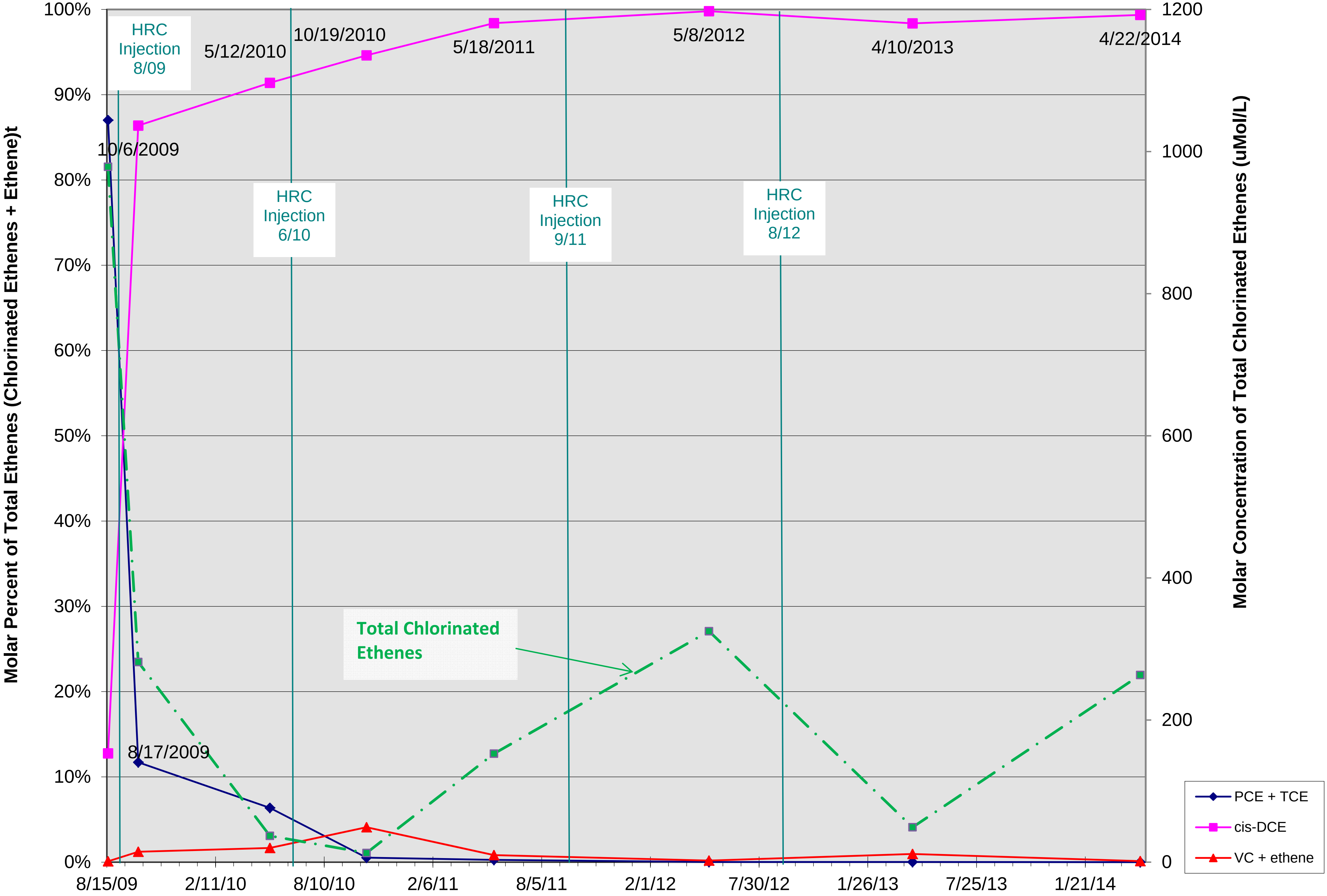


Chart G-12a: MW-49 VOCs

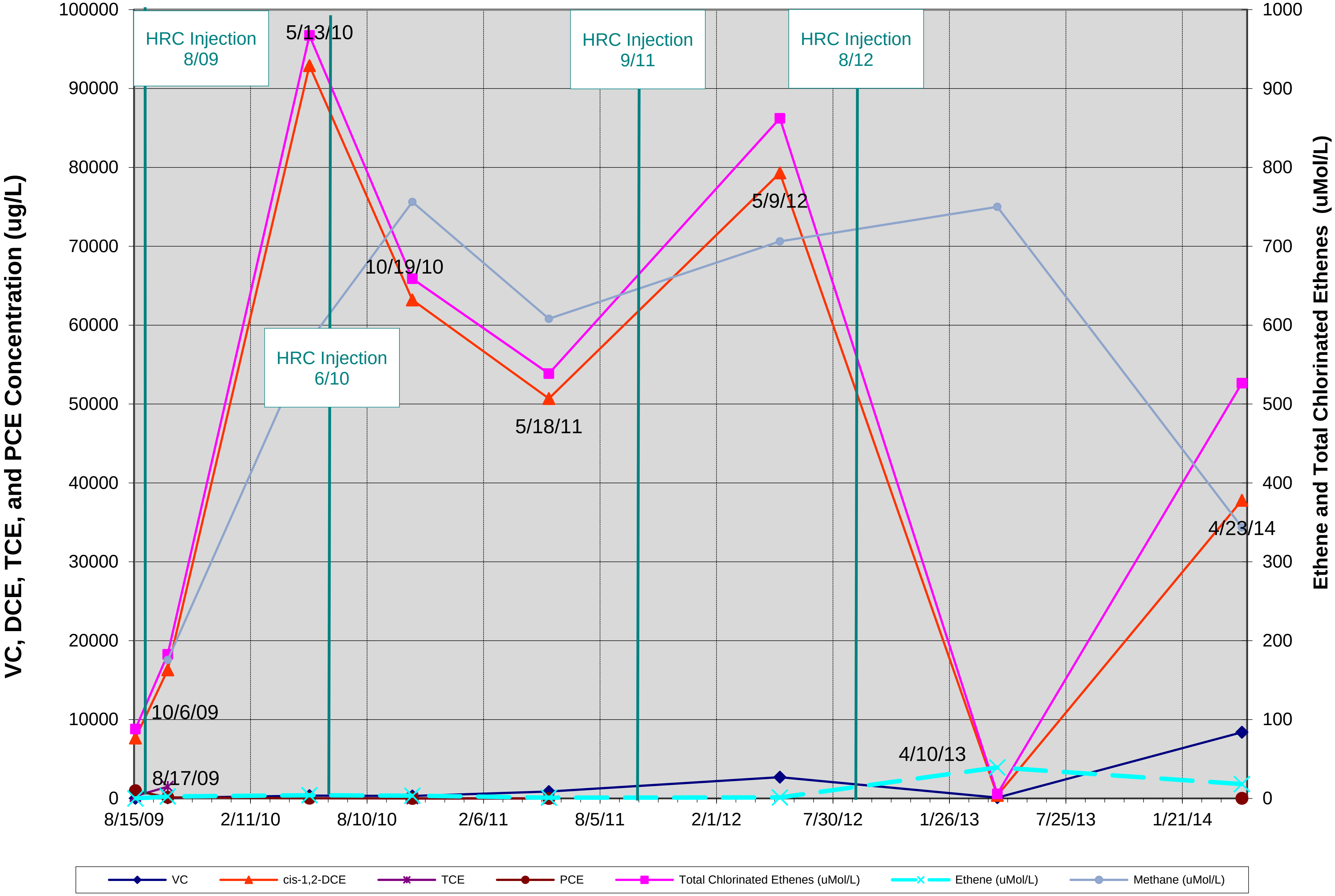


Chart G-12b: MW-49 Molar Percentages

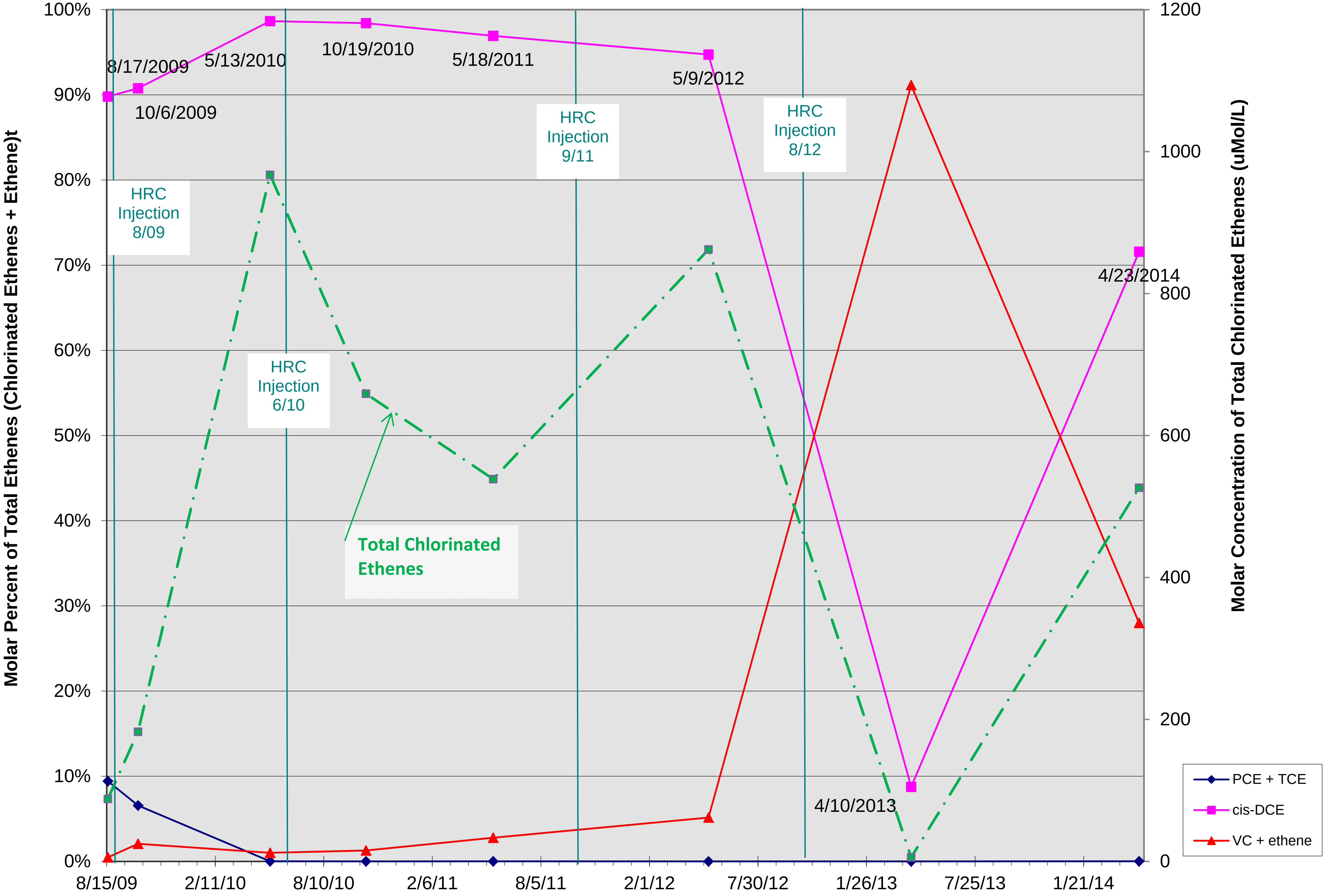


Chart G-13a: MW-50 VOCs

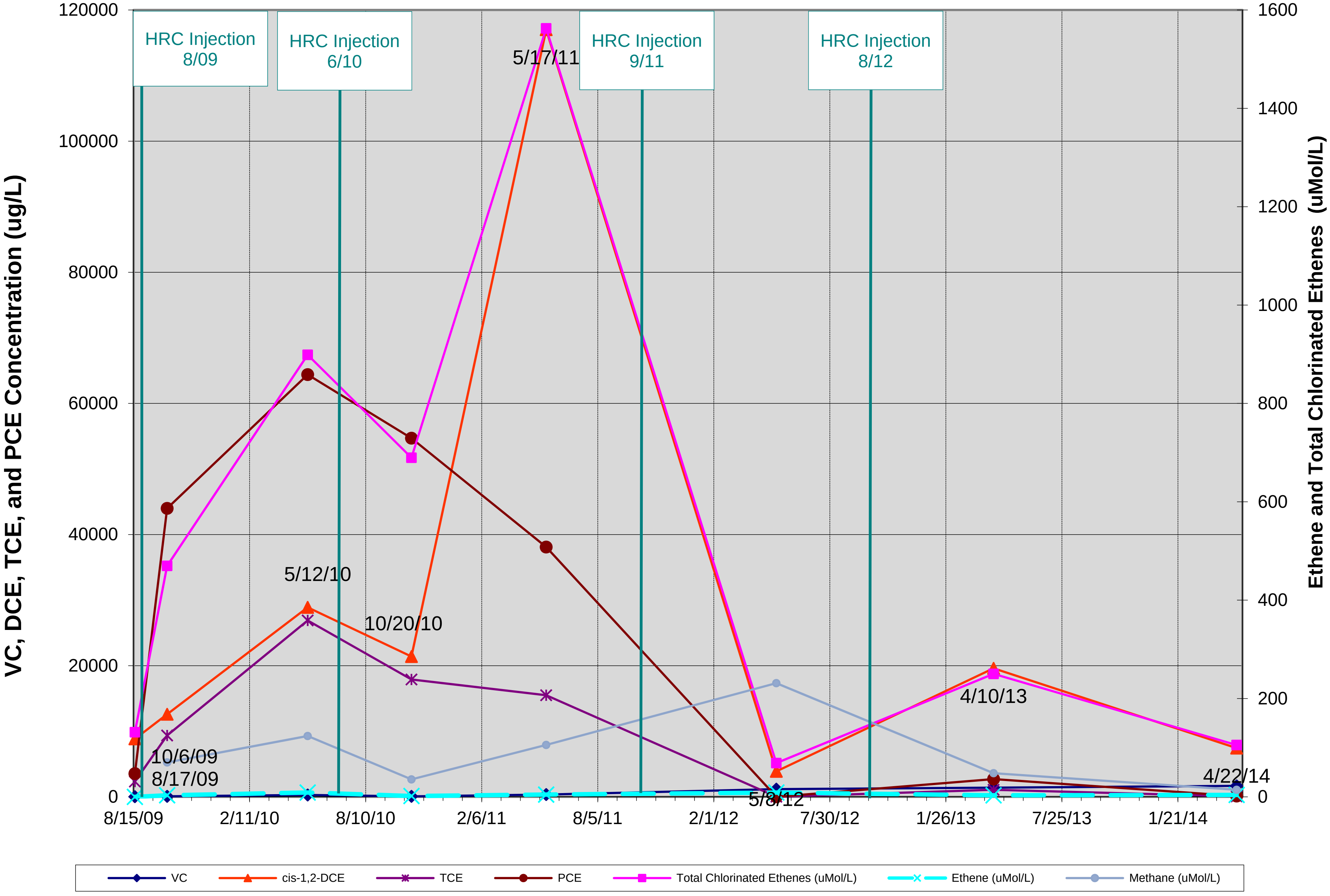


Chart G-13b: MW-50 Molar Percentages

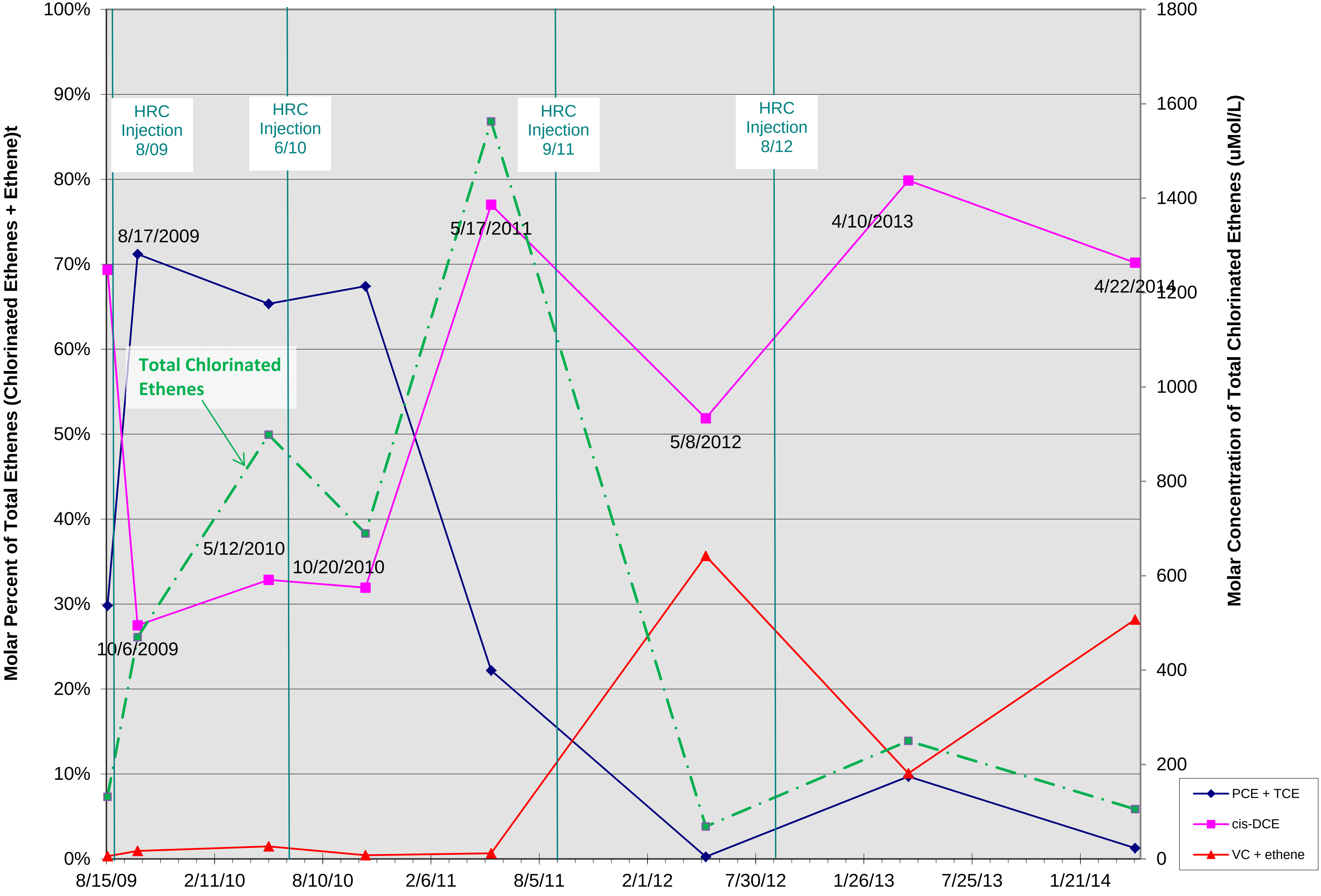


Chart G-14a: MW-51 VOCs

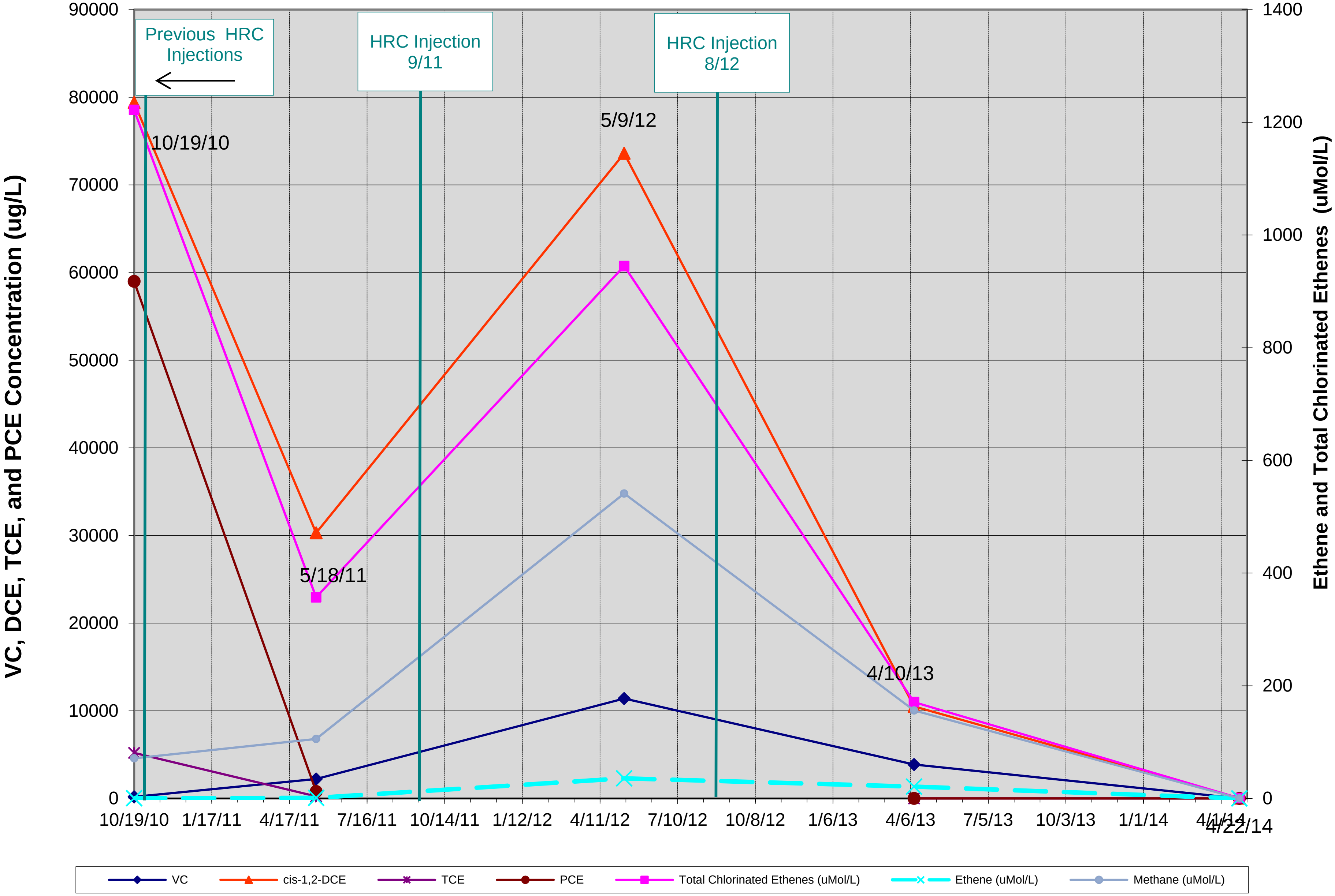


Chart G-14b: MW-51 Molar Percentages

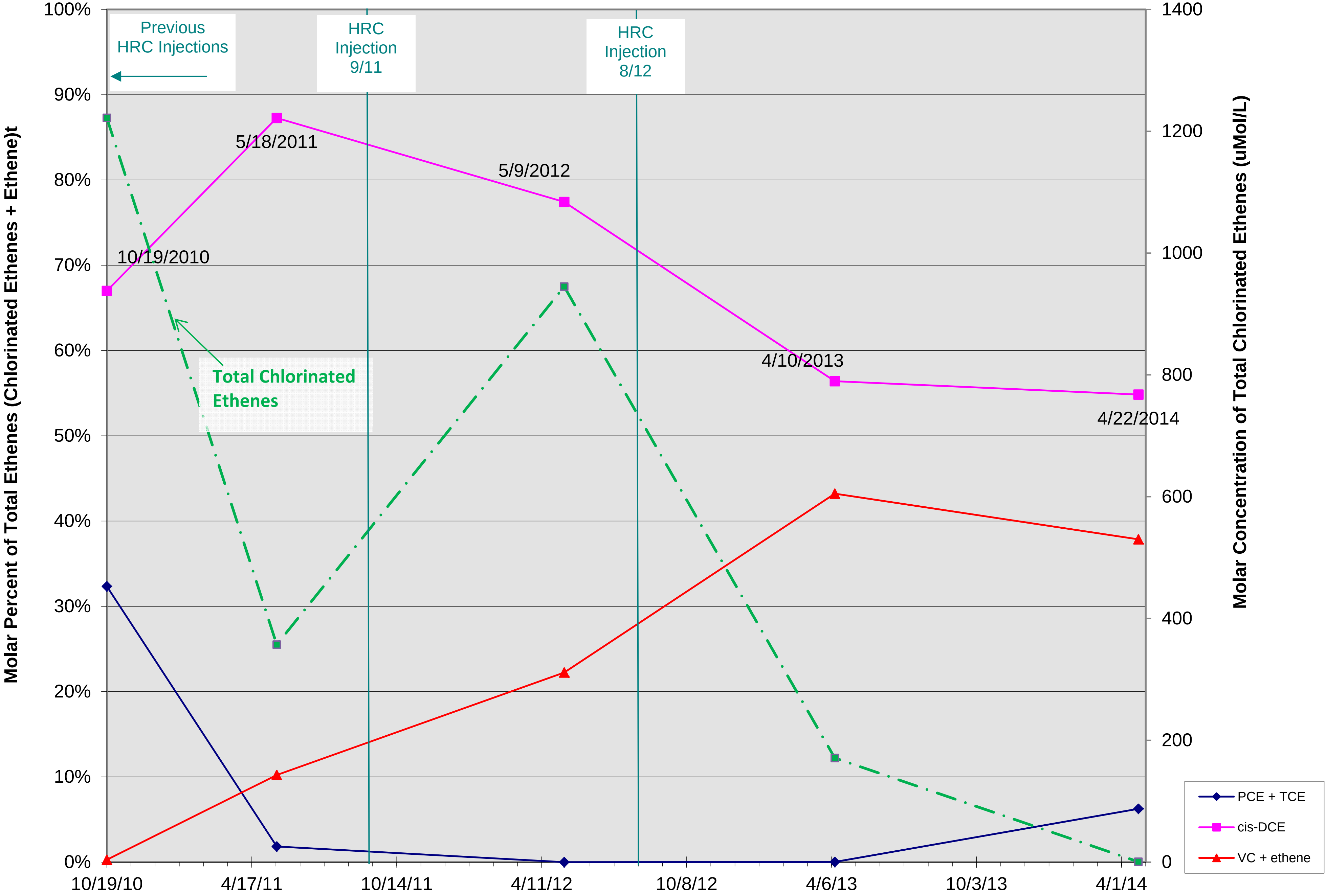


Chart G-15a: MW-52 VOCs

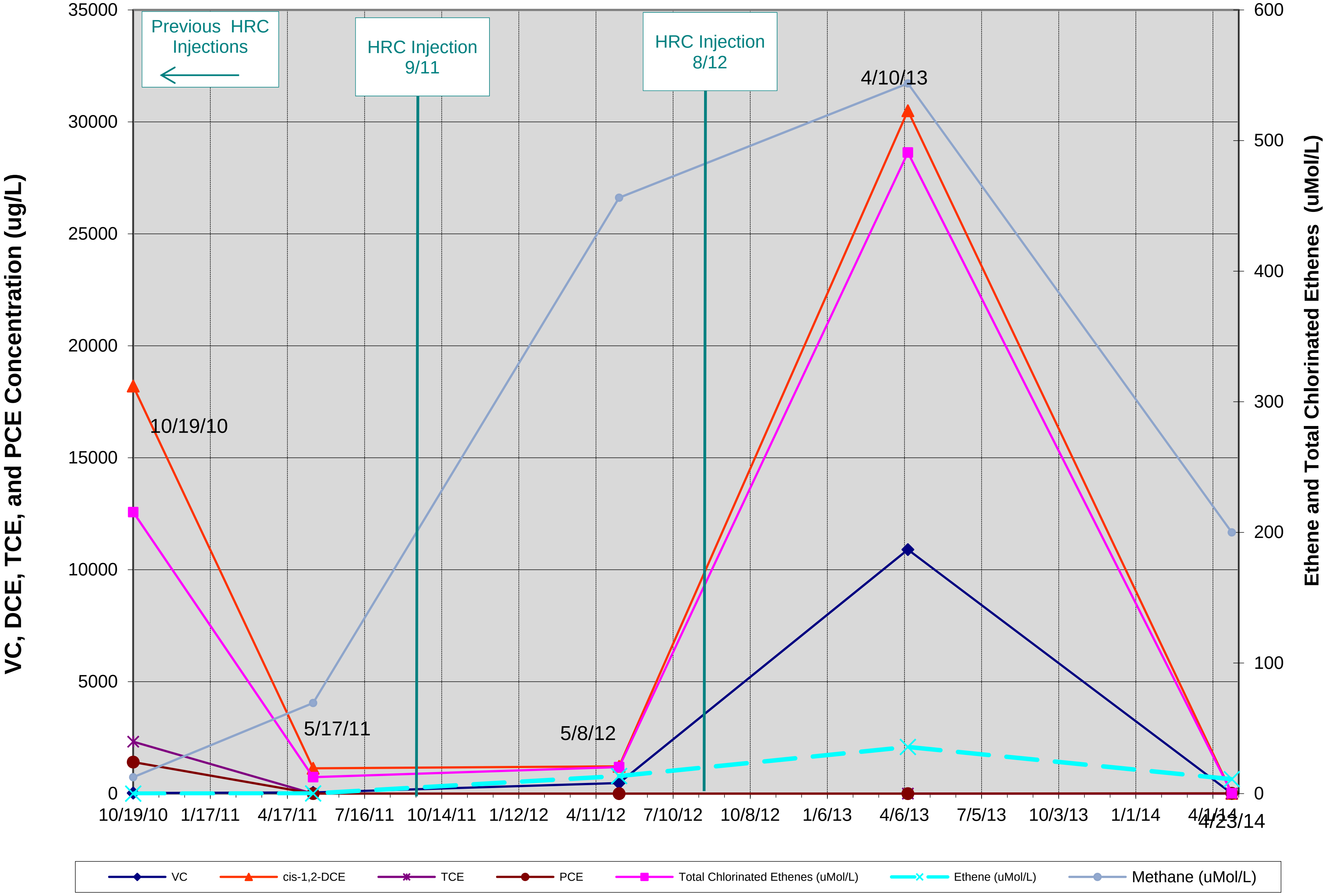


Chart G-15b: MW-52 Molar Percentages

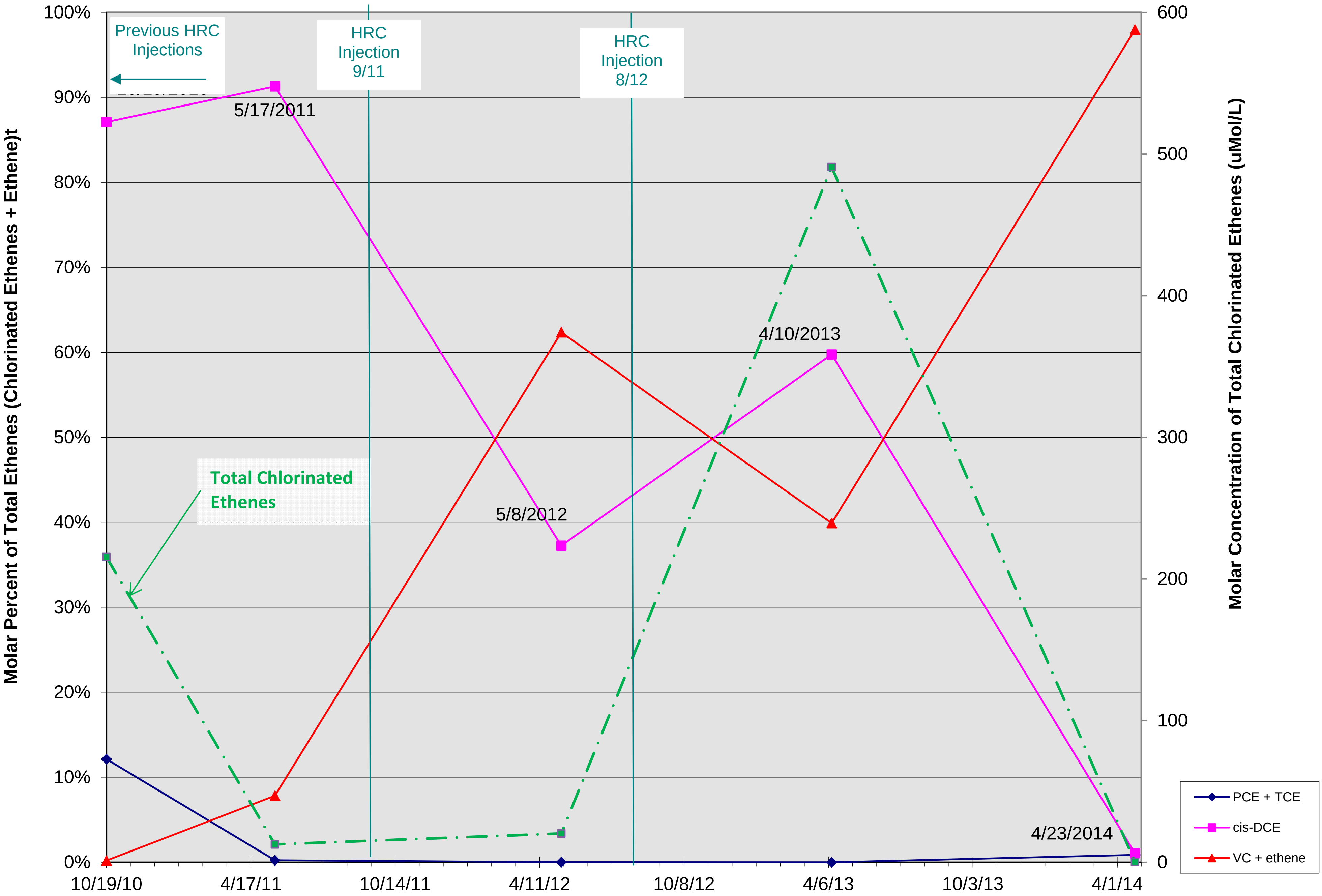


Chart G-16a: L-78 VOCs

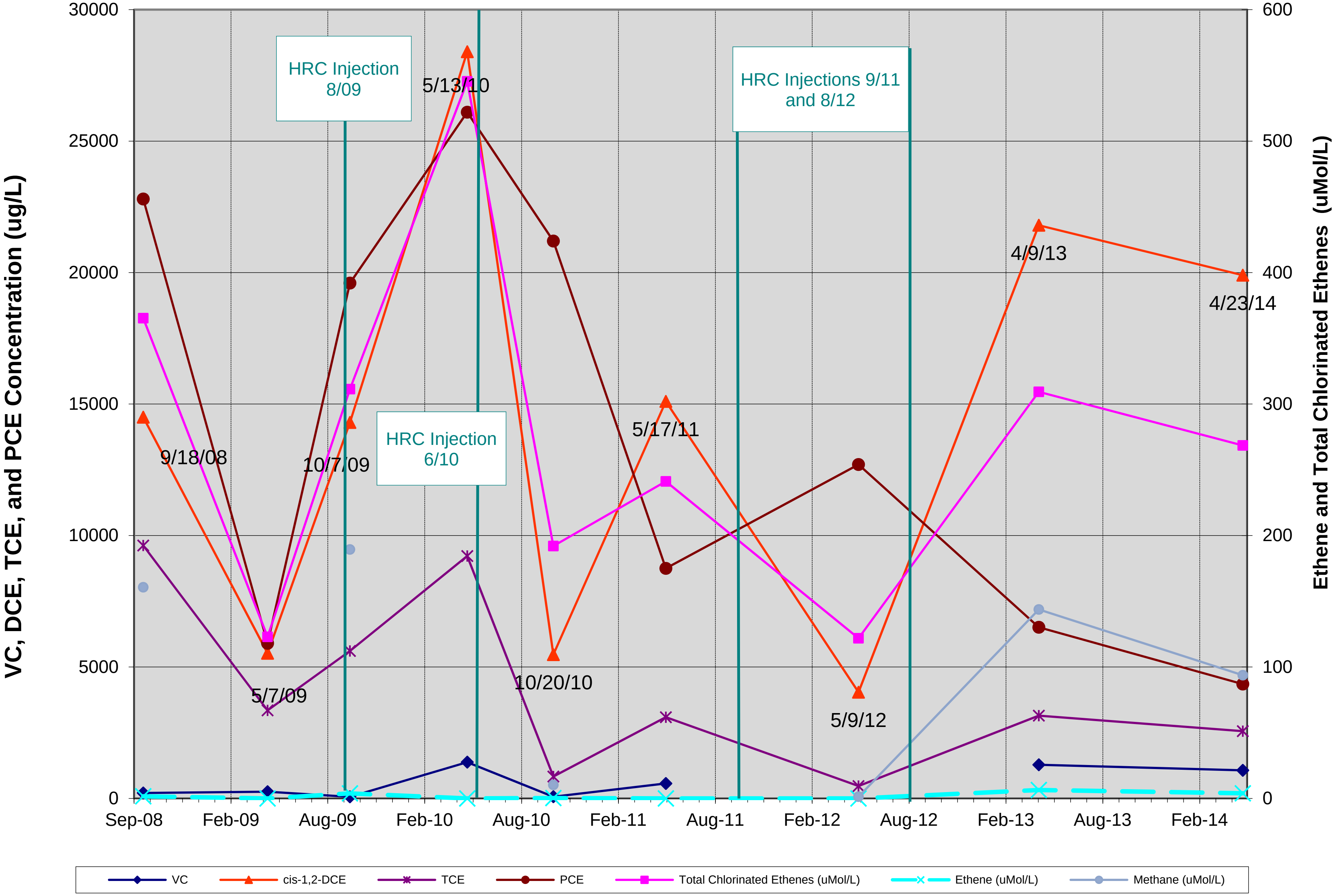


Chart G-16b: L-78 Molar Percentages

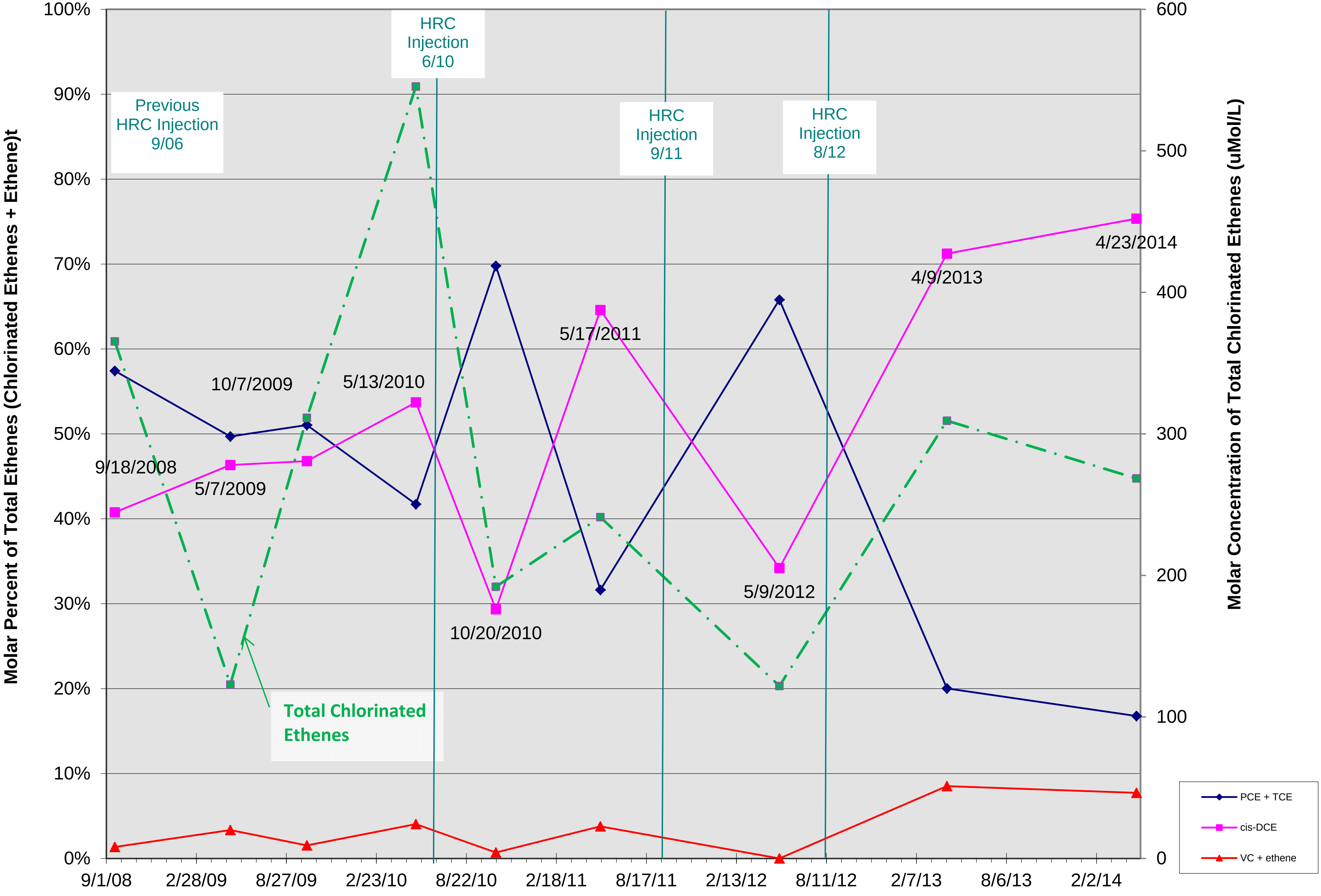


Chart G-17a: L-100 VOCs

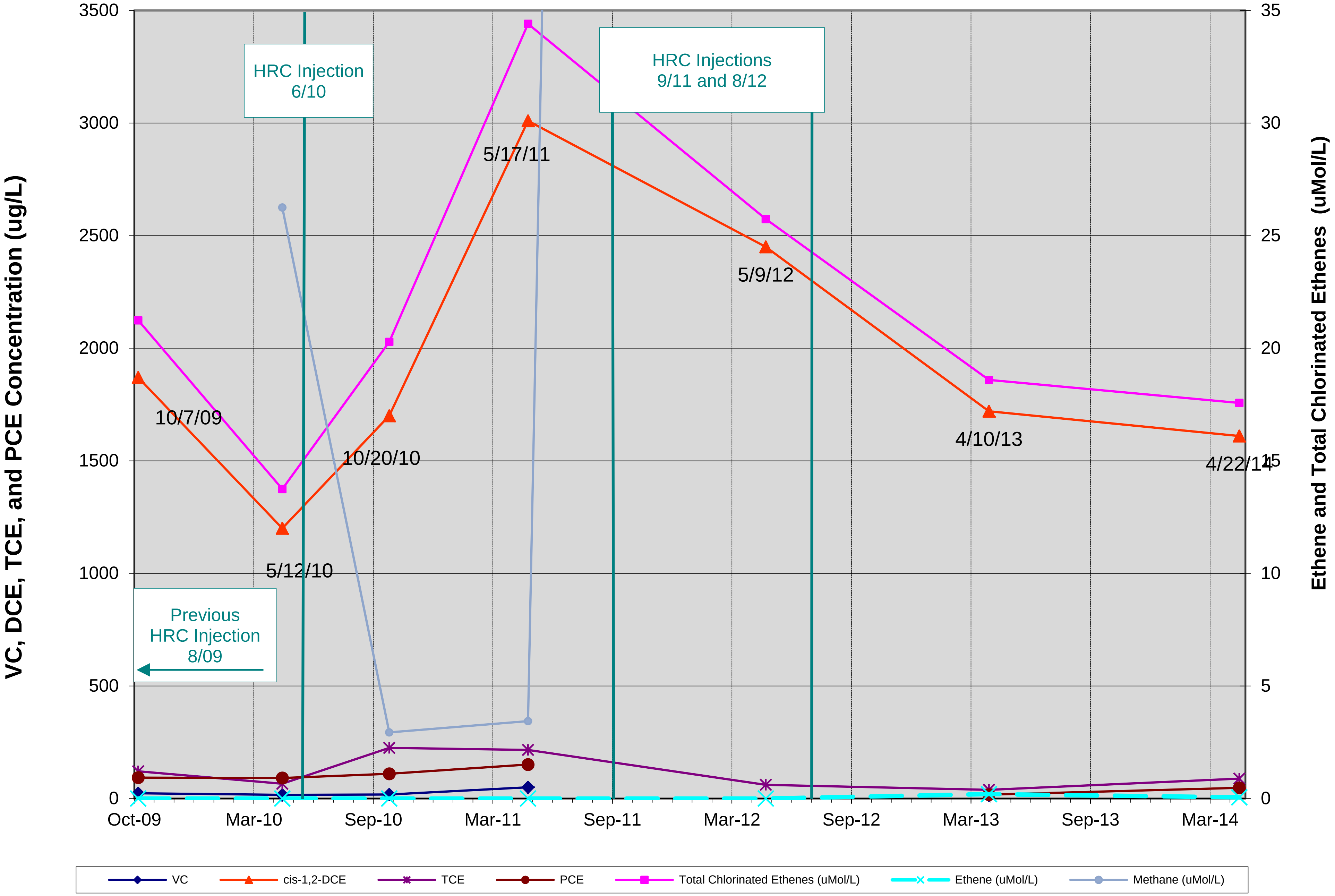


Chart G-17b: L-100 Molar Percentages

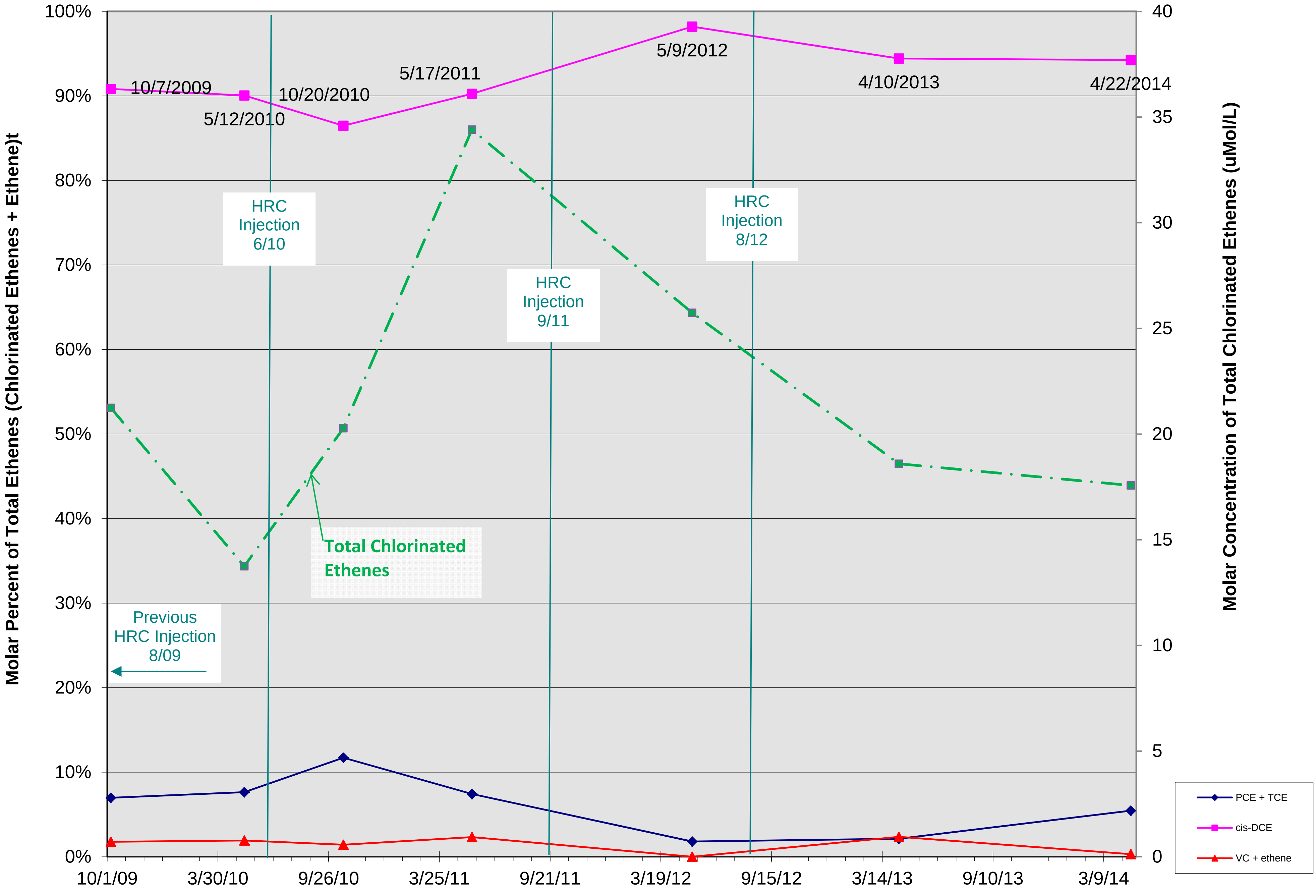
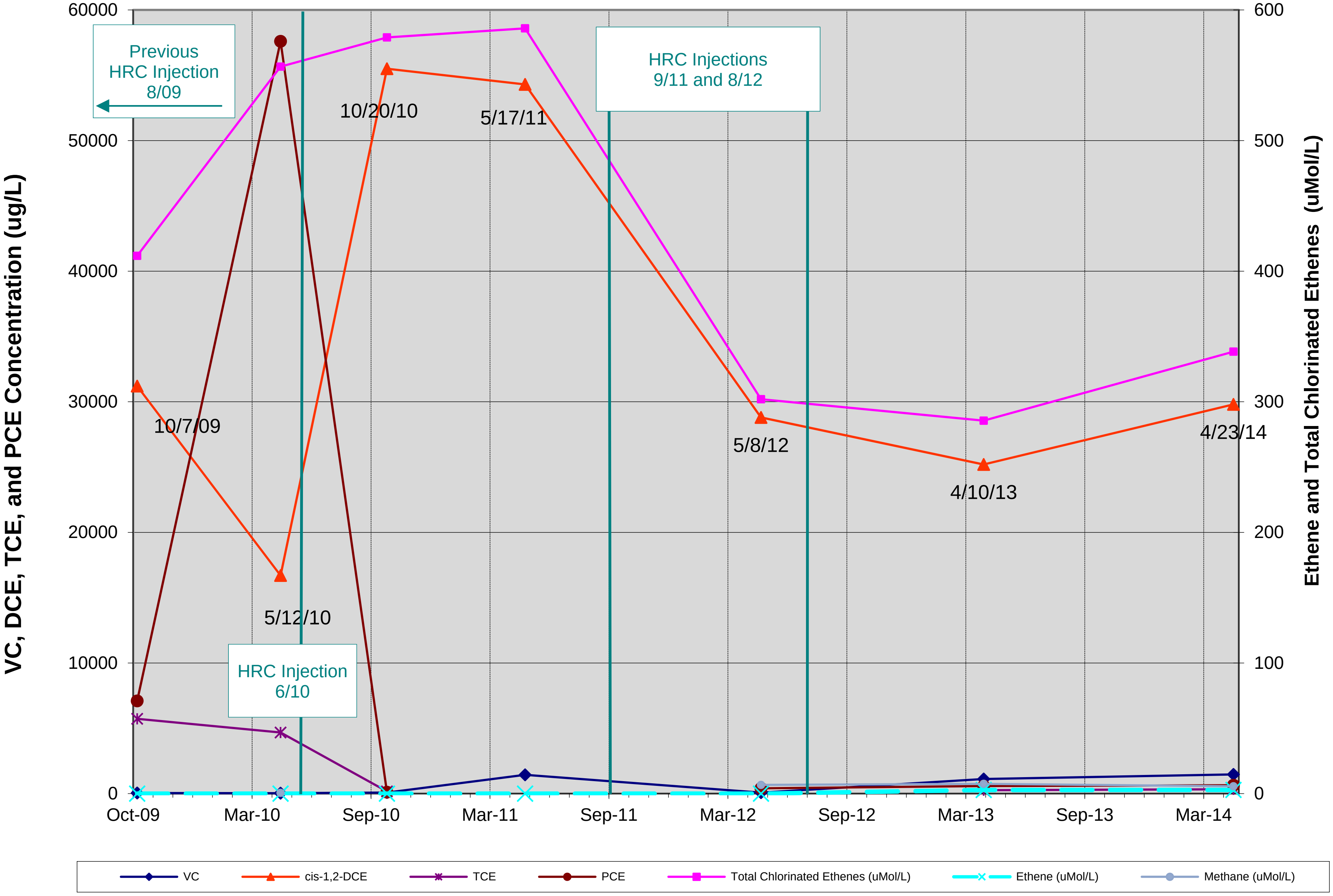


Chart G-18a: L-101 VOCs



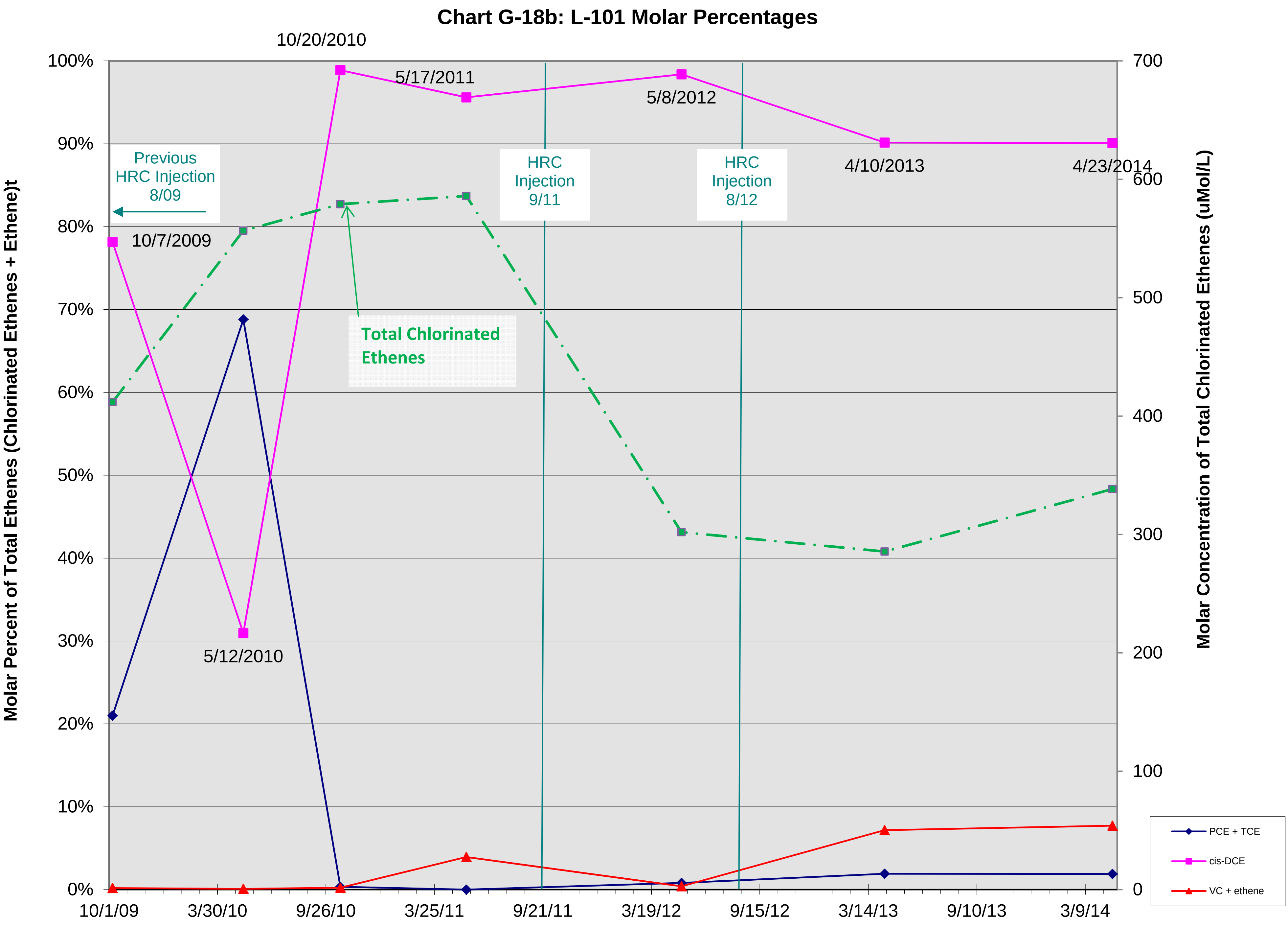


Chart G-18b: L-101 Molar Percentages
10/20/2010
5/17/2011
5/8/2012
4/10/2013
4/23/2014
10/7/2009
5/12/2010
Previous HRC Injection 8/09
HRC Injection 9/11
HRC Injection 8/12
Total Chlorinated Ethenes
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
700
600
500
400
300
200
100
0
10/1/09
3/30/10
9/26/10
3/25/11
9/21/11
3/19/12
9/15/12
3/14/13
9/10/13
3/9/14
Molar Percent of Total Ethenes (Chlorinated Ethenes + Ethene)t
Molar Concentration of Total Chlorinated Ethenes (uMol/L)
PCE + TCE
cis-DCE
VC + ethene

Chart G-20: MW-9 Total Volatile Acids and TOC

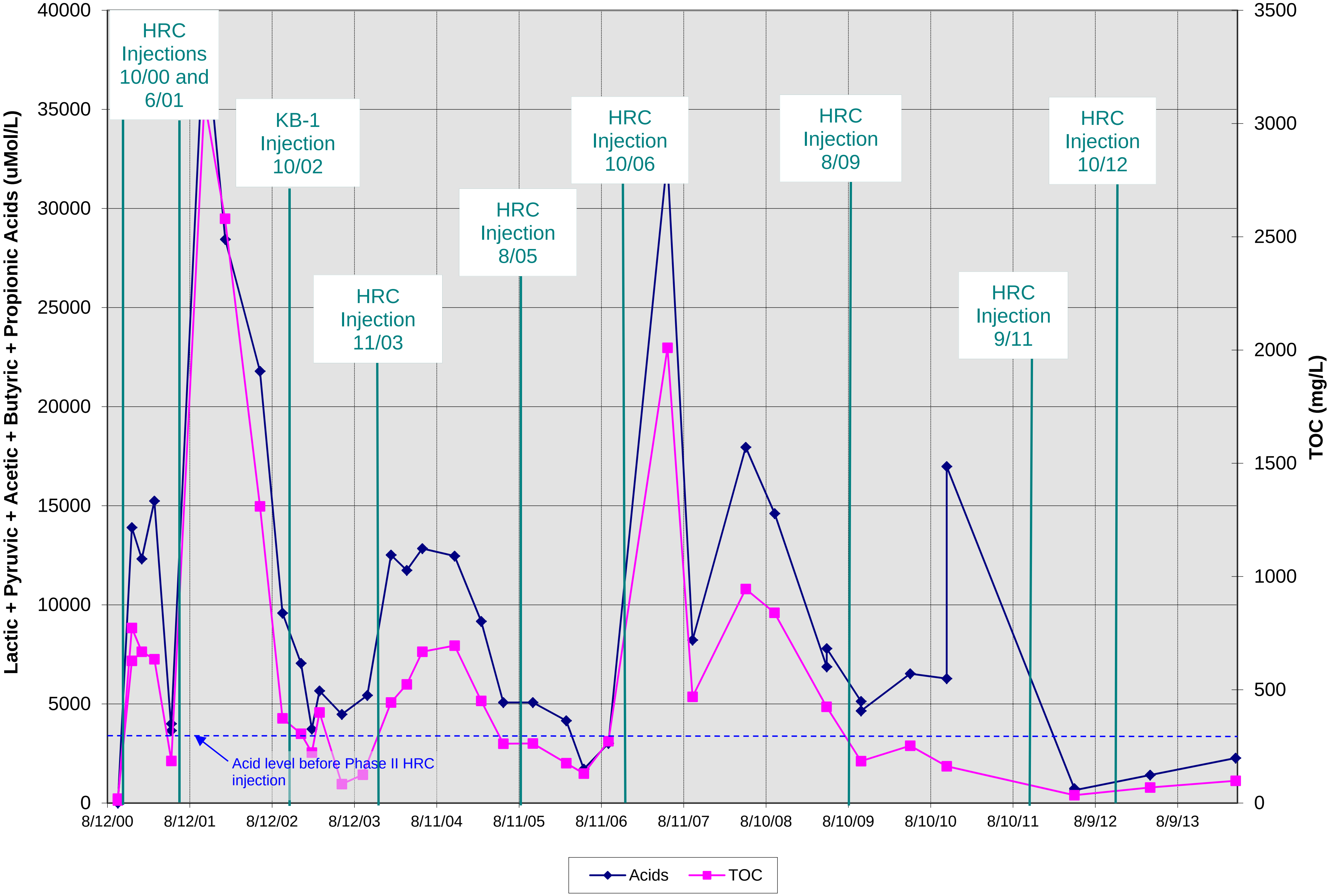


Chart G-21: MW-9 Attenuation Parameters

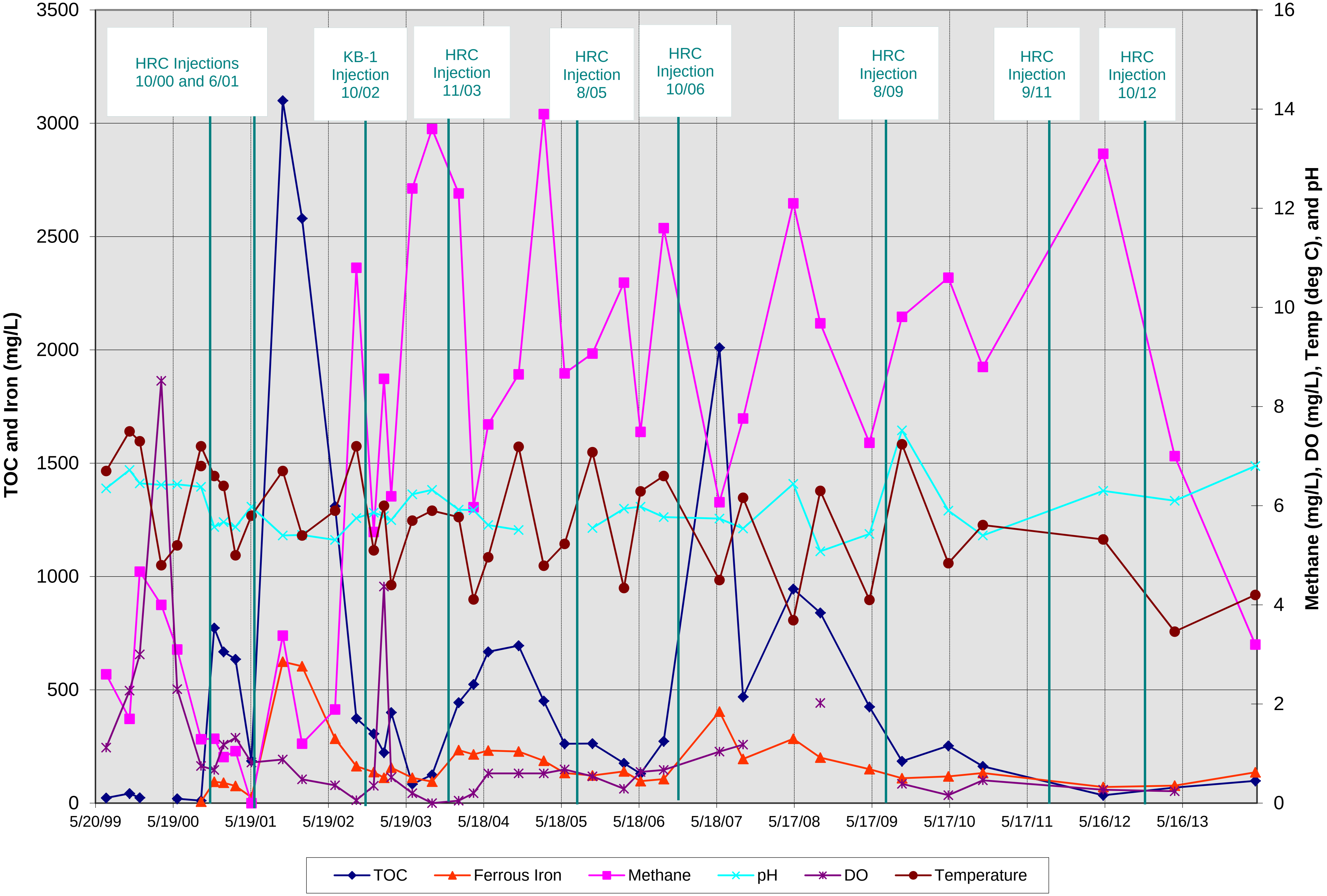


Chart G-22: MW-44 and MW-47 Attenuation Parameters

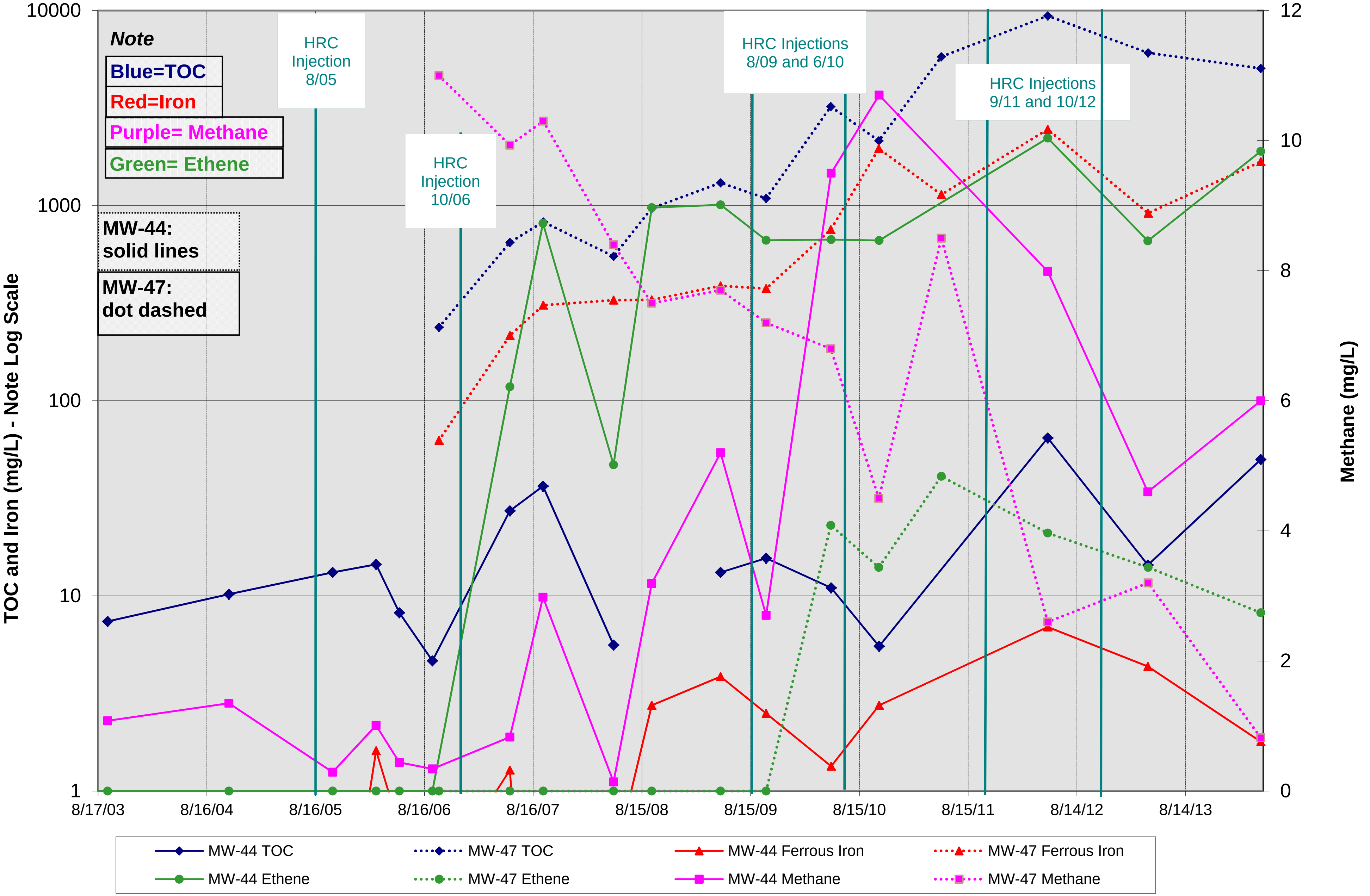


Chart G-22b: MW-48 and MW-49 TOC, Iron, Methane, and Ethene

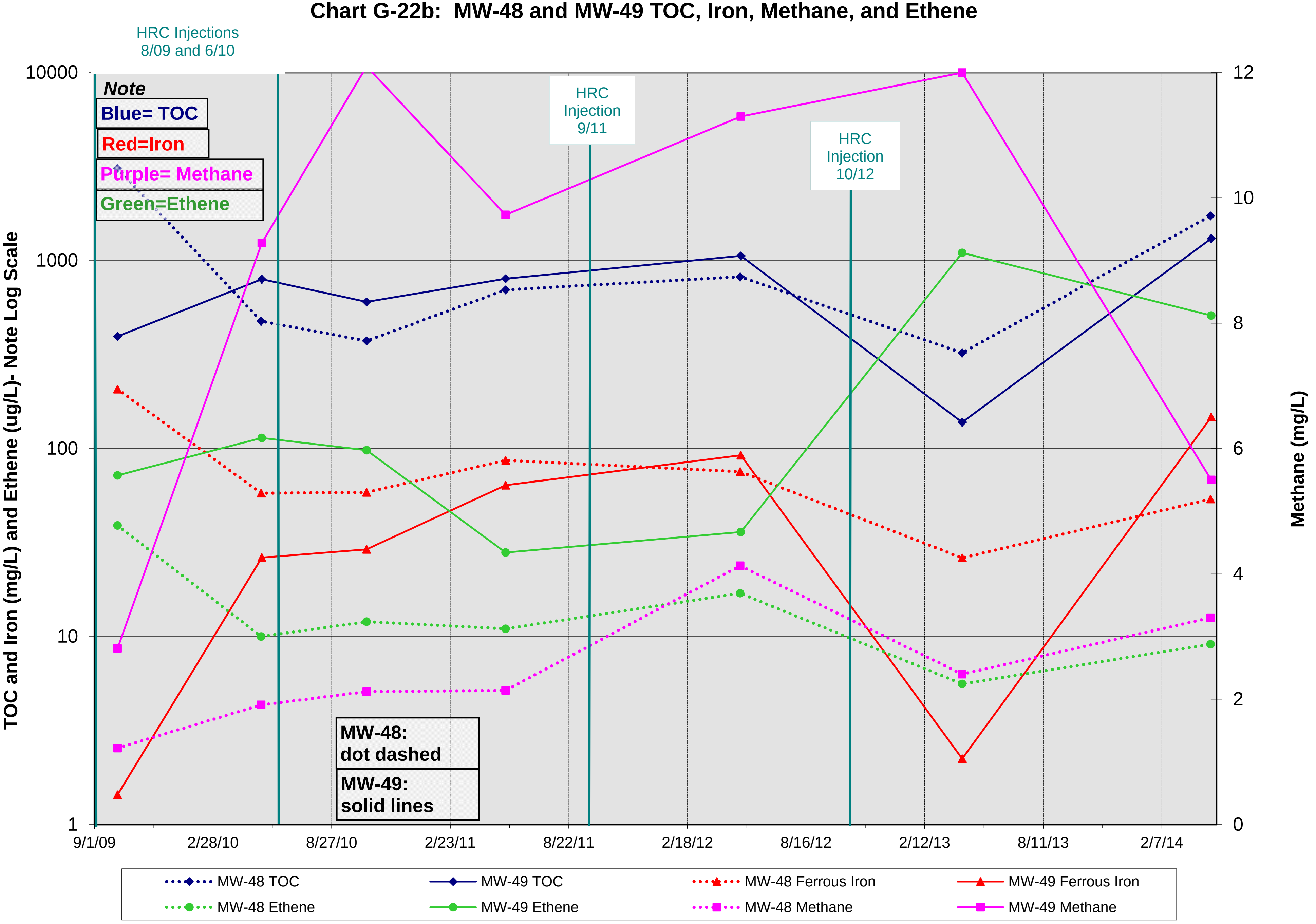


Chart G-22c: MW-50 and MW-51 TOC, Iron, Methane, and Ethene

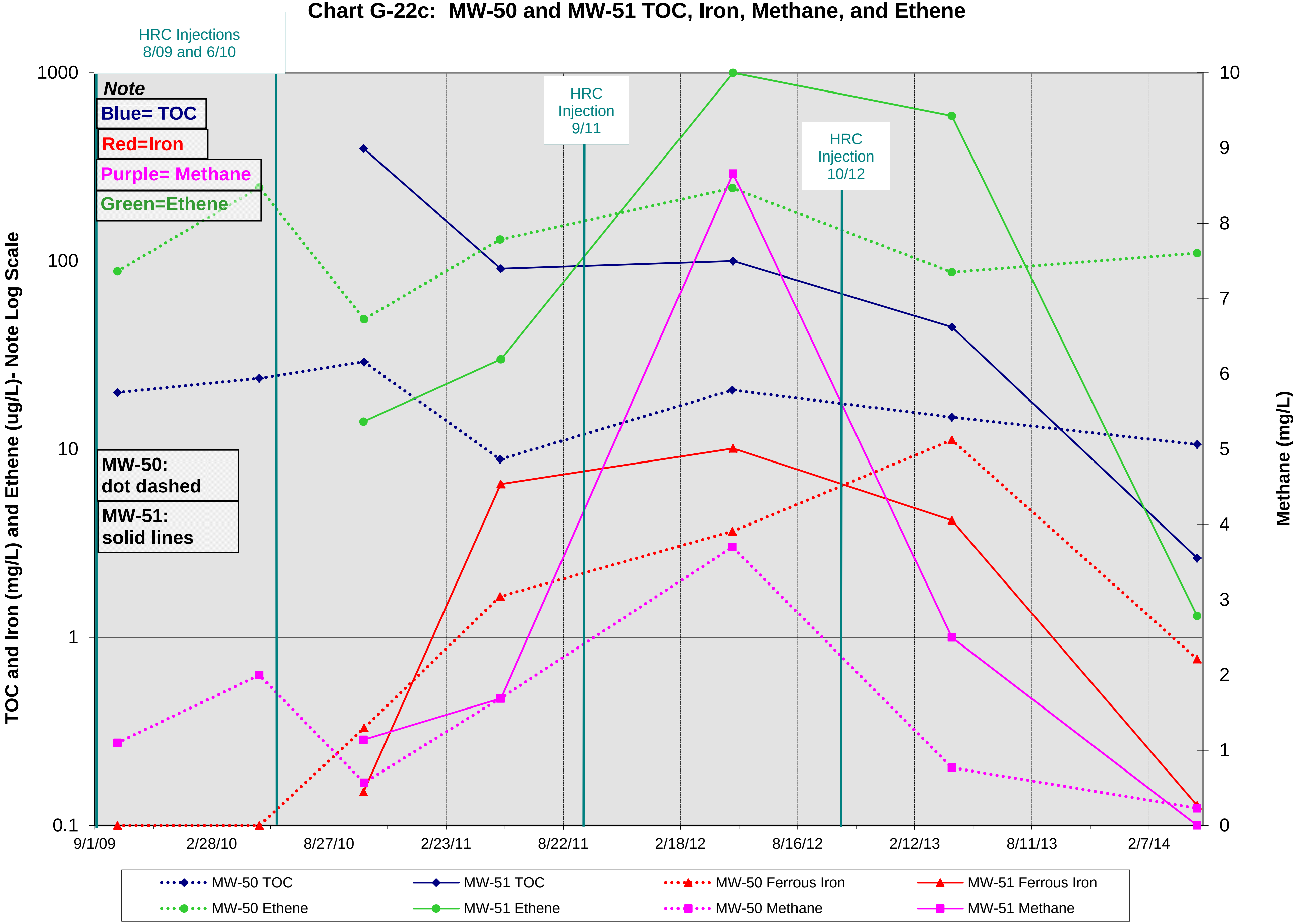
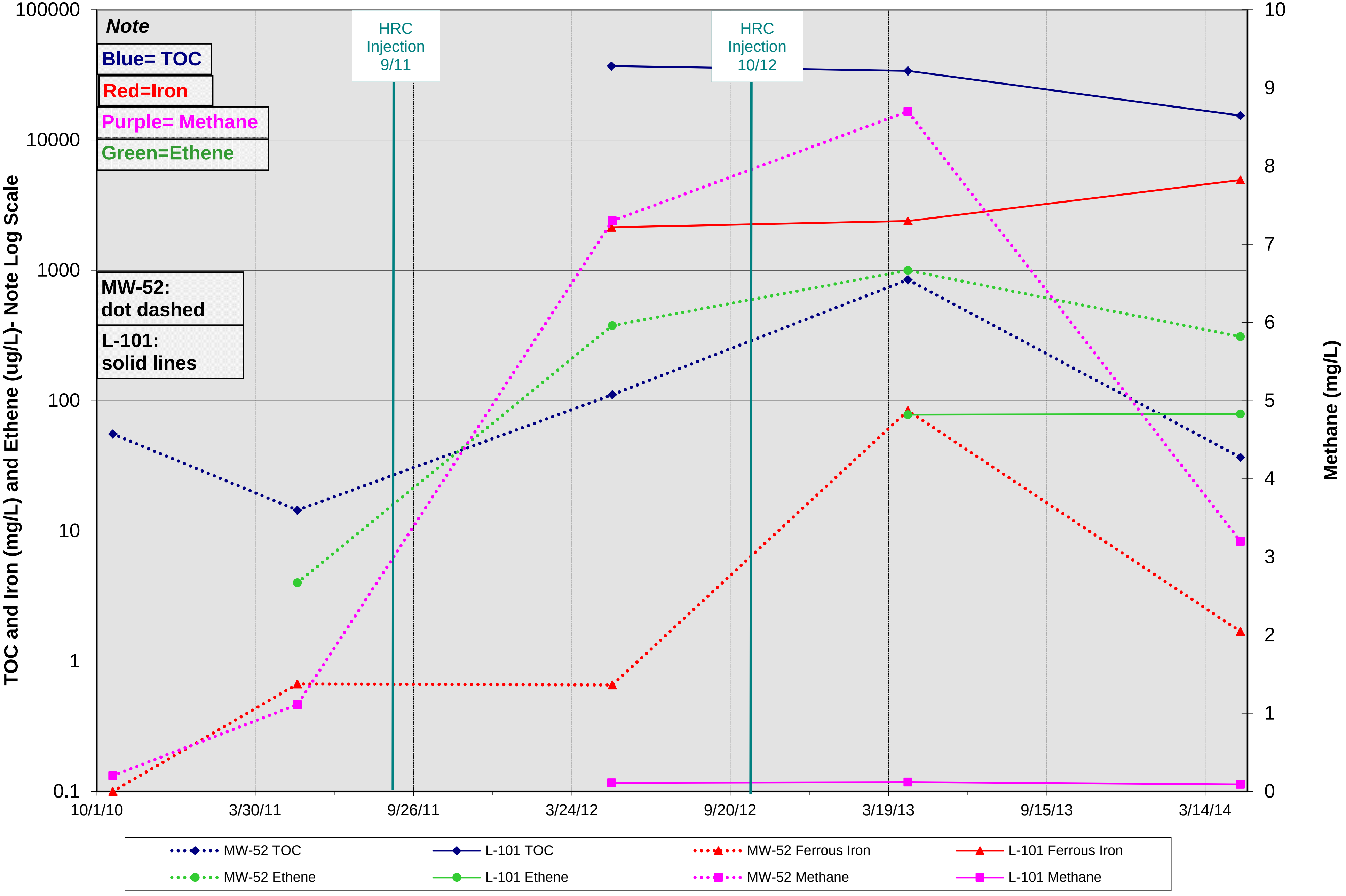


Chart G-22d: MW-52 and L-101 TOC, Iron, Methane, and Ethene



APPENDIX H

Quality Assurance Review (QAR)
and
ADEC Laboratory Data Review Checklists

H QUALITY ASSURANCE REVIEW

The QA/QC data evaluated during this review process indicate that the sample results are acceptable for their intended project use. Unless otherwise indicated, the analytical results meet the precision and accuracy requirements for the associated analytical methods. The QA/QC data indicate that the quality control mechanisms were generally effective in ensuring measurement data reliability within the expected limits of sampling and analytical error. Data qualified by the review process have been appropriately flagged before being presented in the report. The overall calculated completeness of the April 2014 groundwater sampling data set is 100%.

This data quality assurance review conforms to the requirements of the ADEC Technical Memo -06-2002, dated March 2009. ADEC Laboratory Data Review Checklists have been completed for each laboratory work order that is a part of this project and they are provided in this Appendix. The laboratory analytical data reports for this project are contained electronically in the CD-ROM that accompanies this report.

A summary of the project and the Data Quality Objectives are discussed below in Sections H.1 and H.2. The Quality Assurance Review (QAR) procedures are discussed below in Section H.3, the QAR results are presented in Section H.4, and the ADEC Laboratory Checklists are attached at the end of the QAR.

H.1 *PROJECT SUMMARY*

Compliance and Performance sampling were conducted on April 21 through April 24, 2014 as described in the preceding report. Four project laboratories were used for the monitoring event. SGS provided project laboratory services for the compliance monitoring samples (i.e., all VOC samples were analyzed by SGS). ALS Environmental, Columbia Analytical Services in Simi Valley, CA was subcontracted by SGS to perform the RSK175 analyses. Microseeps, Inc. was subcontracted by SGS for the Volatile Fatty Acids analyses. SiREM Laboratories provided microbial analytical services.

The analytical data packages provided by the laboratories were reviewed to evaluate the integrity of the associated results. The data have been reviewed to determine their suitability for use in monitoring dissolved phase concentrations. A limited QA/QC data package was provided by SGS, ALS, Microseeps and SiREM for review and validation.

The following laboratory work orders were reviewed for this project sampling event:

- SGS groundwater work order number 1141548
- Microseeps work order number 12031
- ALS service request P1401715
- SiREM work order number S-3185

H.2 *DATA QUALITY OBJECTIVES*

Data Quality Objectives (DQOs) have been established for this project to ensure that the monitoring data is of sufficient quantity and quality to accomplish the following:

- Monitor dissolved-phase VOC impacts for comparison to ADEC Water Quality Standards defined in 18 AAC 70 and cleanup levels defined in the ROD;
- Evaluate hydrogeological characteristics and dissolved-phase VOC concentration trends;
- Evaluate the results of the site remediation activities; and
- Ensure the integrity of the results is legally defensible.

The laboratory analytical DQOs for the compliance and performance groundwater monitoring activities are tabulated below in Table H-1 and H-2, respectively. The practical quantitation limits (PQLs) for the individual samples may be affected by sample dilution caused by elevated target analyte concentrations. This effect shall be minimized to the extent practical by the laboratory during sample analysis.

Table H-1: Analytical Methods and Data Quality Objectives for Groundwater Monitoring

Parameters	Method	Reporting Limit	Precision (Relative Percent Differential)	Accuracy (Percent Recovery)	Completeness (%)
1,1-Dichloroethane	EPA 8260B	2.0 μg/L	≤ 20	70 – 130	85
1,2-Dichloroethane		2.0 μg/L	≤ 20	70 – 130	85
Cis-1,2-Dichloroethene		2.0 μg/L	≤ 20	70 – 130	85
Tetrachloroethene		2.0 μg/L	≤ 20	70 – 130	85
Trans-1,2-Dichloroethene		2.0 μg/L	≤ 20	70 – 130	85
Trichloroethene		2.0 μg/L	≤ 20	70 – 130	85
Vinyl Chloride		2.0 μg/L	≤ 20	70 – 130	85
Field Duplicates			≤ 30		

Table H-2: Analytical Methods and Data Quality Objectives for Performance Monitoring

Parameters	Method	Reporting Limit	Precision (Relative Percent Differential)	Accuracy (Percent Recovery)	Completeness (%)
1,1-Dichloroethane	EPA 8260B	2.0 μg/L	≤ 20	70 - 130	85
1,2-Dichloroethane		2.0 μg/L	≤ 20	70 – 130	85
Cis-1,2-Dichloroethylene		2.0 μg/L	≤ 20	70 - 130	85
Tetrachloroethene		2.0 μg/L	≤ 20	70 - 130	85
Trans-1,2-Dichloroethene		2.0 μg/L	≤ 20	70 - 130	85
Trichloroethene		2.0 μg/L	≤ 20	70 - 130	85
Vinyl Chloride		2.0 μg/L	≤ 20	70 - 130	85
Ethane	RSK175	0.02 mg/L	≤ 10	80 - 120	85
Methane		0.007 mg/L	≤ 10	80 - 120	85
Ethylene		0.01 μg/L	≤ 10	80 - 120	85
Acetic Acid	AM21G	1.0 mg/L	≤ 30	60 - 140	85
Butyric Acid		1.0 mg/L	≤ 30	60 - 140	85
Lactic Acid		1.0 mg/L	≤ 30	60 - 140	85
Propionic Acid		1.0 mg/L	≤ 30	60 - 140	85
Pyruvic Acid		0.1 mg/L	≤ 30	60 - 140	85
Iron	EPA 200.8	0.3 mg/L	≤ 10	80 - 120	85
Manganese		0.05 mg/L	≤ 10	80 - 120	85
TOC	SM 5310B	20.0 mg/L	≤ 10	90 - 110	85

H.3 *QUALITY ASSURANCE ANALYSIS SUMMARY*

The data review procedures, calculations, and qualifications used for this project are based on the Alaska Department of Environmental Conservation (ADEC) and U.S. Environmental Protection Agency (USEPA) procedural guidance documents. The reference documents used include ADEC *Underground Storage Tanks Procedures Manual, Guidance for Treatment of Petroleum-Contaminated Soil and Water, and Standard Sampling Procedures* dated November 7, 2002, USEPA *Contract Laboratory Program National Functional Guidelines for Organic Data Review* (EPA 540/R-94/013), 2008; the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA 540/R-094/013), 2008; and the ADEC Technical Memo - 06-2002, dated March 2009.

This QAR identifies problems with the project specific laboratory analytical data and describes the related effect on data usability. Data review has been conducted using a two-step process. The first step is performed by the analytical laboratory and is based on its standard operating and quality control procedures. After the laboratory analyses have been completed and the data have been reported, OASIS performs the second step of the data review process, which is presented in this QAR. The data review and activities completed for all sample results generated during the groundwater monitoring event include:

- Initial review of sample handling procedures and analytical and field data for completeness, accuracy, holding time compliance, and QC sample frequency compliance.
- Evaluation of trip blank and method blank sample results to identify systematic contamination.
- Evaluation of accuracy and precision of field duplicate samples, laboratory control samples (LCS), and matrix spike/matrix spike duplicate (MS/MSD) samples.
- Assigning of data qualifier flags, as necessary, to reflect limitations identified by the data assessment process.
- Estimation of data completeness.

The quality control data evaluated herein provide information for identifying and defining qualitative and quantitative limitations associated with the analytical results. As a result of this review, analytical data reported by the laboratory that does not meet the QC and QA requirements specified by the associated analytical methods will be qualified to indicate potential analytical bias, as necessary. A summary of the review and validation process is described in greater detail below.

H.3.1 Sample Handling Procedures

Proper sample handling techniques are required to ensure sample integrity. During data review, the sample handling procedures identified below are evaluated to determine potential effects on data quality:

- Review of field sample collection and preservation procedures to determine whether they were completed in accordance with the requirements specified by the analytical methods.

- Review of chain-of-custody documentation to ensure control and custody of the samples was maintained.
- Review of sample holding times between sample collection, extraction, and analysis.
- Review of sample conditions upon receipt at the contract laboratory.

H.3.2 Blank Samples

H.3.2.1 *Laboratory Blank Samples*

Laboratory blank samples (method and instrument blanks) are laboratory-prepared, analyte-free samples used to detect the introduction of contamination or other artifacts into the laboratory sample handling and analytical process. These blanks play an especially important role in sampling programs involving trace-level analyses or analytes that are common solvents found in a laboratory.

H.3.2.2 *Trip Blanks*

Trip blank samples consist of analyte-free water taken from the laboratory to the sampling site, and returned to the laboratory unopened for analysis. A trip blank simulates a sample container and sample traveling to/from the field. It is used to document contamination attributable to shipping and field handling procedures. This type of blank is useful in documenting contamination of volatile organic samples.

H.3.3 Laboratory Control Samples

Laboratory control samples are used to assess analytical performance under a given set of standard conditions. These are synthetic samples containing some or all of the analytes of interest at known concentrations and prepared independently from calibration standards. The samples consist of laboratory control samples (LCS) and laboratory control sample duplicates (LCSD). Typically analyzed with each analytical batch, LCS may be used to estimate analytical accuracy and precision by comparing measured results to actual concentrations.

LCS are also duplicated in the laboratory and then analyzed in an identical manner by the laboratory to assess laboratory's internal precision. The analytical precision is expressed by the relative percent difference (RPD) between the measurement results of the two duplicate samples. Analytical precision and accuracy should meet method- and analyte-specific QA/QC requirements.

H.3.4 Matrix Spike and Matrix Spike Duplicates

Matrix spike samples are actual field samples to which known amounts of select compounds (one, or more, of the analytes of interest) are added. Both spiked and unspiked aliquots are analyzed. The difference between the concentration of the spike compound(s) in the spiked and unspiked aliquots is compared to the amount of spike added before the extraction process. Since actual samples are used for the recovery determination, the matrix effects can be evaluated. Usually expressed as a percentage of the mass of the spiked amount, spike recovery is the measurement of accuracy anticipated for the sample matrix.

Matrix spike samples are also duplicated in the laboratory and then analyzed in an identical manner by the laboratory to assess sample reproducibility and the laboratory's internal precision. The analytical precision is expressed by the RPD between the measurement results of the two duplicate samples. Analytical precision and accuracy should meet method- and analyte-specific QA/QC requirements.

H.3.5 Surrogates

Surrogate compounds are added to all samples being analyzed for organic constituents to evaluate analytical accuracy for each individual sample. The surrogate compounds are chemically similar to the analytes of interest but are not expected to be present in the field samples. Recovery of these surrogate compounds gives an estimate of the effectiveness of the extraction and analysis for each individual sample. Surrogate recoveries should meet method- and analyte-specific QA/QC requirements.

H.3.6 Field Duplicate and Replicate Samples

Field duplicate and replicate samples are collected simultaneously with or in immediate succession to a primary project sample. Duplicates and replicates are treated in the same manner as the primary sample during all phases of sample collection, handling, and analysis. Duplicate sample results are used to assess precision, including variability associated with both the laboratory analysis and the sample collection process (i.e., QC purposes). The replicate samples are used to evaluate differences associated with independent laboratory analytical processes and results (i.e., QA purposes). Duplicate and replicate field samples were collected and submitted blind to the laboratory at a frequency of ten percent for this program, although replicate samples were collected only for VOC analysis.

The analytical results were reviewed for agreement with each other or their respective reporting limits and evaluated for comparability. Analytical results which are not greater than ten times the reporting limit are not considered significant for the purpose of data agreement. The comparison between project, field duplicate, and field replicate sample results should meet the RPD requirements for field duplicate samples.

H.3.7 Reporting Limits (Sensitivity)

The reporting limits are the lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory conditions. For many analytes, the reporting limit analyte concentration is selected by the laboratory as the lowest non-zero standard in the calibration curve. Sample reporting limits vary based on sample matrix and dilution of the samples during analysis.

The reporting limits are compared against the regulatory cleanup criteria or project required goals to ensure that these goals have been achieved during the laboratory analysis of the project samples.

H.3.8 Completeness

Completeness is calculated after the QC data have been evaluated, and the results are applied to the measurement data. In addition to results identified as being outside of the

QC limits established for the method, broken or spilled samples, or samples that could not be analyzed for any other reason, are included in the assessment of completeness. The percentage of valid results is reported as completeness. The calculation of completeness is as follows:

$$\frac{T - (I + NC)}{T} \times (100\ \%) = \textit{Completeness}$$

Where: T = Total number of expected measurements.
I = Number of invalidated (rejected) results.
NC = Number of results not collected (e.g., bottles broken, etc.).

H.3.9 Calibration Verification

Calibration verification is performed by the laboratory for the gas chromatographic/mass spectrometry (GC/MS) analysis of groundwater samples for VOCs using EPA method SW8260B. Calibration of laboratory instrumentation is required to generate results within accuracy control limits identified by the approved analytical methods. Instrument calibration using the GC/MS methods involves a complex process requiring proper tuning of the mass spectrometer, a multi-point calibration for each volatile organic compound, frequent analysis of calibration verification standards, and analysis of internal standards added to each sample. The instrument response generated from these calibration parameters are used to quantify the volatile compounds present in the associated samples. Successful calibration requires instrument response for each compound between 0 and 15% relative standard deviation. Calibration with QA/QC parameters outside the method specific control limits will cause excessive bias in the analytical results.

H.3.10 Data Qualification

Data qualification is based on problems discovered during data review and evaluation. The analytical results are flagged with qualifiers to indicate potential problems exist, which affects the integrity of the reported results. The following is a list of data qualifiers typically used for flagging of analytical data. A definition of the data qualifier meaning is also provided.

ND-	The sample was analyzed for, but was not detected above the reported sample quantitation limit.
B -	This flag is used when the analyte is found in an associated blank, as well as the sample. It indicates possible sample contamination is present and warns the data user to consider that the result may be a false positive.
J -	Indicates an estimated value. This flag is used for circumstances where the analytical result value is questionable.
E -	Indicates that the result was outside the calibration range of the instrument and the result represents an unreliable or estimated value.
H -	This flag indicates that the recommended holding time or preservation procedure for a sample was out of compliance.
M -	This flag is used to indicate that a matrix effect was present and indicates the analytical result value may be questionable.

R - Indicates a rejected sample result. These sample results are considered to be unusable for the purposes of the project.

V - Indicates the data qualifier was assigned by OASIS/ERM during the data review process.

H.4 *DATA QUALITY REVIEW*

QC procedures associated with the groundwater samples generally include the evaluation of sample holding times, blank samples, laboratory control samples, matrix spikes, surrogates, and field duplicate samples. Results of the data review and evaluation are presented below for the associated analytical methods.

The QA/QC data evaluated during this review process indicate that the sample results are acceptable for their intended project use. Unless otherwise indicated, the analytical results meet the precision and accuracy requirements for the associated analytical methods. The QA/QC data indicate that the quality control mechanisms were generally effective in ensuring measurement data reliability within the expected limits of sampling and analytical error.

H.4.1 SGS Groundwater Samples

Groundwater samples collected from twenty-eight groundwater monitoring wells, and three field duplicate samples (MW-26, MW-38, and MW-42) were analyzed for VOCs by SGS Environmental Services, using EPA method SW8260B. Twenty of the groundwater monitoring wells and one field duplicate (MW-42) sample were analyzed for Total organic carbon using SM 5310B, and dissolved/total iron and manganese using EPA method 200.8. The SGS results, provided in one work order 1141548, were reviewed and only the following minor anomalies were noted in the data.

The samples were received by SGS on 4/25/2014 in three coolers that had temperatures of 2.5, 3.6 and 4.7 degrees Celsius (temperature blank). The cooler temperatures were all within the recommended temperature range.

The samples were received in good condition and with the proper preservation, with the following exceptions:

- The sample pH was greater than two for the following TOC sample bottles: 14-RT-005-GW (MW-9), 14-RT-006-GW (MW-39), 14-RT-009-GW (MW-47), 14-RT-010-GW (MW-48), 14-RT-011-GW (MW-49), 14-RT-015-GW (L-78),14-RT-017-GW (L-101), 14-RT-018-GW (L-80A), 14-RT-019-GW (L-102), and 14-RT-020-GW (L-103). The sample pH appears to have been impacted by high levels of HRC. No data qualification was performed on these results since they were not likely impacted and the data is being used for performance monitoring purposes only.

- The sample pH was greater than two for the following metals sample bottles: 14-RT-009-GW (MW-47), 14-RT-011-GW (MW-49), 14-RT-015-GW (L-78), 14-RT-017-GW (L-101), 14-RT-018-GW (L-80A), 14-RT-019-GW (L-102), and 14-RT-020-GW (L-103). No data qualification was performed on these results since they were not likely impacted and the data is being used for performance monitoring purposes only.

- Several samples had one or more VOC vials with headspace. The VOC analyses were performed using the containers without headspace, with the exception of 14-RT-020-GW (L-103). The analytical results for this sample have been qualified (VH-flag) to indicate a potential low bias due to improper sample preservation.

The analyses were performed within the recommended hold times.

All associated field and laboratory QA/QC results met established criteria with the following exceptions:

- The project required reporting limit was not met for vinyl chloride in five samples due to a dilution. The affected samples include 14-RT -010-GW, -016-GW, -032-GW, -033-GW, and -034-GW. The usability of the vinyl chloride results for these samples may be limited for this project.

- CCV recoveries for multiple analytes (VMS14094, VMS14097, VMS14099, and VMS14104), did not meet control limits (biased high). These analytes were not detected in associated project sample results, so data qualification was not performed. All data are useable for project purposes.

- One trip blank was analyzed for VOC compounds. VOC compounds were not detected in the trip blank.

- Instrument calibration blanks and method blanks were analyzed for VOC compounds, metals and TOC. VOC compounds were not detected in the blanks. Metals and TOC blank results had the following exceptions:

    - In analytical batch MMS8501, dissolved and total manganese was detected in the method blank. However, the associated project sample results were greater than 10x the blank result and were not required to be qualified.

    - In analytical batch MMS8502, total iron and total manganese were detected in the method blank; iron was below the limit of quantification (LOQ). However, the associated project sample results were greater than 10x the blank result and are acceptable without needing to be qualified.

    - In batches WTC2351, WTC2352, and WTC2353, total organic carbon was detected in the method blanks below the limit of quantification (LOQ). However, the associated project sample results were greater than 10x the blank result and are acceptable without qualification.

- The LCS/LCSD recoveries were within percent recovery and RPD acceptance criteria, with the following exceptions:

    - In QC batches VXX25788 and VXX25792, the LCS/LCSD recovery or RPD values for 1,1-dichloroethene, bromomethane, chloroethane, trichlorofluoromethane, and others were above the QC limit. Associated project sample results were below the detection limit and were not required to be qualified.

    - In QC batch VXX25803, the LCSD RPD for 1,2-dibromo-3-chloropropane was above the QC limit. Associated project sample results were below detection limit and were not required to be qualified

- Two sets of project sample MS/MSD analyses were performed by the laboratory for this analytical data set. All MS recoveries and MS/MSD RPD values were within QC acceptance criteria with the following exceptions.
    - The MSD RPD in sample 14-RT-032-GW (MW-42) for 1,2-dibromo-3-chloropropane, 2-hexanone, and tetrachloroethene was above the QC limit. The associated project sample result was below the reporting limit for these analytes and thus no data was required to be qualified.
    - The MS/MSD recoveries for iron and manganese were occasionally outside of the laboratory's QC acceptance limits. Since the sample concentrations were greater than four times the spike amount and the blank spike percent recoveries were acceptable, these results do not require qualification.
- Surrogate recoveries were within acceptance limits for all project and QC samples.

Three field duplicate samples were collected from MW-38, MW-42, and MW-26, to evaluate intra-laboratory precision. Relative percent difference (RPD) values were calculated for all analytes with concentrations above the analytical reporting limit. The analytical results above the reporting limit were agreeable, with two exceptions.

- Where comparable all of the RPD values for the duplicate pairs were within acceptable criteria. However, it should be noted that most of the duplicate sample results had elevated reporting limits due to sample dilution and therefore only two pairs of VOC analyte results were available for comparison.

The total overall calculated completeness of the April 2014 compliance monitoring data set is 100%, which meets the established 85% completeness data quality objective.

H.4.2 ALS

Groundwater samples collected from twenty groundwater monitoring wells plus one field duplicate (MW-42) sample were subcontracted by SGS to ALS for analysis of Permanent gases (ethene, ethane, and methane) using RSK175.

The RSK175 samples were received by SGS on 4/25/2014 in one cooler that had temperature of 2.5 Celsius (temperature blank), within the recommended temperature range. The samples were received by ALS on 4/29/2014 in one cooler, with a cooler temperature of 5 degrees Celsius (temperature blank). The cooler temperature was within the recommended temperature range. The analyses were performed within the recommended hold times.

The samples were received in good condition and with the proper preservation, with the following exception:

- Several samples had one or more VOA vials with headspace and/or had a sample pH that was greater than two for the RSK175 samples. No data qualification was performed on these results since they were not likely impacted and the data is being used for performance monitoring purposes only.

The ALS results, provided in service request P1401715, were reviewed and no anomalies were noted in the data.

One field duplicate sample was collected from MW-42 to evaluate intra-laboratory precision. Relative percent difference (RPD) values were calculated for all analytes with concentrations above the analytical reporting limit. All RPD values for duplicate samples were within the 30% RPD precision criteria.

The total overall calculated completeness of the April 2014 Permanent Gas data set is 100%, which meets the established 85% completeness data quality objective.

H.4.3 Microseeps, Inc.

Groundwater samples collected from twenty groundwater monitoring wells plus one field duplicate (MW-42) sample were analyzed by Microseeps, Inc. for the Volatile Fatty Acids (VFAs) using Microseeps method AM21G.

The samples were received by SGS on 4/25/2014 in one cooler. The samples were received by Microseeps on 4/29/2014 in one cooler, with a cooler temperature of 6 degrees Celsius (temperature blank). The cooler temperature was within the recommended temperature range. The samples were received in good condition and with the proper preservation. The analyses were performed within the recommended hold times.

The Microseeps results, provided in one work order 12031, were reviewed and no anomalies were noted in the data.

One duplicate sample was collected from MW-42 to evaluate intra-laboratory precision. Relative percent difference (RPD) values were calculated for all analytes with concentrations above the analytical reporting limit. All RPD values for duplicate samples were within the 30% RPD precision criteria.

The total overall calculated completeness of the April 2014 VFAs data set is 100%, which meets the established 85% completeness data quality objective.

H.4.4 SiREM

Seven groundwater samples (MW-47, MW-48, MW-49, MW-50, MW-51, L-78 and L-103) and one field duplicate (MW-48) were analyzed by SiREM Laboratories for the presence of *Dehalococcoides* bacteria (Dhc) using a Quantitative Gene-Trac Dehalococcoides Assay and a Gene-Trac Vinyl Choride Reductase Assay (vcrA).

The samples were received by SiREM on 4/30/2014 in one cooler, with a cooler temperature of 3 degrees Celsius (temperature blank). The cooler temperature was within the recommended temperature range. The samples were received in good condition and with the proper preservation. The analyses were performed within the recommended hold times.

The SiREM results, provided in one work order S-3185, were reviewed and no anomalies were noted in the data. Genomic DNA was extracted from the samples and the suitability of extracted DNA for testing using universal PCR primers was confirmed. The Quantitative *Dehalococcoides* and Vinyl Chloride Reductase analysis was performed on 6 and 7 May 2014; positive, negative, and DNA extraction blank controls were all within laboratory control limits.

One duplicate sample was collected from MW-48 to evaluate intra-laboratory precision. Relative percent difference (RPD) values were calculated for all results with concentrations above the method reporting limit. The RPD value for duplicate Dhc sample results was 50% RPD and is considered acceptable for microbiological data.

Laboratory Data Review Checklist

Completed by: Tim McDougall

Title: Project Manager

Date: April, 2014

CS Report Name: 2014 River Terrace RV Park Groundwater Sampling

Report Date: May 13, 2014

Consultant Firm: ERM Alaska, Inc.

Laboratory Name: SGS North America Inc.

Laboratory Report Number: 1141548

ADEC File Number: 233.38.014

ADEC RecKey Number:

1. Laboratory

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

○ Yes ● No ○ NA (Please explain.) Comments:

SGS is ADEC approved and performed analyses for methods SW8260B, E200.8, and SM5310B. The RSK175 gas analysis was subcontracted to ALS Environmental in Simi Valley, CA and the AM21G volatile acids analysis was subcontracted to Microseeps in Pittsburgh, PA.

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

○ Yes ● No ○ NA (Please explain) Comments:

The RSK175 gas analysis and AM21G volatile acids methods are not included in the ADEC CS certification program. ALS and Microseeps both have NELAP certification.

2. Chain of Custody (COC)

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

● Yes ○ No ○ NA (Please explain) Comments:

b. Correct analyses requested?

● Yes ○ No ○ NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

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

● Yes ○ No ○ NA (Please explain) Comments:

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

○ Yes ● No ○ NA (Please explain) Comments:

Several samples did not meet pH requirements with standard amount of preservative. Additional acid was added upon receipt at the lab.

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

○ Yes ● No ○ NA (Please explain) Comments:

Four samples had one VOC vial with headspace present; vial used last during analysis if needed.

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

● Yes ○ No ○ NA (Please explain) Comments:

Sample receipt checklists document the discrepancies.

e. Data quality or usability affected? (Please explain)

Comments:

Analytical results for one sample were qualified (VH-flag) to indicate a potential bias due to improper sample handling and preservation. See QAR for specific samples and qualified results.

4. Case Narrative

a. Present and understandable?

● Yes ○ No ○ NA (Please explain) Comments:

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

● Yes ○ No ○ NA (Please explain) Comments:

8260B CCV recoveries for several VOC analytes were biased high, but were not detected in associated project samples; therefore, no data qualification was required.

c. Were all corrective actions documented?

○ Yes ○ No ● NA (Please explain) Comments:

Corrective action was not required.

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

Comments:

Data is acceptable. Target VOC compound results are not affected.

5. Samples Results

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

● Yes ○ No ○ NA (Please explain) Comments:

b. All applicable holding times met?

● Yes ○ No ○ NA (Please explain) Comments:

c. All soils reported on a dry weight basis?

○ Yes ○ No ● NA (Please explain) Comments:

Only water samples were analyzed.

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

○ Yes ● No ○ NA (Please explain) Comments:

The project required reporting limit was not met for vinyl chloride in five samples due to dilution (14-RT -010, -016, -032, -033, and -034).

e. Data quality or usability affected? (Please explain)

Comments:

The usability of the vinyl chloride results for the above five samples may be limited due to elevated reporting limits.

6. QC Samples

a. Method Blank

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

○ Yes ○ No ○ NA (Please explain) Comments:

Yes

ii. All method blank results less than PQL?

● Yes ○ No ○ NA (Please explain) Comments:

Manganese, iron, and TOC were detected at concentrations below the PQL.

iii. If above PQL, what samples are affected? Comments:

The method blank results are acceptable. None of the samples are affected by the method blank results.

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

○ Yes ○ No ● NA (Please explain) Comments:

None of the samples are affected by the method blank results.

v. Data quality or usability affected? (Please explain) Comments:

Data is acceptable without qualification.

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

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

● Yes ○ No ○ NA (Please explain) Comments:

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

● Yes ○ No ○ NA (Please explain) Comments:

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

○ Yes ● No ○ NA (Please explain) Comments:

Recoveries for several analytes in two QC batches were above QC limits.

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

○ Yes ● No ○ NA (Please explain) Comments:

LCSD RPD for 1,2-dibromo-3-chloropropane was above the QC limit.

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

Comments:

Associated sample results were all ND and would not be affected by high %R or RPD.

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

○ Yes ○ No ● NA (Please explain) Comments:

Associated sample results were all ND and would not be affected by the high RPDs.

vii. Data quality or usability affected? (Please explain) Comments:

None of associated sample data was affected by %R and RPD above the control limits. The data are acceptable.

c. Surrogates - Organics Only

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

● Yes ○ No ○ NA (Please explain) Comments:

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

● Yes ○ No ○ NA (Please explain) Comments:

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

○ Yes ○ No ● NA (Please explain) Comments:

All surrogate recoveries are acceptable.

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

Comments:

All data is acceptable.

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

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

● Yes ○ No ○ NA (Please explain.) Comments:

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

○ Yes ● No ○ NA (Please explain.) Comments:

The VOC samples were all shipped together in one cooler with a trip blank.

iii. All results less than PQL?

● Yes ○ No ○ NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

Trip blank results are acceptable

v. Data quality or usability affected? (Please explain.)

Comments:

The data are acceptable.

e. Field Duplicate

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

● Yes ○ No ○ NA (Please explain) Comments:

Yes, for method SW8260B three field duplicate samples were collected. Only one field duplicate was collected for non-compliance samples.

ii. Submitted blind to lab?

● Yes ○ No ○ NA (Please explain.) Comments:

The field duplicate sample pairs are: 14-RT-003-GW and 14-RT-032-GW; 14-RT-023-GW and 14-RT-033-GW for SW8260B; and 14-RT-024-GW and 14-RT-034-GW for SW8260B.

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

● Yes ○ No ○ NA (Please explain) Comments:

All RPDs for analytical results above PQL were acceptable.

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

○ Yes ● No ○ NA (Please explain) Comments:

Precision can not be evaluated for analytes with elevated reporting limits, but otherwise results are acceptable.

f. Decontamination or Equipment Blank (if applicable)

○ Yes ○ No ○ NA (Please explain) Comments:

NA - Disposable sampling equipment was used.

i. All results less than PQL?

○ Yes ○ No ● NA (Please explain) Comments:

NA - Disposable sampling equipment was used.

ii. If above PQL, what samples are affected?

Comments:

NA - Disposable sampling equipment was used.

iii. Data quality or usability affected? (Please explain.)

Comments:

NA - Disposable sampling equipment was used.

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

a. Defined and appropriate?

● Yes ○ No ○ NA (Please explain) Comments:

Qualifiers are defined in the QAR.

Reset Form

Laboratory Data Review Checklist

Completed by: Tim McDougall

Title: Project Manager

Date: April, 2014

CS Report Name: 2014 River Terrace RV Park Groundwater Sampling

Report Date: May 7, 2014

Consultant Firm: ERM Alaska, Inc.

Laboratory Name: ALS Environmental

Laboratory Report Number: P1401715

ADEC File Number: 233.38.014

ADEC RecKey Number:

1. Laboratory

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

○ Yes ● No ○ NA (Please explain.) Comments:

The RSK175 gas analysis was subcontracted to ALS Environmental in Simi Valley, CA

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

● Yes ○ No ○ NA (Please explain) Comments:

RSK175 gas analysis method is not included in ADEC certification program. ALS has NELAP certification.

2. Chain of Custody (COC)

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

● Yes ○ No ○ NA (Please explain) Comments:

b. Correct analyses requested?

● Yes ○ No ○ NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

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

● Yes ○ No ○ NA (Please explain) Comments:

Sample coolers were received at SGS within acceptable range. Cooler was 5.0 degrees on arrival at ALS.

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

○ Yes ● No ○ NA (Please explain) Comments:

Several samples did not meet pH requirements with standard amount of preservative. Additional acid was added upon receipt at the lab.

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

● Yes ○ No ○ NA (Please explain) Comments:

Sample acceptance check form records pH and VOA headspace.

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

● Yes ○ No ○ NA (Please explain) Comments:

Sample receipt checklist document any discrepancies.

e. Data quality or usability affected? (Please explain)

Comments:

Data is acceptable. Permanent gas results are not affected.

4. <u>Case Narrative</u>

a. Present and understandable?

● Yes ○ No ○ NA (Please explain) Comments:

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

● Yes ○ No ○ NA (Please explain) Comments:

No QC failures were identified.

c. Were all corrective actions documented?

○ Yes ○ No ● NA (Please explain) Comments:

Corrective action was not required.

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

Comments:

Data is acceptable.

5. Samples Results

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

● Yes ○ No ○ NA (Please explain) Comments:

b. All applicable holding times met?

● Yes ○ No ○ NA (Please explain) Comments:

c. All soils reported on a dry weight basis?

○ Yes ○ No ● NA (Please explain) Comments:

Only water samples analyzed.

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

● Yes ○ No ○ NA (Please explain) Comments:

e. Data quality or usability affected? (Please explain)

Comments:

The data is acceptable.

6. QC Samples

a. Method Blank

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

○ Yes ○ No ○ NA (Please explain) Comments:

Yes

ii. All method blank results less than PQL?

● Yes ○ No ○ NA (Please explain) Comments:

iii. If above PQL, what samples are affected? Comments:

The method blank results are acceptable

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

● Yes ○ No ○ NA (Please explain) Comments:

Estimated results less than MRL but greater than MDL are J flagged.

v. Data quality or usability affected? (Please explain) Comments:

Data are acceptable.

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

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

● Yes ○ No ○ NA (Please explain) Comments:

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

○ Yes ○ No ● NA (Please explain) Comments:

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

● Yes ○ No ○ NA (Please explain) Comments:

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

● Yes ○ No ○ NA (Please explain) Comments:

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

Comments:

NA - Data is acceptable.

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

○ Yes ○ No ● NA (Please explain) Comments:

LSC/LCSD Recoveries and RPD are acceptable.

vii. Data quality or usability affected? (Please explain) Comments:

The data is acceptable.

c. Surrogates - Organics Only

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

○ Yes ○ No ● NA (Please explain) Comments:

Surrogates are not required for method.

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

○ Yes ○ No ● NA (Please explain) Comments:

Surrogates are not required for method.

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

○ Yes ○ No ● NA (Please explain) Comments:

Surrogates are not required for method.

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

Comments:

All data is acceptable.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

○ Yes ○ No ● NA (Please explain.) Comments:

Trip blanks are not required for method.

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

○ Yes ○ No ● NA (Please explain.) Comments:

Trip blanks are not required for method.

iii. All results less than PQL?

○ Yes ○ No ● NA (Please explain.) Comments:

NA - Trip blanks were not analyzed

iv. If above PQL, what samples are affected?

Comments:

v. Data quality or usability affected? (Please explain.)

Comments:

Data are acceptable.

e. Field Duplicate

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

● Yes ○ No ○ NA (Please explain) Comments:

One field duplicate was collected for non-compliance type sample analyses.

ii. Submitted blind to lab?

● Yes ○ No ○ NA (Please explain.) Comments:

The field duplicate sample pairs are: 14-RT-003-GW and 14-RT-032-GW for RSK175.

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

● Yes ○ No ○ NA (Please explain) Comments:

All RPDs for analytical results above PQL were acceptable.

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

● Yes ○ No ○ NA (Please explain) Comments:

Precision can not be evaluated for analytes with ND results, but otherwise results are acceptable.

f. Decontamination or Equipment Blank (if applicable)

○ Yes ○ No ○ NA (Please explain) Comments:

NA - Disposable sampling equipment was used.

i. All results less than PQL?

○ Yes ○ No ● NA (Please explain) Comments:

NA - Disposable sampling equipment was used.

ii. If above PQL, what samples are affected?

Comments:

NA - Disposable sampling equipment was used.

iii. Data quality or usability affected? (Please explain.)

Comments:

NA - Disposable sampling equipment was used.

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

a. Defined and appropriate?

● Yes ○ No ○ NA (Please explain) Comments:

Qualifiers are defined in the QAR.

Reset Form

Laboratory Data Review Checklist

Completed by: Tim McDougall

Title: Project Manager

Date: April, 2014

CS Report Name: 2014 River Terrace RV Park Groundwater Sampling

Report Date: May 8, 2014

Consultant Firm: ERM Alaska, Inc.

Laboratory Name: Microseeps

Laboratory Report Number: 12031

ADEC File Number: 233.38.014

ADEC RecKey Number:

1. Laboratory

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

   ○ Yes ● No ○ NA (Please explain.) Comments:

   The volatile acid analysis was subcontracted to Microseeps in Pittsburgh, PA

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

   ● Yes ○ No ○ NA (Please explain) Comments:

   Volatile acid analysis method is not included in ADEC certification program. Microseeps has NELAP certification.

2. Chain of Custody (COC)

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

   ● Yes ○ No ○ NA (Please explain) Comments:

   b. Correct analyses requested?

   ● Yes ○ No ○ NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

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

   ● Yes ○ No ○ NA (Please explain) Comments:

   Sample coolers were received at SGS within acceptable range. Cooler was 6.0 degrees on arrival at Microseeps.

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

○ Yes ○ No ● NA (Please explain) Comments:

No preservative required for method.

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

● Yes ○ No ○ NA (Please explain) Comments:

Cooler receipt form used to document any discrepancies - none reported.

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

● Yes ○ No ○ NA (Please explain) Comments:

Cooler receipt form used to document any discrepancies.

e. Data quality or usability affected? (Please explain)

Comments:

Data is acceptable. Volatile acid results are not affected.

4. <u>Case Narrative</u>

a. Present and understandable?

○ Yes ● No ○ NA (Please explain) Comments:

Narrative not provided - only have analytical results qualifiers page.

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

● Yes ○ No ○ NA (Please explain) Comments:

No QC failures were identified.

c. Were all corrective actions documented?

○ Yes ○ No ● NA (Please explain) Comments:

Corrective action was not required.

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

Comments:

Data is acceptable.

5. Samples Results

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

● Yes ○ No ○ NA (Please explain) Comments:

b. All applicable holding times met?

● Yes ○ No ○ NA (Please explain) Comments:

c. All soils reported on a dry weight basis?

○ Yes ○ No ● NA (Please explain) Comments:

Only water samples analyzed.

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

● Yes ○ No ○ NA (Please explain) Comments:

e. Data quality or usability affected? (Please explain)

Comments:

The data is acceptable.

6. QC Samples

a. Method Blank

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

○ Yes ○ No ○ NA (Please explain) Comments:

Yes

ii. All method blank results less than PQL?

● Yes ○ No ○ NA (Please explain) Comments:

iii. If above PQL, what samples are affected? Comments:

The method blank results are acceptable

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

● Yes ○ No ○ NA (Please explain) Comments:

v. Data quality or usability affected? (Please explain) Comments:

Data are acceptable.

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

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

● Yes ○ No ○ NA (Please explain) Comments:

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

○ Yes ○ No ● NA (Please explain) Comments:

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

● Yes ○ No ○ NA (Please explain) Comments:

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

● Yes ○ No ○ NA (Please explain) Comments:

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

Comments:

NA - Data is acceptable.

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

○ Yes ○ No ● NA (Please explain) Comments:

LSC/LCSD Recoveries and RPD are acceptable.

vii. Data quality or usability affected? (Please explain) Comments:

The data is acceptable.

c. Surrogates - Organics Only

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

○ Yes ○ No ● NA (Please explain) Comments:

Surrogates are not required for method.

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

○ Yes ○ No ● NA (Please explain) Comments:

Surrogates are not required for method.

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

○ Yes ○ No ● NA (Please explain) Comments:

Surrogates are not required for method.

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

Comments:

All data is acceptable.

d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

○ Yes ○ No ● NA (Please explain.) Comments:

Trip blanks are not required for method.

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

○ Yes ○ No ● NA (Please explain.) Comments:

Trip blanks are not required for method.

iii. All results less than PQL?

○ Yes ○ No ● NA (Please explain.) Comments:

NA - Trip blanks were not analyzed

iv. If above PQL, what samples are affected?

Comments:

v. Data quality or usability affected? (Please explain.)

Comments:

Data are acceptable.

e. Field Duplicate

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

● Yes ○ No ○ NA (Please explain) Comments:

One field duplicate was collected for non-compliance type sample analyses.

ii. Submitted blind to lab?

● Yes ○ No ○ NA (Please explain.) Comments:

The field duplicate sample pairs are: 14-RT-003-GW and 14-RT-032-GW for AM21G.

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

● Yes ○ No ○ NA (Please explain) Comments:

All RPDs for analytical results above PQL were acceptable.

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

● Yes ○ No ○ NA (Please explain) Comments:

Precision can not be evaluated for analytes with ND results, but otherwise results are acceptable.

f. Decontamination or Equipment Blank (if applicable)

○ Yes ○ No ○ NA (Please explain) Comments:

NA - Disposable sampling equipment was used.

i. All results less than PQL?

○ Yes ○ No ● NA (Please explain) Comments:

NA - Disposable sampling equipment was used.

ii. If above PQL, what samples are affected?

Comments:

NA - Disposable sampling equipment was used.

iii. Data quality or usability affected? (Please explain.)

Comments:

NA - Disposable sampling equipment was used.

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

a. Defined and appropriate?

● Yes ○ No ○ NA (Please explain) Comments:

Qualifiers are defined in the QAR.

Reset Form

APPENDIX I

Mann-Kendall Statistical Trend Analysis

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

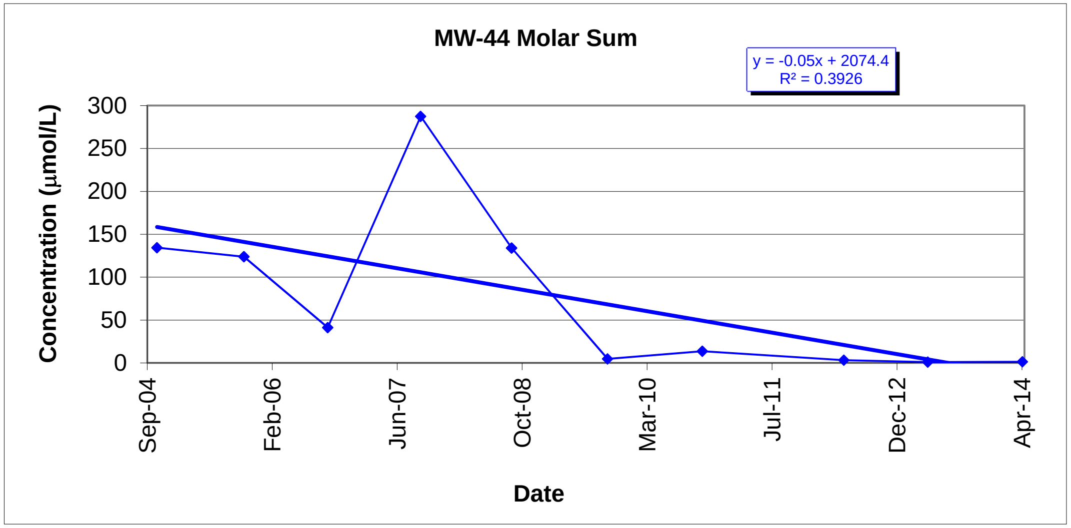
Monitoring Well No.	MW-44
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

Monitoring date:	Oct-04	Oct-05	Sep-06	Sep-07	Sep-08	Oct-09	Oct-10	May-12	Apr-13	Apr-14	
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	
Molar Sum (µmol/L)	134.40	123.90	41.32	287.40	134.10	4.75	13.72	3.21	0.97	1.35	
Row 1: Compare to Event 1		-1	-1	1	-1	-1	-1	-1	-1	-1	-7
Row 2: Compare to Event 2			-1	1	1	-1	-1	-1	-1	-1	-4
Row 3: Compare to Event 3				1	1	-1	-1	-1	-1	-1	-3
Row 4: Compare to Event 4					-1	-1	-1	-1	-1	-1	-6
Row 5: Compare to Event 5						-1	-1	-1	-1	-1	-5
Row 6: Compare to Event 6							1	-1	-1	-1	-2
Row 7: Compare to Event 7								-1	-1	-1	-3
Row 8: Compare to Event 8									-1	-1	-2
Row 9: Compare to Event 9										1	1

Mann-Kendall Statistic (S) = Total	**-31**
Confidence Level	**> 90%**
Coefficient of Variance (CV)	**1.27**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	No Trend?
Mann-Kendall	Decreasing

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

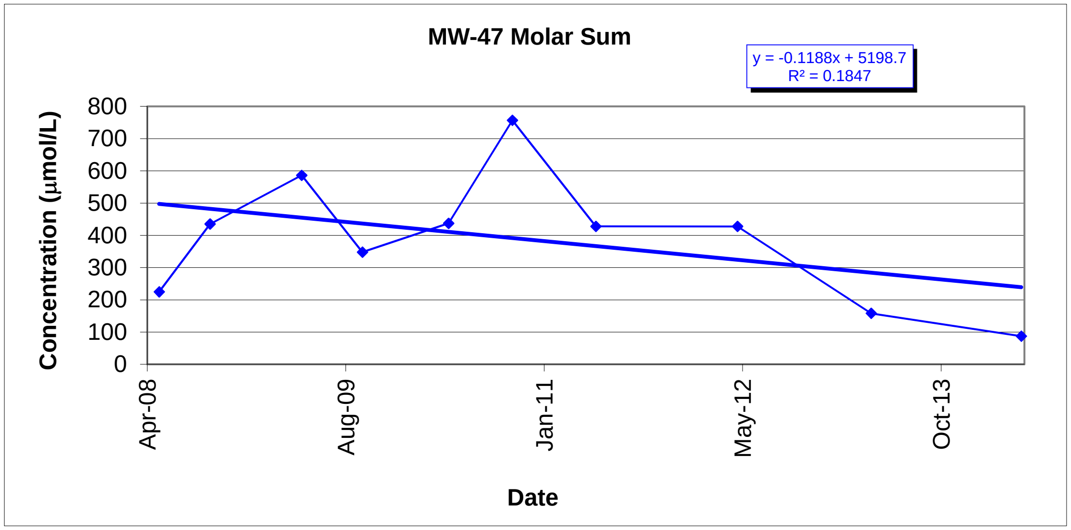
Monitoring Well No.	MW-47
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

Monitoring date:	May-08	Sep-08	May-09	Oct-09	May-10	Oct-10	May-11	May-12	Apr-13	Apr-14	
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	
Molar Sum (µmol/L)	224.80	435.10	586.30	348.10	437.20	756.90	428.00	427.70	158.10	87.16	
Row 1: Compare to Event 1		1	1	1	1	1	1	1	-1	-1	5
Row 2: Compare to Event 2			1	-1	1	1	-1	-1	-1	-1	-2
Row 3: Compare to Event 3				-1	-1	1	-1	-1	-1	-1	-5
Row 4: Compare to Event 4					1	1	1	1	-1	-1	2
Row 5: Compare to Event 5						1	-1	-1	-1	-1	-3
Row 6: Compare to Event 6							-1	-1	-1	-1	-4
Row 7: Compare to Event 7								-1	-1	-1	-3
Row 8: Compare to Event 8									-1	-1	-2
Row 9: Compare to Event 9										-1	-1

Mann-Kendall Statistic (S) = Total	**-13**
Confidence Level	**< 90%**
Coefficient of Variance (CV)	**0.51**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	No Trend
Mann-Kendall	No Trend

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

Monitoring Well No.	MW-48
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

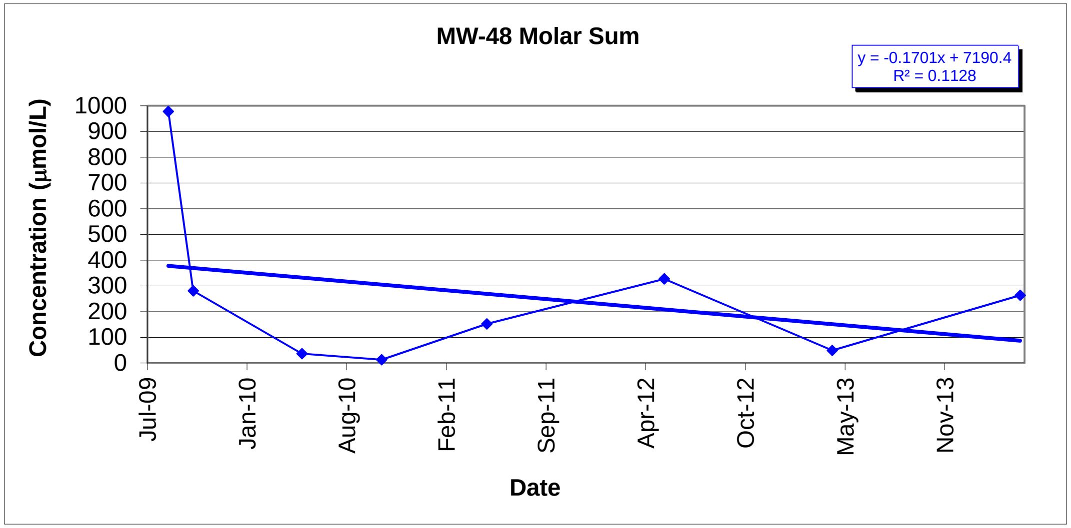
Monitoring date:	Aug-09	Oct-09	May-10	Oct-10	May-11	May-12	Apr-13	Apr-14		
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10
Molar Sum (µmol/L)	977.70	280.90	36.92	12.84	152.20	327.00	48.90	263.46		

Row 1: Compare to Event 1	-1	-1	-1	-1	-1	-1	-1			-7
Row 2: Compare to Event 2		-1	-1	-1	1	-1	-1			-4
Row 3: Compare to Event 3			-1	1	1	1	1			3
Row 4: Compare to Event 4				1	1	1	1			4
Row 5: Compare to Event 5					1	-1	1			1
Row 6: Compare to Event 6						-1	-1			-2
Row 7: Compare to Event 7							1			1
Row 8: Compare to Event 8										0
Row 9: Compare to Event 9										0

Mann-Kendall Statistic (S) = Total	**-4**
Confidence Level	**< 90%**
Coefficient of Variance (CV)	**1.19**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	No Trend
Mann-Kendall	No Trend

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

Monitoring Well No.	MW-49
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

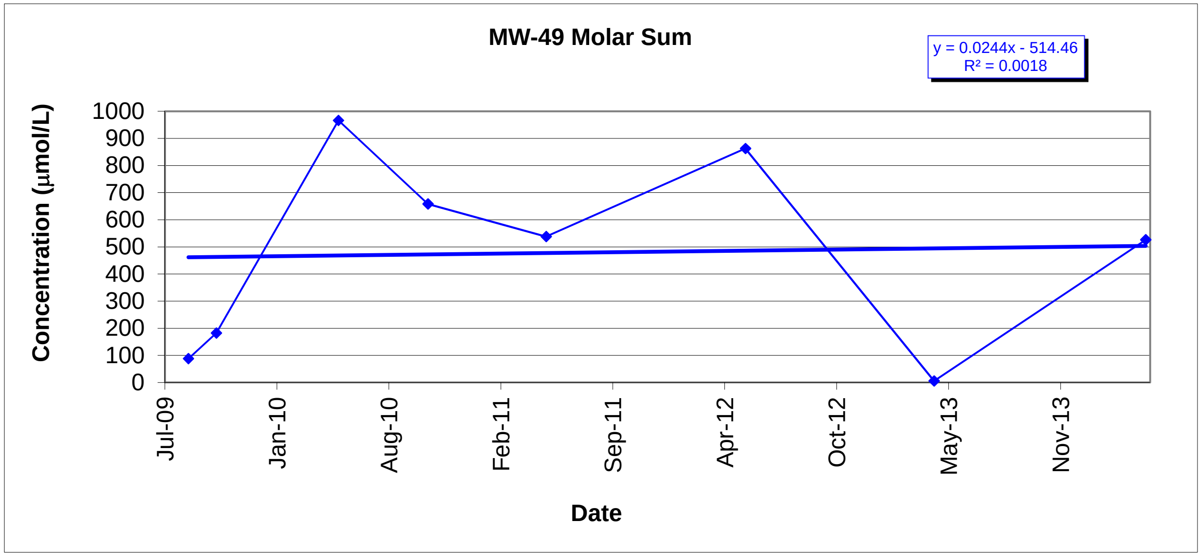
Monitoring date:	Aug-09	Oct-09	May-10	Oct-10	May-11	May-12	Apr-13	Apr-14		
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10
Molar Sum (µmol/L)	87.90	182.32	966.26	658.16	538.00	862.54	5.74	526.14		

Row 1: Compare to Event 1	1	1	1	1	1	-1	1			5
Row 2: Compare to Event 2		1	1	1	1	-1	1			4
Row 3: Compare to Event 3			-1	-1	-1	-1	-1			-5
Row 4: Compare to Event 4				-1	1	-1	-1			-2
Row 5: Compare to Event 5					1	-1	-1			-1
Row 6: Compare to Event 6						-1	-1			-2
Row 7: Compare to Event 7							1			1
Row 8: Compare to Event 8										0
Row 9: Compare to Event 9										0

Mann-Kendall Statistic (S) = Total	**0**
Confidence Level	**< 90%**
Coefficient of Variance (CV)	**0.74**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	No Trend
Mann-Kendall	No Trend

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

Monitoring Well No.	MW-50
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

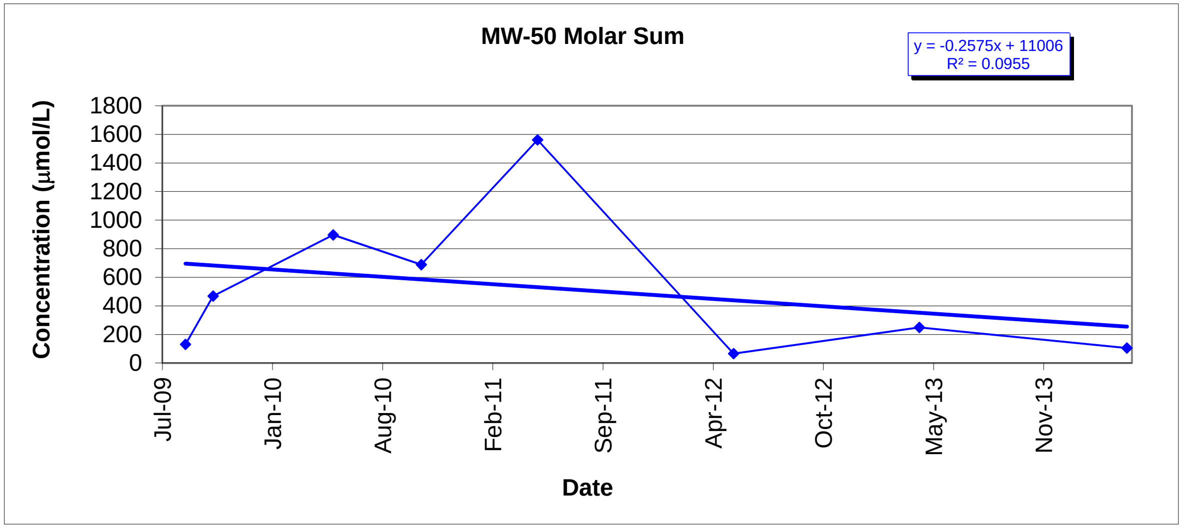
Monitoring date:	Aug-09	Oct-09	May-10	Oct-10	May-11	May-12	Apr-13	Apr-14		
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10
Molar Sum (µmol/L)	131.26	468.45	896.43	688.52	1561.30	65.95	249.65	105.31		

Row 1: Compare to Event 1	1	1	1	1	-1	1	-1			3
Row 2: Compare to Event 2		1	1	1	-1	-1	-1			0
Row 3: Compare to Event 3			-1	1	-1	-1	-1			-3
Row 4: Compare to Event 4				1	-1	-1	-1			-2
Row 5: Compare to Event 5					-1	-1	-1			-3
Row 6: Compare to Event 6						1	1			2
Row 7: Compare to Event 7							-1			-1
Row 8: Compare to Event 8										0
Row 9: Compare to Event 9										0

Mann-Kendall Statistic (S) = Total	**-4**
Confidence Level	**< 90%**
Coefficient of Variance (CV)	**0.99**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	No Trend
Mann-Kendall	No Trend

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

Monitoring Well No.	MW-51
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

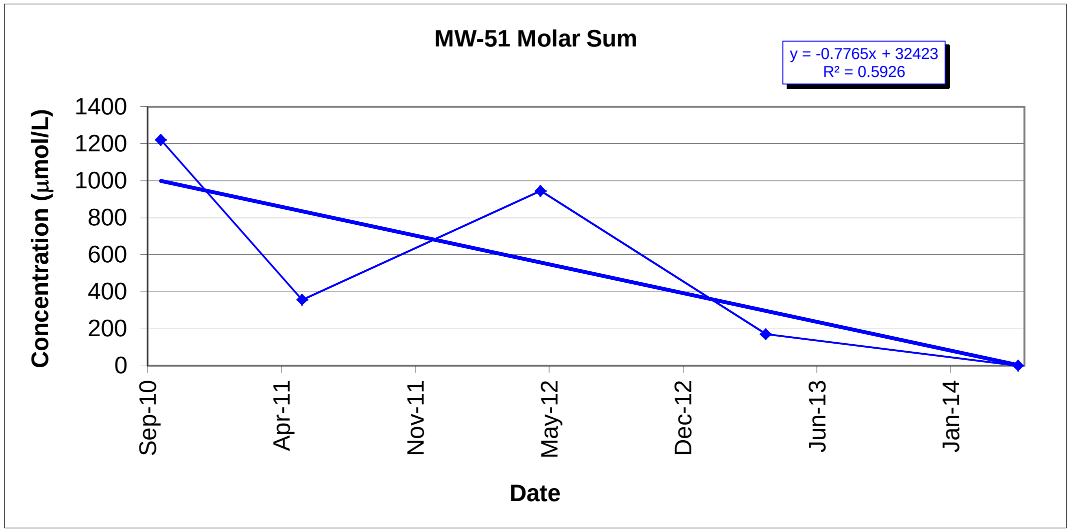
Monitoring date:	Oct-10	May-11	May-12	Apr-13	Apr-14					
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10
Molar Sum (µmol/L)	1219.90	356.49	944.62	170.78	0.60					

Row 1: Compare to Event 1	-1	-1	-1	-1						-4
Row 2: Compare to Event 2		1	-1	-1						-1
Row 3: Compare to Event 3			-1	-1						-2
Row 4: Compare to Event 4				-1						-1
Row 5: Compare to Event 5										0
Row 6: Compare to Event 6										0
Row 7: Compare to Event 7										0
Row 8: Compare to Event 8										0
Row 9: Compare to Event 9										0

Mann-Kendall Statistic (S) = Total	**-8**
Confidence Level	**> 90%**
Coefficient of Variance (CV)	**0.73**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	No Trend
Mann-Kendall	Decreasing

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

Monitoring Well No.	MW-52
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

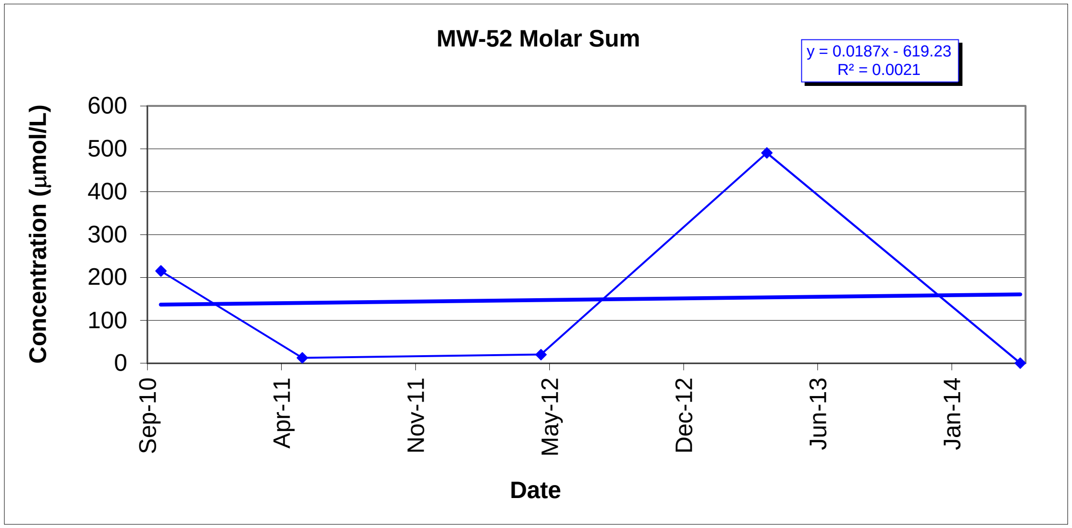
Monitoring date:	Oct-10	May-11	May-12	Apr-13	Apr-14					
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10
Molar Sum (µmol/L)	215.15	12.59	20.28	490.57	0.27					

Row 1: Compare to Event 1	-1	-1	1	-1						-2
Row 2: Compare to Event 2		1	1	-1						1
Row 3: Compare to Event 3			1	-1						0
Row 4: Compare to Event 4				-1						-1
Row 5: Compare to Event 5										0
Row 6: Compare to Event 6										0
Row 7: Compare to Event 7										0
Row 8: Compare to Event 8										0
Row 9: Compare to Event 9										0

Mann-Kendall Statistic (S) = Total	**-2**
Confidence Level	**< 90%**
Coefficient of Variance (CV)	**1.43**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	No Trend
Mann-Kendall	No Trend

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

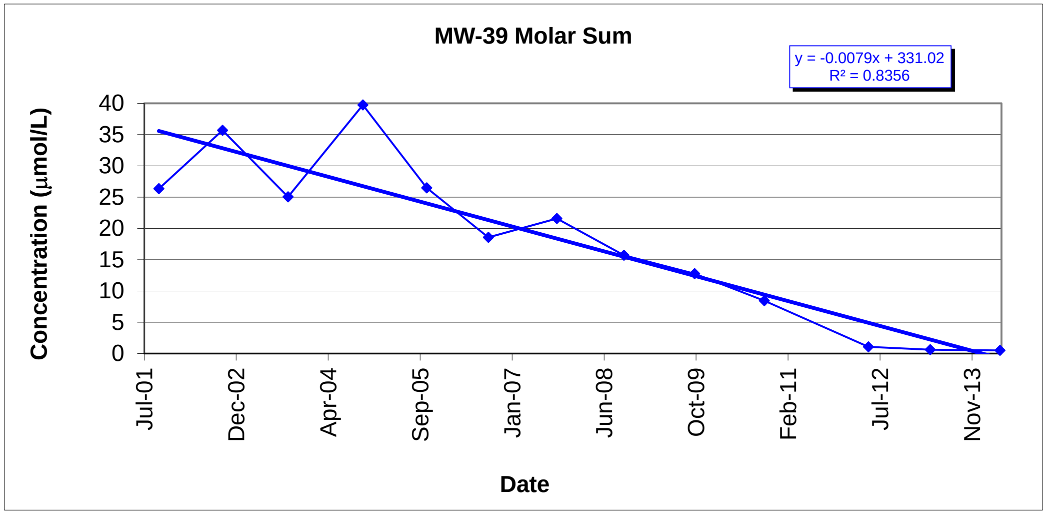
Monitoring Well No.	MW-39
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

Monitoring date:	Oct-01	Sep-02	Sep-03	Oct-04	Oct-05	Sep-06	Sep-07	Sep-08	Oct-09	Oct-10	May-12	Apr-13	Apr-14	
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	
Molar Sum (µmol/L)	26.35	35.68	25.05	39.74	26.48	18.57	21.58	15.71	12.76	8.45	1.07	0.62	0.50	
Row 1: Compare to Event 1		1	-1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	-6
Row 2: Compare to Event 2			-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Row 3: Compare to Event 3				1	1	-1	-1	-1	-1	-1	-1	-1	-1	-6
Row 4: Compare to Event 4					-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Row 5: Compare to Event 5						-1	-1	-1	-1	-1	-1	-1	-1	-8
Row 6: Compare to Event 6							1	-1	-1	-1	-1	-1	-1	-5
Row 7: Compare to Event 7								-1	-1	-1	-1	-1	-1	-6
Row 8: Compare to Event 8									-1	-1	-1	-1	-1	-5
Row 9: Compare to Event 9										-1	-1	-1	-1	-4
Row 10: Compare to Event 10											-1	-1	-1	-3
Row 11: Compare to Event 11												-1	-1	-2
Row 12: Compare to Event 12													-1	-1

Mann-Kendall Statistic (S) = Total	**-64**
Confidence Level	**> 90%**
Coefficient of Variance (CV)	**0.72**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	Decreasing
Mann-Kendall	Decreasing

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

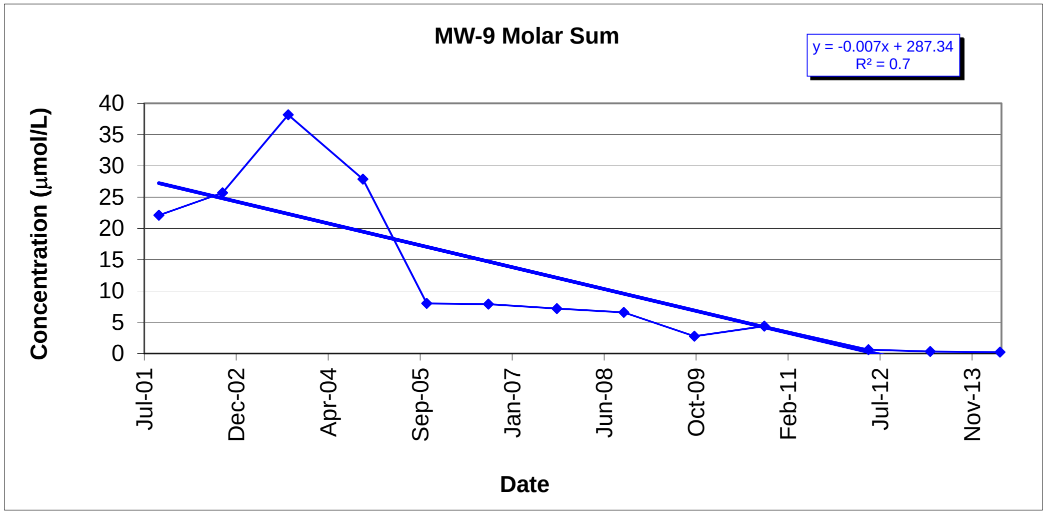
Monitoring Well No.	MW-9
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

Monitoring date:	Oct-01	Sep-02	Sep-03	Oct-04	Oct-05	Sep-06	Sep-07	Sep-08	Oct-09	Oct-10	May-12	Apr-13	Apr-14	
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	
Molar Sum (µmol/L)	22.11	25.69	38.16	27.88	8.01	7.90	7.19	6.58	2.77	4.38	0.63	0.32	0.22	
Row 1: Compare to Event 1		1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-6
Row 2: Compare to Event 2			1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-7
Row 3: Compare to Event 3				-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-10
Row 4: Compare to Event 4					-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Row 5: Compare to Event 5						-1	-1	-1	-1	-1	-1	-1	-1	-8
Row 6: Compare to Event 6							-1	-1	-1	-1	-1	-1	-1	-7
Row 7: Compare to Event 7								-1	-1	-1	-1	-1	-1	-6
Row 8: Compare to Event 8									-1	-1	-1	-1	-1	-5
Row 9: Compare to Event 9										1	-1	-1	-1	-2
Row 10: Compare to Event 10											-1	-1	-1	-3
Row 11: Compare to Event 11												-1	-1	-2
Row 12: Compare to Event 12													-1	-1

Mann-Kendall Statistic (S) = Total	**-66**
Confidence Level	**> 90%**
Coefficient of Variance (CV)	**1.07**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	Possibly Decreasing
Mann-Kendall	Decreasing

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

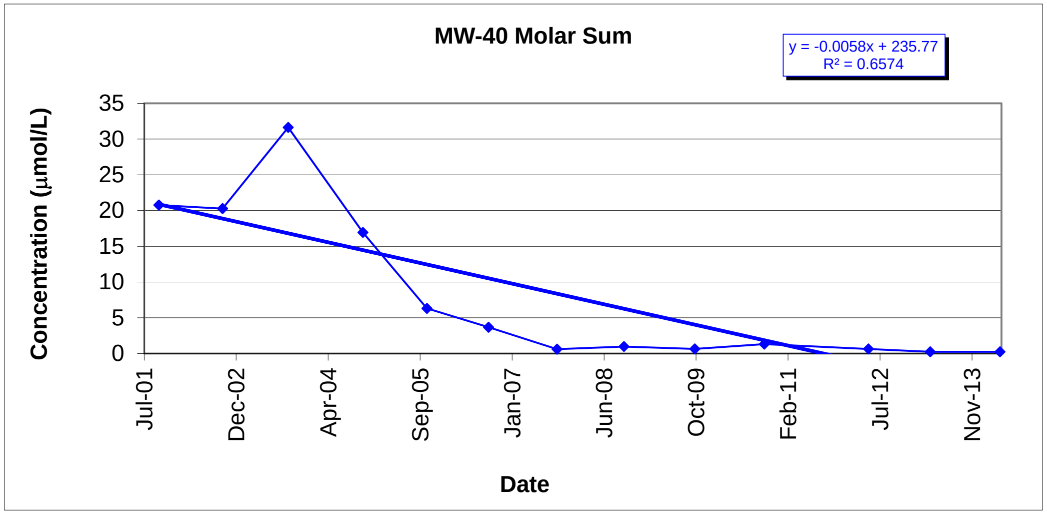
Monitoring Well No.	MW-40
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

Monitoring date:	Oct-01	Sep-02	Sep-03	Oct-04	Oct-05	Sep-06	Sep-07	Sep-08	Oct-09	Oct-10	May-12	Apr-13	Apr-14	
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	
Molar Sum (µmol/L)	20.76	20.27	31.62	16.93	6.31	3.68	0.61	0.97	0.64	1.32	0.64	0.24	0.24	
Row 1: Compare to Event 1		-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-10
Row 2: Compare to Event 2			1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Row 3: Compare to Event 3				-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-10
Row 4: Compare to Event 4					-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Row 5: Compare to Event 5						-1	-1	-1	-1	-1	-1	-1	-1	-8
Row 6: Compare to Event 6							-1	-1	-1	-1	-1	-1	-1	-7
Row 7: Compare to Event 7								1	1	1	1	-1	-1	2
Row 8: Compare to Event 8									-1	1	-1	-1	-1	-3
Row 9: Compare to Event 9										1	-1	-1	-1	-2
Row 10: Compare to Event 10											-1	-1	-1	-3
Row 11: Compare to Event 11												-1	-1	-2
Row 12: Compare to Event 12													-1	-1

Mann-Kendall Statistic (S) = Total	**-62**
Confidence Level	**> 90%**
Coefficient of Variance (CV)	**1.32**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	Possibly Decreasing
Mann-Kendall	Decreasing

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

Monitoring Well No.	MW-6A
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

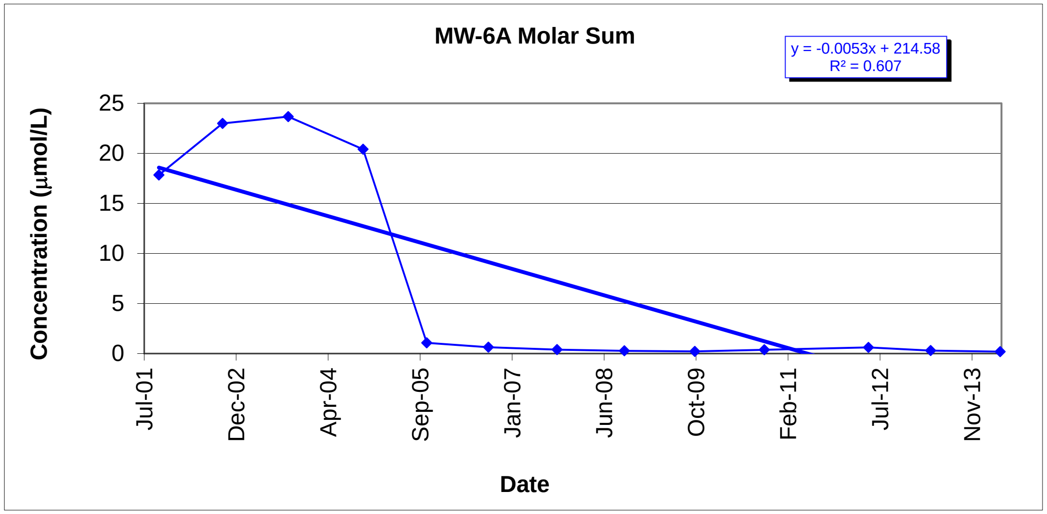
Monitoring date:	Oct-01	Sep-02	Sep-03	Oct-04	Oct-05	Sep-06	Sep-07	Sep-08	Oct-09	Oct-10	May-12	Apr-13	Apr-14
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13
Molar Sum (µmol/L)	17.84	22.99	23.67	20.41	1.07	0.63	0.39	0.27	0.21	0.38	0.61	0.30	0.19

Row 1: Compare to Event 1		1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-6
Row 2: Compare to Event 2			1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Row 3: Compare to Event 3				-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-10
Row 4: Compare to Event 4					-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Row 5: Compare to Event 5						-1	-1	-1	-1	-1	-1	-1	-1	-8
Row 6: Compare to Event 6							-1	-1	-1	-1	-1	-1	-1	-7
Row 7: Compare to Event 7								-1	-1	-1	1	-1	-1	-4
Row 8: Compare to Event 8									-1	1	1	1	-1	1
Row 9: Compare to Event 9										1	1	1	-1	2
Row 10: Compare to Event 10											1	-1	-1	-1
Row 11: Compare to Event 11												-1	-1	-2
Row 12: Compare to Event 12													-1	-1

Mann-Kendall Statistic (S) = Total	**-54**
Confidence Level	**> 90%**
Coefficient of Variance (CV)	**1.47**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	Possibly Decreasing
Mann-Kendall	Decreasing

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

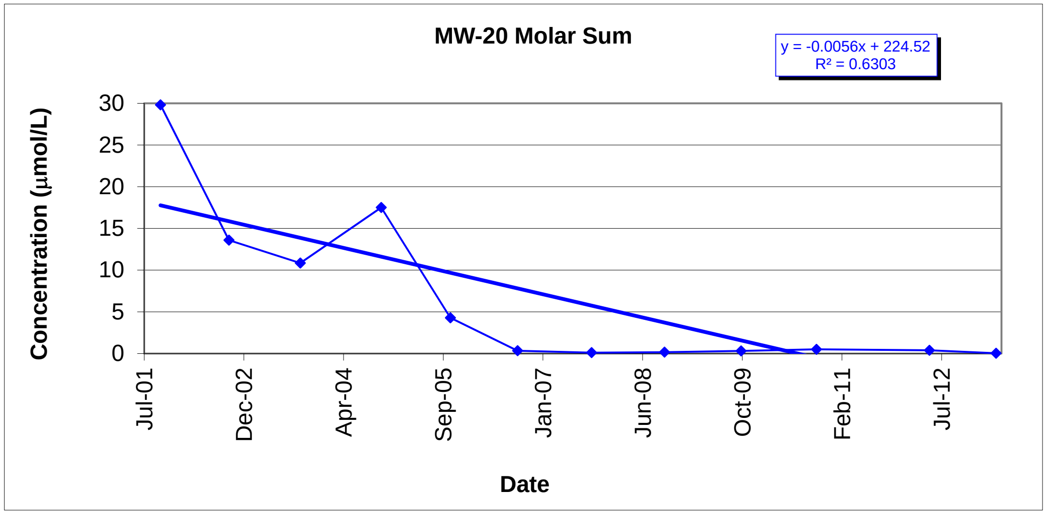
Monitoring Well No.	MW-20
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

Monitoring date:	Oct-01	Sep-02	Sep-03	Oct-04	Oct-05	Sep-06	Sep-07	Sep-08	Oct-09	Oct-10	May-12	Apr-13		
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	
Molar Sum (µmol/L)	29.82	13.59	10.85	17.51	4.29	0.34	0.11	0.17	0.32	0.50	0.39	0.04		
Row 1: Compare to Event 1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		-11
Row 2: Compare to Event 2			-1	1	-1	-1	-1	-1	-1	-1	-1	-1		-8
Row 3: Compare to Event 3				1	-1	-1	-1	-1	-1	-1	-1	-1		-7
Row 4: Compare to Event 4					-1	-1	-1	-1	-1	-1	-1	-1		-8
Row 5: Compare to Event 5						-1	-1	-1	-1	-1	-1	-1		-7
Row 6: Compare to Event 6							-1	-1	-1	1	1	-1		-2
Row 7: Compare to Event 7								1	1	1	1	-1		3
Row 8: Compare to Event 8									1	1	1	-1		2
Row 9: Compare to Event 9										1	1	-1		1
Row 10: Compare to Event 10											-1	-1		-2
Row 11: Compare to Event 11												-1		-1
Row 12: Compare to Event 12														0

Mann-Kendall Statistic (S) = Total	**-40**
Confidence Level	**> 90%**
Coefficient of Variance (CV)	**1.48**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	Possibly Decreasing
Mann-Kendall	Decreasing

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

Monitoring Well No.	MW-36
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

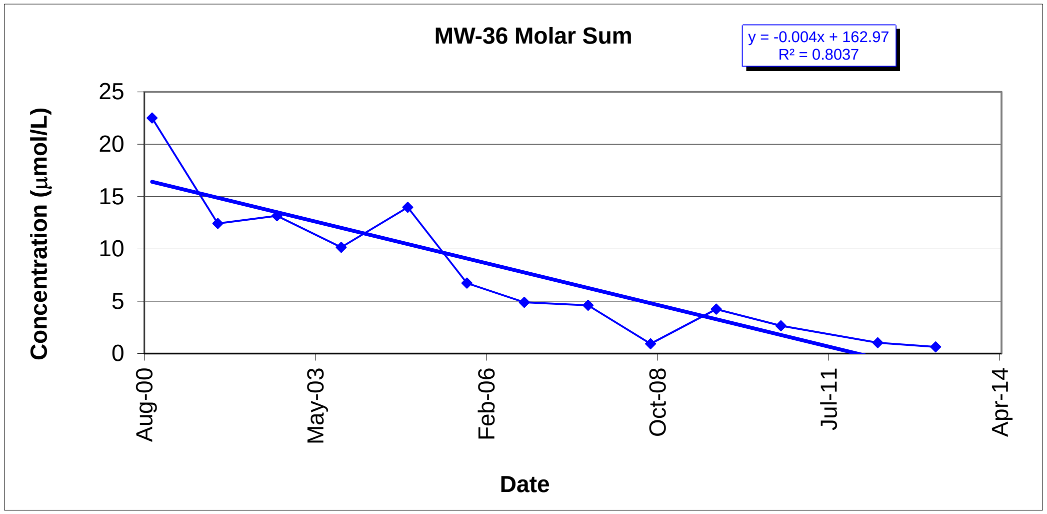
Monitoring date:	Sep-00	Oct-01	Sep-02	Oct-03	Oct-04	Oct-05	Sep-06	Sep-07	Sep-08	Oct-09	Oct-10	May-12	Apr-13	Apr-14
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14
Molar Sum (µmol/L)	22.51	12.43	13.16	10.16	13.98	6.73	4.90	4.62	0.94	4.25	2.66	1.04	0.64	4.37

Row 1: Compare to Event 1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-13
Row 2: Compare to Event 2		1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-8
Row 3: Compare to Event 3			-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Row 4: Compare to Event 4				1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-8
Row 5: Compare to Event 5					-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Row 6: Compare to Event 6						-1	-1	-1	-1	-1	-1	-1	-1	-8
Row 7: Compare to Event 7							-1	-1	-1	-1	-1	-1	-1	-7
Row 8: Compare to Event 8								-1	-1	-1	-1	-1	-1	-6
Row 9: Compare to Event 9									1	1	1	-1	1	3
Row 10: Compare to Event 10										-1	-1	-1	1	-2
Row 11: Compare to Event 11											-1	-1	1	-1
Row 12: Compare to Event 12												-1	1	0
Row 13: Compare to Event 13													1	1

Mann-Kendall Statistic (S) = Total	**-67**
Confidence Level	**> 90%**
Coefficient of Variance (CV)	**0.87**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
Confidence Level Determination Based on Figure 3.6 (AFCEE, 2000)
Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	Decreasing
Mann-Kendall	Decreasing

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

Monitoring Well No.	MW-16
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

Monitoring date:	Sep-00	Oct-01	Sep-02	Sep-03	Oct-04	Oct-05	Sep-06	Sep-07	Sep-08	Oct-09	Oct-10	May-12	Apr-13	Apr-14	
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14	
Molar Sum (µmol/L)	15.53	5.04	12.58	3.73	11.37	5.34	3.39	2.15	1.06	0.44	0.53	0.45	4.06	0.49	
Row 1: Compare to Event 1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-13
Row 2: Compare to Event 2			1	-1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	-6
Row 3: Compare to Event 3				-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-11
Row 4: Compare to Event 4					1	1	-1	-1	-1	-1	-1	-1	1	-1	-4
Row 5: Compare to Event 5						-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Row 6: Compare to Event 6							-1	-1	-1	-1	-1	-1	-1	-1	-8
Row 7: Compare to Event 7								-1	-1	-1	-1	-1	1	-1	-5
Row 8: Compare to Event 8									-1	-1	-1	-1	1	-1	-4
Row 9: Compare to Event 9										-1	-1	-1	1	-1	-3
Row 10: Compare to Event 10											1	1	1	1	4
Row 11: Compare to Event 11												-1	1	-1	-1
Row 12: Compare to Event 12													1	1	2
Row 13: Compare to Event 13														-1	-1

Mann-Kendall Statistic (S) = Total	**-59**
Confidence Level	**> 90%**
Coefficient of Variance (CV)	**1.05**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
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Effects of Coefficient of Variance based on Table 3.2 (AFCEE, 2000)
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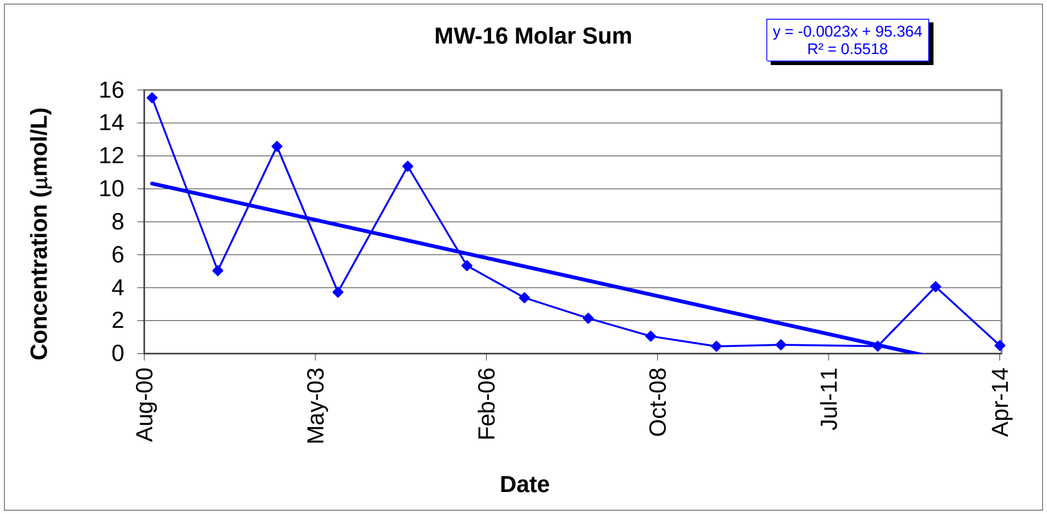

Trend Analysis	
Statistical Method	**Result**
Linear Regression	Possibly Decreasing
Mann-Kendall	Decreasing

River Terrace RV Park
Mann-Kendall Test for Trend Analysis

Monitoring Well No.	MW-25
Contaminant	PCE, TCE, cis-DCE, trans-DCE, VC

Monitoring date:	Sep-00	Oct-01	Sep-02	Sep-03	Oct-04	Oct-05	Sep-06	Sep-07	Sep-08	Oct-09	Oct-10	May-12	Apr-13	Apr-14
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14
Molar Sum (μmol/L)	3.53	8.51	10.21	8.05	10.64	10.75	5.27	1.78	1.81	0.86	1.16	0.69	0.50	0.64

Row 1: Compare to Event 1		1	1	1	1	1	1	-1	-1	-1	-1	-1	-1	-1	-1
Row 2: Compare to Event 2			1	-1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	-6
Row 3: Compare to Event 3				-1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	-7
Row 4: Compare to Event 4					1	1	-1	-1	-1	-1	-1	-1	-1	-1	-6
Row 5: Compare to Event 5						1	-1	-1	-1	-1	-1	-1	-1	-1	-7
Row 6: Compare to Event 6							-1	-1	-1	-1	-1	-1	-1	-1	-8
Row 7: Compare to Event 7								-1	-1	-1	-1	-1	-1	-1	-7
Row 8: Compare to Event 8									1	-1	-1	-1	-1	-1	-4
Row 9: Compare to Event 9										-1	-1	-1	-1	-1	-5
Row 10: Compare to Event 10											1	-1	-1	-1	-2
Row 11: Compare to Event 11												-1	-1	-1	-3
Row 12: Compare to Event 12													-1	-1	-2
Row 13: Compare to Event 13														1	1

Mann-Kendall Statistic (S) = Total	**-57**
Confidence Level	**> 90%**
Coefficient of Variance (CV)	**0.90**

Note: A minimum of four (4) independent sampling events are required for this test to be valid.

A negative S value with confidence > 90% indicates a decreasing concentration trend.
A positive S value with confidence > 90% indicates an increasing concentration trend.
Any S value with confidence < 90% indicates that there is likely no concentration trend.
The closer to zero the CV is, the less variation in concentrations between sampling events.
A CV < 1 indicates concentrations are stable regardless of trend.
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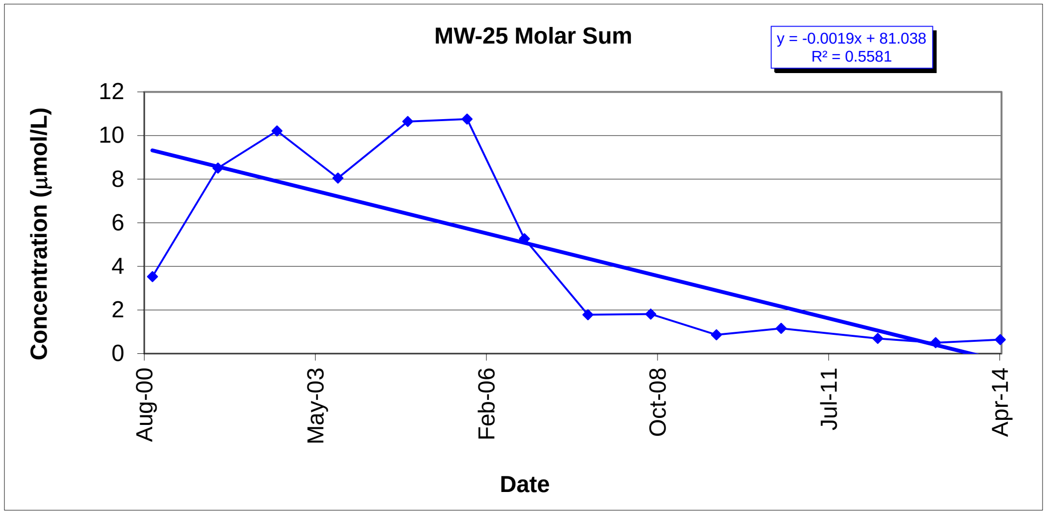
Linear Regressions trend analysis result based on R-squared value: R^2 <0.5 = no trend, 0.5 < R^2 < 0.8 = possible trend, R^2 > 0.8 trend



Trend Analysis	
Statistical Method	**Result**
Linear Regression	Possibly Decreasing
Mann-Kendall	Decreasing