

Additional Environmental Investigation Report Bruce Titus Nissan Subaru 4030 South Tacoma Way Tacoma, Washington

**SECOR PN: 001.01287** 

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#### 1.0 INTRODUCTION

SECOR International Incorporated (SECOR) is pleased to present this Additional Environmental Investigation Report to Bank One for the Bruce Titus Nissan Subaru located at 4030 South Tacoma Way, Tacoma, Washington (subject property). SECOR was authorized to prepare this report by Bank One in accordance with SECOR Proposal No. 001-01-P130, dated November 12, 2001. SECOR was contracted to conduct this additional environmental investigation by Bank One to further assess the subsurface groundwater conditions on the subject property and to identify potential on and off-site sources. This report presents a summary of the work accomplished, results of soil and groundwater sample analysis, and conclusions of the investigation.

#### 1.1 OBJECTIVE

The objective of this additional environmental investigation was to install and sample permanent groundwater monitoring wells to further assess sources of contaminants identified in screening-level groundwater samples collected previously at the subject property.

#### 1.2 BACKGROUND

SECOR completed a Phase I Environmental Site Assessment (Phase I ESA) for the subject property in June 2001. The findings of the Phase I ESA were provided in a report submitted to Bank One on July 10, 2001.

The following recognized environmental conditions were identified on the subject property in SECOR's Phase I ESA:

- Historical use of the subject property from at least 1930 to 1986 included use as a lumber yard, an oil
  blending and compounding plant, and a used car lot with an automotive service center. Due to the
  types of materials used and historic business practices that were common in those industries, the
  subsurface media at the subject property may have been adversely impacted.
- Staining and poor house keeping practices observed in the areas of the parts washing stations, tool
  room, vehicle work station areas, and the used oil tank cage. These observations were made
  throughout the subject property, and may indicate that subsurface impacts have occurred at the subject
  property.
- The integrity of the hydraulic hoists, trench drain, and oil water separator (OWS) could not be confirmed during the Phase I ESA. Based on the age of the facilities (12 years old) and the lack of integrity testing, the subsurface media at the subject property may have been adversely impacted.

Based on the findings of the Phase I ESA, SECOR completed a Phase II Subsurface Investigation in September 2001 to assess the quality of subsurface soils and groundwater at the subject property. SECOR supervised the drilling of eight soil borings and the collection of groundwater samples from well screen set in soil borings on the subject property. Apparent fill material was observed at depths ranging between approximately 8 to 15 feet below ground surface (bgs) that increased in thickness from east to west in the subsurface soils on the subject property. Below approximately 15 feet bgs, SECOR observed relatively homogeneous sands with trace gravels to a maximum exploratory depth of 50 feet bgs. Based on the results of the investigation, no evidence of significant soil impacts was identified. However, analytical results for the groundwater samples collected from the screen set in the temporary soil borings, indicated that trichloroethylene (TCE) was detected in both groundwater samples at concentrations of 15 micrograms per liter ( $\mu$ g/l) and 49  $\mu$ g/l in the samples collected from B-4 and B-5, respectively. The reported TCE

concentrations are greater than the Model Toxics Control Act (MTCA) Method A Cleanup Level for TCE (5  $\mu$ g/l). Methylene chloride was also detected in B-5 (5.9  $\mu$ g/l) at a concentration above the MTCA Method A cleanup level of 5  $\mu$ g/l.

Based on the data collected during the Phase II Subsurface Investigation, the source of the identified groundwater contamination was not evident. TCE was not detected in soil above the laboratory method reporting limit. However, the detected TCE concentrations in on-site groundwater samples were greater at the monitoring point located within the service center. In addition, the groundwater samples collected from the temporary borings may have contained high amounts of suspended solids possibly interfering and/or causing the readings to be elevated and not necessarily representative of true groundwater conditions at the subject property. Consequently, SECOR recommended that additional assessment including the installation and sampling of permanent groundwater monitoring wells be conducted at the subject property to further assess potential on and off-site sources of TCE in groundwater.

#### 1.3 SITE LOCATION AND DESCRIPTION

The subject property is currently occupied by the Bruce Titus Nissan Subaru Dealership, a retail car sales facility, and is located in a commercial/industrial area at 4030 South Tacoma Way, Tacoma, Washington. Current development consists of one two-story, approximately 20,680-square-foot building consisting of a sales/reception area, associated offices, and a vehicle service area. In addition to retail car sales, the facility provides vehicle maintenance (e.g. oil changes, tune-ups, system upgrades, etc.). The subject property has been operating as a car dealership and auto service facility since the initial construction (1989) of the existing facility. There are no reported underground storage tanks located at the subject property. However, there are several above ground storage tanks (ASTs) used to store new motor oil, an AST used to store new transmission fluid, antifreeze ASTs, and a used oil AST. Historical use of the subject property from at least 1930 to 1986 included a lumber yard, an oil blending and compounding plant, and a used car lot with an automotive service center.

The subject property is bordered to the north by a veterinary clinic and additional parking for the subject property followed by a vacant used car lot; to the west by railroad tracks followed by undeveloped land; to the south by a machine design and manufacturing facility; to the southeast by a used car lot; and to the east by South Tacoma Way followed by a new and used car dealership.

The topography in the vicinity of the subject property slopes slightly downward to the west. Based on the topography in the immediate vicinity of the subject property, shallow groundwater is expected to follow the surface contour to the west; however, local groundwater flow direction may vary. The subject property location is shown on Figure 1.

# 1.4 LOCAL GEOLOGIC AND HYDROGEOLOGIC SETTING

The Puget Sound Region is underlain by Quaternary sediments deposited by a number of glacial episodes. Deposition occurred during a number of glacial advances and retreats which created the existing subsurface conditions. The regional sediments consist primarily of interlayered and/or sequential deposits of alluvial clays, silts, and sands that are typically situated over deposits of glacial till. Outwash sediments consisting of sand, silt, and clay were deposited by rivers, streams, and post-glacial lakes during the glacial retreats. With the exception of the most recent recessional deposits, the outwash sediments have been overconsolidated by the overriding ice sheets.

The glacial drift is comprised of unconsolidated sand, gravel, silt, and clay, and partially consolidated glacial till. The sand and gravel units in the drift form the principal aquifers. These aquifers typically receive

ample recharge from the heavy precipitation characteristic of western Washington. The drift in the Puget Sound region varies greatly in composition, and accordingly, in water-yielding capability. Typically, wells in glacial drift that tap silt, clay or till in the Puget Sound region (i.e., approximately 75 to 100 feet bgs) may have yields on the order of 100 gallons per minute (gpm). Deeper wells tapping thick, saturated layers of highly permeable gravel and coarse sand (typically at depths greater than 250 feet bgs) can yield more than 1,000 gpm.

Field observations during SECOR's Phase II Subsurface Investigation conducted in September 2001 and during this additional investigation indicated that subsurface soil over the subject property consisted of apparent fill material at depths ranging between 8 to 15 feet bgs with increasing thickness from east to west, underlain by fine to medium sands, with trace silts and trace gravels. SECOR observed relatively homogenous formations of sands with trace gravels from approximately 15 to 20 bgs to a maximum exploratory depth of 60 feet bgs. Groundwater was encountered at approximately 45-feet bgs during field activities. The boring logs with specific lithologies encountered at the subject property are presented in Appendix A.

#### 2.0 FIELD INVESTIGATION

The field investigation was implemented in accordance with SECOR's proposal dated November 12, 2001. An overview of the methods, procedures, and rational used during the field investigation is presented as follows.

#### 2.1 FIELD PROGRAM

SECOR supervised the drilling of four soil borings (MW-1, MW-2, MW-3, and MW-4) on November 20 and November 21, 2001, which were completed as permanent monitoring wells. The soil borings were advanced at the locations depicted on Figure 2. MW-1 was placed on the southeastern portion of the subject property, MW-2 was placed on the northern portion of the subject property, MW-3 was placed abutting the northern area of the automotive service center, and MW-4 was placed on the southwestern portion of the subject property, north of the used oil caged area.

#### 2.1.1. Health and Safety

A site-specific Health and Safety Plan (HASP) was generated for the subject property as part of the project. The HASP identified potential physical and chemical hazards associated with the proposed field activities, and established personnel protection standards and mandatory safety practices and procedures for use during the field activities. The HASP also included information on suspected chemical compounds to be encountered, a list of monitoring equipment, the required protective clothing and equipment, a map and directions to the nearest hospital, and a list of emergency telephone numbers. The HASP was available on-site at all times during the field activities. All SECOR personnel and subcontractors working on-site were required to review, sign, and comply with the provisions put forth in the HASP.

#### 2.1.2. Utility Clearance

Prior to the boring installation, SECOR arranged to have a municipal underground utility location service identify subsurface municipal utilities located in public rights-of-way. In addition, SECOR contracted with a private underground utility location service, Applied Professional Services of Issaquah, Washington (APS), to clear the marked proposed boring locations on the subject property.

#### 2.2 DRILLING PROCEDURES

Cascade Drilling, Inc. of Woodinville, Washington (Cascade) completed the drilling of four hollow stem auger (HSA) soil borings and installation of monitoring wells in the borings (MW-1 through MW-4), under SECOR's supervision on November 20 and 21, 2001. The boring locations are indicated on Figure 2 (attached). Cascade advanced the borings using a CME-75 drilling rig equipped with eight-inch outside-diameter hollow-stem augers. The maximum depth of exploration was approximately 60 feet bgs.

#### 2.3 SOIL SAMPLING PROCEDURES

Soil samples were collected at approximate 5-foot intervals for lithologic descriptions and field screening for the presence of petroleum hydrocarbons. Samples were collected using an 18-inch split-spoon sampler containing three brass sleeves. The sampler was advanced beyond the auger tool into undisturbed soils at the bottom of the borehole by dropping a 140-pound hammer repeatedly from a height of about 30 inches (per

ASTM D1586). The number of blows required to advance the sampler for each 6-inch interval was recorded on the boring log.

The sampler was then withdrawn from the boring and opened. The center brass sleeve was collected for potential laboratory analysis by capping the ends with Teflon sample liners and plastic end caps. Non-adhesive silicon tape was used to secure the end caps to the brass tube.

The soil was classified in accordance with the Unified Soil Classification System (USCS). USCS classifications are presented in the boring logs attached as Appendix A.

A photoionization detector (PID) was used to monitor the soils contained in the brass sleeves not submitted for analysis for VOC vapors. A small amount of this soil was placed into a small, re-sealable plastic bag. The top of the bag was then closed and allowed to sit for approximately 10 minutes before the PID probe was inserted into the headspace of the bag to measure for VOC vapors.

#### 2.4 GROUNDWATER MONITORING WELL INSTALLATION

During advancement of the hollow-stem auger borings, the depth of saturation in the subsurface soils was observed and used to establish the total well depths. The total depth of each monitoring well was determined based on the observed soil conditions and depth to first encountered groundwater. Two-inch diameter, 0.010-inch slot, schedule 40 poly-vinyl chloride (PVC) casing was placed into each borehole through the annulus of the hollow stem augers. The slotted casing was attached by pre-fabricated pipe threads to two-inch diameter, non-slotted, schedule 40 PVC casing.

After the well casing was placed, #2/12 Monterey Sand was placed from the bottom of the borehole to 2-feet above the top of the slotted casing. As the sand level rose, the augers were raised slowly and removed from the borings, one five-foot section at a time. During installation, the sand pack elevation was monitored regularly by the drilling crew to ensure that the sand level was always above the elevation of the bottom of the lead auger during auger removal.

Medium sized bentonite chips were poured through the annulus of the augers and hydrated, to form a seal over the sand pack. A traffic rated well box was set in concrete overlying the bentonite seal. The top of the well box was elevated approximately ½ inch above the existing grade to protect the wellhead and to prevent surface water infiltration into the wellbox. Illustrations of the construction of each well are presented on the boring logs, included in Appendix A.

#### 2.5 GROUNDWATER MONITORING WELL DEVELOPMENT

On November 20 and 21, 2001, the monitoring wells were developed. The monitoring wells were developed in general accordance with SECOR protocols by intermittently surging and developing the wells with a down hole submersible pump or disposable polyethylene bailer. Sediments accumulated at the bottom of the wells were agitated suing the surge block and removed with the pump from the well casing.

#### 2.6 GROUNDWATER SAMPLING PROCEDURES

Prior to monitoring well development and purging activities, the depth to groundwater was measured to the nearest 0.01 foot using an electronic water level meter. The depth to the groundwater surface was used to determine the volume of groundwater in the casing and to calculate the groundwater elevations in each well. During well development approximately five well volumes of groundwater was removed from each well. After

sufficient time had elapsed following purging to allow the groundwater to recharge to 80 percent of the prepurge level, representative groundwater samples were collected using a polypropylene disposable bailer. The water samples were collected from the base of the bailers using a bottom-emptying device to minimize volatilization of possible contaminants.

Groundwater was placed directly into laboratory provided 40-milliliter glass vials that were filled so that no air was present, and sealed with Teflon-lined septum, screw-on caps. Labels containing sample number, well identification, date and time collected, type of sample and type of preservative were affixed to each sample container. The sample containers were packed in ice and placed into a cooler for delivery under Chain-of-Custody to a laboratory for chemical testing.

#### 2.7 DECONTAMINATION PROCEDURES / CONTAINMENT OF MATERIALS

All the soil sampling and non-dedicated groundwater monitoring and sampling equipment was decontaminated in an Alconox wash solution and double-rinsed with tap water followed by distilled water, prior to each use. In addition, the hollow stem augers were decontaminated with pressurized hot water prior to drilling each boring to prevent cross-contamination from one boring to the next.

Soil drill cuttings, well purge water and decontamination water generated during development and sampling of the onsite wells were stored onsite in labeled DOT approved 55-gallon steel drums pending sample analysis and subsequent transport to an approved facility for disposal.

# 2.8 GROUNDWATER MONITORING WELLHEAD SURVEY PROCEDURES

To facilitate groundwater elevation calculations, Diversified Surveying Services, Inc. of Tacoma, Washington surveyed the well casings on December 10, 2001. An arbitrary benchmark was assigned to the top of casing at MW-2 and assumed at 100.00 feet above mean sea level. At each monitoring well location, the top of casing elevation was measured to within 0.01-foot. The survey rod was placed on a black mark previously made on the north side of the top of each well casing. The black mark was made survey and depth to water measurements.

The groundwater elevations were then calculated using the top of casing elevations and depth to water data. The groundwater elevation at each well location was plotted on a site map and elevation contours were drawn. The groundwater elevation contours and inferred groundwater gradient and flow direction are graphically shown on Figure 3. A summary of the survey and groundwater depth data is included in Table 1

#### 2.9 LABORATORY ANALYTICAL PROGRAM

Targeted contaminants of concern at the subject property were identified based on the current and historical use of the subject property and results of the Phase II Subsurface Investigation (SECOR, 2001). A total of four groundwater samples and 27 soil samples were collected from MW-1 through MW-4 at the subject property on November 20 and 21, 2001. Selected soil and groundwater samples were analyzed at On-Site Environmental, Inc. of Redmond, Washington (On-Site).

Soil samples MW-1-30, MW-2-40, MW-3-40, and MW-4-30 were analyzed for volatile organic compounds (VOCs) using EPA Method 8260B. Groundwater samples collected from MW-1 through MW-4 were also analyzed for VOCs using EPA Method 8260B.

The laboratory analytical reports and chain of custody documents are included in Appendix B.

#### 3.0 FINDINGS

#### 3.1 GEOLOGY AND LOCAL HYDROLOGY

Based on field observations from this assessment, subsurface soils at the subject property consisted primarily of fine to medium grained sands and silty sands with gravel, to maximum exploratory depths of approximately 60-feet bgs. Groundwater was encountered at approximately 45-feet bgs during field activities.

Based on the inferred groundwater elevation contours drawn for the November 21, 2001 monitoring event, (Figure 3), the groundwater flow direction at the subject property to be toward MW-3, located in the central portion of the subject property. However, when groundwater was contoured without the MW-3 data, the overall groundwater flow direction at the site appears to be toward the north-northeast, with an average hydraulic gradient of 0.0003 vertical feet per horizontal foot (ft/ft). SECOR also collected water level elevations at the subject property on December 17, 2001. The results of this monitoring event confirmed the groundwater flow direction and gradient observed in November 2001. The boring logs are presented in Appendix A.

# 3.2 SOIL AND GROUNDWATER ANALYTICAL RESULTS

Laboratory results for soil samples collected from borings MW-1 through MW-4 are summarized in Table 2. Laboratory results for the groundwater samples collected from permanent wells MW-1 through MW-4 are summarized in Table 3. Copies of the laboratory data for the soil and groundwater samples are provided in Appendix B.

Ecology's new MTCA Method A and B cleanup levels became effective on August 15, 2001. For compounds where Method A cleanup levels have not been established, the risk-based Method B cleanup values are used for comparison.

#### 3.2.1. Soil

Analytical results indicated that all soil samples submitted for analysis did not contain any analyte at concentrations exceeding their respective MTCA Method A for soil. The soil analytical results are summarized on Table 2.

#### 3.2.2. Groundwater

TCE was detected in groundwater in MW-1 (130  $\mu$ g/l), MW-2 (33  $\mu$ g/l), MW-3 (62  $\mu$ g/l), and MW-4 (11  $\mu$ g/l) at concentrations greater than the MTCA Method A cleanup level of 5  $\mu$ g/l. Chloroform was detected at a concentration of 8.2  $\mu$ g/l in MW-3 and at a concentration of 9.2  $\mu$ g/l in MW-4; both of these concentrations are greater than MTCA Method B cleanup level of 7.17  $\mu$ g/l for chloroform. 1,2 Dichloropropane was detected at a concentration of 0.71  $\mu$ g/l in MW-2, above the MTCA Standard Method B level of 0.643  $\mu$ g/l. Bromodichlormethane was detected at a concentration of 0.77  $\mu$ g/l in MW-3 and at a concentration of 0.95  $\mu$ g/l in MW-4, above the MTCA Standard Method B level of 0.706  $\mu$ g/l. The groundwater analytical results are summarized on Table 3.

# 3.3 INVESTIGATION DERIVED WASTES

All investigation derived wastes generated as a result of this assessment were stored in Department of Transportation (DOT) approved 55-gallon drums and temporarily stored on the subject property pending receipt of analytical results. Based on the analytical results, the waste may be disposed as non-hazardous waste.

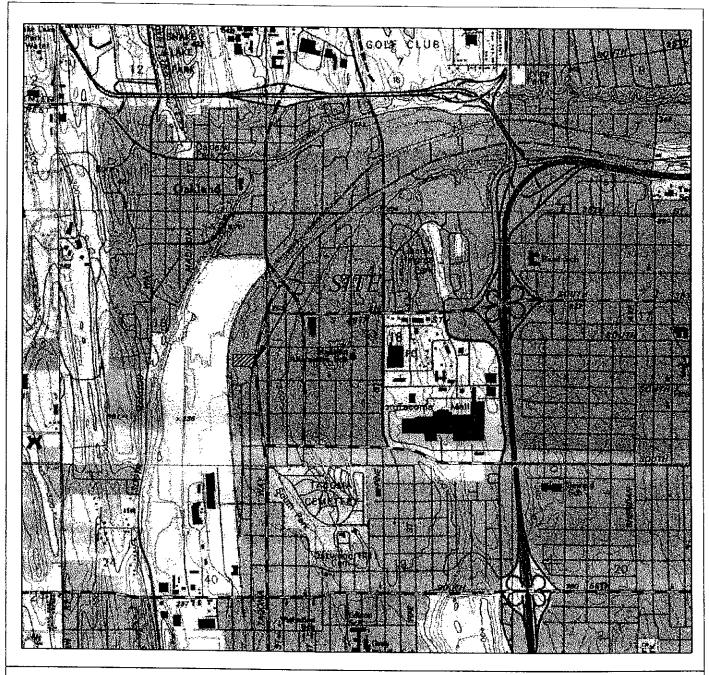
#### 4.0 CONCLUSIONS

SECOR has completed an Additional Environmental Investigation of the subject property located at the Bruce Titus Nissan Subaru located at 4030 South Tacoma Way, Tacoma, Pierce County, Washington. SECOR supervised the drilling of four soil borings which were completed as permanent monitoring wells on the subject property (MW-1 through MW-4). Based on the results of this investigation on the subject property, no evidence of significant soil impacts were identified. As previously discussed, compounds where MTCA Method A cleanup levels have not been established, the standard risk-based MTCA Method B cleanup values were used for comparison. TCE was detected in groundwater at concentrations greater than the MTCA Method A groundwater cleanup level of 5 µg/l in all groundwater samples collected from the subject property. Chloroform was detected in groundwater at two monitoring well locations (MW-3 and MW-4) at concentrations slightly above the MTCA Standard Method B. 1,2 Dichloropropane also was detected in groundwater in one well (MW-2) at a concentration slightly above the MTCA Standard Method B cleanup level. Bromodichloromethane was detected in groundwater at two monitoring well locations (MW-3 and MW-4) at concentrations slightly above the MTCA Standard Method B.

Based on the soil analytical results of this Additional Investigation and the Phase II Subsurface Investigation, an on-site source for the TCE detected in groundwater at the subject property has not been identified. TCE was detected at low concentrations in soil samples collected during this investigation at depths ranging from 30 to 40 feet bgs. However, TCE was not detected in any of the soil samples collected during the Phase II Subsurface Investigation soil samples were collected at depths ranging from 5 to 40 feet bgs, and were collected in areas with the greatest potential for impact. Therefore, the TCE detected in soil samples collected during this investigation likely represent TCE adsorbed to soil in the capillary fringe during migration of impacted groundwater through this zone.

The overall groundwater flow direction at the site appears to be toward the north-northeast. Based on this, the property located south of the subject property appears to be a potential source of the TCE in groundwater. However, the distribution of TCE in groundwater, with the greatest concentration detected in the sample collected from MW-1 (the easternmost well at the site) indicates that a source may be present east of the subject property.

**FIGURES** 





North

0 1/2

SCALE (MILES)

WASHINGTON

REFERENCE: USGS 7.5 MINUTE QUADRANGLES; TACOMA SOUTH, WASHINGTON; 1959, PHOTOREVISED 1981

SECOR

12034 134th COURT NE, SUITE 102 REDMOND, WASHINGTON 98052 (425) 372-1600 SITE LOCATION MAP

BRUCE TITUS NISSIAN SUBARU DEALERSHIP 4030 SOUTH TACOMA WAY TACOMA, WASHINGTON

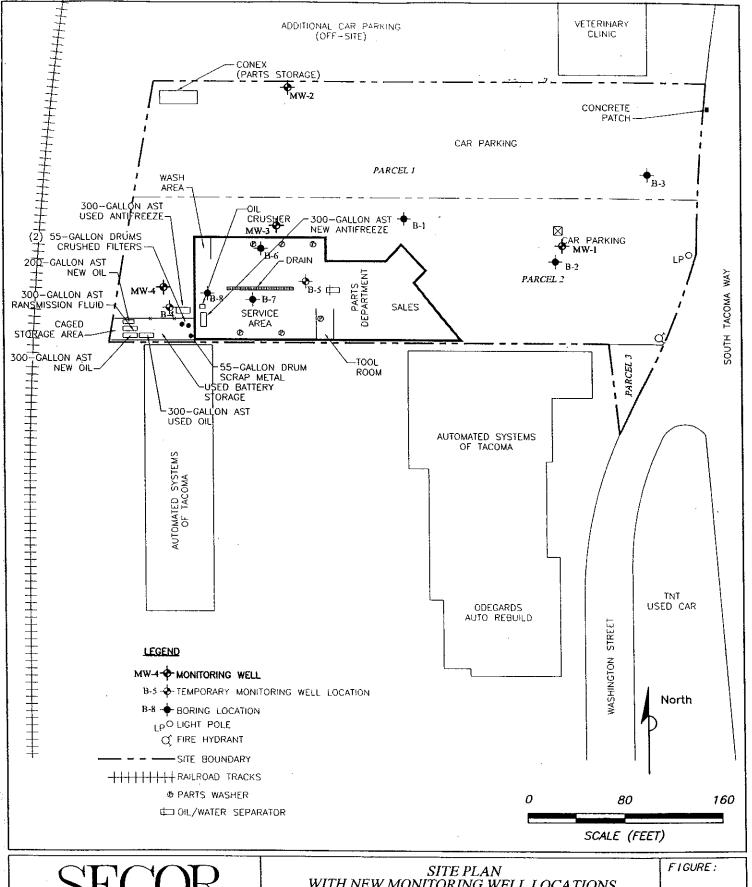
JOB#:001.01236.001

APPR:

DWN: SES

DATE: 7/6/01

FIGURE:



SECOR
International Incorporated

12034 134th COURT NE, SUITE 102 REDMOND, WASHINGTON 98052 (425) 372-1600 SITE PLAN WITH NEW MONITORING WELL LOCATIONS BRUCE TITUS NISSAN SUBARU DEALERSHIP 4030 SOUTH TACOM WAY TACOMA, WASHINGTON

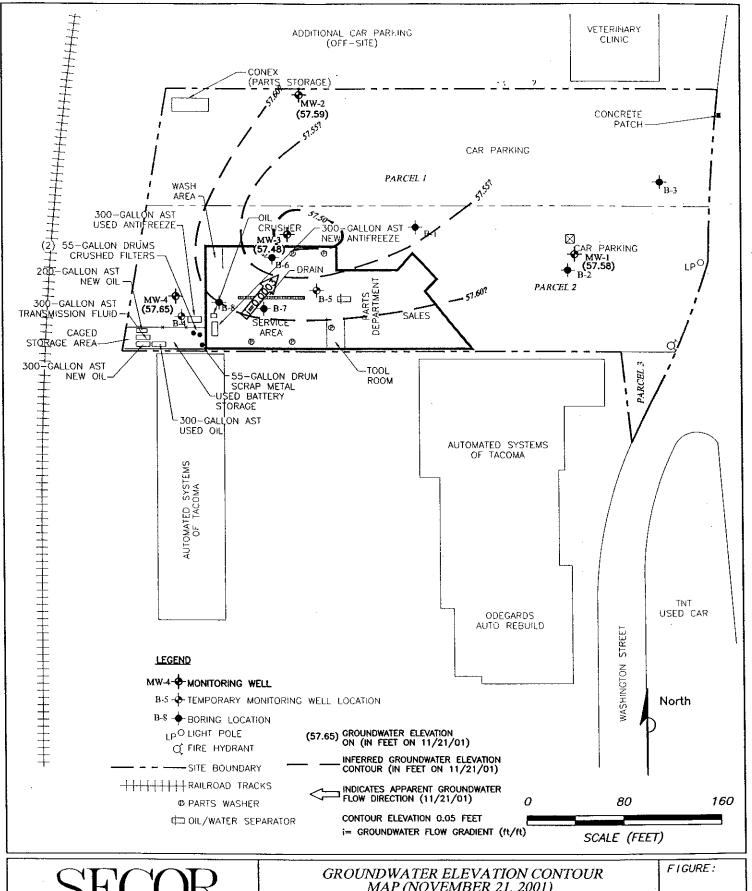
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APPR:

DWN: SES

DATE: 11/30/01 DWG: 01012871(2e)



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GROUNDWATER ELEVATION CONTOUR MAP (NOVEMBER 21, 2001) BRUCE TITUS NISSAN SUBARU DEALERSHIP 4030 SOUTH TACOM WAY TACOMA, WASHINGTON

3

JOB# ; 001.01287.001

APPR:

DWN: SES

DATE: 11/30/01 DWG: 01012871(2a)

**TABLES** 

# Table 1 Summary of Groundwater Depth and Elevation Data Bruce Titus Nissan Subaru 4030 South Tacoma Way Tacoma, Washington

SECOR PN: 001.01287.001

Well Number	Depth to Water (DTW)	Top of Casing (TOC) Elevation b	Groundwater Elevation <sup>b</sup>
	Novemb	er 21, 2001	
MW-1	41.01	98.59	57.58
MW-2	42.41	100.00	57.59
MW-3	43.06	100.54	57.48
MW-4	42.7	100.35	57.65
	Decemb	er 17, 2001	
MW-1	39.96	98.59	58.63
MW-2	41.21	100.00	58. <b>7</b> 9
MW-3	41.91	100.54	58.63
MW-4	41.52	100.35	58.83

#### Notes:

- a Depth in feet below top of well casing
- b Elevation in feet above mean sea level relative to arbitrary site datum Survey Completed by Diversified Surveying Services, Inc. on 12-10-01.

#### Table 2

# Soil Analytical Results-Well Installation

# Bruce Titus Nissan Subaru 4030 South Tacoma Way

Tacoma, Washington SECOR PN: 001.01287.001

	Sampl	le		Volati	le Organic (	Compounds	
Identification	Date	Depth (ft bgs)	Acetone	TCE	Toluene	Ethylbenzene	Xylenes
MW1-30	11/21/01	30.0	ND	0.007	0.022	ND	0.0025
MW2-40	11/21/01	40.0	ND	0.0067	0.011	ND	ND
MW3-40	11/21/01	40.0	0.015	0.0053	0.074	0.0037	0.0184
MW4-30	11/21/01	30.0	ND	ND	0.042	0.0013	0.0042
MTCA Metho	od A Soil Cl	leanup Levels	NA	0.03	7	6	9
MTCA Meth	od B Soil Cl	eanup Levels	800	90.9	16,000	800	160,000

Notes:

All data reported in milligrams per kilogram (mg/kg).

NA = No Method A Cleanup Value Established

\* = No Method A cleanup value established, Method B formula value presented

ND = Not detected above laboratory method detection limits

TCE = Trichloroethene or trichloroethylene

MTCA = Model Toxics Control Act

ft bgs = feet below ground surface

<sup>&</sup>lt;sup>1</sup> = Volatile organic compounds analyzed by EPA Method 8260B. All analytes non-detect except for those presented.

Table 3
Groundwater Analytical Results-Well Installation
Bruce Titus Nissan Subaru
4030 South Tacoma Way
Tacoma, Washington
SECOR PN: 001.01287.001

							Volatile Organic Compounds	.spun			
Monitoring Well	Date	Depth to water (feet bgs)	(cis) 1,2-Dichloroethene	Chloroform T	CE	enzene	Chloroform TCE Benzene 1,2 Dichloropropane	Bromodichloromethane	Toluene	Toluene Ethylbenzene Xylenes	Xylenes
1.707	11/01/01	1014	1.0	0.85		Ø	QN.	CK.	0.35	Ð	Ð
5 7177		42.41	£	0.20		£		Æ	SK.	QN	S
7- M M	10/17/11	30 67	2.1			£	Q		11	0.31	2.15
W5	10/12/11	00.64	Ç.			0.35	£		2.0	0.52	3.38
1 4	o de la constante	Cleanin Levels	Ϋ́Z	ŊĄ	۸.	5	NA	NA	1,000	700	1,000
MTCA Method B Groundwater Cleanup Levels	roundwater	Cleanup Levels	72.0	7.17	3.98	0,795	0.643	0.706	1,600	800	16,000

,

Shaded results indicate a detection above a cleanup level.

All data reported in micrograms per liter (µg/L).

NA = No Method A or B Cleanup Values Established

ND = Not detected above laboratory method detection limits

<sup>1 =</sup> Volatile organic compounds analyzed by EPA Method 8260B. All analytes non-detect except for those presented.

<sup>&</sup>lt;sup>2</sup> TCE = Trichloroethene or trichloroethylene

# APPENDIX A BORING LOGS

DWG: 01012871(BL)

WELL	/BORING	; LO	CATI	ON	MAP				S.	EC SEC	OR		WELL/BORING: MW-1
NORTH	·					DAT				01 073		0/01	
HORTH										1287.0		CHOAD	SAMPLE METHOD: 2.5" I.D. SPLIT SPOON
							ENT: CATION:			TITUS N			
ļ						CIT			ACON				WELL CASING: 2" SCH 40 PVC
						CO.	/STATI	E: P	IERCI	E/WAS	HINGTO	NC	WELL SCREEN: 0.010" SLOT
						DRI	LLER:	C	ASCA	DE			SAND PACK: 2/12 SILICA
			STABILIZED	띴	DENSITY BLOWS/FOOT	0VA	~		Sample interval		0		WATER LEVEL:
WELL/E	BORING ETION	FIRST	ABIL	J.T.	SITY (S/F		P.E. BER	VERY	₽ 2	EE	PH(	S BOL	TIME:
		₽	ST	MOISTURE	S S S	FIELD TEST	SAMPLE NUMBER	RECOVERY	AMPL.	DEPTH (FEET)	GRAPHIC	$\sim$	DATE: DESCRIPTION/LOGGED BY: K. McCARTHY
XXXXI	TXXXXX	¥	*			ш. ј	0,2	-	ů,		्र इन्द्रश्रुव		DESCRIPTION / LOGGED BT. R. MCCARTH
										31			
	$\bowtie$									32—			
	$\bowtie$									-			
								<del>                                     </del>		33-			
		-	-					$\vdash$	<u> </u>	34			
					<u> </u>	ļ		_		35—		SP	34 to 45 feet: SAND (SP); orange—tan, moist, fine to medium grained sand, trace fines (<5%), no odor.
	$\bowtie$									36-			
	<b>****</b>	3								i -			
	$\bowtie$		<del>                                     </del>							37—			
××××	XXXX			$\vdash$				┝	<b>-</b>	38			
					,	ļ	<u> </u>	-	<b> </b>	39—			
								$\vdash$	$\overline{}$	40—			
			v		26/50	1.2	MW-1-40	1	X	-			
			*					T	Í -	41—			
24.57.75.75 27.57.75.75		-		-		<del> </del> -		╁	_	42-			
		₹	-			ļ	<u> </u>	-	<u> </u>	43			At 43 feet: water encountered.
					<u> </u>			_		44-			A TO TEST. WOLL. GIOSSINGISE
			Ì				İ			-			
					1	1 .	<u> </u>			<b>  45</b> —   -			
		-	-	<b></b> -	<del>                                     </del>	1	ļ	<del> </del>	╁─	46—			45-60 feet: SAND (SP); dark brown-orange, wet, fine to
		<u>.</u>	₩	-	1	ļ	<b></b>	╄	$\vdash$	47-	184.545 Server	SP	coarse grained sand (90%), trace subrounded to subangular gravel, no odor.
5433		1		1_	ļ		<u> </u>	_	<u> </u>	48_			
		\$ .							L			j	
								$\vdash$	$\vdash$	49-			* Note: Driller noted heaving of the sands in boring sample from 50' may not be representitive of 50' below ground
		1-	<u> </u>	$\dagger$	27/50	1.4	MW-1-5	0'	$\dagger X$	50-			surface solls.
		}	-	+		-	1	+	<del>/</del>	51-			
		<u> </u>	$\bot$	$\perp$		<b> </b>	1	$\perp$		52-		23 2	
										53-		Į.	
		្យ										<b>.</b>	
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		-	_	-	1			-	_	58 <i>_</i> _	┧		
		-	+	-	-	_	┼	+	+	59_		/. 	No sample recovery.
11:55.75.55		4								60-	1		BORING TERMINATED AT 60 FEET.

WELL	/BORING	: LC	CATI	ON	MAP					EC	OR			WELL/B	ORING: MW-	2
HORTH			-			DAT			<u></u>	01 113		0/01			HOLLOW ST	
-contro							OJECT ENT:			1287.0 Titus N		CHIDAD	SAMPLE M U BORING D		2.5" I.D. SPL	JT SPOON
							CATION:						BORING D		61'	
						CIT			ACOM				WELL CAS	ING:	2" SCH 40	
							./STATE				HINGT	ON	WELL SCR		0.010" SLC	
			Ω		<u> </u>		ILLER:		ASCA	DE		Ι	SAND PAC WATER LEVEL:	K:	2/12 SILIC	A 
WELL/B	ORING	_	STABILIZED	RE	DENSITY BLOWS/FOOT	0VA	ا يم ا	>-	SAMPLE INTERVAL		ပ	_			-	<del>  -</del>
COMPL	ETION	FIRST	TAB	MOISTURE	TSITA WS/	i	SAMPLE NUMBER	RECOVERY	֟֟֟֓֟֓֟֓֟֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֟֟֓֓֓֓֓֓֓֓֟֟֓֓֓֓	рертн (Fеет)	GRAPHIC	88	DATE:			
		\$	₹	δ	PEC BC	FIELD TEST	S S	Ä	38	EE (FE	GR/	USGS SYMBOL	DESCRIPTION/LC	GGED BY	r: K. McCAR	THY
	7											AS	O TO D.4' Asphalt.		iri (eus) (1	
	<b> </b>			-						1		SW	0.4 to 13 feet: SANI 60% fine to medium subangular gravel, 5	grained sc	VEL (SW); light and, 35% subro	gray, moist, unded to
								_		2			subangular gravel, S	, lines, no	odor.	
			ļ					<u> </u>		3						
	•									<b>,</b> –			1			•
			<b> </b>		14/21/18	1.2	WW-2-5'		V	5						
				-				┢		6—						
		_							-	7—						
	$\otimes$		ļ	<u> </u>					<u> </u>	8		1				
									<u> </u>							
				İ												
				<u> </u>	14/24/25	2.1	MW-2-10'		$\mathbf{X}$	10	,-2>5 .,-3-(-)	SW	As above: Except dr	ok gray, tr	ace organics.	
							1			11-						
		-	╁	<del> </del>						12						
				-	ļ <u>.</u>					13	Section 2	_				
				<u> </u>					ļ	14-			13 to 17 feet: SAND	with GRAV	/EL (SW); moist	, light gray,
	$\otimes\!\!\!\otimes\!\!\!\otimes$							┝		<b>∤ -</b>		SW		n grained s	iand, 20% subri	ounded to
	$\otimes\!\!\!\otimes\!\!\!\otimes$				27/15	2.3	MW-2-15'		$\mathbf{X}$	15—						
			1				†			16—						
		}	+	-	-	-	<b> </b>	$\vdash$	┼	17			1			
		<u> </u>	-		<del> </del>	<del> </del>	<b>-</b>			18		j				
		_	_	<u> </u>	<b></b>			<u> </u>	ļ	19—						
		_			14/17/21	1.7	MW-2-20	_		20-		3	17 to 37 feet: SANI	n (SB), uall	ow-oranae ma	ist. 95% fine
	$\otimes \otimes$	}							IX	.] -		SP	to medium grained	sand, trac	e fines (<5%),	no odor.
		<u> </u>		1	1					21—		ğ	1			
	$\bowtie$	}—	<b>-</b>	$\vdash$	1					22-		ý. Ž				
		-	-	-		1		+	-	23—						
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		<b>X</b> —	-	-	-	-	-	-		28_	1					
		<u>*</u> —	_	_						29_	1					
		X		1	26/50	,,	WW-2-30	,]		<del>/</del>	<b>-</b> [32]	4				

WELL	/BORING	LO	CATI	ON	MAP					EC			WELL/BORING: MW-2
1						DAT	E:	1				0/01	1545 DRILLING METHOD: HOLLOW STEM AUGER
ноктн						PRO	DJECT						SAMPLE METHOD: 2.5" I.D. SPLIT SPOON
							ENT:			TITUS N			
						-	CATION:			S. TAC	COMA	WAY	
						CIT			ACOM		LINAT	ON	WELL CASING: 2" SCH 40 PVC WELL SCREEN: 0.010" SLOT
							./STATE ILLER:		CASCA		HINGI	ON.	SAND PACK: 2/12 SILICA
	-		9		٦			_			<u> </u>		WATER LEVEL:
   WELL/I	SORING	_	STABILIZED	윤	DENSITY BLOWS/FOOT	OVA	ا عوارا	<b>&gt;</b> -	SAMPLE INTERVAL		ပ္ခ	ا ا	<u> </u>
СОМЫ	ETION	FIRST	<u>₩</u>	STU	SIT.		급	VER	🖆	Ĕ£	Į Į	ကြွယ္တ	DATE:
		₹	S	MOISTURE	NO S	FIELD TEST	SAMPLE NUMBER	RECOVERY	N N	DEPTH (FEET)	GRAPHIC	USGS	DESCRIPTION/LOGGED BY: K. McCARTHY
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$\bowtie$	$\otimes$		ļ						$\angle$	31		1	
	<b>*****</b>										554	1	
₩₩				$\vdash$						32			
₩₩		_		<b> </b>					1	33—	NY.		1
		<u></u>		<u> </u>	ļ				<u> </u>	34			
$\bowtie$		1	1	'					1	-		SP	37 to 45 feet: SAND (SP); yellow-orange, moist, 90% medium to coarse grained sand, 5% subrounded to
										35—		<b>-</b>	medium to coarse grained sand, 5% subrounded to subangular gravel, <5% fines, mno odor.
	<b>****</b>	<del> </del>	$\vdash$					<u> </u>	-	36			
$\bowtie$	$\bowtie$	<u> </u>	<u> </u>	1				_	<u> </u>	37—			
	$\bowtie$	}			1					-		1	
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$\bowtie$	$\bowtie$	1	<del> </del>	<del> </del>	ļ	-	<b> </b>	ļ	<del> </del>	39—		1	
		,							//	40—			
		1			32/50	1.6	MW-2-40*		ΙX	~ -		3	
2.5		1		1			<u> </u>	$\vdash$	<u> </u>	41-	182		
			-	-	<u> </u>	<del>                                     </del>	<b> </b>		1	42-			
			*							43-		3	
		7								-		3	
		₹	1	1	<u> </u>	1	1	t	1	44-		1	
		-	-	-	1	1	1		-	45—			
						ļ <u>.</u>				46—	133		
										"-	183	SP	45 to 60 feet: SAND (SP); light gray, wet, fine to medium
			1	1	· <del> </del>	<b>†</b>	<del>                                     </del>	╁	<del>                                     </del>	47-			grained sand, trace slit, no odor.
			-	-	-	1	-	$\vdash$	-	48_		y I	
										49—	188		
		3						F	<u> </u>	<del>,</del>	1.00.75		
			$\dagger$	+-	21/50	1.9	MW-2-50	-	$\dagger X$	50-		Ž.	
2000000 200000000000000000000000000000		ika Si	+	+	<u> </u>	ļ	-	-	+	51-	-	** ***	
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	<b>1</b>									_ 58_			
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1000	目			-	25/50	1.4	WW-2-64	۱.0		7	7:4	. 4	

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WELL/BORING	2 10	ΓΔΤΙ	ON.	MAP		· · ·			SEC	<del>OR</del>	<u></u>		WELL /B	ORING: MW-2
TILLY SOMING				**15 4	DAT	rF·	1	Int	101 113		0/01	1545 DRILLIN		HOLLOW STEM AUGER
юкти								· · · · · · · · · · · · · · · · · · ·	1287.0		,		E METHOD:	
						ENT:			TITUS N		SUBAR	U BORING	DIAMETER:	
				-	-	CATION			S. TAC	AMO	WAY		DEPTH:	61'
					CIT			ACON		HNOT			CASING: SCREEN:	2" SCH 40 PVC
						./SIAII ILLER:		ASC	E/WAS	HINGI	UN	SAND	<del></del>	0.010" SLOT 2/12 SILICA
		Ω		Ţ	<u> </u>		Ō		Ī		Γ	WATER LEVEL		
WELL/BORING	  -	ILIZI	JRE	/F0(	0VA	шœ.	_ ا	SAMPLE INTERVAL		ပ္	ی ا		·	
COMPLETION	IRS	TAB	ISTL	ISIT WS,	95	气료	OVER	Ä	높	GRAPHIC	SSS	DATE:		
	# FIRST	STABILIZED	MOISTURE	DENSITY BLOWS/FOOT	FIELD TEST	SAMPLE	RECOVERY	SMS	DEPTH (FEET)	S.S.	USGS SYMBOL	DESCRIPTION	/LOGGED B	Y: K. McCARTHY
	Ť	Ī				<del></del>		$\nabla$	<u> </u>		sw	60 to 61 feet: S	AND (SW); dar	k gray (a "salt & pepper"
						ļ	<u> </u>		61		-	BORING TERMINAT		d, trace gravel, no odor.
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									63—					
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WELL	/BORING	S LC	CATI	ON	MAP				7.0	SEC	OR			WELL/B	ORING: MW-3	3
•						DAT	E:	1		01 0750		1/01			HOLLOW ST	
NOŘIH							OJECT						SAMPLE I		2.5" I.D. SPL	IT SPOON
						_	ENT:			TITUS N		-				
						_	CATION:			S. TAC	OMA	WAY	BORING 7		60'	- DV40
						CIT	<u>Y:</u> ./STATE		ACON		INCT	ON	WELL CAS		2" SCH 40 0.010" SLO	
					-		LLER:		ASC		TING	ON	SAND PAG		2/12 SILIC	
			e		F			_				1	WATER LEVEL:	1	1	
WELL/E	RORING	_	STABILIZED	MOISTURE	DENSITY BLOWS/FOOT	ŏ V	02	<b>&gt;</b> -	SAMPLE INTERVAL		O	ر ا		1		-
COMPL	ETION	FIRST	TAB	ST	SIT.		I	Ř	<del> </del>	EE.	Ţ	Ng Ng	DATE:			-
		<b>☆</b>	S	Θ	SEN	FIELD TEST	SAMPLE NUMBER	RECOVERY	3	DEPTH (FEET)	GRAPHIC	USGS SYMBOL	DESCRIPTION/LO	CCED BY	C K MaCARI	LUA
	Project	*	*				•••	_				AS	0 TO 0.4 Asphalt.		. IV. MCCANI	1111
ا الم	ָרָיָרָ <u>י</u>									1_		SW	0.4 to 14 feet: SAN	D with GRA	VEL (SW); dark	gray, moist,
	*									-			65% fine to coarse subrounded gravel,	grainea sar 5% fines, n	o odor.	uidr to
			1							2						
			<del> </del>							3—		-				
										4_		1				
	1.									'-						
XXXX					23/50	0.7	WW-3-5'	$\vdash$		5—		1				
<b>****</b>	$\bowtie$							<u> </u>		6—	n, 13					
<b>****</b>										7	in cr	]				
<b>****</b>	$\bowtie$										1 0 1 0 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1	]				
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<b>****</b>	$\bowtie$									- - 10	17.0 + 15.1 No. 1 15.1		As above; except to	rae diamete	or gravel (>1").	trace
	$\otimes$	3	-		7/17/50	0.6	MW-3-10'		$\geq$	] ''		SW	orgainics.	-, <b>-</b>	• • • • • • • • • • • • • • • • • • • •	
		}					ļ			11						
<b>****</b>	$\otimes \otimes \otimes$	_				ļ		<u> </u>	ļ	12-	2000					
	<b>****</b>	<u></u>	ļ <u>.</u>							13—	'a, ' e					
<b>****</b>	$\bowtie$	4								" -		е 4				
	<b>****</b>	-							1	14-			14 to 27 feet: SAN	D with GRAV	/EL (SW): light (	arav. molst.
$\bowtie$	$\otimes\!\!\!\otimes\!\!\!\otimes$	}—			TO /60		UW_T_15	├-		15-		sw	80% medium to co subrounded gravel,	arse grained	d sand, 20% sul	bangular to
	$\otimes$	<u>}</u>	<u> </u>		32/60	1.1			$\geq$	16—		.]	graver,		, 110 0001	
	$\bowtie$	1	ŀ							-						
	<b>****</b>	}	1						1	17—						
	$\bowtie$	}—			-		ऻ—	┼	<del> </del>	18						
	$\otimes$	<b>}</b>	<u> </u>			<u></u>			_	19						
		\$							1	-			No recovery; Large	gravel >3"	diameter.	
<b>****</b>	₩₩	₹						Г	T -	20—		: SW	ito recovery, carge	Migret >2	4,4,110,4,1	
	<b>****</b>	}—				<del>                                     </del>		$\vdash$	1	21						
	$\otimes\!\!\!\otimes\!\!\!\otimes$	3		ļ	1	<u> </u>	ļ	_		_ 22			,			
	$\otimes$	3								-	13.3	s -				
	- <b>XXXX</b>	1								23—						
$\bowtie$	<b>  XXXX</b>	X	-			1	1	╁╌		24						
$\otimes \otimes \otimes$		<u>\$</u>	1	1		<u> </u>	-	L	1	25_		3-4 				
		3							1	26						
$\bowtie$		3								_ 26						
		X—	-	-			-	┨		27—		2				
$\bowtie$		X	4	-	<b>_</b>		<b>_</b>	-		- 28			27 to 60 feet: SAt medium grained, t	ND (SP) ora race subrou	ngs—brown, moi inded to subang	st, fine to ular gravel, no
		X X								20			odor.			
		8				1		1		29						
KXXXX		SI .		ı	50/6	1 10	MW-3~30	·	<b>L</b>	→ 30—	1,345	1	,			

WELL,	/BORING	LO	CATI	ON I	MAP				C L	SEC	OR			WELL/B	ORING: MY	V-3
HORTH	•					DAT						1/01	1100 DRILLING			STEM AUGER SPLIT SPOON
							DIECT ENT:			1287.0 TITUS N		SUBAR		DIAMETER:		SPLII SPOON
										S. TAC			BORING I	DEPTH:	60'	
						CIT			ACON				WELL CA		2" SCH	
							/STATI LLER:		ASC	E/WASI	HINGT	ON	WELL SC SAND PA		0.010" : 2/12 SI	
			6		5	<b>.</b>	LLLIV.						WATER LEVEL:	T	1 .	
WELL/B	ORING	<u>+-</u>	K STABILIZED	MOISTURE	DENSITY BLOWS/FOOT	OVA	щЖ	≿	SAMPLE INTERVAL		2	٦				
COMPL	ETION	FIRST	STAB	IST	YSIT,	FIELD TEST	SAMPLE NUMBER	RECOVERY	PE	DEPTH (FEET)	GRAPHIC	USGS SYMBOL	DATE:			
		Δ	¥	Ω	200	표	85	REC	₹.	BE	8	\%\?	DESCRIPTION/L	OGGED B	Y: K. McC	ARTHY
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	$\bowtie$									31—						
	$\bowtie$									32—						
	$\bowtie$							_		33—						į
	$\bowtie$									34						
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		<u> </u>	-	-		<u> </u>	<b> </b>		-	37-						
				<b>.</b>						38_						
				1					l		AP 65	1				
										39			As above:			
			<del>                                     </del>	-	80	1.7	MW-3-40	-	X	40-		3	AS dbove:			
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1 7 3 A A 1 9 3 C E	<b>⇒</b> '*'	V				1	ļ	+	-	45—			ļ			
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										47-		SP				
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		-	†-	-	<u> </u>		1-		Ŀ	49-						
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		) 	_		7/14/18	V.8		_	$\mathcal{L}$	51_			As above:			
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										60-		1	No recovery: (hec			
		٦		1					Щ.	1 00-			BORING TERMINATE	D AT 60 FE	ET.	OWG: 01012871(9L)

( )

WEL	L/BORING	E LC	CAT	ION	MAP				, L	<b>SEC</b>	OR.		WELL/BOI	RING: MW-4
1						DAT	ſΕ:	1	1/21/	01 1130	0 11/2	1/01	1545 DRILLING METHOD: 1	OLLOW STEM AUGER
ноктн							OJECT						SAMPLE METHOD: 2	2.5" I.D. SPLIT SPOON
							ENT:			TITUS N		-		
							CATION:				AMO	WAY		50'
						CIT			ACON					2" SCH 40 PVC
							./STATI ILLER:		ASC		HINGT	ON		0.010" SLOT 2/12 SILICA
			9		<u> </u>	•	ILLEN.			IUE			SAND PACK: 2 WATER LEVEL:	Z/12 SILICA
WELL /	BORING		STABILIZED	RE	5	0 V		_	15 E		O			
	LETION	FIRST	ABI	T⊡	ESS!		- H H H H H	8	<u>≝</u>   ਘ੍	EE	표	Sg	TIME:	
				MOISTURE	DENSITY BLOWS/FOOT	FIELD TEST	SAMPLE	RECOVERY	SAMPLE INTERVAL	DEPTH (FEET)	GRAPHIC	USGS SYMBOL	DATE:	<u> </u>
7.7	Leane	℧	¥	_		<u>т н-</u>	012	1 2	· ·		U		DESCRIPTION/LOGGED BY:	K. McCARTHY
	Մ.՝ ։											1	0.4 to 17 feet: SAND (SP); gray, prained sand, 10% subangular to	moist, fine to medium
					'					'-			rained sand, 10% subangular to dor.	subrounded gravel, no
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<b>***</b>	<b>****</b>				32/50	0.0	WW-4-5'	-		5—				
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$\bowtie$				1	29/50	0.0	WW-4-15	-		15—				
$\bowtie$				ļ	,				$\geq$	16—				
$\bowtie$														
$\bowtie$	$\otimes$							Г		17—			17 to 45 feet: SAND (SW); light	brown, moist, 80% fine to
	$\otimes \otimes \otimes$						-		-	18		SW	coarse grained sand, 20% suban no odor.	gular to subrounded gravel,
			<b> </b>	<b>_</b>	<b></b>		<del>                                     </del>	_	<u> </u>	19	14 ( 14 M) 13 ( 14 M)			
					19/60	0.3	MW-4-20	[	$\geq$	20	Salah Salah			
		}	<del>                                     </del>	<del>                                     </del>	<b> </b>		1	-	T	21	<i></i>			
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		\$						"		-	and the		•	
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	│   ‱	\$		<u> </u>						26				
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	│	}—	-	-	<b></b>			$\vdash$	-	28		-		
		<u> </u>		1	ļ			$\perp$		29	1 .			
$\otimes \otimes \otimes$	│ ‱	1								-	A Comment	/	SAND (SP) light brown, moist, 8 sand, 10% fines, 10% subangula	0% fine to medium grained in to subrounded arayel, no
$\otimes$	L_1XXXX	4	<u> </u>	1	39/60	1.2	MW-4-30	<u>'</u>		<del>/</del> 30 —	11.00	SP	odor.	

WELL,	/BORING	G LC	CAT	ION	MAP				Ç L	SEC	OR		WELL/BORING: MW-4
NORTH						DAT						1/01	11545 DRILLING METHOD: HOLLOW STEM AUGER
MURIN]								#:0	01.0	1287.0	01		SAMPLE METHOD: 2.5" I.D. SPLIT SPOON
							ENT:			TITUS N			
										S. TAC	AMU	WAY	BORING DEPTH: 60' WELL CASING: 2" SCH 40 PVC
•						CIT			ACO	MA E/WAS	HINGT	ΠN	WELL CASING: 2 SCH 40 PVC WELL SCREEN: 0.010" SLOT
							./ SIAII ILLER:		ASC		111111	UN	SAND PACK: 2/12 SILICA
					5					<del></del>		•	WATER LEVEL:
WELL/B	ORING	_	STABILIZED	JRE	Ž,	0 V	يون ا	_	FER		ಲ		
COMPL	ETION	FIRST	TAB	MOISTURE	ISIT)		<u> 후</u>	XER.	= <u>-</u>	E.C.	GRAPHIC	ကြည်	DATE:
		<b>☆</b>	S	δŘ	DENSITY BLOWS/FOOT	FIELD TEST	SAMPLE	RECOVERY	SAMPLE INTERVAL	DEPTH (FEET)	82	USGS	DESCRIPTION/LOGGED BY: K. McCARTHY
XXXXI	   	-	<b>—</b>			<u> </u>		<u> </u>	Ü	<del> </del>	1445.1 1445.1	<del>-</del>	The state of the s
	$\bowtie$		ļ					<u> </u>		31			
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	$\bowtie$		-			<b>-</b>	<b> </b>	<u> </u>	<del> </del>	36			
			L							37—			
	$\bowtie$									-	3,000		
	<b>^^^^</b>	-		<u> </u>				一	-	38			
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							L	<u> </u>		<del> </del>	Finh:	SP	SAND (SP); light brown, moist, fine to medium aroined
					70	1.9	MW-4-40	'	X	40-		]	SAND (SP); light brown, moist, fine to medium grained sand, trace fines, gravel, no odor.
		1	1	t			<b></b>	$\vdash$	<del>/      </del>	41			
			<del> </del>	_			<u> </u>	1_		42			
			¥		L		1				STANCE ACCOMM		
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		_	<b> </b>	_		<b> </b>	ļ	<u> </u>	ļ	45			
<b>→</b>	<b>⊐</b> • • • • • • • • • • • • • • • • • • •	Z								-	aya sa fila Sa ja ing sa		
						1				<del>-  46</del>			45 to 60 feet: SAND (SP); alive gray ("salt & pepper") wet, medium to coarse grained sand, little or no fines or gravel
		-	╁	$\vdash$	-	<u> </u>	-	ļ	┼	47-		SP	no odor.
		<u> </u>	_	_						48		1	
	Take of the control o				-					-			
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			+	$\vdash$	29/50	2.1	MW-4-50	-	X	50-		2	
			<u> </u>	<u> </u>				_	$\angle$	51—	RC:	1	
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				$\vdash$		ļ		$\perp$	ļ	_ 59	1		No recovery (heaving agrida)
		4								60—	V v v		No recovery: (heaving sands).
L		E		1	1	1	1					1	BORING TERMINATED AT 50 FEET.

# APPENDIX B LABORATORY ANALYTICAL REPORTS



November 29, 2001

Amy Essig Desai SECOR P.O. Box 230 Redmond, WA 98073

Re:

Analytical Data for Project 001.01287.001

Laboratory Reference No. 0111-171

Dear Amy:

Enclosed are the analytical results and associated quality control data for samples submitted on November 21, 2001.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Paumeister Project Manager

**Enclosures** 

Date of Report: November 29, 2001 Samples Submitted: November 21, 2001

Lab Traveler: 11-171 Project: 001.01287.001

# **VOLATILES by EPA 8260B**

Page 1 of 2

Date Extracted: Date Analyzed:

11-29-01 11-29-01

Matrix:

Soil

Units:

mg/Kg (ppm)

Lab ID: Client ID: 11-171-05 MW1-30

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0012
Chloromethane	ND		0.0012
Vinyl Chloride	ND		0.0012
Bromomethane	ND		0.0012
Chloroethane	ND	•	0.0012
Trichlorofluoromethane	ND		0.0012
1,1-Dichloroethene	ND		0.0012
Acetone	ND		0.0061
lodomethane	ND		0.0061
Carbon Disulfide	ND		0.0012
Methylene Chloride	ND		0.0061
(trans) 1,2-Dichloroethene	ND		0.0012
Methyl t-Butyl Ether	ND		0.0012
1,1-Dichloroethane	ND		0.0012
Vinyl Acetate	ND	•	0.0061
2,2-Dichloropropane	ND		0.0012
(cis) 1,2-Dichloroethene	ND		0.0012
2-Butanone	ND		0.0061
Bromochloromethane	ND		0.0012
Chloroform	ND		0.0012
1,1,1-Trichloroethane	ND		0.0012
Carbon Tetrachloride	ND		0.0012
1,1-Dichloropropene	ND		0.0012
Benzene	ND		0.0012
1,2-Dichloroethane	ND		0.0012
Trichloroethene	0.0070		0.0012
1,2-Dichloropropane	ND		0.0012
Dibromomethane	ND		0.0012
Bromodichloromethane	ND		0.0012
2-Chloroethyl Vinyl Ether	ND		0.0061
(cis) 1,3-Dichloropropene	ND		0.0012
Methyl Isobutyl Ketone	ND		0.0061
Toluene	0.022		0.0012
(trans) 1,3-Dichloropropene	ND		0.0012
1,1,2-Trichloroethane	ND		0.0012
Tetrachloroethene	ND		0.0012
1,3-Dichloropropane	ND		0.0012

Date of Report: November 29, 2001 Samples Submitted: November 21, 2001

Lab Traveler: 11-171 Project: 001.01287.001

# VOLATILES by EPA 8260B Page 2 of 2

Lab ID: Client ID:

11-171-05 **MW1-30** 

Compound	Results	Flags	PQL
2-Hexanone	ND		0.0061
Dibromochloromethane	ND		0.0012
1,2-Dibromoethane	ND		0.0012
Chlorobenzene	ND		0.0012
1,1,1,2-Tetrachloroethane	ND		0.0012
Ethylbenzene	ND		0.0012
m,p-Xylene	0.0025		0.0024
o-Xylene	ND ND		0.0012
Styrene	ND		0.0012
Bromoform	, ND		0.0012
Isopropylbenzene	ND		0.0012
Bromobenzene	ND		0.0012
1,1,2,2-Tetrachloroethane	ND		0.0012
1,2,3-Trichloropropane	ND		0.0012
n-Propylbenzene	ND		0.0012
2-Chlorotoluene	ND		0.0012
4-Chlorotoluene	ND		0.0012
1,3,5-Trimethylbenzene	ND		0.0012
tert-Butylbenzene	ND		0.0012
1,2,4-Trimethylbenzene	ND		0.0012
sec-Butylbenzene	ND		0.0012
1,3-Dichlorobenzene	ND		0.0012
p-Isopropyltoluene	ND		0.0012
1,4-Dichlorobenzene	ND		0.0012
1,2-Dichlorobenzene	ND		0.0012
n-Butylbenzene	ND		0.0012
1,2-Dibromo-3-chloropropane	ND		0.0061
1,2,4-Trichlorobenzene	ND		0.0012
Hexachlorobutadiene	ND		0.0061
Naphthalene	ND		0.0012
1,2,3-Trichlorobenzene	ND		0.0012

	Percent	Control
Surrogate	Recovery	Limits
Dibromofluoromethane	103	65-125
Toluene, d8	80	77-116
4-Bromofluorobenzene	86	67-133

Date of Report: November 29, 2001 Samples Submitted: November 21, 2001

Lab Traveler: 11-171 Project: 001.01287.001

# **VOLATILES by EPA 8260B**

Page 1 of 2

Date Extracted: Date Analyzed:

11-29-01 11-29-01

Matrix:

Soil

Units:

mg/Kg (ppm)

Lab ID: Client ID: 11-171-13

MW2-40

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND	_	0.0011
Chloromethane	ND		0.0011
Vinyl Chloride	ND		0.0011
Bromomethane	ND		0.0011
Chloroethane	ND		0.0011
Trichlorofluoromethane	. ND		0.0011
1,1-Dichloroethene	ND		0.0011
Acetone	ND		0.0054
lodomethane	ND		0.0054
Carbon Disulfide	ND		0.0011
Methylene Chloride	ND		0.0054
(trans) 1,2-Dichloroethene	ND		0.0011
Methyl t-Butyl Ether	ND		0.0011
1,1-Dichloroethane	ND		0.0011
Vinyl Acetate	ND		0.0054
2,2-Dichloropropane	ND		0.0011
(cis) 1,2-Dichloroethene	ND		0.0011
2-Butanone	ND		0.0054
Bromochloromethane	ND		0.0011
Chloroform	ND		0.0011
1,1,1-Trichloroethane	ND		0.0011
Carbon Tetrachloride	ND		0.0011
1,1-Dichloropropene	ND		0.0011
Benzene	ND		0.0011
1,2-Dichloroethane	ND		0.0011
Trichloroethene	0.0067		0.0011
1,2-Dichloropropane	ND		0.0011
Dibromomethane	ND		0.0011
Bromodichloromethane	ND		0.0011
2-Chloroethyl Vinyl Ether	ND		0.0054
(cis) 1,3-Dichloropropene	ND		0.0011
Methyl Isobutyl Ketone	ND		0.0054
Toluene	0.011		0.0011
(trans) 1,3-Dichloropropene	ND	•	0.0011
1,1,2-Trichloroethane	ND		0.0011
Tetrachloroethene	ND		0.0011
1,3-Dichloropropane	ND		0.0011

Lab Traveler: 11-171 Project: 001.01287.001

### VOLATILES by EPA 8260B Page 2 of 2

Lab ID: Client ID: 11-171-13 MW2-40

Compound	Results	Flags	PQL
2-Hexanone	ND	_	0.0054
Dibromochloromethane	ND		0.0011
1,2-Dibromoethane	ND		0.0011
Chlorobenzene	ND		0.0011
1,1,1,2-Tetrachloroethane	ND	•	0.0011
Ethylbenzene	ND		0.0011
m,p-Xylene	ND		0.0022
o-Xylene	ND		0.0011
Styrene	ND		0.0011
Bromoform	ND		0.0011
Isopropylbenzene	ND		0.0011
Bromobenzene	ND		0.0011
1,1,2,2-Tetrachloroethane	ND	,	0.0011
1,2,3-Trichloropropane	ND		0.0011
n-Propylbenzene	ND		0.0011
2-Chlorotoluene	ND		0.0011
4-Chlorotoluene	ND		0.0011
1,3,5-Trimethylbenzene	ND		0.0011
tert-Butylbenzene	ND		0.0011
1,2,4-Trimethylbenzene	ND		0.0011
sec-Butylbenzene	ND		0.0011
1,3-Dichlorobenzene	ND		0.0011
p-Isopropyltoluene	ND		0.0011
1,4-Dichlorobenzene	ND		0.0011
1,2-Dichlorobenzene	ND		0.0011
n-Butylbenzene	ND		0.0011
1,2-Dibromo-3-chloropropane	ND		0.0054
1,2,4-Trichlorobenzene	ND		0.0011
Hexachlorobutadiene	ND		0.0054
Naphthalene	ND		0.0011
1,2,3-Trichlorobenzene	ND		0.0011
•			

	Percent	Control
Surrogate	Recovery	Limits
Dibromofluoromethane	102	65-125
Toluene, d8	81	77-116
4-Bromofluorobenzene	89	67-133

Lab Traveler: 11-171 Project: 001.01287.001

### **VOLATILES by EPA 8260B**

Page 1 of 2

Date Extracted:

11-29-01

Date Analyzed:

11-29-01

Matrix:

Soil

Units:

mg/Kg (ppm)

Lab ID:

11-171-20

Client ID:

MW3-40

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND ·		0.0011
Chloromethane	ND		0.0011
Vinyl Chloride	ND		0.0011
Bromomethane	ND .		0.0011
Chloroethane	ND		0.0011
Trichlorofluoromethane	ND		0.0011
1,1-Dichloroethene	ND		0.0011
Acetone	0.015	Н	0.0053
lodomethane	ND		0.0053
Carbon Disulfide	ND		0.0011
Methylene Chloride	ND		0.0053
(trans) 1,2-Dichloroethene	ND		0.0011
Methyl t-Butyl Ether	ND		0.0011
1,1-Dichloroethane	ND		0.0011
Vinyl Acetate	ND		0.0053
2,2-Dichloropropane	ND		0.0011
(cis) 1,2-Dichloroethene	ND		0.0011
2-Butanone	ND		0.0053
Bromochloromethane	ND		0.0011
Chloroform	ND		0.0011
1,1,1-Trichloroethane	ND		0.0011
Carbon Tetrachloride	ND		0.0011
1,1-Dichloropropene	ND		0.0011
Benzene	ND		0.0011
1,2-Dichloroethane	ND		0.0011
Trichloroethene	0.0053		0.0011
1,2-Dichloropropane	ND		0.0011
Dibromomethane	ND		0.0011
Bromodichloromethane	ND		0.0011
2-Chloroethyl Vinyl Ether	ND		0.0053
(cis) 1,3-Dichloropropene	ND		0.0011
Methyl Isobutyl Ketone	ND		0.0053
Toluene	0.074		0.0011
(trans) 1,3-Dichloropropene	ND		0.0011
1,1,2-Trichloroethane	ND		0.0011
Tetrachloroethene	ND		0.0011
1,3-Dichloropropane	ND		0.0011

Project: 001.01287.001

### **VOLATILES by EPA 8260B**

Page 2 of 2

Lab ID: Client ID: 11-171-20 MW3-40

Compound	Results	Flags	PQL
2-Hexanone	ND		0.0053
Dibromochloromethane	ND		0.0011
1,2-Dibromoethane	ND		0.0011
Chlorobenzene	ND		0.0011
1,1,1,2-Tetrachloroethane	ND		0.0011
Ethylbenzene	0.0037		0.0011
m,p-Xylene	0.015		0.0021
o-Xylene	0.0034		0.0011
Styrene	ND		0.0011
Bromoform	ND		0.0011
Isopropylbenzene	ND		0.0011
Bromobenzene	ND		0.0011
1,1,2,2-Tetrachloroethane	ND		0.0011
1,2,3-Trichloropropane	ND		0.0011
n-Propylbenzene	ND		0.0011
2-Chlorotoluene	ND		0.0011
4-Chlorotoluene	ND		0.0011
1,3,5-Trimethylbenzene	ND		0.0011
tert-Butylbenzene	ND		0.0011
1,2,4-Trimethylbenzene	ND ·		0.0011
sec-Butylbenzene	ND		0.0011
1,3-Dichlorobenzene	ND -		0.0011
p-Isopropyltoluene	ND		0.0011
1,4-Dichlorobenzene	ND		0.0011
1,2-Dichlorobenzene	ND ·		0.0011
n-Butylbenzene	ND		0.0011
1,2-Dibromo-3-chloropropane	ND		0.0053
1,2,4-Trichlorobenzene	ND		0.0011
Hexachlorobutadiene	ND		0.0053
Naphthalene	ND		0.0011
1,2,3-Trichlorobenzene	ND		0.0011

	Percent	Control
Surrogate	Recovery	Limits
Dibromofluoromethane	102	65-125
Toluene, d8	83	77-116
4-Bromofluorobenzene	87	67-133

Lab Traveler: 11-171 Project: 001.01287.001

### **VOLATILES by EPA 8260B**

Page 1 of 2

Date Extracted: Date Analyzed:

11-29-01 11-29-01

Matrix:

Soil

Units:

mg/Kg (ppm)

Lab ID: Client ID: 11-171-26 MW4-30

Compound -	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0012
Chloromethane	·ND		0.0012
Vinyl Chloride	ND	•	0.0012
Bromomethane	ND		0.0012
Chloroethane	ND		0.0012
Trichlorofluoromethane	ND		0.0012
1,1-Dichloroethene	ND		0.0012
Acetone	ND		0.0058
lodomethane	ND		0.0058
Carbon Disulfide	ND		0.0012
Methylene Chloride	ND		0.0058
(trans) 1,2-Dichloroethene	ND		0.0012
Methyl t-Butyl Ether	ND		0.0012
1,1-Dichloroethane	ND		0.0012
Vinyl Acetate	ND		0.0058
2,2-Dichloropropane	ND		0.0012
(cis) 1,2-Dichloroethene	ND		0.0012
2-Butanone	ND		0.0058
Bromochloromethane	ND		0.0012
Chloroform	ND		0.0012
1,1,1-Trichloroethane	ND		0.0012
Carbon Tetrachloride	ND		0.0012
1,1-Dichloropropene	ND		0.0012
Benzene	ND		0.0012
1,2-Dichloroethane	ND		0.0012
Trichloroethene	ND		0.0012
1,2-Dichloropropane	ND		0.0012
Dibromomethane	ND		0.0012
Bromodichloromethane	ND		0.0012
2-Chloroethyl Vinyl Ether	· ND		0.0058
(cis) 1,3-Dichloropropene	ND		0.0012
Methyl Isobutyl Ketone	. ND		0.0058
Toluene	0.042		0.0012
(trans) 1,3-Dichloropropene	ND		0.0012
1,1,2-Trichloroethane	ND		0.0012
Tetrachloroethene	ND		0.0012
1,3-Dichloropropane	ND		0.0012

Project: 001.01287.001

### **VOLATILES by EPA 8260B**

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Lab ID: 11-171-26 Client ID: MW4-30

	<u>_</u>		
Compound	Results	Flags	PQL
2-Hexanone	ND		0.0058
Dibromochloromethane	ND		0.0012
1,2-Dibromoethane	ND		0.0012
Chlorobenzene	ND		0.0012
1,1,1,2-Tetrachloroethane	ND		0.0012
Ethylbenzene	0.0013		0.0012
m,p-Xylene	0.0052		0.0023
o-Xylene	. ND	•	0.0012
Styrene	ND		0.0012
Bromoform	ND		0.0012
Isopropylbenzene	ND		0.0012
Bromobenzene	· ND		0.0012
1,1,2,2-Tetrachioroethane	ND		0.0012
1,2,3-Trichloropropane	ND		0.0012
n-Propylbenzene	ND		0.0012
2-Chlorotoluene	ND		0.0012
4-Chlorotoluene	ND		0.0012
1,3,5-Trimethylbenzene	ND		0.0012
tert-Butylbenzene	ND		0.0012
1,2,4-Trimethylbenzene	ND		0.0012
sec-Butylbenzene	ND		0.0012
1,3-Dichlorobenzene	ND		0.0012
p-Isopropyltoluene	ND		0.0012
1,4-Dichlorobenzene	. ND		0.0012
1,2-Dichlorobenzene	ND		0.0012
n-Butylbenzene	ND		0.0012
1,2-Dibromo-3-chloropropane	ND		0.0058
1,2,4-Trichlorobenzene	ND		0.0012
Hexachlorobutadiene	ND		0.0058
Naphthalene	ND		0.0012
1,2,3-Trichlorobenzene	, ND		0.0012
.,.,.			0.0012

	Percent	Control
Surrogate	Recovery	Limits
Dibromofluoromethane	105	65-125
Toluene, d8	83	77-116
4-Bromofluorobenzene	83	67-133

Lab Traveler: 11-171 Project: 001.01287.001

### VOLATILES by EPA 8260B METHOD BLANK QUALITY CONTROL

Page 1 of 2

Date Extracted:

11-29-01 11-29-01

Date Analyzed:

• • •

Matrix:

Soil

Units:

mg/Kg (ppm)

Lab ID:

MB1129S1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND	9+	0.0010
Chloromethane	ND.	•	0.0010
Vinyl Chloride	ND		0.0010
Bromomethane	ND		0.0010
Chloroethane <sup>-</sup>	ND		0.0010
Trichlorofluoromethane	ND		0.0010
1,1-Dichloroethene	ND		0.0010
Acetone	ND		0.0050
lodomethane	ND		0.0050
Carbon Disulfide	ND		0.0010
Methylene Chloride	ND		0.0050
(trans) 1,2-Dichloroethene	ND		0.0010
Methyl t-Butyl Ether	ND		0.0010
1,1-Dichloroethane	ND	•	0.0010
Vinyl Acetate	ND		0.0050
2,2-Dichloropropane	ND		0.0010
(cis) 1,2-Dichloroethene	ND		0.0010
2-Butanone	ND		0.0050
Bromochloromethane	ND		0.0010
Chloroform	ND		0.0010
1,1,1-Trichloroethane	ND		0.0010
Carbon Tetrachloride	ND		0.0010
1,1-Dichloropropene	ND		0.0010
Benzene	ND		0.0010
1,2-Dichloroethane	ND		0.0010
Trichloroethene	ND		0.0010
1,2-Dichloropropane	ND		0.0010
Dibromomethane	ND		0.0010
Bromodichloromethane	ND	•	0.0010
2-Chloroethyl Vinyl Ether	ND		0.0050
(cis) 1,3-Dichloropropene	ND		0.0010
Methyl Isobutyl Ketone	ND .		0.0050
Toluene	ND		0.0010
(trans) 1,3-Dichloropropene	ND		0.0010
1,1,2-Trichloroethane	ND		0.0010
Tetrachloroethene	ND		0.0010
1,3-Dichloropropane	ND		0.0010

Project: 001.01287.001

### **VOLATILES by EPA 8260B** METHOD BLANK QUALITY CONTROL

Page 2 of 2

Lab ID:

MB1129S1

2-Hexanone         ND         0.0050           Dibromochloromethane         ND         0.0010           1,2-Dibromoethane         ND         0.0010           Chlorobenzene         ND         0.0010           1,1,1,2-Tetrachloroethane         ND         0.0010           Ethylbenzene         ND         0.0010           m,p-Xylene         ND         0.0020           o-Xylene         ND         0.0010           Styrene         ND         0.0010           Bromoform         ND         0.0010           Isopropylbenzene         ND         0.0010           Bromobenzene         ND         0.0010           1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010
1,2-Dibromoethane         ND         0.0010           Chlorobenzene         ND         0.0010           1,1,1,2-Tetrachloroethane         ND         0.0010           Ethylbenzene         ND         0.0010           m,p-Xylene         ND         0.0020           o-Xylene         ND         0.0010           Styrene         ND         0.0010           Bromoform         ND         0.0010           Isopropylbenzene         ND         0.0010           Bromobenzene         ND         0.0010           1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           tert-Butylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010
Chlorobenzene         ND         0.0010           1,1,1,2-Tetrachloroethane         ND         0.0010           Ethylbenzene         ND         0.0010           m,p-Xylene         ND         0.0020           o-Xylene         ND         0.0010           Styrene         ND         0.0010           Bromoform         ND         0.0010           Isopropylbenzene         ND         0.0010           Bromobenzene         ND         0.0010           1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           tert-Butylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
1,1,1,2-Tetrachloroethane         ND         0.0010           Ethylbenzene         ND         0.0010           m,p-Xylene         ND         0.0020           o-Xylene         ND         0.0010           Styrene         ND         0.0010           Bromoform         ND         0.0010           Isopropylbenzene         ND         0.0010           Bromobenzene         ND         0.0010           1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           tert-Butylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           p-Isopropyltoluene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
Ethylbenzene         ND         0.0010           m,p-Xylene         ND         0.0020           o-Xylene         ND         0.0010           Styrene         ND         0.0010           Bromoform         ND         0.0010           Isopropylbenzene         ND         0.0010           Bromobenzene         ND         0.0010           1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
m,p-Xylene         ND         0.0020           o-Xylene         ND         0.0010           Styrene         ND         0.0010           Bromoform         ND         0.0010           Isopropylbenzene         ND         0.0010           Bromobenzene         ND         0.0010           1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
o-Xylene         ND         0.0010           Styrene         ND         0.0010           Bromoform         ND         0.0010           Isopropylbenzene         ND         0.0010           Bromobenzene         ND         0.0010           1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           p-Isopropyltoluene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
Styrene         ND         0.0010           Bromoform         ND         0.0010           Isopropylbenzene         ND         0.0010           Bromobenzene         ND         0.0010           1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           tert-Butylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           p-Isopropyltoluene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
Bromoform         ND         0.0010           Isopropylbenzene         ND         0.0010           Bromobenzene         ND         0.0010           1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           tert-Butylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           p-Isopropyltoluene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
Isopropylbenzene         ND         0.0010           Bromobenzene         ND         0.0010           1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           tert-Butylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           p-Isopropyltoluene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
Bromobenzene         ND         0.0010           1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           tert-Butylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
1,1,2,2-Tetrachloroethane         ND         0.0010           1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           tert-Butylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           p-Isopropyltoluene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
1,2,3-Trichloropropane         ND         0.0010           n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           tert-Butylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           p-Isopropyltoluene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
n-Propylbenzene         ND         0.0010           2-Chlorotoluene         ND         0.0010           4-Chlorotoluene         ND         0.0010           1,3,5-Trimethylbenzene         ND         0.0010           tert-Butylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           p-Isopropyltoluene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
2-Chlorotoluene       ND       0.0010         4-Chlorotoluene       ND       0.0010         1,3,5-Trimethylbenzene       ND       0.0010         tert-Butylbenzene       ND       0.0010         1,2,4-Trimethylbenzene       ND       0.0010         sec-Butylbenzene       ND       0.0010         1,3-Dichlorobenzene       ND       0.0010         p-Isopropyltoluene       ND       0.0010         1,4-Dichlorobenzene       ND       0.0010
4-Chlorotoluene       ND       0.0010         1,3,5-Trimethylbenzene       ND       0.0010         tert-Butylbenzene       ND       0.0010         1,2,4-Trimethylbenzene       ND       0.0010         sec-Butylbenzene       ND       0.0010         1,3-Dichlorobenzene       ND       0.0010         p-Isopropyltoluene       ND       0.0010         1,4-Dichlorobenzene       ND       0.0010
1,3,5-Trimethylbenzene       ND       0.0010         tert-Butylbenzene       ND       0.0010         1,2,4-Trimethylbenzene       ND       0.0010         sec-Butylbenzene       ND       0.0010         1,3-Dichlorobenzene       ND       0.0010         p-Isopropyltoluene       ND       0.0010         1,4-Dichlorobenzene       ND       0.0010
tert-Butylbenzene         ND         0.0010           1,2,4-Trimethylbenzene         ND         0.0010           sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           p-Isopropyltoluene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
1,2,4-Trimethylbenzene       ND       0.0010         sec-Butylbenzene       ND       0.0010         1,3-Dichlorobenzene       ND       0.0010         p-Isopropyltoluene       ND       0.0010         1,4-Dichlorobenzene       ND       0.0010
sec-Butylbenzene         ND         0.0010           1,3-Dichlorobenzene         ND         0.0010           p-Isopropyltoluene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
1,3-Dichlorobenzene         ND         0.0010           p-Isopropyltoluene         ND         0.0010           1,4-Dichlorobenzene         ND         0.0010
p-Isopropyltoluene ND 0.0010 1,4-Dichlorobenzene ND 0.0010
1,4-Dichlorobenzene ND 0.0010
1,2-Dichlorobenzene ND 0.0010
n-Butylbenzene ND 0.0010
1,2-Dibromo-3-chloropropane ND 0.0050
1,2,4-Trichlorobenzene ND 0.0010
Hexachlorobutadiene ND 0.0050
Naphthalene ND 0.0010
1,2,3-Trichlorobenzene ND 0.0010

	Percent	Control
Surrogate	Recovery	Limits
Dibromofluoromethane	97	65-125
Toluene, d8	81	77-116
4-Bromofluorobenzene	90	67-133

Lab Traveler: 11-171 Project: 001.01287.001

### VOLATILES by EPA 8260B MS/MSD QUALITY CONTROL

Date Extracted:

11-29-01

Date Analyzed:

11-29-01

Matrix:

Soil

Units:

mg/Kg (ppm)

Lab ID:

11-171-05

Compound	Spike Amount	MS	Percent Recovery	MSD	Percent Recovery	RPD -	Flags
		•		**			
1,1-Dichloroethene	0.0500	0.0331	66	0.0301	60	9.3	
Benzene	0.0500	0.0433	87	0.0404	81	6.9	
Trichloroethene	0.0500	0.0476	95	0.0451	90	5.2	•
Toluene	0.0500	0.0401	80	0.0394	79	1.6	
Chlorobenzene	0.0500	0.0411	82	0.0397	79	3.3	

Lab Traveler: 11-171 Project: 001.01287.001

### **VOLATILES by EPA 8260B**

page 1 of 2

Date Extracted: 11-28-01 Date Analyzed: 11-28-01

Matrix: Water Units: ug/L (ppb)

Lab ID: 11-171-28 Client ID: MW-1-W

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND	ı iugə	0.20
Chloromethane	ND		0.20
Vinyl Chloride	ND		0.20
Bromomethane	ND	•	1.0
Chloroethane	ND		0.20
Trichlorofluoromethane	ND		0.20
1,1-Dichloroethene	ND		0.20
Acetone	ND		5.0
lodomethane	ND		1.0
Carbon Disulfide	ND		0.20
Methylene Chloride	ND		1.0
(trans) 1,2-Dichloroethene	ND		0.20
Methyl t-Butyl Ether	ND		0.20
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND		1.0
2,2-Dichloropropane	ND		0.20
(cis) 1,2-Dichloroethene	1.0		0.20
2-Butanone	ND		5.0
Bromochloromethane	ND		0.20
Chloroform	0.85		0.20
1,1,1-Trichloroethane	ND		0.20
Carbon Tetrachloride	ND		0.20
1,1-Dichloropropene	ND		0.20
Benzene	ND		0.20
1,2-Dichloroethane	ND		0.20
Trichloroethene	130		10
1,2-Dichloropropane	ND		0.20
Dibromomethane	ND		0.20
Bromodichloromethane	ND		0.20
2-Chloroethyl Vinyl Ether	ND		1.0
(cis) 1,3-Dichloropropene	ND		0.20
Methyl Isobutyl Ketone	ND		2.0
Toluene	0.35		0.20
(trans) 1,3-Dichloropropene	ND		0.20
1,1,2-Trichloroethane	ND		0.20
Tetrachloroethene	ND		0.20
1,3-Dichloropropane	ND		0.20

Lab Traveler: 11-171 Project: 001.01287.001

### VOLATILES by EPA 8260B page 2 of 2

Lab ID: 11-171-28
Client ID: MW-1-W

Compound	Results	Flags	PQL
2-Hexanone	ND		2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND		0.20
1,1,1,2-Tetrachloroethane	ND		0.20
Ethylbenzene	ND		0.20
m,p-Xylene	ND		0.40
o-Xylene	ND .	•	0.20
Styrene	ND	•	0.20
Bromoform	ND		1.0
Isopropylbenzene	ND		0.20
Bromobenzene	ND		0.20
1,1,2,2-Tetrachloroethane	ND		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND	•	0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND		1.0
1,2,4-Trichlorobenzene	ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	, ND		0.20

	Percent	Control
Surrogate	Recovery	Limits
Dibromofluoromethane	111	71-133
Toluene, d8	110	80-151
4-Bromofluorobenzene	109	75-139

Lab Traveler: 11-171 Project: 001.01287.001

### **VOLATILES by EPA 8260B**

Page 1 of 2

Date Extracted:
Date Analyzed:

11-28-01 11-28-01

Matrix: Units: Water ug/L (ppb)

Lab ID:

11-171-29 MW-2-W

Client ID: MW-2-W

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND	, _	0.20
Chloromethane	ND		0.20
Vinyl Chloride	ND		0.20
Bromomethane	ND		1.0
Chloroethane	ND		0.20
Trichlorofluoromethane	ND		0.20
1,1-Dichloroethene	ND		0.20
Acetone	ND		5.0
lodomethane	ND		1.0
Carbon Disulfide	ND		0.20
Methylene Chloride	ND		1.0
(trans) 1,2-Dichloroethene	ND		0.20
Methyl t-Butyl Ether	ND		0.20
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND		1.0
2,2-Dichloropropane	ND		0.20
(cis) 1,2-Dichloroethene	ND		0.20
2-Butanone	ND		5.0
Bromochloromethane	ND		0.20
Chloroform	0.20		0.20
1,1,1-Trichloroethane	ND		0.20
Carbon Tetrachloride	ND		0.20
1,1-Dichloropropene	ND		0.20
Benzene	ND		0.20
1,2-Dichloroethane	ND		0.20
Trichloroethene	33		0.20
1,2-Dichloropropane	0.71		0.20
Dibromomethane	ND		0.20
Bromodichloromethane	ND		0.20
2-Chloroethyl Vinyl Ether	ND		1.0
(cis) 1,3-Dichloropropene	ND		0.20
Methyl Isobutyl Ketone	ND		2.0
Toluene	ND		0.20
(trans) 1,3-Dichloropropene	ND		0.20
1,1,2-Trichloroethane	ND	•	0.20
Tetrachloroethene	ND		0.20
1,3-Dichloropropane	ND		0.20

Project: 001.01287.001

### **VOLATILES by EPA 8260B**

Page 2 of 2

Lab ID: 11-171-29 Client ID: MW-2-W

Compound	Results	Flags	PQL
2-Hexanone	ND:		2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND		0.20
1,1,1,2-Tetrachioroethane	ND		0.20
Ethylbenzene	ND		0.20
m,p-Xylene	ND		0.40
o-Xylene	ND		0.20
Styrene	ND	a.k.	0.20
Bromoform	ND		1.0
Isopropylbenzene	ND.		0.20
Bromobenzene	ND	,	0.20
1,1,2,2-Tetrachloroethane	ND		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND		0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND ·		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND		1.0
1,2,4-Trichlorobenzene	ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	ND		0.20

	Percent	Control
Surrogate	Recovery	Limits
Dibromofluoromethane	109	71-133
Toluene, d8	108	80-151
4-Bromofluorobenzene	104	75-139

Lab Traveler: 11-171 Project: 001.01287.001

### **VOLATILES by EPA 8260B**

Page 1 of 2

Date Extracted: 11-28-01 Date Analyzed: 11-28-01

Matrix: Water Units: ug/L (ppb)

Lab ID: 11-171-30 Client ID: MW-3-W

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND	Ū	0.20
Chloromethane	ND.	•	0.20
Vinyl Chloride	ND		0.20
Bromomethane	ND		1.0
Chloroethane	ND		0.20
Trichlorofluoromethane	ND		0.20
1,1-Dichloroethene	ND		0.20
Acetone	ND		5.0
lodomethane	ND		1.0
Carbon Disulfide	ND		0.20
Methylene Chloride	, ND		1.0
(trans) 1,2-Dichloroethene	ND		0.20
Methyl t-Butyl Ether	ND		0.20
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND		1.0
2,2-Dichloropropane	ND		0.20
(cis) 1,2-Dichloroethene	2.1		0.20
2-Butanone	ND		5.0
Bromochloromethane	ND		0.20
Chloroform	8.2		0.20
1,1,1-Trichloroethane	ND		0.20
Carbon Tetrachloride	ND		0.20
1,1-Dichloropropene	ND		0.20
Benzene	ND		0.20
1,2-Dichloroethane	ND		0.20
Trichloroethene	62		2.0
1,2-Dichloropropane	ND		0.20
Dibromomethane	ND		0.20
Bromodichloromethane	0.77	•	0.20
2-Chloroethyl Vinyl Ether	ND		1.0
(cis) 1,3-Dichloropropene	ND		0.20
Methyl Isobutyl Ketone	ND		2.0
Toluene	1.1		0.20
(trans) 1,3-Dichloropropene	ND		0.20
1,1,2-Trichloroethane	ND		0.20
Tetrachloroethene	ND		0.20
1,3-Dichloropropane	ND		0.20

Lab Traveler: 11-171 Project: 001.01287.001

### **VOLATILES by EPA 8260B**

Page 2 of 2

Lab ID: 11-171-30 Client ID: MW-3-W

Compound	Results	Flags	PQL
2-Hexanone	ND	Ū	2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND		0.20
1,1,1,2-Tetrachloroethane	ND		0.20
Ethylbenzene	0.31		0.20
m,p-Xylene	1.6		0.40
o-Xylene	0.55		0.20
Styrene	ND		0.20
Bromoform	ND		1.0
Isopropylbenzene	ND	•	0.20
Bromobenzene	ND	-	0.20
1,1,2,2-Tetrachloroethane	ND ·		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND		0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND		1.0
1,2,4-Trichlorobenzene	ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	ND		0.20

	Percent	Control
Surrogate	Recovery	Limits
Dibromofluoromethane	111	71-133
Toluene, d8	110	80-151
4-Bromofluorobenzene	108	75-139

Lab Traveler: 11-171 Project: 001.01287.001

### **VOLATILES by EPA 8260B**

Page 1 of 2

Date Extracted: 11-28-01 Date Analyzed: 11-28-01

Matrix: Water Units: ug/L (ppb)

Lab ID: 11-171-31 Client ID: MW-4-W

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.20
Chloromethane	ND		0.20
Vinyl Chloride	ND		0.20
Bromomethane	ND		1.0
Chloroethane	ND		0.20
Trichlorofluoromethane	ND		0.20
1,1-Dichloroethene	ND		0.20
Acetone	ND		5.0
lodomethane	ND		1.0
Carbon Disulfide	ND		0.20
Methylene Chloride	ND		1.0
(trans) 1,2-Dichloroethene	ND		0.20
Methyl t-Butyl Ether	ND		0.20
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND		1.0
2,2-Dichloropropane	ND		0.20
(cis) 1,2-Dichloroethene	ND		0.20
2-Butanone	ND		5.0
Bromochloromethane	ND		0.20
Chloroform	9.2		0.20
1,1,1-Trichloroethane	ND		0.20
Carbon Tetrachloride	ND		0.20
1,1-Dichloropropene	ND		0.20
Benzene	0.35		0.20
1,2-Dichloroethane	ND		0.20
Trichloroethene	. 11		0.20
1,2-Dichloropropane	ND		0.20
Dibromomethane	ND		0.20
Bromodichloromethane	0.95		0.20
2-Chloroethyl Vinyl Ether	ND	•	1.0
(cis) 1,3-Dichloropropene	ND		0.20
Methyl Isobutyl Ketone	ND		2.0
Toluene	2.0		0.20
(trans) 1,3-Dichloropropene	ND		0.20
1,1,2-Trichloroethane	ND		0.20
Tetrachloroethene	ND		0.20
1,3-Dichloropropane	ND		0.20

Date of Report: November 29, 2001 Samples Submitted: November 21, 2001 Lab Traveler: 11-171 Project: 001.01287.001

### VOLATILES by EPA 8260B Page 2 of 2

Lab ID: 11-171-31 MW-4-W Client ID:

Compound	Results	Flags	PQL
2-Hexanone	ND	_	2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND		0.20
1,1,1,2-Tetrachloroethane	ND -		0.20
Ethylbenzene	0.52		0.20
m,p-Xylene	2.4		0.40
o-Xylene	0.98		0.20
Styrene	ND		0.20
Bromoform	ND		1.0
Isopropylbenzene	ND		0.20
Bromobenzene	ND		0.20
1,1,2,2-Tetrachloroethane	ND		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND		0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND	•	1.0
1,2,4-Trichlorobenzene	ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	ND		0.20

	Percent	Control
Surrogate	Recovery	Limits
Dibromofluoromethane	111	71-133
Toluene, d8	109	80-151
4-Bromofluorobenzene	105	75-139

Project: 001.01287.001

### **VOLATILES by EPA 8260B** METHOD BLANK QUALITY CONTROL

page 1 of 2

Date Extracted:

11-28-01

Date Analyzed:

11-28-01

Matrix: Units:

Water ug/L (ppb)

Lab ID:

MB1128W1

<b>3</b>	<b>-</b> "	<b>.</b>	201
Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.20
Chloromethane	ND		0.20
Vinyl Chloride	· ND		0.20
Bromomethane	ND		1.0
Chloroethane	ND		0.20
Trichlorofluoromethane	ND	-	0.20
1,1-Dichloroethene	ND		0.20
Acetone	ND		5.0 1.0
lodomethane Carbon Disulfide	ND ND		0.20
	2.8		1.0
Methylene Chloride			0.20
(trans) 1,2-Dichloroethene	ND ND		0.20
Methyl t-Butyl Ether	ND		
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND ND		1.0
2,2-Dichloropropane	ND ND		0.20
(cis) 1,2-Dichloroethene	ND ND		0.20
2-Butanone	ND ND		5.0 0,20
Bromochloromethane	ND		0.20
Chloroform	ND		0.20
1,1,1-Trichloroethane Carbon Tetrachloride	ND ND		0.20
			0.20
1,1-Dichloropropene Benzene	ND ND		0.20
	ND ·		0.20
1,2-Dichloroethane			0.20
Trichloroethene	ND		0.20
1,2-Dichloropropane Dibromomethane	ND ND		0.20
Bromodichloromethane	ND ND		0.20
	ND ND		1.0
2-Chloroethyl Vinyl Ether	ND ND		0.20
(cis) 1,3-Dichloropropene Methyl Isobutyl Ketone	ND ND		2.0
Toluene	ND ND		0.20
	ND ND		0.20
(trans) 1,3-Dichloropropene 1,1,2-Trichloroethane	ND ND		0.20
Tetrachloroethene	ND ND		0.20
			0.20
1,3-Dichloropropane	ND		0.20

Project: 001.01287.001

### VOLATILES by EPA 8260B METHOD BLANK QUALITY CONTROL

page 2 of 2

Lab ID:

MB1128W1

Compound	Results	Flags	PQL
2-Hexanone	ND		2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND	-	0.20
1,1,1,2-Tetrachloroethane	ND		0.20
Ethylbenzene	ND		0.20
m,p-Xylene	ND		0.40
o-Xylene	ND	1.	0.20
Styrene	ND	-	0.20
Bromoform	ND		1.0
Isopropylbenzene	NĎ		0.20
Bromobenzene	ND		0.20
1,1,2,2-Tetrachloroethane	ND		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND		0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND		1.0
1,2,4-Trichlorobenzene	· ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	ND		0.20

	Percent	Control
Surrogate	Recovery	Limits
Dibromofluoromethane	112	71-133
Toluene, d8	108	80-151
4-Bromofluorobenzene	105	75-139

Lab Traveler: 11-171 Project: 001.01287.001

### VOLATILES by EPA 8260B SB/SBD QUALITY CONTROL

Date Extracted:

11-28-01

Date Analyzed:

11-28-01

Matrix:

Water

Units:

ug/L (ppb)

Lab ID:

SB1128W1

Compound	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	RPD	Flags
			•				
1,1-Dichloroethene	10.0	10.2	102	10.4	104	1.8	,
Benzene	10.0	10.1	101	10.4	104	2.3	-
Trichloroethene	10.0	10.3	103	10.7	107	4.2	
Toluene	10.0	10.4	104	10.7	107	3.2	
Chlorobenzene	10.0	8.93	89	9 31	93	4 1	

Date of Report: November 29, 2001 Samples Submitted: November 21, 2001 Lab Traveler: 11-171 Project: 001.01287.001

### % MOISTURE

Date Analyzed: 11-27-01

Client ID	Lab ID	% Moisture
MW1-30	11-171-05	18
MW2-40	11-171-13	8.0
MW3-50	11-171-20	5.0
MW4-30	11-171-26	14



### **DATA QUALIFIERS AND ABBREVIATIONS**

- A Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  B The analyte indicated was also found in the blank sample.
  C The duplicate RPD is outside control limits due to high result variability when analyte concentrations are
- D Data from 1: \_\_\_\_ dilution.

within five times the quantitation limit.

- E The value reported exceeds the quantitation range, and is an estimate.
- F Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- G Insufficient sample quantity for duplicate analysis.
- H The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I Compound recovery is outside of the control limits.
- J The value reported was below the practical quantitation limit. The value is an estimate.
- K Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.
- L The RPD is outside of the control limits.
- M Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.
- O Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.
- P The RPD of the detected concentrations between the two columns is greater than 40.
- Q Surrogate recovery is outside of the control limits.
- S Surrogate recovery data is not available due to the necessary dilution of the sample.
- T The sample chromatogram is not similar to a typical \_\_\_\_\_
- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- V Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X Sample extract treated with a silica gel cleanup procedure.
- Y Sample extract treated with an acid cleanup procedure.

**Z** -

ND - Not Detected at PQL

MRL - Method Reporting Limit

PQL - Practical Quantitation Limit

RPD - Relative Percent Difference

### **Chain of Custody**

onsite -		
Environmental Inc.	Turnaround Request (in working days)	Project Manager: D(5   Laboratory No. 11-171
Phone: (425) 883-3881 • Fax: (425) 885-4603	(Check One)	Requested Analysis
	Same Day 1 Day	
Company: SECOR	☐ 2 Day ☐ 3 Day	OB->
Project No.:	Standard	y 826
001.01287.001	(Hydrocarbon analyses: 5 days,	0C (8)
Project Name: >	All other analyses: 7 days)	B 8270 31 51A
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Project Manager:		x/E x / 8 ed es 270 by by A M
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	# of :	VTF  WTF  latil  logi miv  Hs  stic  erbic  tal F  PH
Lab ID Sample Identification	d Matrix Cont.	NV Vo Ha Se PA PC Pri TC VF

MW1-5

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91-1MW

9:40 4:30

9:20 9:00

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MW1 - 15 01- 1MM

MW2-5 05 - 1 MFF

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NW2-15

MWZ-30

12: 56 12:40 12:30 12:10

DATE 11-01

MW2-20

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## **Chain of Custody**

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## Onsite

## Chain of Custody

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NWTPH-HCID  NWTPH-Gx/BTEX  NWTPH-Dx  Volatiles by 8260B  Halogenated Volatiles by 8260B  Semivolatiles by 8270C  PAHs by 8270C	ENVIRONMENTAL		lurnarour (in work	Irnaround Request (in working days)	Project Manager	Laboratory No. 11-171	
Second   Same Day   3 Day   4 Day	Phone: (425) 883-3881 • Fax	(425) 885-4603	(Chec	ck One)		Requested Analysis	
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# OnSite Environmental 14648 NE 95th Street • Redmond, Phone: (425) 883-3881 • Fax: (425)

# **Chain of Custody**

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## OnSite Environmenta 14648 NE 95th Street • Redmonta Phone: (425) 883-3881 • Fax: (4

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Matrix

# of Cont.

NWTPH-HCID

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NWTPH-Gx/BTEX

Volatiles by 8260B

PAHs by 8270C

PCB's by 8082

TCLP Metals

% Moisture

VPH EPH

Pesticides by 8081
Herbicides by 8151A
Total RCRA Metals (8)

Priority Pollutant Metals (13)

Semivolatiles by 8270C

Halogenated Volatiles by 8260B

(other)

620

2 Day

☐ 3 Day

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☐ 1 Day

(Check One)

Requested Analysis

Standard (Hydrocarbon analyses: 5 days.

All other analyses: 7 days)

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