Environmental Resources Management

915 – 118th Avenue SE
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Bellevue, WA 98005
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www.erm.com

5 January 2011

Mr. Dale Myers
Department of Ecology
Northwest Region Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Subject: FINAL Site Remediation Progress Summary
Harris/Manhattan Village Shopping Center
Normandy Park, Washington
VCP# NW1873

Dear Mr. Myers:

ERM-West, Inc. (ERM) has prepared this Site Remediation Progress Summary for the Harris/Manhattan Village Shopping Center site in Normandy Park, Washington (the "site") to summarize the activities conducted from February 2009 through December 2010, and to discuss future planned remedial actions at the site.

The site consists of two properties, each containing multiple parcels, the Manhattan Village Shopping Center and the Harris property. The properties are adjacent, and tetrachloroethene (PCE) has been released from both properties.

In February 2009, ERM completed the Final Data Gap Investigation Report. This document summarized the results of numerous previous investigations and characterized the nature and extent of contamination at the site. Based on the results of the Data Gap Investigation and previous remedial efforts, it was determined that the best course of remedial action was to install a soil vapor extraction (SVE) system. An SVE system has been installed and operated at the site as an interim remedial action pending completion of the final remedial action plan.

Installation of the SVE system began in August 2009, and was completed in September 2009. Since completion, the SVE system has been operated continuously. Monthly operations and maintenance (O&M) progress reports have been generated summarizing the performance of the SVE system. Typical activities associated with the O&M include:

- Recording well head and vacuum system gauge measurements including air flow rate, temperature, vacuum pressure, and organic vapor concentration;

- Measuring well head vacuum at the vapor monitoring points and two groundwater monitoring wells partially screened in the vadose zone;
- Sampling and laboratory analysis of the SVE effluent vapor stream; and
- Switching of discrete groups of wells from vacuum to vent wells.

The most recent SVE system O&M report was issued in November 2010 and is included as Attachment 1. This report includes a summary of system operational conditions from startup in September 2009 through early November 2010. A final report of SVE system operation is planned for distribution to Ecology once the SVE system operation is complete and soil samples collected from borings in the SVE operation area confirm that vadose-zone concentrations of PCE have been reduced to acceptable levels.

In March 2010, groundwater monitoring to evaluate the effect of SVE system operation on PCE concentrations in groundwater was completed at a select group of wells. The report for the March 2010 groundwater monitoring event is included as Attachment 2. Groundwater quality data from a groundwater sampling event completed in November 2010 are included in the table in Attachment 3. The report for the November 2010 sampling event is currently in development.

An in situ chemical oxidation pilot test is scheduled for the site in early 2011. The purpose of the pilot study is to evaluate the effectiveness of in situ chemical oxidation using potassium permanganate to remediate the residual PCE in groundwater. The pilot test results will be used to support a final remedial alternative selection in the site Feasibility Study. Based on the results of the pilot test, development of the final site Feasibility Study and implementation of full-scale groundwater remediation are currently scheduled for late 2011.

The project team has maintained communications with the downgradient property owners, and is providing them information on the progress of remedial action on an ongoing basis.

Please call Mike Arnold at (425) 214-0454 if you have questions regarding this progress report.

Sincerely,

A. Michael Arnold, R.G.
Senior Project Manager

Erik C. Ipsen, P.E.
Partner

AMA/ECI/ssh/0117205.03
Attachments

Attachment 1
November 2010 Soil Vapor Extraction System Operation and Maintenance Report

Environmental Resources Management

915 - 118th Avenue SE
Suite 130
Bellevue, WA 98005
(425) 462-8591
(425) 455-3573 (fax)

21 December 2010

Via Electronic Mail

Mr. Ken Lederman
Riddell Williams P.S.
1001 Fourth Avenue Plaza, Suite 4500
Seattle, Washington 98154-1065

Mr. Robert L. DiJulio
Wolfstone, Panchot & Bloch, P.S., Inc.
1111 Third Avenue, Suite 1800
Seattle, Washington 98101

Subject: Monthly Progress Report – November 2010
Soil Vapor Extraction System
Harris/Manhattan Village Shopping Center
Normandy Park, Washington

Dear Messrs. Lederman and DiJulio:

ERM-West, Inc. (ERM) has prepared this Monthly Progress Report for the soil vapor extraction (SVE) system installed at the Harris/Manhattan Village Shopping Center site in Normandy Park, Washington (the "site"). This report has been prepared in accordance with the *Final Soil Vapor Extraction Interim Remedial Action Design and Work Plan* dated March 2009.

This operation and maintenance (O&M) event covers the 13th full month of SVE system operation. O&M activities for the month were completed on 1 November 2010. System O&M included the following tasks:

- Recording well head and vacuum system gauge measurements including air flow rate, temperature, vacuum pressure, and organic vapor concentration;
- Measuring well head vacuum at the vapor monitoring points and two groundwater monitoring wells partially screened in the vadose zone;
- Sampling and laboratory analysis of the SVE effluent vapor stream; and
- Switching vacuum from the Group B SVE wells to a new Group C SVE well configuration (see description below) at the completion of performance monitoring.

Group C and Group D Well Configuration

For the 1 November 2010 O&M event, a new well configuration (Group C) was brought online. As shown on Table 2, the new Group C configuration includes SVE wells SVE-1, SVE-2, SVE-5, SVE-6, SVE-7, and SVE-10. At the completion of the December O&M event, a second new configuration (Group D) will be brought online and operated under vacuum while the remaining wells function as air intake wells. The new Group D configuration will include SVE wells SVE-1, SVE-2, SVE-3, SVE-4, and SVE-6.

The previous Group A and B well configurations generally move air along an east to west axis. The Group C well configuration was designed to move air along the southwest to northeast axis. The purpose of the new well configurations is to evaluate the effectiveness of different air flow patterns, in an effort to maximize the efficiency of the SVE system.

At the completion of the December O&M event, the PID (photoionization detector) results and the effluent stack sample will be evaluated to determine the effectiveness of the new Group C configuration on contaminant mass removal.

November 2010 Effluent Vapor Sampling

During the November 2010 O&M activities, a vapor effluent sample was collected for tetrachloroethene (PCE) analysis while the Group B wells were still on line. Once the operating well group was switched to Group C wells, a second vapor effluent sample was collected. The effluent sample from the Group C wells was collected after allowing the system to operate for approximately 1 hour after switching extraction from the Group B wells. By collecting a sample at both the beginning and end of the month, a more representative average PCE concentration can be derived for the sampling period.

The effluent vapor samples were collected from both Group B and Group C well set effluents using Summa canisters. The vapor samples were collected to evaluate PCE removal effectiveness and to verify optimal system performance and confirm system operation below the Puget Sound Clean Air Agency threshold value of 500 pounds (lbs) per year for PCE (soil and groundwater remediation projects that discharge below this threshold do not require an air operating permit). ALS Laboratory Group located in Salt Lake City, Utah, analyzed the samples using USEPA (United States Environmental Protection Agency) Method TO-15. Analytical results are summarized in Table 1 which is included as Attachment A.

For the October O&M period ending on 1 November 2010, the Group B wells were operated under vacuum, and the Group A wells acted as air intake wells, with the exception of SVE-6 and SVE-10, which as noted previously, are constantly operated under vacuum in these well groupings. Table 2 includes a list of the Group A and Group B configurations in addition to the two new configurations (Group C and Group D) wells. At the completion of the December O&M event, the Group D wells will be operated under vacuum and the remaining wells will operate as air intake wells.

Table 2 Soil Vapor Extraction System Well Groupings

Group A Wells	SVE-1, SVE-3, SVE-5, SVE-6*, SVE-7, SVE-9, and SVE-10*
Group B Wells	SVE-2, SVE-4, SVE-6*, SVE-8, and SVE-10*
Group C Wells	SVE-1, SVE-2, SVE-5, SVE-6*, SVE-7, and SVE-10*
Group D Wells	SVE-1, SVE-2, SVE-3, SVE-4 and SVE-6*

* SVE-6 is under vacuum in each operating scenario and SVE-10 is under vacuum in Group A, B, and C operating scenarios.

Complete laboratory analytical results for the vapor samples are included in Attachment B. Sampling data and analytical results from the O&M activities were recorded and entered into data spreadsheets included as Attachment C. The results of these tasks are presented below.

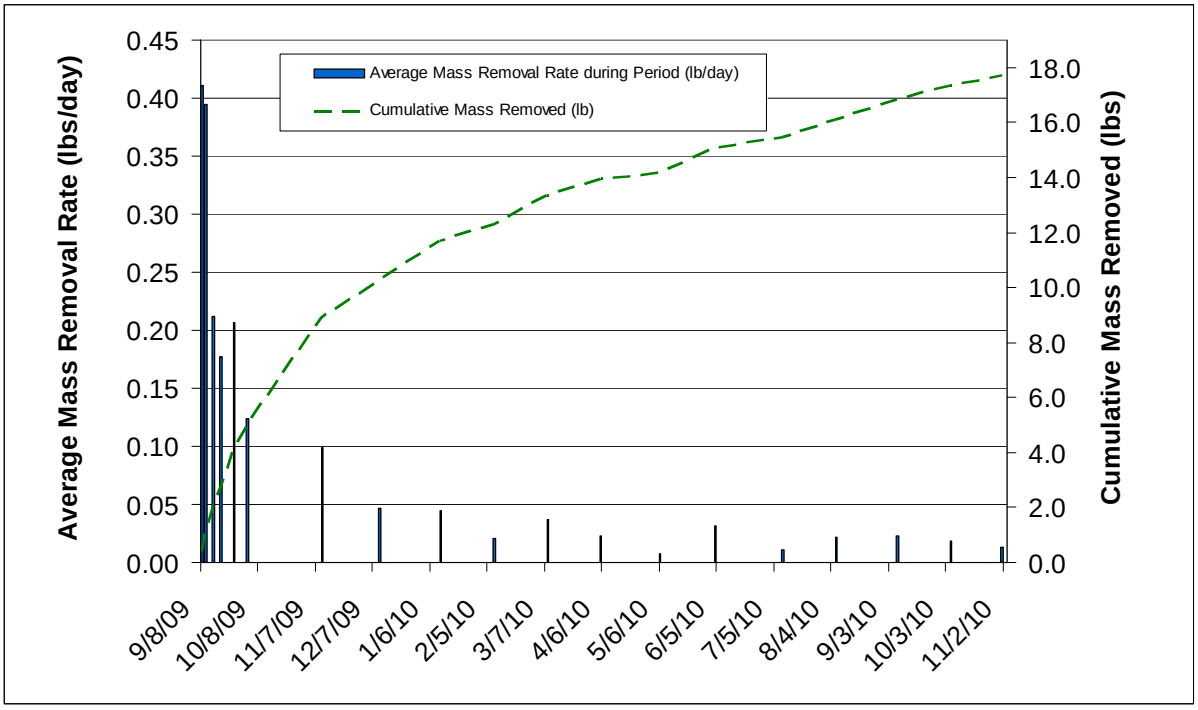
The effluent vapor sample collected from the Group B well effluent on 1 November 2010 resulted in a slightly higher PCE concentration (2,100 micrograms per cubic meter [$\mu g/m^3$]) compared to the sample collected from the Group B well effluent at the beginning of the month (1,900 $\mu g/m^3$). The average of the two effluent vapor samples (2,000 $\mu g/m^3$) was used in the calculation to obtain the mass removal rate for November 2010 (0.01 lbs/day).

The effluent sample collected from the Group C well effluent on 1 November 2010 contained a concentration of PCE of 1,800 $\mu g/m^3$. This value will be used to calculate the PCE mass removal between 1 November 2010 and the December 2010 monitoring event, once the December Group C sample results are available.

Mass Removal Estimates

Based on laboratory analytical results from the initial monitoring events and system flow readings, it is estimated that approximately 17.7 lbs of PCE have been recovered by the system as of 1 November 2010. Figure 1 presents a summary of average mass removal rates and cumulative mass removed by the system. Calculations of the estimated mass removal rate of PCE are presented in Attachment D.

Figure 1 Estimated PCE Average Mass Removal Rates and Cumulative Mass Removed During Monitoring Period



Vacuum Measurements

Vacuum measurements were collected from each of six vapor monitoring points and two wells screened in the vadose zone during the monitoring events using Magnehelic vacuum gauges. The observed vacuums show strong influence in both the paved and unpaved portions of the site. Vacuum readings from vapor monitoring probes and monitoring wells indicate an average SVE radius of influence of approximately 100 feet is generally being achieved across the site. A vacuum

reading of approximately 0.46 inches of water was observed in monitoring well DC-1, located south of the Manhattan Village Shopping Center building, and partially screened in the vadose zone, indicating that a radius of influence of up to 120 feet is being achieved beneath the building.

Condensate Collection

The SVE system generated approximately 75 gallons of condensate water during the October O&M period, which ended on 1 November 2010, likely due to colder ambient temperatures and increased rainfall during the monitoring period. In addition to approximately 60 gallons of condensate water from the previous winter, the collection tank was pumped out into three 55-gallon drums for disposal. Clean Harbors, Inc. has been contacted to collect the drums for disposal and it is anticipated that this will occur during the next O&M event in December of 2010.

Summary

In summary, based on observed mass removal rates and vacuum measurements to date, it appears the SVE system is operating as designed and effectively removing PCE mass from the subsurface.

We appreciate the opportunity to provide you with ongoing environmental consulting and remediation services. Please call the undersigned at (425) 214-0454 if you have questions regarding this progress report.

Sincerely,

A. Michael Arnold, R.G.
Senior Project Manager

Erik C. Ipsen, P.E.
Partner

AMA/ECI/jth/ssh/0117205.03
Attachments

Figure

Project No. 0117205.03
Date: 11/22/10
Drawn By: C.Tallada
CAD File: F:\0117205\03\0117205503-10.dwg

KMW-5D (NM)
KMW-5 (NM)
KMW-4 (NM)
2nd AVE SW
RESIDENCE
RESIDENCE
DC-15 (NM)
COMMERCIAL BUILDING
KMW-1 (NM)
WELL HOUSE
VACANT SHED
DC-13 (NM)
DC-18 (NM)
DC-17 (NM)
UNDEVELOPED VEGETATED AREA (APPROXIMATE ELEVATION = 308.5')
SVE-10 (5)
1.0
DC-12 (NM)
DC-16 (NM)
DC-5 (NM)
FORMER SEPTIC TANK
GRAVEL
PHONE BOOTH
1st AVE S
MW-1 (NM)
DC-6 (NM)
MW-2 (NM)
0.1
DC-10B (NM)
KMW-2 (NM)
DC-9A (NM)
FORMER LAUNDROMAT/ DRY CLEANER
TREATMENT SYSTEM
DC-10A (NM)
DC-9B (NM)
CONDOMINIUMS
VMP-4 (0.50)
VMP-5 (0.62)
SVE-7 (1.0)
SVE-5 (0.56)
DC-2 (NM)
KMW-9 (NM)
DC-11 (NM)
SVE-9 (0.56)
SIGN
SVE-3 (0.48)
SVE-4 (10)
1.0
RETAINING WALL
DC-4 (NM)
DC-3 (NM)
VMP-6 (0.52)
SVE-6 (12)
SVE-8 (11)
FORMER DAIRY QUEEN
DC-19 (0.66)
VMP-3 (0.49)
ASPHALT PARKING LOT (APPROXIMATE ELEVATION = 313.5')
50' (TYP)
SVE-2 (6)
SECOND BUILDING (VARIOUS SHOPS)
FOUR STAR DRY CLEANERS
MW-4 (NM)
VMP-2 (0.37)
DC-1 (0.46)
SVE-1 (0.34)
MANHATTAN VILLAGE SHOPPING CENTER
ASPHALT PARKING LOT
BUILDING
MW-3 (NM)
QFC BUILDING
VMP-1 (0.0)
SUSPECTED SEPTIC TANK

LEGEND

- EXISTING MONITORING WELL
- EXISTING SVE WELL–VENTING
- EXISTING SVE WELL–ACTIVE
- EXISTING VAPOR MONITORING WELL
- (7.0) IN–WELL VACUUM (INCHES H_2O)
- * WATER LEVEL ABOVE SCREENED INTERVAL AT 40.44 FEET
- (NM) NOT MEASURED
- VACUUM ISOCONTOUR (INCHES H_2O)
- EXISTING GROUND SVE PIPING
- EXISTING UNDERGROUND SVE PIPING
- MVSC PROPERTY LINE
- HARRIS PROPERTY LINE

MVSC – MANHATTAN VILLAGE SHOPPING CENTER
SVE – SOIL VAPOR EXTRACTION

N

0 25' 50' 100'
1" = 50'

Figure 2

Group B In-Well Vacuum Readings
November 2010
MVSC/Harris Properties
Normandy Park, Washington

ERM 11/10

Attachment A
Laboratory Analytical Results

Table 1 Soil Vapor Extraction Effluent Sample Results for 8 September 2009 – 1 November 2010

Sample ID	Well Grouping	Sample Location	Date of Sample	PCE Conc. (ppbv)	PCE Conc. (µg/m³)
STK-1-090809	A	Effluent Stack	9/8/09	11,000	74,000
STK-1-091009	A	Effluent Stack	9/10/09	10,000	69,000
STK-1-091409	A	Effluent Stack	9/14/09	1,300	8,500
STK-1-091809	A	Effluent Stack	9/18/09	8,000	54,000
STK-1-092509	A	Effluent Stack	9/25/09	2,600	18,000
STK-1-100209	A	Effluent Stack	10/2/09	3,700	25,000
STK-1-111009	B	Effluent Stack	11/10/09	1,200	8,100
STK-1-A-121009	A	Effluent Stack	12/10/09	800	5,500
STK-1-B-121009	B	Effluent Stack	12/10/09	870	5,900
STK-1-B-011110	B	Effluent Stack	1/11/10	830	5,700
STK-1-A-011110	A	Effluent Stack	1/11/10	240	1,600
STK-1-A-020810	A	Effluent Stack	2/8/10	610	4,100
STK-1-B-020810	B	Effluent Stack	2/8/10	670	4,600
STK-1-B-030810	B	Effluent Stack	3/8/10	860	5,800
STK-1-A-030810	A	Effluent Stack	3/8/10	190	1,300
STK-1-A-040510	A	Effluent Stack	4/5/10	730	5,000
STK-1-B-040510	B	Effluent Stack	4/5/10	190	1,300
STK-1-B-050610	B	Effluent Stack	5/6/10	140	960
STK-1-A-050610	A	Effluent Stack	5/6/10	940	6,400
STK-1-A-060410	A	Effluent Stack	6/4/10	480	3,300
STK-1-B-060410	B	Effluent Stack	6/4/10	400	2,700
STK-1-B-070910	B	Effluent Stack	7/9/10	110	750
STK-1-A-070910	A	Effluent Stack	7/9/10	180	1,200
STK-1-A-080610	A	Effluent Stack	8/6/10	900	6,100
STK-1-B-080610	B	Effluent Stack	8/6/10	520	3,500
STK-1-B-090710	B	Effluent Stack	9/7/10	590	4,000
STK-1-A-090710	A	Effluent Stack	9/7/10	270	1,800
STK-1-A-100510	A	Effluent Stack	10/5/10	610	4,100
STK-1-B-100510	B	Effluent Stack	10/5/10	280	1,900
STK-1-B-1101010	B	Effluent Stack	11/1/10	320	2,100
STK-1-C-110110	C	Effluent Stack	11/1/10	260	1,800

Notes:
µg/m³ = micrograms per cubic meter
ppbv = parts per billion by volume

Attachment B
Laboratory Analytical Data Package

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ANALYTICAL REPORT
Amended

Report Date: November 11, 2010

Cyrus Gorman
ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

Phone: (425) 214-0468

E-mail: cyrus.gorman@erm.com

Workorder: **1030708**
Project ID: **ERM 110310**
Purchase Order: 117205.03

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
Stk-1:B: 110110	1030708001	11/01/10	11/03/10	
Stk-1:C: 110110	1030708002	11/01/10	11/03/10	

ANALYTICAL REPORT
Amended

Client: ERM
Project Manager: Paul E. Pope

Analytical Results

Workorder: **1030708**

Sample ID: **Stk-1:B: 110110** | Matrix: Air | Collected: 11/1/2010
Lab ID: 1030708001 | Media: Summa 6 Liter Canister | Received: 11/3/2010
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - EPA TO-15

Preparation: Not Applicable
Analysis: EPA TO-15, Air | **Instr ID:** 5972-W
Batch: IVOA/1519 (HBN: 57699) | **Percent Solids:** NA
Analyzed: 11/9/2010 9:28:00 AM | **Report Basis:** Wet

Analyte	ppb	ug/m³	MDL	RL	Dilution	Qual.
Tetrachloroethene	**320**	**2100**	1.8	10	**20**	

Sample ID: **Stk-1:C: 110110** | Matrix: Air | Collected: 11/1/2010
Lab ID: 1030708002 | Media: Summa 6 Liter Canister | Received: 11/3/2010
Sampling Site: NA | Sampling Parameter: NA

Analysis Method - EPA TO-15

Preparation: Not Applicable
Analysis: EPA TO-15, Air | **Instr ID:** 5972-W
Batch: IVOA/1519 (HBN: 57699) | **Percent Solids:** NA
Analyzed: 11/9/2010 10:02:00 AM | **Report Basis:** Wet

Analyte	ppb	ug/m³	MDL	RL	Dilution	Qual.
Tetrachloroethene	**260**	**1800**	1.8	10	**20**	

Report Authorization

Analysis Method - EPA TO-15

Lisa M. Reid — **Analyst**
Thomas Bosch — **Peer Review**

Laboratory Contact Information

Phone: (801) 266-7700
Email: alslt.lab@alsglobal.com
Web: www.datachem.com

ALS Laboratory Group (formerly DataChem Laboratories, Inc.)
960 W Levoy Drive
Salt Lake City, Utah 84123

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS is accredited by the State of Utah, Bureau of Laboratory Improvement under NELAP for specific fields of testing as documented in its current scope of accreditation (ID# DATA1) which is available by request or on the internet at http://health.utah.gov/lab/labimp/labcert/envlabcert.html. The quality systems implemented in the laboratory apply to all methods performed by ALS regardless of this current scope of accreditation which does not include performance based methods, modified methods and methods applied to matrices not listed in the methods.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

ANALYTICAL REPORT
Amended

Client: ERM
Project Manager: Paul E. Pope

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< This testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

1030708

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # 1030708

Page 1 of 1

Company:	ERM-West	**Report Format / Distribution**	**Service Requested** (Rush for routine analysis subject to availability)
Contact:	Cyrus Gorman	☐ Standard ☐ Other	◉ Regular (Default)
Address:	915 - 118th Avenue SE, Suite 130	☑ PDF ☐ Excel ☐ Digital ☐ Fax	○ Priority (Specify Date Required → →) Surcharges apply
	Bellevue Washington, 98005	Email 1: cyrus.gorman@erm.com	○ Emergency (1 Business Day) - 100% Surcharge
Phone:	425-214-0468 Fax: 425-455-3573	Email 2:	○ For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Invoice To	Same as Report ? ☐ Yes ☑ No	**Client / Project Information**	**Analysis Request**
Company:	ERM-West	Job #: 117205.03	Please indicate below Filtered, Preserved or both (F, P, F/P)
Contact:	Accounts Payable	PO / AFE:	
Address:	1277 Treat Boulevard, Suite 500	LSD:	
	Walnut Creek, California 94597		
Phone:	925-482-3213 Fax:	Quote #:	

Lab Work Order # (lab use only):

ALS Contact:

Sampler:

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	TO-15 (PCE)	Number of Containers
1030708	Stk-1:B:110110	01-Nov-10	15:00	Air	X	1
1030708	Stk-1:C:110110	01-Nov-10	16:15	Air	X	1

Special Instructions / Regulations / Hazardous Details

Please include Job # on the invoice

units PBB & ug/m3, GL Summa's

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Cyrus Gorman	11/2/10	1315		11-3-10	10:05	°C				

GENF 18.02 Front

2010-11-03--01

Attachment C
System Monitoring Data Spreadsheets

Wellhead Monitoring
Group A Wells - Vent
MVSC/Harris Properties SVE System
Normandy Park, WA

DATE: 7/9/2010

Well	**Vacuum** (inches H_2O)
SVE-1	0.28
SVE-3	0.48
SVE-5	0.6
SVE-7	1
SVE-9	NM

DATE: 9/7/2010

Well	**Vacuum** (inches H_2O)
SVE-1	0.26
SVE-3	0.42
SVE-5	0.49
SVE-7	1
SVE-9	0.39

DATE: 11/1/2010

Well	**Vacuum** (inches H_2O)
SVE-1	0.34
SVE-3	0.48
SVE-5	0.56
SVE-7	1
SVE-9	0.56

Notes:
NM = not measured

Wellhead Monitoring
Group B Wells - Extraction
MVSC/Harris Properties SVE System
Normandy Park, Washington

DATE: 11/10/2009

Well	Velocity (ft/min)	Vacuum (inches H_2O)	Temp (deg F)	PID[1] (ppm)	Adjusted PID[2] (ppm)
SVE-2	2934	7.0	58.7	1.6	0.9
SVE-4	8340	12.0	51.8	1.2	0.7
SVE-6	7920	16.0	47.1	3.8	2.2
SVE-8	6120	11.0	46.8	0.08	0.0
SVE-10	3120	5.4	54.6	0.2	0.1

DATE: 1/11/2010

Well	Velocity (ft/min)	Vacuum (inches H_2O)	Temp (deg F)	PID[1] (ppm)	Adjusted PID[2] (ppm)
SVE-2	2460	12.0	49.8	0.8	0.5
SVE-4	2980	10.0	47.7	0.1	0.1
SVE-6	7650	20.0	47.3	1	0.6
SVE-8	6050	13.0	48.2	0.5	0.3
SVE-10	6650	8.0	48.8	0.3	0.2

DATE: 3/8/2010

Well	Velocity (ft/min)	Vacuum (inches H_2O)	Temp (deg F)	PID[1] (ppm)	Adjusted PID[2] (ppm)
SVE-2	2390	10.0	47.8	0.9	0.5
SVE-4	910	2.1	49.3	0.5	0.3
SVE-6	9600	18.0	47.8	1.3	0.7
SVE-8	7650	15.0	48	0.4	0.2
SVE-10	8050	7.5	48.9	0.1	0.1

DATE: 5/6/2010

Well	Velocity (ft/min)	Vacuum (inches H_2O)	Temp (deg F)	PID[1] (ppm)	Adjusted PID[2] (ppm)
SVE-2	1950	7.5	52.5	0.7	0.4
SVE-4	3080	11.0	50.5	1.2	0.7
SVE-6	2270	13.0	49.2	2.2	1.3
SVE-8	4970	11.0	49.1	1	0.6
SVE-10	1570	6.0	51.0	0.1	0.1

DATE: 7/9/2010

Well	Velocity (ft/min)	Vacuum (inches H_2O)	Temp (deg F)	PID[1] (ppm)	Adjusted PID[2] (ppm)
SVE-2	2120	6.0	60.6	0.9	0.5
SVE-4	6100	10.0	59.7	0.7	0.4
SVE-6	6850	11.0	66.2	2	1.1
SVE-8	4560	9.5	61.6	0.4	0.2
SVE-10	5850	6.0	60.0	0.4	0.2

DATE: 9/7/2010

Well	Velocity (ft/min)	Vacuum (inches H_2O)	Temp (deg F)	PID[1] (ppm)	Adjusted PID[2] (ppm)
SVE-2	1900	6.0	58.3	2.6	1.5
SVE-4	4200	9.5	56.8	4.1	2.3
SVE-6	5300	11.0	56.9	4.9	2.8
SVE-8	5750	9.0	55	1.5	0.9
SVE-10	1920	5.0	56.4	0.9	0.5

DATE: 11/1/2010

Well	Velocity (ft/min)	Vacuum (inches H_2O)	Temp (deg F)	PID[1] (ppm)	Adjusted PID[2] (ppm)
SVE-2	2185	6.0	57.1	0.2	0.1
SVE-4	4370	10.0	55.9	0	0.0
SVE-6	7175	12.0	57.5	0.3	0.2
SVE-8	4775	11.0	55.9	0	0.0
SVE-10	1700	5.0	56.0	0	0.0

Notes:

[1] - Direct reading from photoionization detector (PID) equipment

[2] - Value adjusted using the 0.57 correction factor for tetrachloroethylene (PCE)

System Effluent Monitoring
MVSC/Harris Properties SVE System
Normandy Park, WA

Date	Operating Well Group	Time	Differential Pressure (inches H2O)	Vacuum (inches H2O)	Temp (deg F)	PID ppm	PCE Result ppbv	ug/m3
8-Sep-09	A	1224	3.8	NM	99	15.4	11,000	74,000
10-Sep-09	A	1144	3.8	NM	117	12.1	10,000	69,000
14-Sep-09	A	1216	NM	9	100	8.5	1,300	8,500
18-Sep-09	A	915	NM	10	94	5.4	8,000	54,000
25-Sep-09	A	1604	4	10.3	111	4.1	2,600	18,000
2-Oct-09	A	1511	4.1	8.5	97	4.4	3,700	25,000
10-Nov-09	B	930	4.1	16	85	1.1	1,200	8,100
10-Dec-09	A	1038	4.6	15	59	1.1	800	5,500
10-Dec-09	B	1350	NS	NS	NS	NS	870	5,900
11-Jan-09	B	1202	4.2	25	86	0.9	830	5,700
11-Jan-09	A	1240	NS	NS	NS	NS	240	1,600
8-Feb-10	A	1130	4.3	17	85	1.3	610	4,100
8-Feb-10	B	1210	NS	NS	NS	NS	670	4,600
8-Mar-10	B	1010	4.2	23	83	0.7	860	5,800
8-Mar-10	A	1056	NS	NS	NS	NS	190	1,300
5-Apr-10	A	1207	4.4	17.5	88	0.1	730	5,000
5-Apr-10	B	1238	NS	NS	NS	NS	190	1,300
6-May-10	B	1207	4.4	17.5	88	0.1	140	960
6-May-10	A	1238	NS	NS	NS	NS	940	6,400
4-Jun-10	A	1027	4.2	11	92	23.2	480	3,300
4-Jun-10	B	1223	NS	NS	NS	NS	400	2,700
9-Jul-10	B	1005	4.1	15	104	0.8	110	750
9-Jul-10	A	1121	NS	NS	NS	NS	180	1200
6-Aug-10	A	1100	4.1	10	98	0.9	900	6,100
6-Aug-10	B	1211	NS	NS	NS	NS	520	3,500
7-Sep-10	B	1030	4.1	14.5	100	1.4	590	4,000
7-Sep-10	A	1141	NS	NS	NS	NS	270	1,800
5-Oct-10	A	1135	4	11	90	22.9	610	4,100
5-Oct-10	B	1246	NS	NS	NS	NS	280	1,900
1-Nov-10	B	1500	4.4	18	90	0.1	320	2,100
1-Nov-10	C	1615	NS	NS	NS	NS	260	1,800

Note:
NM - not measured due to field oversight
NS = Not sampled; the additional effluent sample was collected from the indicated Well Group after allowing the system to stabilize for approximately one half hour.

Vacuum Readings
MVSC/Harris Properties SVE System
Normandy Park, WA

Probe/Well Date	Operating Well Group	VMP-1	VMP-2	VMP-3	VMP-4	VMP-5	VMP-6	DC-1	DC-19
8-Sep-09	A	0.01	0.31	0.28	0.22	0.16	0.8	0.27	0.5
10-Sep-09	A	0.04	0.32	0.28	1.1	0.18	1.2	0.33	0.58
14-Sep-09	A	0.04	0.32	0.25	1.1	0.19	1.2	0.32	0.56
18-Sep-09	A	0.01	0.34	0.25	1.1	0.18	1.2	0.26	0.45
25-Sep-09	A	0.01	0.33	0.27	1.15	0.14	1.2	0.26	0.53
2-Oct-09	A	0.01	0.32	0.24	1.1	0.26	1.2	0.28	0.55
10-Nov-09	B	0.03	0.28	0.5	0.4	0.7	0.5	0.28	0.38
10-Dec-09	A	*	0.35	0.28	1.2	0.26	1.6	0.29	0.5
11-Jan-10	B	0	0.43	0.59	0.26	0.63	0.56	0.2	0.42
8-Feb-10	A	0.04	0.42	0.13	0.18	0.12	1.2	0.36	0.81
8-Mar-10	B	0.03	0.4	0.6	0.17	0.27	0.59	0.39	0.58
5-Apr-10	A	0.01	0.44	0.23	1	0.24	1.4	0.05	0.89
6-May-10	B	0.1	0.35	0.49	0.3	0.61	0.52	0	0.36
4-Jun-10	A	0.07	0.19	0.4	1.4	0.28	1.5	0	0.76
9-Jul-10	B	0.01	0.34	0.48	0.3	0.53	0.45	0.005	0.4
6-Aug-10	A	0.04	0.3	0.28	1	0.2	1.4	0	0.56
7-Sep-10	B	0.04	0.32	0.43	0.32	0.46	0.39	0	0.34
5-Oct-10	A	0.015	0.34	0.28	0.93	0.2	1.2	0.34	0.58
1-Nov-10	B	0	0.37	0.49	0.5	0.62	0.52	0.46	0.66

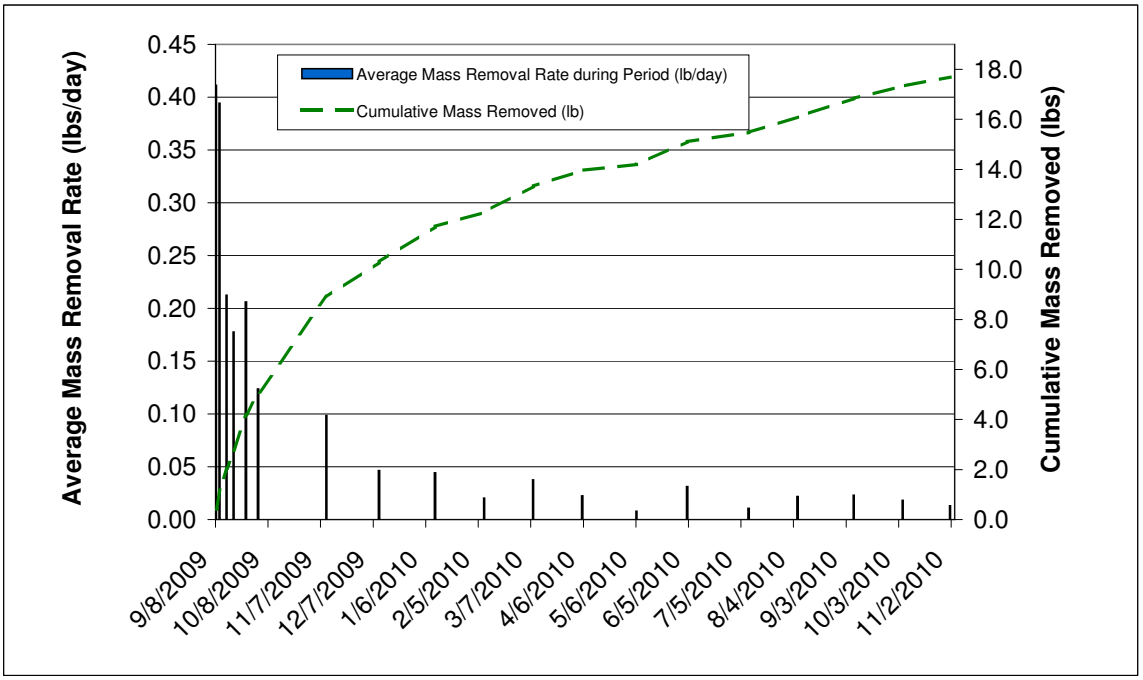
Note:
Vacuum readings in inches of water
* = Could not be sampled due to ice in the well casing

Attachment D
Tetrachloroethene Mass Removal Calculations

PCE Mass Removal Calculations
MVSC/Harris Properties SVE System
Normandy Park, Washington

Date	Well Group Operating	Effluent Vapor Concentration (ug/m3)	Flowrate (scfm)	Mass Removal Rate[1] (lb/day)	Average Mass Removal Rate during Period[2] (lb/day)	Period End Date	Mass Removed During Period[3] (lb)	Cumulative Mass Removed (lb)
9/8/2009	A	74,000	62	0.41	0.41	9/8/2009	0.4	0.4
9/10/2009	A	69,000	61	0.38	0.39	9/10/2009	0.8	1.2
9/14/2009	A	8,500	62	0.05	0.21	9/14/2009	0.8	2.0
9/18/2009	A	54,000	64	0.31	0.18	9/18/2009	0.7	2.8
9/25/2009	A	18,000	65	0.10	0.21	9/25/2009	1.4	4.2
10/2/2009	A	25,000	64	0.14	0.12	10/2/2009	0.9	5.1
11/10/2009	B	8,100	74	0.05	0.10	11/10/2009	3.8	8.9
12/10/2009	A	5,500	79	0.04	0.05	12/10/2009	1.4	10.3
12/10/2009	B	5,900	85	0.04	0.04	1/11/2010	1.4	11.7
1/11/2010	B	5,700	85	0.04				
1/11/2010	A	1,600	85	0.01	0.02	2/8/2010	0.6	12.3
2/8/2010	A	4,100	77	0.03				
2/8/2010	B	4,600	77	0.03	0.04	3/8/2010	1.0	13.3
3/8/2010	B	5,800	83	0.04				
3/8/2010	A	1,300	83	0.01	0.02	4/5/2010	0.6	14.0
4/5/2010	A	5,000	78	0.03				
4/5/2010	B	1,300	78	0.01	0.01	5/6/2010	0.2	14.2
5/6/2010	B	960	74	0.01				
5/6/2010	A	6,400	74	0.04	0.03	6/4/2010	0.9	15.1
6/4/2010	A	3,300	68	0.02				
6/4/2010	B	2,700	68	0.02	0.01	7/9/2010	0.4	15.5
7/9/2010	B	750	72	0.005				
7/9/2010	A	1,200	72	0.01	0.02	8/6/2010	0.6	16.1
8/6/2010	A	6,100	66	0.04				
8/6/2010	B	3,500	66	0.02	0.02	9/7/2010	0.7	16.8
9/7/2010	B	4,000	71	0.03				
9/7/2010	A	1,800	71	0.01	0.02	10/5/2010	0.5	17.3
10/5/2010	A	4,100	67	0.02				
10/5/2010	B	1,900	67	0.01	0.01	11/1/2010	0.4	17.7
11/1/2010	B	2,100	79	0.01				
11/1/2010	C	1,800	79	0.01	a	December 2010	a	a
TOTAL		-	-	-	-	-	**17.7**	**17.7**

Notes:
[1]Mass Removal = [flowrate (scfm) x PCE Concentration (ug/m3) x 0.0283168 (m3/cf) x 2.2E-9 (lb/ug) x 1440 (minutes/day)
[2] Average mass removal rate is calculated based on beginning and end of period vapor concentrations.
[3] Initial period assumes startup on 9/8/2009 (1 day).
[a] - Effluent concentration from this sample will be used in mass removal rate calcualtion for following operating period.



Attachment 2
March 2010 Groundwater Sampling Event Report

ERM Remediation & Construction Management West, Inc.

915 - 118th Avenue S.E.
Suite 130
Bellevue, WA 98005
(425) 462-8591
(425) 455-3573 (fax)

30 April 2010

Mr. Ken Lederman
Riddell Williams P.S.
1001 Fourth Avenue Plaza, Suite 4500
Seattle, Washington 98154-1065

Mr. Robert L. DiJulio
Wolfstone, Panchot & Bloch, P.S., Inc.
1111 Third Avenue, Suite 1800
Seattle, Washington 98101

Subject: 2010 Semiannual Groundwater Monitoring Report
Harris/Manhattan Village Shopping Center
Normandy Park, Washington

Dear Messrs. Lederman and Mr. DiJulio:

This report summarizes the semiannual groundwater monitoring activities completed by ERM Remediation & Construction Management West, Inc. (ERM) in March 2010 at the Mountain Harris/Manhattan Village Shopping Center site in Normandy Park, Washington (the "Site"). These activities were completed in accordance with the *Final Soil Vapor Extraction Interim Remedial Action Design and Work Plan* dated March 2009 ("Work Plan"). The location of the Site is shown in Figure 1.

Although soil cleanup is the primary objective of the soil vapor extraction (SVE) interim action (IA), previous remedial efforts at the Site have indicated that the IA may reduce PCE concentrations in groundwater. Therefore, sampling and analysis of groundwater was completed to evaluate groundwater quality during SVE system operation. Seven monitoring wells were selected for inclusion in the semiannual groundwater sampling event due to their location within the radius of influence of the SVE wells. The locations of the seven monitoring wells are shown on Figure 2.

SCOPE OF WORK

In March 2010, groundwater monitoring was performed to evaluate Site conditions relative to the operation of the SVE system. The groundwater monitoring activities included:

- Measurement of static groundwater levels in seven monitoring wells (DC-3, DC-4, DC-11, DC-13, KMW-2, KMW-9 and MW-4);
- Collection of groundwater samples from seven monitoring wells; and
- Laboratory analysis of the samples for chlorinated volatile organic compounds by USEPA (United States Environmental Protection Agency) Method 8260B.

GROUNDWATER MONITORING PROCEDURES AND RESULTS

Static Groundwater Levels

On 8 March 2010, groundwater levels were measured in the seven monitoring wells using an electric water level indicator. A summary of groundwater level measurements is included in Table 1.

Groundwater Sampling

Monitoring well purging and sampling at each well was completed on 8 and 9 March 2010 using a bladder pump and low-flow techniques as described in the *Soil Vapor Extraction Interim Action Compliance Monitoring Plan* dated July 2009. The bladder pump was decontaminated and fitted with new polyethylene tubing prior to installation into each well. The groundwater samples were collected directly from the pump discharge tubing.

Each sample container was labeled with the sample location, sample identification number, date, and time. The samples were transported on ice to ALS Laboratory Group's facility in Everett, Washington, for analysis. Chain-of-custody procedures were followed during sample preparation, shipment, and handling. Chain-of-custody and laboratory quality assurance/quality control documentation is included with the laboratory data sheets in Attachment A.

ANALYTICAL RESULTS

Analytical results for PCE in the groundwater samples are summarized in Table 2 and are illustrated on Figure 3. The common PCE degradation products trichloroethene, dichloroethene isomers, and vinyl chloride were not detected in the groundwater samples collected in March 2010. Tetrachloroethene (PCE) was detected above the MTCA Method A Cleanup Level of 5 parts per billion in four monitoring wells: MW-4, KMW-2, DC-4, and DC-13. PCE was detected in two monitoring wells (KMW-9 and DC-11) at concentrations less than the MTCA Method A Cleanup Level. PCE was not detected in the groundwater sample collected from monitoring well DC-3.

ANALYSIS AND CONCLUSIONS

PCE concentrations in groundwater have decreased since SVE system startup in October 2009. Every well sampled during the March 2010 event revealed a reduction in concentration from the previous sampling event at each well, either in April 2007 or April 2008. These reductions ranged from 15 to greater than 90 percent, with an average of approximately 60 percent reduction in PCE concentration. Three of the seven wells sampled dropped below the MTCA Method A Cleanup Level during the April 2010 event, however, it should be noted that PCE concentrations at Well DC-3 have been observed below the MTCA Method A Cleanup Level during prior sampling events.

Based on available groundwater quality data from 1999 to the present, trends in groundwater quality data over the last several years indicate that significant variability in PCE concentrations over time is common in groundwater at each well (Figure 4). It is possible, therefore, that the decreases in PCE concentrations observed between April 2009 and March 2010 may be related to factors other than the operation of the SVE system. However, given that significant reductions in PCE concentrations were observed in groundwater in the vicinity of the SVE system operated by SCS in 1999-2000, it is ERM's opinion that the operation of the SVE system is likely contributing to the decrease of PCE concentrations in groundwater between April 2009 and March 2010.

We appreciate the opportunity to provide you with ongoing environmental consulting and remediation services. Please call Mike Arnold at 425.214.0454 or Erik Ipsen at 503.488.5014 if you have questions regarding this groundwater monitoring report.

Sincerely,

A. Michael Arnold, R.G., R.H.G.
Senior Project Manager

Erik C. Ipsen, P.E.
Partner

AMA/ECI/jjr/0099467.03

Attachments

Figures

Project No. 0075720.00
Date: 11/17/08
Drawn By: R.O./C.T.
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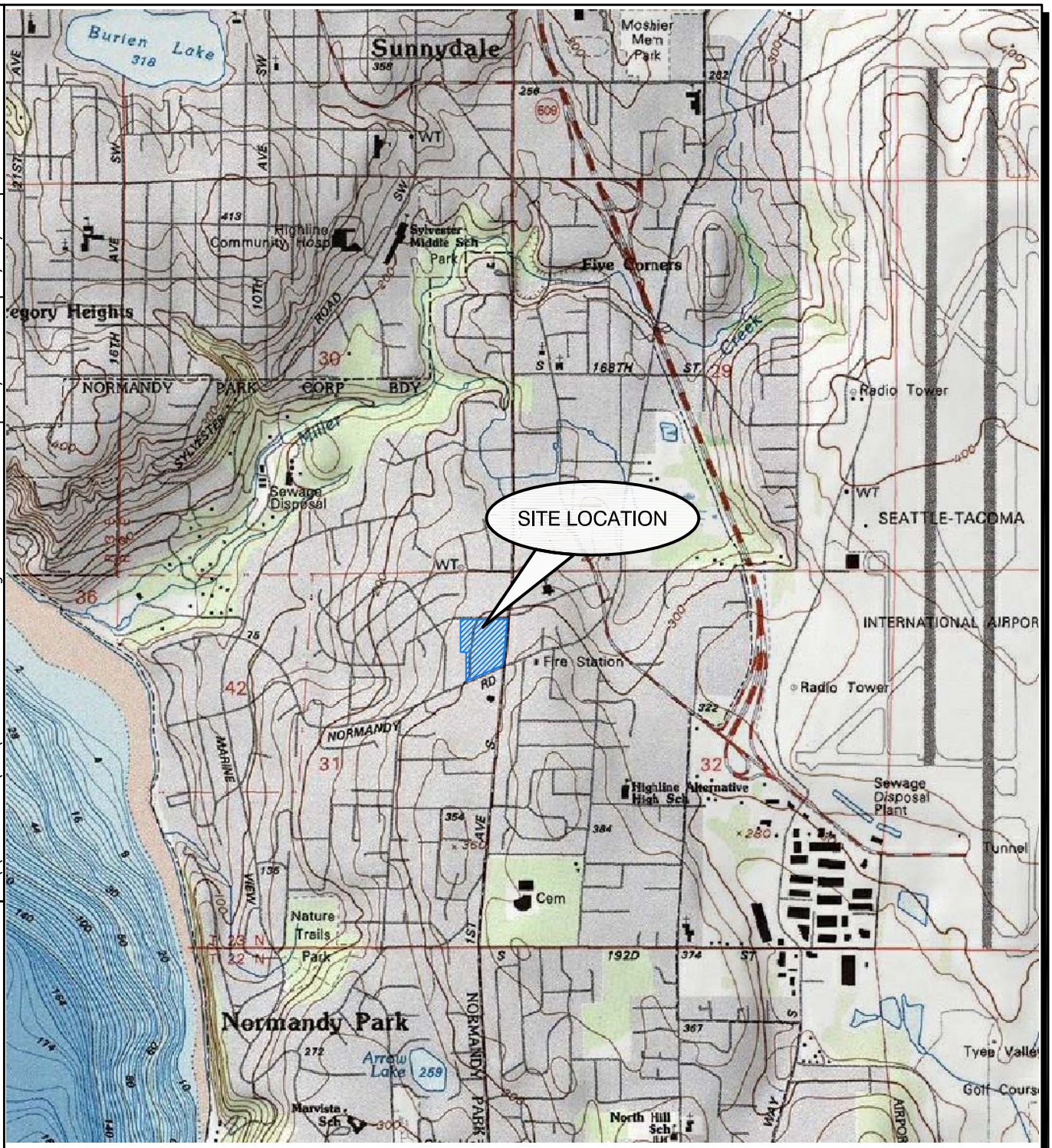

SCALE 1: 24,000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

N

References:
TOPO!® Software
U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle, Des Moines, WA
Version: 1995; Current: 1990

Figure 1
Site Location Map
MVSC/Harris Properties
Normandy Park, Washington

ERM 11/08

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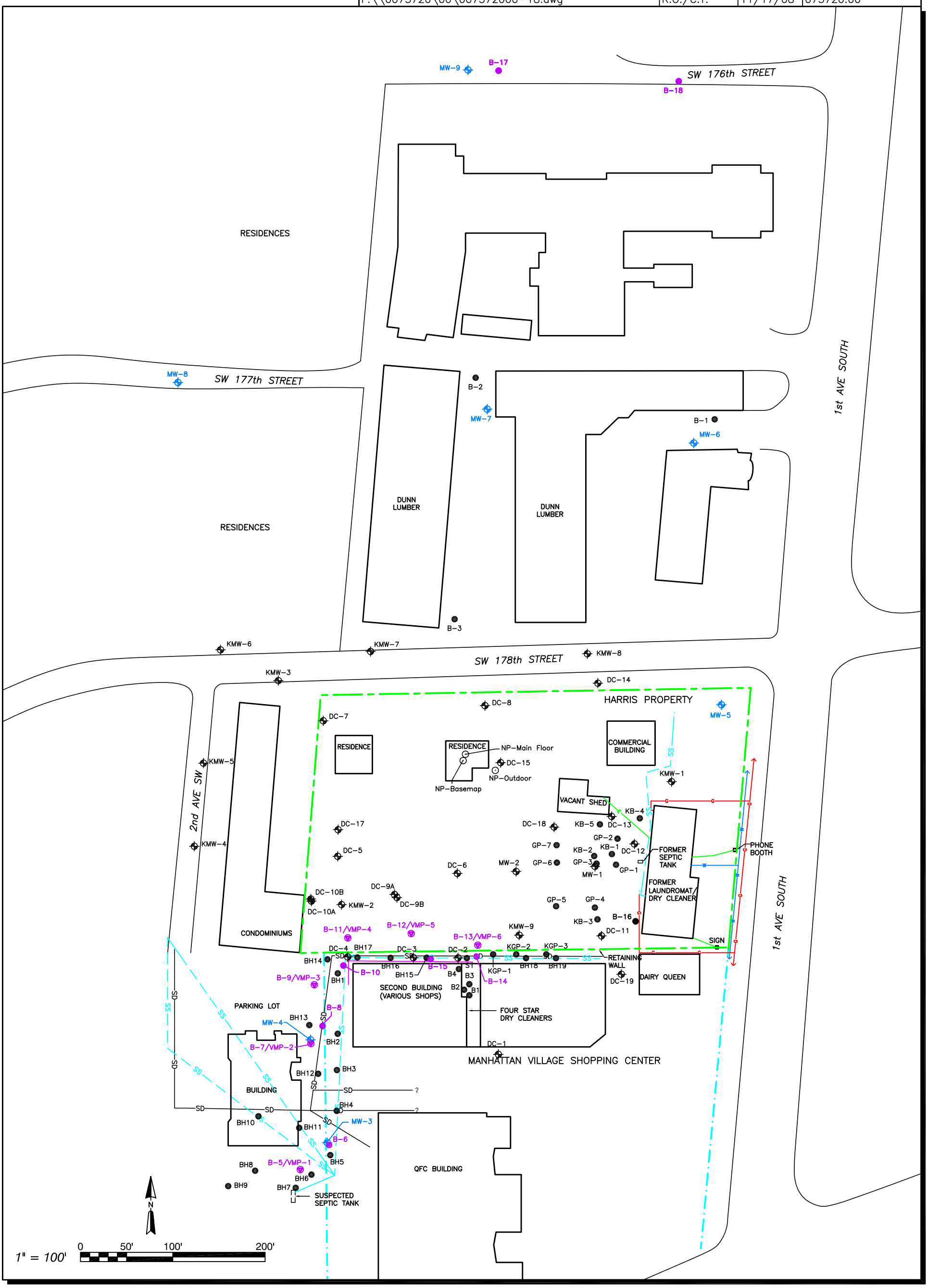

LEGEND

- Monitoring Well
- Soil Boring
- Soil Vapor Extraction Well
- Domestic Well
- Storm Water Catch Basin
- Monitoring Well, Installed 2008
- Soil Boring, Completed 2008
- Soil Vapor Probe, Installed 2008
- Air Sample, Collected 2008

- Approximate Harris Property Boundary
- Approximate Manhatten Plaza Shopping Center Property Boundary
- Underground Electrical Utility
- Underground Natural Gas Utility
- Underground Sewer Utility
- Underground Storm Drain Utility
- Underground Water Utility

Figure 2
Site Plan
MVSC/Harris Properties
Normandy Park, Washington

ERM 11/08

CAD File:	Drawn By:	Date:	Project No.
g:\\0099467\03\009946703-01.dwg	R. Olson	04/26/10	0099467.03

N

0 50' 100' 200'

1" = 100'

RESIDENCES

MW-9

SW 176th STREET

1st AVE SOUTH

MW-8

SW 177th STREET

MW-7

MW-6

DUNN LUMBER

DUNN LUMBER

RESIDENCES

KMW-6

KMW-7

SW 178th STREET

KMW-8

KMW-3

DC-14

HARRIS PROPERTY

DC-8

DC-7

MW-5

KMW-5D

KMW-5

RESIDENCE

RESIDENCE

DC-15

COMMERCIAL BUILDING

KMW-1

2nd AVE SW

VACANT SHED

DC-17

DC-13
10

DC-18

DC-12

PHONE BOOTH

KMW-4

DC-16

DC-5

DC-6

MW-2

MW-1

FORMER SEPTIC TANK

FORMER LAUNDROMAT/ DRY CLEANER

DC-10B

DC-9A

DC-10A

KMW-2
81

DC-9B

CONDOMINIUMS

KMW-9
4.4

DC-11
4.6

SIGN

DC-4
9.2

DC-3
<2.0

DC-2

RETAINING WALL

DC-19

FORMER DAIRY QUEEN

SECOND BUILDING (VARIOUS SHOPS)

FOUR STAR DRY CLEANERS

PARKING LOT

MW-4
7.8

DC-1

MANHATTAN VILLAGE SHOPPING CENTER

BUILDING

MW-3

SUSPECTED SEPTIC TANK

QFC BUILDING

LEGEND

- Monitoring Well
- Shallow Monitoring Well
- Deep Monitoring Well
- 50.8 PCE Concentration (µg/L)
- Grayed symbols were not sampled.
- Storm Water Catch Basin
- Approximate Harris Property Boundary
- Approximate Manhattan Village Shopping Center Property Boundary
- Underground Electrical Utility
- Underground Natural Gas Utility
- Underground Sewer Utility
- Underground Storm Drain Utility
- Underground Water Utility

Figure 3

PCE in Groundwater - March 2010
MVSC/Harris Properties
Normandy Park, Washington

ERM 04/10

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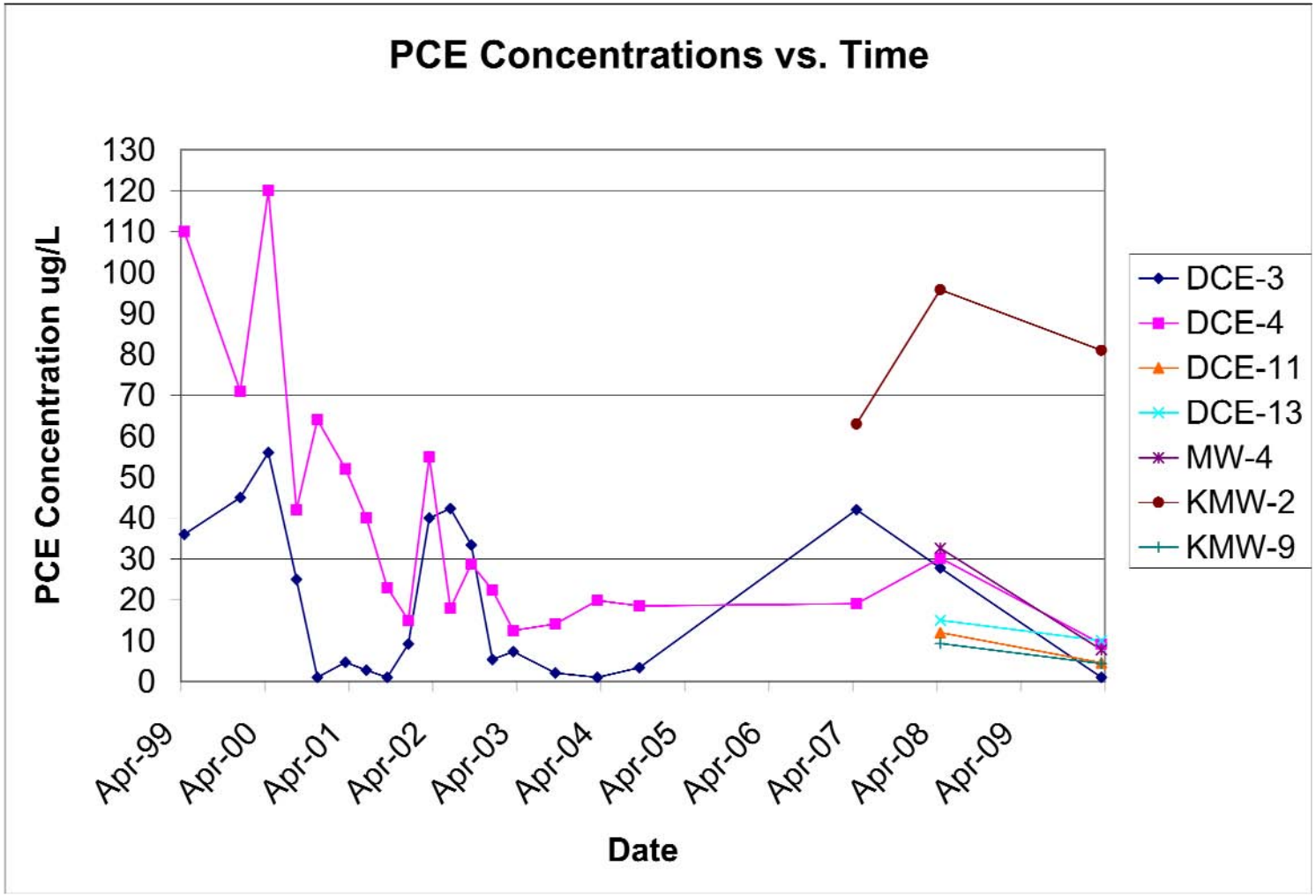

Figure 4

PCE Concentrations in Groundwater 1999-2010

MVSC/Harris Properties

Normandy Park, Washington

ERM 04/10

Tables

Table 1

Water Levels - 10 March 2010
MVSC/Harris Properties
Normandy Park, Washington

Location	Well Casing Elevation (feet amsl)	Depth to Water (feet below well casing)	Water Level Elevation (feet amsl)
MW-4	310.54	38.66	271.88
DC-3	313.23	41.53	271.70
DC-4	312.12	40.74	271.38
DC-11	311.02	39.54	271.48
DC-13	310.85	38.82	272.03
KMW-2	306.90	35.56	271.34
KMW-9	310.18	38.77	271.41

Table 2

Tetrachloroethene Concentrations in Groundwater
MVSC/Harris Properties
Normandy Park, Washington

Monitoring Well	Date Sampled	Tetrachloroethene (micrograms per liter)
MW-4	3/9/2010	**7.8**
	4/14/2008	**32.6**
KMW-2	3/8/2010	**81**
	4/16/2008	**95.8**
	4/24/2007	**63**
KMW-9	3/8/2010	**4.4**
	4/26/2007	**9.3**
DC-3	3/9/2010	<2
	4/14/2008	**27.8**
	4/26/2007	**42**
	9/7/2004	**3.4**
	3/16/2004	<2
	9/3/2003	**2.1**
	3/31/2003	**7.3**
	12/10/2002	**5.4**
	9/17/2002	**33.4**
	6/13/2002	**42.3**
	3/13/2002	**40**
	12/20/2001	**9.2**
	9/17/2001	<2
	6/20/2001	**2.8**
	3/6/2001	**4.7**
	11/14/2000	<2
	8/3/2000	**25**
	4/26/2000	**56**
	12/8/1999	**45**
	4/7/1999	**36**

Table 2

Tetrachloroethene Concentrations in Groundwater
MVSC/Harris Properties
Normandy Park, Washington

Monitoring Well	Date Sampled	Tetrachloroethene (micrograms per liter)
DC-4	3/9/2010	**9.2**
	4/14/2008	**30.2**
	4/26/2007	**19**
	9/7/2004	**18.5**
	3/16/2004	**19.8**
	9/3/2003	**14.1**
	3/31/2003	**12.5**
	12/10/2002	**22.4**
	9/17/2002	**28.8**
	6/13/2002	**17.9**
	3/13/2002	**55**
	12/20/2001	**15**
	9/17/2001	**23**
	6/20/2001	**40**
	3/6/2001	**52**
	11/14/2000	**64**
	8/3/2000	**42**
	4/26/2000	**120**
	12/8/1999	**71**
	4/7/1999	**110**
DC-11	3/9/2010	**4.6**
	4/26/2007	**12**
DC-13	3/1/2010	**10**
	4/16/2008	**23**
	4/25/2007	**15**
Model Toxics Control Act Method A Groundwater Cleanup Level		5

Notes:

Bold entries indicate positive analyte detections.

Shaded cells indicate concentrations greater than the cleanup goal

Attachment A
Laboratory Data Report

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/8/2010 KMW-9-030810
ALS SAMPLE #: -01

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Vinyl Chloride	EPA-8260	ND	0.20	1	UG/L	3/11/2010	CCN
Bromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichlorofluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Methylene Chloride	EPA-8260	ND	5.0	1	UG/L	3/11/2010	CCN
Trans-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Carbon Tetrachloride	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Dibromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromodichloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trans-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Tetrachloroethylene	EPA-8260	4.4	2.0	1	UG/L	3/11/2010	CCN
Dibromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromoethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromoform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
4-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3 Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

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CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/8/2010 KMW-9-030810
ALS SAMPLE #: -01

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
1,4-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromo 3-Chloropropane	EPA-8260	ND	10	1	UG/L	3/11/2010	CCN
1,2,4-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Hexachlorobutadiene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

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CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/8/2010 KMW-2-030810
ALS SAMPLE #: -02

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Vinyl Chloride	EPA-8260	ND	0.20	1	UG/L	3/11/2010	CCN
Bromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichlorofluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Methylene Chloride	EPA-8260	ND	5.0	1	UG/L	3/11/2010	CCN
Trans-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Carbon Tetrachloride	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Dibromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromodichloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trans-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Tetrachloroethylene	EPA-8260	81	10	5	UG/L	3/11/2010	CCN
Dibromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromoethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromoform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
4-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3 Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

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CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/8/2010 KMW-2-030810
ALS SAMPLE #: -02

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
1,4-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromo 3-Chloropropane	EPA-8260	ND	10	1	UG/L	3/11/2010	CCN
1,2,4-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Hexachlorobutadiene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

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CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/8/2010 DC-13-030810
ALS SAMPLE #: -03

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Vinyl Chloride	EPA-8260	ND	0.20	1	UG/L	3/11/2010	CCN
Bromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichlorofluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Methylene Chloride	EPA-8260	ND	5.0	1	UG/L	3/11/2010	CCN
Trans-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Carbon Tetrachloride	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Dibromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromodichloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trans-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Tetrachloroethylene	EPA-8260	10	2.0	1	UG/L	3/11/2010	CCN
Dibromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromoethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromoform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
4-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3 Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

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CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/8/2010 DC-13-030810
ALS SAMPLE #: -03

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
1,4-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromo 3-Chloropropane	EPA-8260	ND	10	1	UG/L	3/11/2010	CCN
1,2,4-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Hexachlorobutadiene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

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CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/9/2010 DC-11-030910
ALS SAMPLE #: -04

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Vinyl Chloride	EPA-8260	ND	0.20	1	UG/L	3/11/2010	CCN
Bromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichlorofluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Methylene Chloride	EPA-8260	ND	5.0	1	UG/L	3/11/2010	CCN
Trans-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Carbon Tetrachloride	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Dibromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromodichloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trans-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Tetrachloroethylene	EPA-8260	4.6	2.0	1	UG/L	3/11/2010	CCN
Dibromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromoethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromoform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
4-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3 Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

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CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/9/2010 DC-11-030910
ALS SAMPLE #: -04

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
1,4-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromo 3-Chloropropane	EPA-8260	ND	10	1	UG/L	3/11/2010	CCN
1,2,4-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Hexachlorobutadiene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

8620 Holly Drive Suite 100 Everett, WA 98208 425 356-2600 FAX 425 356-2626 Seattle 206 292-9059

CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
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Bellevue, WA 98005

DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/9/2010 DC-3-030910
ALS SAMPLE #: -05

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Vinyl Chloride	EPA-8260	ND	0.20	1	UG/L	3/11/2010	CCN
Bromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichlorofluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Methylene Chloride	EPA-8260	ND	5.0	1	UG/L	3/11/2010	CCN
Trans-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Carbon Tetrachloride	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Dibromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromodichloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trans-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Tetrachloroethylene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Dibromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromoethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromoform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
4-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3 Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

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CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/9/2010 DC-3-030910
ALS SAMPLE #: -05

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
1,4-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromo 3-Chloropropane	EPA-8260	ND	10	1	UG/L	3/11/2010	CCN
1,2,4-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Hexachlorobutadiene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

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CERTIFICATE OF ANALYSIS

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ALS JOB#: 1003050
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WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/9/2010 DC-4-030910
ALS SAMPLE #: -06

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Vinyl Chloride	EPA-8260	ND	0.20	1	UG/L	3/11/2010	CCN
Bromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichlorofluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Methylene Chloride	EPA-8260	ND	5.0	1	UG/L	3/11/2010	CCN
Trans-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Carbon Tetrachloride	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Dibromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromodichloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trans-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Tetrachloroethylene	EPA-8260	9.2	2.0	1	UG/L	3/11/2010	CCN
Dibromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromoethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromoform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
4-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3 Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

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DATE: 3/18/2010
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CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/9/2010 DC-4-030910
ALS SAMPLE #: -06

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
1,4-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromo 3-Chloropropane	EPA-8260	ND	10	1	UG/L	3/11/2010	CCN
1,2,4-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Hexachlorobutadiene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

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DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/9/2010 MW-4-030910
ALS SAMPLE #: -07

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Vinyl Chloride	EPA-8260	ND	0.20	1	UG/L	3/11/2010	CCN
Bromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichlorofluoromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Methylene Chloride	EPA-8260	ND	5.0	1	UG/L	3/11/2010	CCN
Trans-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,2-Dichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chloroform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Carbon Tetrachloride	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trichloroethene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Dibromomethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromodichloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Trans-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Cis-1,3-Dichloropropene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2-Trichloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3-Dichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Tetrachloroethylene	EPA-8260	7.8	2.0	1	UG/L	3/11/2010	CCN
Dibromochloromethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromoethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Chlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,1,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromoform	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,1,2,2-Tetrachloroethane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichloropropane	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Bromobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
2-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
4-Chlorotoluene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,3 Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

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CERTIFICATE OF ANALYSIS

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DATE: 3/18/2010
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WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling
CLIENT SAMPLE ID: 3/9/2010 MW-4-030910
ALS SAMPLE #: -07

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
1,4-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2-Dibromo 3-Chloropropane	EPA-8260	ND	10	1	UG/L	3/11/2010	CCN
1,2,4-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
Hexachlorobutadiene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN
1,2,3-Trichlorobenzene	EPA-8260	ND	2.0	1	UG/L	3/11/2010	CCN

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

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CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

ALS SAMPLE ID	METHOD	SUR ID	% RECV
1003050-01	EPA-8260	1,2-Dichloroethane-d4	108%
1003050-01	EPA-8260	4-Bromofluorobenzene	104%
1003050-02	EPA-8260	1,2-Dichloroethane-d4	111%
1003050-02	EPA-8260	4-Bromofluorobenzene	103%
1003050-02 5X Dilution	EPA-8260	1,2-Dichloroethane-d4	109%
1003050-02 5X Dilution	EPA-8260	4-Bromofluorobenzene	101%
1003050-03	EPA-8260	1,2-Dichloroethane-d4	110%
1003050-03	EPA-8260	4-Bromofluorobenzene	103%
1003050-04	EPA-8260	1,2-Dichloroethane-d4	112%
1003050-04	EPA-8260	4-Bromofluorobenzene	101%
1003050-05	EPA-8260	1,2-Dichloroethane-d4	111%
1003050-05	EPA-8260	4-Bromofluorobenzene	103%
1003050-06	EPA-8260	1,2-Dichloroethane-d4	110%
1003050-06	EPA-8260	4-Bromofluorobenzene	102%
1003050-07	EPA-8260	1,2-Dichloroethane-d4	110%
1003050-07	EPA-8260	4-Bromofluorobenzene	102%

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CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling

QUALITY CONTROL RESULTS

BLANK RESULTS

QC SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS
MB-031110W	Water	EPA-8260	Dichlorodifluoromethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Chloromethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Vinyl Chloride	ND(<0.20)	UG/L
MB-031110W	Water	EPA-8260	Bromomethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Chloroethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Trichlorofluoromethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Carbon Tetrachloride	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,1-Dichloroethene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Methylene Chloride	ND(<5.0)	UG/L
MB-031110W	Water	EPA-8260	Trans-1,2-Dichloroethene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,1-Dichloroethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Cis-1,2-Dichloroethene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	2,2-Dichloropropane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Bromochloromethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Chloroform	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,1,1-Trichloroethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,1-Dichloropropene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,2-Dichloroethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Trichloroethene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,2-Dichloropropane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Dibromomethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Bromodichloromethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Trans-1,3-Dichloropropene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Toluene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Cis-1,3-Dichloropropene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,1,2-Trichloroethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,3-Dichloropropane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Tetrachloroethylene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Dibromochloromethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,2-Dibromoethane	ND(<0.010)	UG/L
MB-031110W	Water	EPA-8260	Chlorobenzene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,1,1,2-Tetrachloroethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Bromoform	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,1,2,2-Tetrachloroethane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,2,3-Trichloropropane	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Bromobenzene	ND(<2.0)	UG/L

CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 3/18/2010
ALS JOB#: 1003050
DATE RECEIVED: 3/10/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling

QUALITY CONTROL RESULTS

BLANK RESULTS

QC SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS
MB-031110W	Water	EPA-8260	2-Chlorotoluene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	4-Chlorotoluene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,3 Dichlorobenzene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,4-Dichlorobenzene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,2-Dichlorobenzene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,2-Dibromo 3-Chloropropane	ND(<10)	UG/L
MB-031110W	Water	EPA-8260	1,2,4-Trichlorobenzene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	Hexachlorobutadiene	ND(<2.0)	UG/L
MB-031110W	Water	EPA-8260	1,2,3-Trichlorobenzene	ND(<2.0)	UG/L

APPROVED BY:

8620 Holly Drive Suite 100 Everett, WA 98208 425 356-2600 FAX 425 356-2626 Seattle 206 292-9059

CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 3/18/2010
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DATE RECEIVED: 3/10/2010
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CLIENT CONTACT: Mike Arnold
CLIENT PROJECT ID: Normandy Park GW Sampling

QUALITY CONTROL RESULTS

BLANK SPIKE/BLANK SPIKE DUPLICATE RESULTS

QC BATCH ID	MATRIX	METHOD	ANALYTE	SPIKE AMOUNT	BLANK SPIKE RECOVERY	BLANK SPIKE DUPLICATE RECOVERY	RPD
598	Water	EPA-8260	1,1-Dichloroethene	10	89%	84%	5
598	Water	EPA-8260	Trichloroethene	10	81%	78%	4
598	Water	EPA-8260	Toluene	10	83%	79%	4
598	Water	EPA-8260	Chlorobenzene	10	85%	82%	4

APPROVED BY:

8620 Holly Drive Suite 100 Everett, WA 98208 425 356-2600 FAX 425 356-2626 Seattle 206 292-9059

ALS Laboratory Group
8620 Holly Drive, Suite 100
Everett, WA 98208
Phone (425) 356-2600
(206) 292-9059 Seattle
(425) 356-2626 Fax
http://www.alsenviro.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only): 1003050

Date _____ Page 1 Of 1

PROJECT ID: Normandy Park GW Sampling
REPORT TO COMPANY: ERM-West
PROJECT MANAGER: Mike Arnold
ADDRESS: 915 - 118th Ave, SE Ste 130
Bellevue WA 98005
PHONE: 425 214 0454 FAX:
P.O. NUMBER: 99467.04 E-MAIL: mike.arnold.com
INVOICE TO COMPANY: ERM-West
ATTENTION: Acct Payable
ADDRESS: 1277 Treat BLVD, Ste 500
Walnut Creek 94597

LABORATORY COPY

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA-8021	MTBE by EPA-8021 ☐ EPA-8260 ☐	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM ☐	PCB ☐ Pesticides ☐ by EPA 8081/8082	Metals-MTCA-5 ☐ RCRA-8 ☐ Pri Pol ☐ TAL ☐	Metals Other (Specify)	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	OTHER (Specify): Chlorinated VOCs 8260							NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. kMW-9-030810	3/8/10	1316	W	1															X							3	
2. kMW-2-030810	3/8/10	1425	W	2															X							3	
3. DC-13-030810	3/8/10	1526	W	3															X							3	
4. DC-11-030910	3/9/10	0951	W	4															X							3	
5. DC-3-030910	3/9/10	1120	W	5															X							3	
6. DC-4-030910	3/9/10	1245	W	6															X							3	
7. MW-4-030910	3/9/10	1347	W	7															X							3	
8.																											
9.																											
10.																											

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: [signature] ERM 3/9/10 1500
Received By: [signature] ALS 3/10/10 1:40
2. Relinquished By: _____
Received By: _____

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: [10] Standard | 5 | 3 | 2 | 1 | SAME DAY

Fuels & Hydrocarbon Analysis: 5 Standard | 3 | 1 | SAME DAY

OTHER:
Specify: _____

* Turnaround request less than standard may incur Rush Charges

Attachment 3
November 2010 Groundwater Sampling
Data Summary

TABLE 2

Volatile Organic Compounds in Groundwater From Wells (2008-2010)
MVSC/Harris Properties
Normandy Park, Washington

Monitoring Well Number	Date Sampled	Volatile Organic Compounds[1] (µg/L)				
		Bromodichloro-methane	Chloroform	cis-1,2-Dichloroethene	Tetrachloro-ethene	Trichloro-ethene
MW-3	4/14/2008	<0.200	**0.990**	<0.200	**2.31**	<0.200
	11/1/2010	<2.0	<2.0	<2.0	**2.9**	<2.0
MW-4	4/14/2008	<0.200	**0.780**	**0.320**	**32.6**	**0.490**
	3/9/2010	<2.0	<2.0	<2.0	**7.8**	<2.0
	11/1/2010	<2.0	<2.0	<2.0	**16**	<2.0
MW-5	4/11/2008	<0.200	<0.200	<0.200	**0.470**	<0.200
MW-6	4/15/2008	<0.200	<0.200	<0.200	**1.99**	<0.200
MW-7	4/16/2008	<0.200	**1.12**	<0.200	**22.4**	<0.200
MW-8	8/21/2008	<0.1	**0.3 J**	<0.1	**0.2 J**	<0.1
MW-9	8/21/2008	<0.1	**0.4 J**	<0.1	**0.1 J**	<0.1
KMW-1	4/14/2008	<0.200	**0.450**	<0.200	<0.200	<0.200
KMW-2	4/16/2008	<0.200	**0.640**	<0.200	**95.8**	**0.230**
	3/8/2010	<2.0	<2.0	<2.0	**81**	<2.0
	11/3/2010	<2.0	<2.0	<2.0	**74**	<2.0
KMW-3	11/2/2010	<2.0	<2.0	<2.0	**11**	<2.0
KMW-7	4/15/2008	<0.200	**1.33**	<0.200	**3.88**	<0.200
	11/3/2010	<2.0	<2.0	<2.0	<2.0	<2.0
KMW-8	4/15/2008	**0.310**	**1.13**	<0.200	**17.4**	<0.200
KMW-9	3/8/2010	<2.0	<2.0	<2.0	**4.4**	<2.0
	11/4/2010	<2.0	<2.0	<2.0	**2.8**	<2.0
DC-2	4/14/2008	<0.200	**1.60**	<0.200	**0.340**	<0.200
	11/3/2010	<2.0	<2.0	<2.0	<2.0	<2.0
DC-3	4/14/2008	<0.200	**1.50**	<0.200	**27.8**	<0.200
	3/9/2010	<2.0	<2.0	<2.0	<2.0	<2.0
	11/3/2010	<2.0	<2.0	<2.0	<2.0	<2.0
DC-4	4/11/2008	<0.200	**1.20**	<0.200	**30.2**	<0.200
	3/9/2010	<2.0	<2.0	<2.0	**9.2**	<2.0
	11/3/2010	<2.0	<2.0	<2.0	**13**	<2.0
DC-7	4/16/2008	<0.200	**1.08**	<0.200	**50.8**	<0.200
	11/3/2010	<2.0	<2.0	<2.0	**34**	<2.0
DC-8	4/16/2008	<0.200	**0.370**	<0.200	**39.4**	<0.200
	11/3/2010	<2.0	<2.0	<2.0	**25**	<2.0
DC-9B	4/15/2008	<0.200	**1.27**	<0.200	**0.640**	<0.200
DC-10B	11/3/2010	<2.0	<2.0	<2.0	**2.6**	<2.0
DC--11	3/9/2010	<2.0	<2.0	<2.0	**4.6**	<2.0
	11/1/2010	<2.0	<2.0	<2.0	**4.8**	<2.0
DC-13	4/16/2008	<0.200	**0.280**	<0.200	**23.0**	<0.200
	3/8/2010	<2.0	<2.0	<2.0	**10**	<2.0
	11/2/2010	<2.0	<2.0	<2.0	**9.2**	<2.0
DC-16	11/5/2010	<2.0	<2.0	<2.0	<2.0	<2.0
DC-17	4/16/2008	<0.200	**0.750**	<0.200	**74.6**	<0.200
	11/3/2010	<2.0	<2.0	<2.0	**2.1**	<2.0
DC-19	4/14/2008	<0.200	<0.200	<0.200	**0.660**	<0.200
Cleanup Goal		0.71[2]	7.17[2]	80[3]	5[4]	5[4]

Notes:

Bold entries indicate positive analyte detections.

Shaded cells indicate concentrations greater than the cleanup goal

[1]Halogenated volatile organic compounds by USEPA Method 8260

[2]Model Toxics Control Act Method B Groundwater Cleanup Level (Carcinogenic)

[3]Model Toxics Control Act Method B Groundwater Cleanup Level (Noncarcinogenic)

[4]Model Toxics Control Act Method A Groundwater Cleanup Level

µg/L = Micrograms per liter

J = Concentration reported as "estimated" by lab