Oak Harbor Sanitation Treatment Plant
Release 591717

EARTH WORKS

VCP NW1823

Earthworks Environmental, Inc.
1200 Dupont St.
Suite 2-I
Bellingham, WA 98225
(360) 661-3546
(360) 738-6600 (Bellingham)
(360) 679-3635 (Oak Harbor)

March 29, 2008

To: Dale Myers
Voluntary Cleanup Program Site Manager
Washington State Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Subject: Response to Request for Additional Information Concerning UST Closure Report
VCP ID# NW1823

For: Lead Wastewater Treatment Plant Operation
865 S.E. Barrington Drive
Oak Harbor, WA 98277-4092

Dear Mr. Myers:

This letter is pertaining to the UST closure for the City of Oak Harbor's Wastewater Treatment Plant located at 1501 S.E. City Beach Street Oak Harbor, Washington 98277. The following information has been compiled to provide additional information to help the site reach a "No Further Action" determination. The information provided in this letter and attachments are in response to an e-mail sent to Rob Kelley on October 2, 2007 by Mr. Myers of Ecology.

1) Updated maps of the property are shown in Figure 1, 2, and 3. These figures more accurately depict the location of the former underground storage tank, the excavation pit, area used for contaminated soil stockpiling, monitoring well locations, and general site information.

2) *A: UST removal documentation*

The City of Oak Harbor does not have a detailed report of the excavation that was performed by Fuel Tank Installation Co. Inc on July 30, 1998. All information pertaining to the tank removal is provided in Attachment 1. The documentation includes a UST Closure and Site Assessment Notice form and a letter documenting the removal of one 300-gallon tank by Fuel Tank Installation Co, Inc. dated August 10, 1998. No sampling data was provided with the tank removal documentation.

Earthworks Environmental, Inc. (Earthworks) contacted the tank removal company (Fuel Tank Installation Co. Inc.) on April 29, 2008. Fuel Tank Installation indicated that no additional information is available that documents the tank removal. All documentation is provided in Attachment 1.

B: UST pit soil and water sampling

Soil and water samples were collected from the site by an employee of the Oak Harbor Treatment Plant on December 3, 1998. These samples were taken approximately five months following the tank removal. It is our understanding that the samples were collected from the soil pit walls and base of the pit. The location of the soil and water samples could not be confirmed, due to the fact that the sampler, Bob Jarski, has passed away and the other members of the facility could not recall their locations.

The four soil samples collected on December 3, 1998 were analyzed using method NWTPH-DX and were all non-detect for diesel and oil-range petroleum products (Attachment 2). It is our understanding that the soil samples were taken from the sides of the pits.

Four water samples were collected on December 3, 1998. All of the water samples were analyzed using method NWTPH-DX and were all non-detect for diesel and oil-range petroleum products. It is our understanding that the water samples were taken from the base of the pit and the perimeter wells.

Although this evidence is not conclusive, it does indicate that no contaminated water was present in the excavation pit.

C: Contaminated soil stockpiles and FM-186-2 treatment:

The contaminated soil was stockpiled on site, just south of the sludge ponds, as indicated in Figure 2. The stockpiled soil was placed on plastic tarps, with absorbent socks placed around the pile. The hydrocarbon contamination was treated using FM-186-2, recommended by Environmental Chemical Solutions, Inc. Treatments were conducted on both the open UST pit and the stockpiled soil following the best management practices provided by Environmental Chemical Solutions. The exact methods are described in Attachment 3. The exact quantity of the stockpiled soil is unknown, however, a letter written by Vin Johnsen of Environmental Chemical Solutions, dated September 2000, indicates that a site visit was completed to the subject property and several yards of soil were stockpiled on tarps.

The FM-186-2 was applied to the stockpile using a liquid hand pump sprayer. Applications to the stockpile and pit were conducted 3 times per week until 25 gallons of FM-186-2 was used. (Attachment 4). Sampling did not occur during the treatment period. After the FM-186-2 was used up, wastewater treatment personnel continued to rotate the stockpile until the soil sampling results returned as non-detect. Sampling of the stockpile occurred on May 15, 2001 and August 22, 2001 (Attachment 5). The final soil-sampling event occurred on August 22, 2001 and registered a non-detect of NWTPH-DX. The soil was then taken to another City of Oak Harbor facility and spread thinly on an unused field and possibly a dirt road.

All of the records that the City of Oak Harbor had on file are presented in the attachments, however some of the chains-of-custody were missing from the record.

3) The existing well that was mentioned in the previous Earthworks Environmental, Inc. report was referring to a large PVC pipe that was placed in the center of the old UST pit during filling. The PVC pipe extends down below the water table to approximately 5 feet depth. The screen depth is not known. Water monitoring wells were also installed using a backhoe and PVC pipes to the south, east, and north of the old UST pit. City of Oak Harbor staff members installed the PVC pipes and no reports were completed. A total of four monitoring wells are installed in the vicinity of the former UST. As presented in Figure 3, the well in the center of the former UST pit is named MW-1, the well north of the former UST pit is named MW-2, the well east of the former UST pit is named MW-3, and the well located south of the former UST pit is named MW-4.

Several sampling events have been conducted since the removal of the UST including events on July 28, 2000, December 29, 2004, April 13, 2007, and April 25, 2008. Laboratory reports for all of the water sampling events are provided in Attachment 6.

The July 2000 sampling event involved analysis of one water sample from MW-1. The sample was non-detect for diesel and oil-range petroleum products.

A second sampling event took place on December/January 5, 2005 and included water samples from all four monitoring wells. Diesel was detected in one sample and lube oil was detected in all four samples. MW-1 had a diesel detection of 0.41 mg/kg and a lube oil detection of 5.37 mg/kg. Monitoring wells MW-2, MW-3, and MW-4 were non-detect for diesel but had lube oil detections of 2.42, 1.24, and 2.32 mg/kg, respectively. MW-1, MW-2, MW-3, and MW-4 exceeded the MTCA Method A cleanup standard of 0.5 mg/kg for lube oil in ground water. No samples exceeded the diesel clean up standard of 0.5 mg/kg.

A third sampling event took place in April 2007. One water sample was collected from MW-1 and was analyzed for NWTPH-DX. The sample was non-detect for diesel and oil-range petroleum hydrocarbons. ,A bailer was used to gather the grab sample from the April 11, 2007 sampling event.

A fourth sampling event took place on April 23, 2008 and included samples from all four monitoring wells. The samples were collected using a peristaltic pump and were analyzed for NWTPH-DX. All four samples were non-detect for diesel and oil-range petroleum hydrocarbons.

Based on the sampling event completed in April 23, 2008 and supported by the non-detect sample collected in April 2007, it is our opinion that the site is free of contamination in the ground water surrounding the former UST pit.

4) Four groundwater samples were collected from the vicinity of the former UST pit in December 1998. All of these samples were non-detect for diesel and oil-range petroleum hydrocarbons. A follow up sampling event in December 2004/January 2005 found detections of diesel in one sample and lube oil in all four samples. Concentrations of lube oil were identified in the samples between 1.24 and 5.37 mg/kg, which exceeded the clean up standard of 0.5 mg/kg. The two most recent ground water samples indicate that the ground water is non-detect for lube oil and diesel-range petroleum hydrocarbons. Based on the April 2007 and April 2008 ground water sampling events, it is our opinion that the site is free from petroleum contamination associated with the former UST.

Additionally, a recent sediment sampling event was conducted in Oak Harbor directly down gradient of the water treatment plant. This report "Sediment Sampling Results Summary City of Oak Harbor" by URS Corporation dated February 9, 2007, found none of the 47 Sediment Management Standards chemicals above their associated Sediment Quality Standards (Attachment 7).

If you have any question please contact me at 360-661-3546 or 360-679-3635.

Jeff Ninnemann, MS
President
Earthworks Environmental, Inc.

Figure 1. Aerial photograph of the Water Treatment Plant and vicinity with property lines, tank location, and groundwater flow direction from the treatment plant site (2006 aerial).

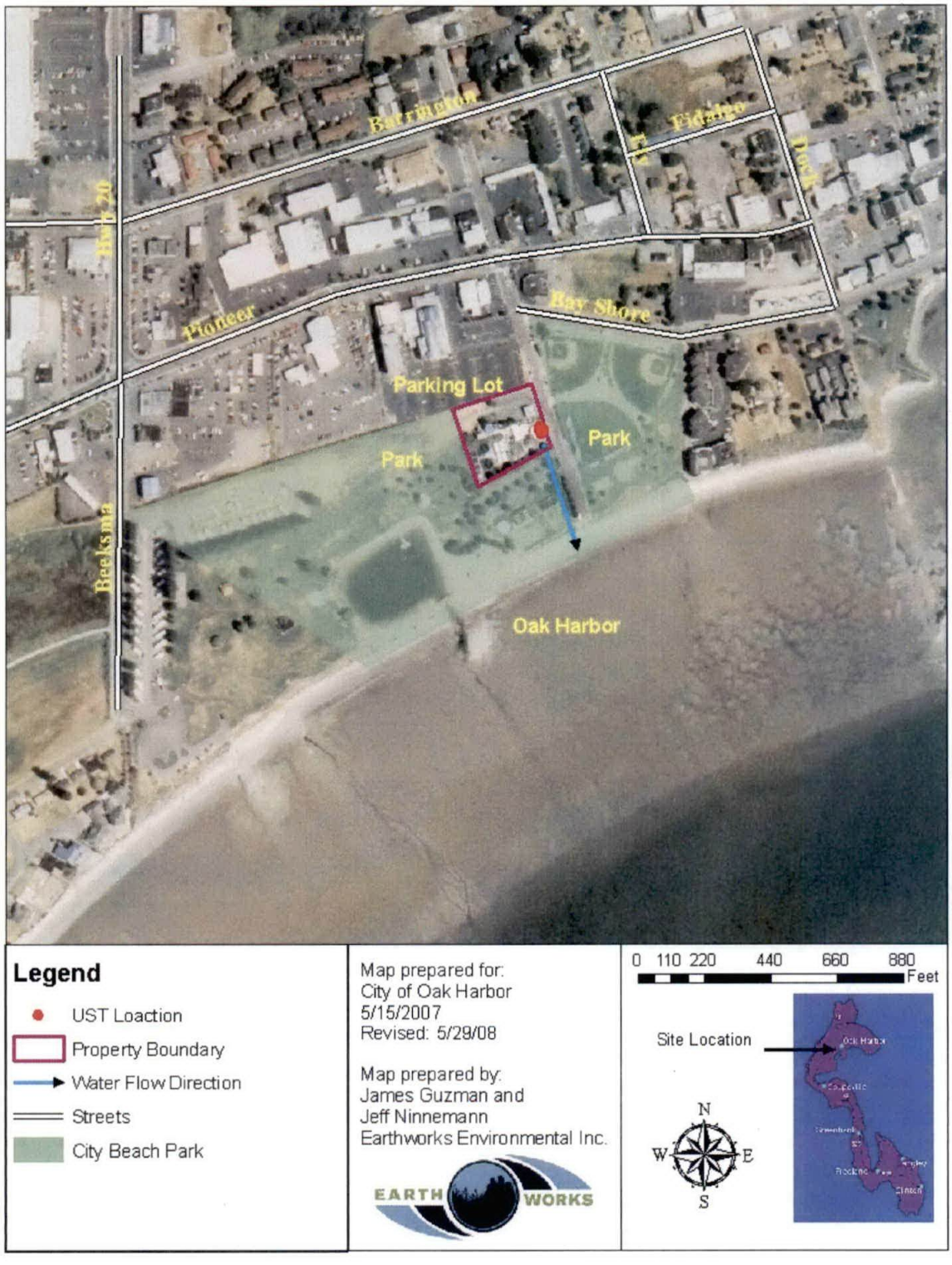


Figure 2. Water Treatment Plant UST site, soil sample locations, past stockpile location, and surrounding buildings.

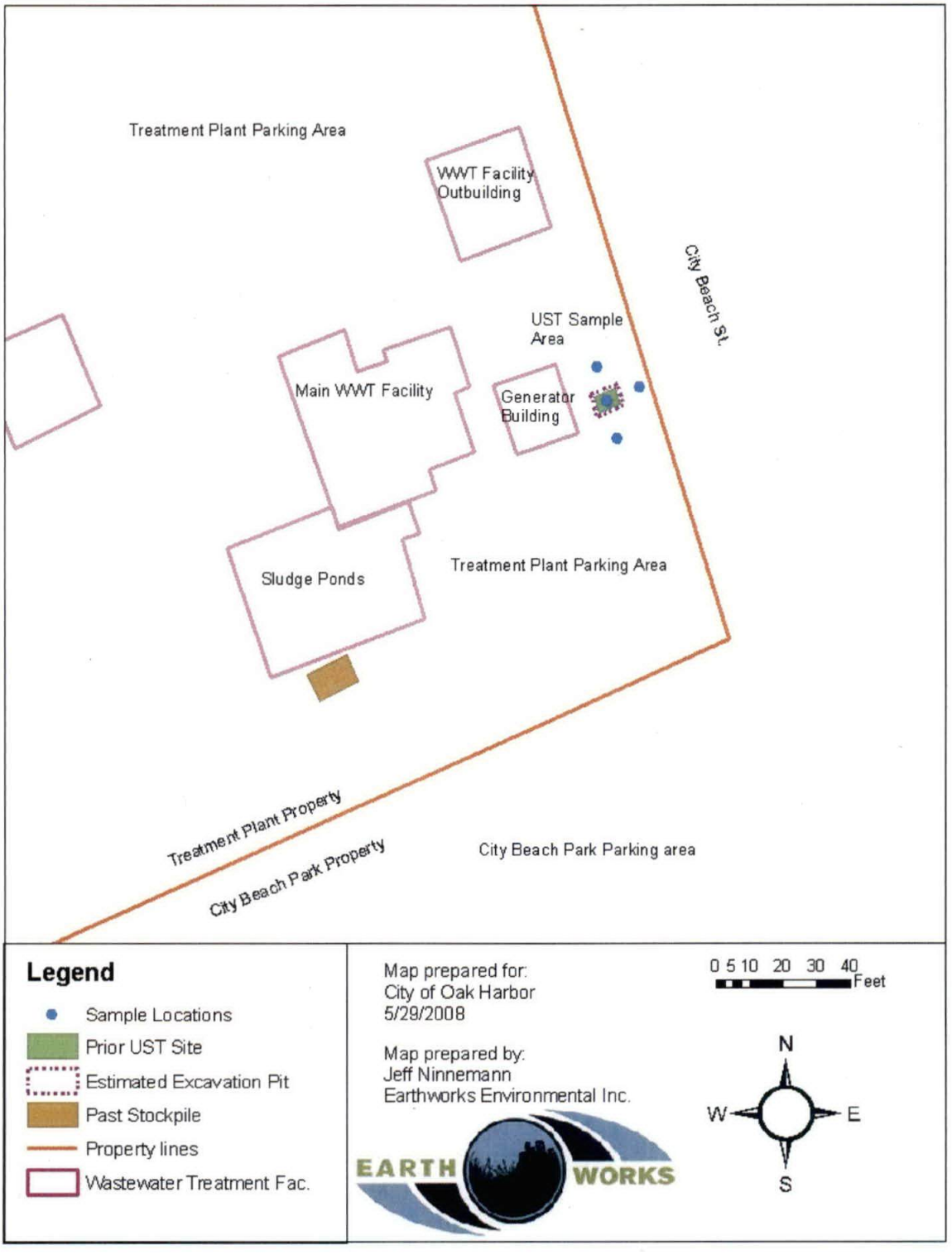
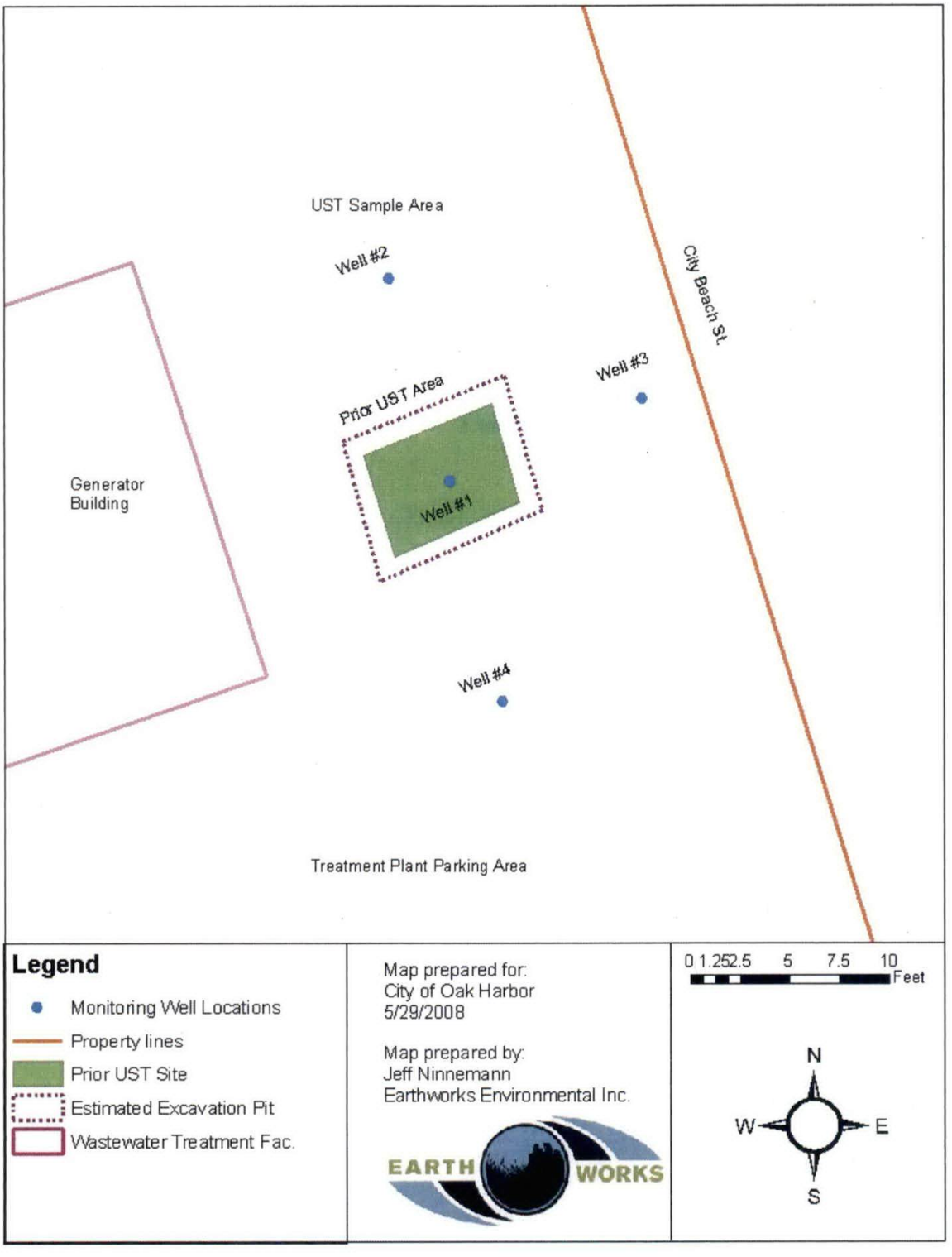


Figure 3. Close-up of the UST sample site location and ground water well locations.



Attachment 1. UST Closure and Site Assessment Information.

- UST Closure and Site Assessment Notice
- Letter Confirming UST removal by Fuel Tank Installation

(See next page)

UNDERGROUND STORAGE TANK
Closure and Site Assessment Notice

See back of form for instructions

FOR OFFICE USE ONLY
Site ID #:
Cleanup ID #:

Please ✓ the appropriate box(es)
☐ Temporary Tank Closure ☐ Change-In-Service ☒ Permanent Tank Closure ☐ Site Check/Site Assessment

Site Information

Site ID Number 534 (Available from Ecology if the tanks are registered)
Site/Business Name Oak Harbor Sanitation Plant
Site Address 1501 S.E. City Beach St. (Street)
City/State Oak Harbor, WA
Zip Code 98277 Telephone (360) 679-5551

Owner Information

(This form will be returned to this address)
UST Owner/Operator City of Oak Harbor
Mailing Address 865 S.E. Barrington Dr. (Street / P.O. Box)
City/State Oak Harbor WA
Zip Code 98277 Telephone 360 679-5551
Owner's Signature Robert S Tarki 11/3/98

Tank Closure/Change-In-Service Company

Service Company Fuel Tank Installation Co. Inc.
Certified Supervisor Thomas H. Anderson Decommissioning Certification No. 32002112 ASI 1059581-26 IFCI
Supervisor's Signature
Address 11536 Seola Beach Dr. S.W. (Street / P.O. Box)
Seattle (City) WA (State) 98146 (Zip Code) Telephone (206) 244-8020

Site Check/Site Assessor

Certified Site Assessor
Address (Street / P.O. Box)
City State Zip Code Telephone ( )

Tank Information

Tank ID	Closure Date	Closure Method	Tank Capacity	Substance Stored
21430	July 30, 98	removed	300 gal	heating oil

Contamination Present at the Time of Closure

☒ Yes ☐ No ☐ Unknown

Check unknown if no obvious contamination was observed and sample results have not yet been received from analytical lab.

☒ Yes ☐ No

If contamination is present, has the release been reported to the appropriate regional office?

To receive this document in an alternative format, contact the TOXICS CLEANUP PROGRAM at 1-800-826-7716 (voice) OR (360) 407-6006 (TDD).

CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.	YES	NO
1. The location of the UST site is shown on a vicinity map.	X	
2. A brief summary of information obtained during the site inspection is provided. (see Section 3.2 in site assessment guidance)		X
3. A summary of UST system data is provided. (see Section 3.1.)	X	
4. The soils characteristics at the UST site are described. (see Section 5.2)	X	
5. Is there any apparent groundwater in the tank excavation?	X	
6. A brief description of the surrounding land use is provided. (see Section 3.1)	X	
7. Information has been provided indicating the number and types of samples collected, methods used to collect and analyze the samples, and the name and address of the laboratory used to perform the analyses.	X	
8. A sketch or sketches showing the following items is provided:		
- location and ID number for all field samples collected	X	
- groundwater samples distinguished from soil samples (if applicable)		X
- samples collected from stockpiled excavated soil		X
tank and piping locations and limits of excavation pit	X	
adjacent structures and streets	X	
- approximate locations of any on-site and nearby utilities		X
9. If sampling procedures different from those specified in the guidance were used, has justification for using these alternative sampling procedures been provided? (see Section 3.4)		X
10. A table is provided showing laboratory results for each sample collected including: sample ID number, constituents analyzed for and corresponding concentration, analytical method and detection limit for that method.	X	
11. Any factors that may have compromised the quality of the data or validity of the results are described		X
12. *The results of this site check/site assessment indicate that a confirmed release of a regulated substance has occurred.*	X	

SITE ASSESSOR INFORMATION

Thomas H Anderson — Person registered with Ecology

Fuel Tank Installation Co Inc — Firm Affiliated with

Business Address: 11536 Seda Beach Dr S.W. — Street

Telephone: (206) 244-8020

Seattle — City

WA — State

98146 — Zip Code

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173-360 WAC.

7/16/98 — Date

Signature of Person Registered with Ecology

FUEL TANK INSTALLATION CO., INC.

LETTER OF CERTIFICATION

August 10, 1998

City of Oak Harbor
Attention: Bob Jarski
865 S.E. Barrington Drive
Oak Harbor, WA 98277

Re: Tank Removal at Oak Harbor Wastewater Treatment Facility

This is to certify that this company removed one 300 gallon underground residential heating oil tank from the above named property. The tank and the effluents were legally disposed of in the City of Seattle. This residential tank decommission was performed according to the guidelines set forth by the ***Washington State Dept. of Ecology and the International Fire Code Institute.*** *Fuel Tank Installation Co., Inc. shall not be held liable for sub-surface conditions either now existing or which could develop in the future.*

Thank you for this opportunity to do business with you!

Sincerely,

Dawnelle Anderson

Dawnelle Anderson
Vice President
D.O.E. License #WOO1802
Wa. State Cont. License #FUELTICO8OB8
IFCI #32-US-32002112

11536 Seola Beach Dr. S.W. • Seattle, Washington 98146 • 206-244-8020

Attachment 2. Environmental Sampling of UST Excavation Pit.

- Laboratory results from environmental sampling conducted on December 2, 1998 and analyzed by Edge Analytical, Inc.
- Chain of Custody for environmental sampling conducted on December 2, 1998.

(See next page)

EDGE Analytical, Inc.
11525 Knudson Rd.
Burlington, WA 98233
(360) 757-1400 - FAX (360) 757-1402

WSDOE Lab C057

DATA REPORT

Client Name: City of Oak Harbor WWTP
3075 300 Ave W
Oak Harbor, WA 98277

Reference Number: 98-5108
Report Date: 12/11/98
Project: RBC/Tank

Method: NWTPH-Dx
SEMI-VOLATILE PETROLEUM PRODUCTS

Analyst: TW
Collect Date: 12/2/98

Matrix: Soil

Supervisor:

LAB NUMBER	FIELD ID	COMPOUNDS	RESULT	Cleanup Level	MRL	UNITS	DATE ANALYZED	COMMENT
8623	#1 soil/tank site -	DIESEL (C12 - C24)	ND	200	25	mg/Kg	12/3/98	
		HEAVIER OILS (>C24)	ND	200	40	mg/Kg		
8624	#2 soil/tank site -	DIESEL (C12 - C24)	ND	200	25	mg/Kg	12/3/98	
		HEAVIER OILS (>C24)	ND	200	40	mg/Kg		
8625	#3 soil/tank site -	DIESEL (C12 - C24)	ND	200	25	mg/Kg	12/3/98	
		HEAVIER OILS (>C24)	ND	200	40	mg/Kg		
8626	#4 soil/tank site -	DIESEL (C12 - C24)	ND	200	25	mg/Kg	12/3/98	
		HEAVIER OILS (>C24)	ND	200	40	mg/Kg		

Notation:

ND - A result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.
Cleanup Level - The regulatory limit for Method A Cleanup Levels (MTCA, Chapter173-340 WAC) contaminants in the specified matrix.
MRL - Method Reporting Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.

EDGE Analytical, Inc.
11525 Knudson Rd.
Burlington, WA 98233
(360) 757-1400 - FAX (360) 757-1402

WSDOE Lab C057

DATA REPORT

Client Name: City of Oak Harbor WWTP
3075 300 Ave W
Oak Harbor, WA 98277

Method: NWTPH-Dx
SEMI-VOLATILE PETROLEUM PRODUCTS
Matrix: Wastewater

Reference Number: 98-5108
Report Date: 12/22/98
Project: RBC/Tank

Analyst: TW
Collect Date: 12/2/98

Supervisor:

LAB NUMBER	FIELD ID	COMPOUNDS	RESULT	Cleanup Level	MRL	UNITS	DATE ANALYZED	COMMENT
8619	#1 tank site/RBC WWTP -	DIESEL (C12 - C24)	ND	1	0.25	mg/L	12/15/98	
		HEAVIER OILS (>C24)	ND	1	0.5	mg/L		
8620	#2 tank site/RBC WWTP -	DIESEL (C12 - C24)	ND	1	0.25	mg/L	12/15/98	
		HEAVIER OILS (>C24)	ND	1	0.5	mg/L		
8621	#3 tank site/RBC WWTP -	DIESEL (C12 - C24)	ND	1	0.25	mg/L	12/15/98	
		HEAVIER OILS (>C24)	ND	1	0.5	mg/L		
8622	#4 tank site/RBC WWTP -	DIESEL (C12 - C24)	ND	1	0.25	mg/L	12/15/98	
		HEAVIER OILS (>C24)	ND	1	0.5	mg/L		Trace Heavy Hydrocarbons

Notation:

ND - A result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.
Cleanup Level - The regulatory limit for Method A Cleanup Levels (MTCA, Chapter173-340 WAC) contaminants in the specified matrix.
MRL - Method Reporting Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.

EDGE ANALYTICAL, INC
11525 Knudson Rd
Burlington, WA 98233
(360) 757-1400 - FAX (360) 757-1402

QUALITY CONTROL REPORT
QCS/LFB REPORT

Reference Number: 98-5108
Report Date: 12/15/98

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	Type*	Comment
NWTPH_981205	DIESEL (C12 - C24)	98	98	mg/Kg	NWTPH-Dx	100	80-120	LFB	
	DIESEL (C12 - C24)	510	490	mg/Kg	NWTPH-Dx	104	80-120	LFB	
	DIESEL (C12 - C24)	2000	1960	mg/Kg	NWTPH-Dx	102	80-120	LFB	
	HEAVIER OILS (>C24)	120	120	mg/Kg	NWTPH-Dx	100	80-120	LFB	
	HEAVIER OILS (>C24)	600	610	mg/Kg	NWTPH-Dx	98	80-120	LFB	
	HEAVIER OILS (>C24)	2300	2440	mg/Kg	NWTPH-Dx	94	80-120	LFB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an externa source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

EDGE ANALYTICAL, INC
11525 Knudson Rd
Burlington, WA 98233
(360) 757-1400 - FAX (360) 757-1402

QUALITY CONTROL REPORT
Duplicate Report

Reference Number: 98-5108
Report Date: 12/15/98

Batch	Duplicate Sample	Analyte	Result	Duplicate Result	Units	Method	%RPD	Limits
NwTPH_981205	8524	DIESEL (C12 - C24)	5200	6700	mg/Kg	NWTPH-Dx	**25.2**	0-45
		HEAVY HYDROCARBONS (>C24)	ND	ND	mg/Kg	NWTPH-Dx	**NA**	0-45
		2-FLUOROTOLUENE (SURROGATE)	90	89	%	NWTPH-Dx	**1.1**	0-45

%RPD = Relative Percent Difference
NA = Indicates %RPD could not be calculated

Duplicate analysis is used to validate all samples processed in a laboratory batch. Therefore, the duplicate analysis results in this report may not have come from the samples you submitted or may include analytes not requested.

EDGE ANALYTICAL, INC
11525 Knudson Rd
Burlington, WA 98233
(360) 757-1400 - FAX (360) 757-1402

QUALITY CONTROL REPORT
BLANK REPORT

Reference Number: 98-5108
Report Date: 12/15/98

ch	Analyte	Result	Units	Limit	Method	Type*	Comments
TPH_981205	DIESEL (C12 - C24)	ND	mg/Kg	0.00	NWTPH-Dx	MB	
	HEAVIER OILS (>C24)	ND	mg/Kg	0.00	NWTPH-Dx	MB	
	2-FLUOROTOLUENE (SURROGATE)	86	%	0.00	NWTPH-Dx	MB	

*Notation:

LRB: Laboratory Reagent Blanks are used to determine the background level of the analytes in a laboratory batch. Therefore, this report may include analytes not requested for your submitted samples.

MB: Method Blanks are used to determine background levels of analytes in digested and extracted laboratory reagent.

QUALITY CONTROL REPORT
SURROGATE REPORT

Reference Number: 98-5108
Report Date: 12/22/98

Lab No	Analyte	Result	Units	Method	Limit
8619	O-TERPHENYL (SURR)	109	%	NWTPH-Dx	Acceptance Range:50-150%
8620	O-TERPHENYL (SURR)	93	%	NWTPH-Dx	Acceptance Range:50-150%
8621	O-TERPHENYL (SURR)	93	%	NWTPH-Dx	Acceptance Range:50-150%
8622	O-TERPHENYL (SURR)	93	%	NWTPH-Dx	Acceptance Range:50-150%
8623	2-FLUOROTOLUENE (SURR)	88	%	NWTPH-Dx	Acceptance Rang: 50-150%
8624	2-FLUOROTOLUENE (SURR)	89	%	NWTPH-Dx	Acceptance Rang: 50-150%
8625	2-FLUOROTOLUENE (SURR)	89	%	NWTPH-Dx	Acceptance Rang: 50-150%
8626	2-FLUOROTOLUENE (SURR)	89	%	NWTPH-Dx	Acceptance Rang: 50-150%

*Notation:

A surrogate is a pure compound added to a sample in the laboratory just before processing so that the overall efficiency of a method can be determined.

CHAIN OF CUSTODY RECORD

THIS FORM WILL BE USED FOR REPORTING AND BILLING PURPOSES

NAME:

ADDRESS:

ATTENTION:

PROJECT NAME:

PROJECT CONTACT:

TELEPHONE/FAX

JOB/P.O. NO.

SAMPLER (SIGNATURE) (PRINTED NAME)

JCN PAGE OF

DATE

EDGE ANALYTICAL

ANALYTICAL AND ENVIRONMENTAL TESTING
1151 KNUDSON ROAD
BURLINGTON, WA 98233
PHONE: 360-757-1400
FAX: 360-757-1402
TOLL FREE: 1-800-755-9295

NO.	SAMPLE ID	DESCRIPTION	GRAB/ COMP.	MATRIX	DATE	TIME	TESTS TO PERFORM	NO. OF CONTAINERS	PRESERVATIVE	OBSERVATIONS COMMENTS, SPECIAL INSTRUCTIONS
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										

INSTRUCTIONS

1. USE ONE LINE PER SAMPLE.
2. BE SPECIFIC IN TEST REQUESTS.
3. CHECK OFF TESTS TO BE PERFORMED FOR EACH SAMPLE.

BILLING INFORMATION, IF DIFFERENT THAN ABOVE

NAME ADDRESS

ATTN: CITY, STATE, ZIP

TURN AROUND REQUEST

- ☐ 24-48 HRS (100% SUR)
- ☐ 5-DAYS (50% SUR)
- ☒ STD. 10-14 DAYS
- ☐ OTHER

TOTAL NO. OF CONTAINERS

CHAIN OF CUSTODY SEALS

☐ YES ☐ NO ☒ NA

SHIPPED VIA

☐ UPS ☐ FED-EX ☐ BUS

☐ HAND ☒

RELINQUISHED BY (SIGN AND PRINT)	DATE / TIME	RECEIVED BY (SIGN AND PRINT)	DATE / TIME
		EDGE ANALYTICAL	

Attachment 3. FM-186-2 Treatment methods by Environmental Chemical Solutions, Inc.

- Letter written by Vin Johnsen of Environmental Chemical Solutions, dated September 2000.
- Treatment methods as recommended by Environmental Chemical Solutions.

(See next page)

ECS environmental chemical solutions inc.

Fax/Email Form

Date: September 7, 2000

To: **Mr. Robert Jarski**

City of Oak Harbor
Fax Number: 360-675-6858
Phone Number: 360-679-5551X233
E mail address: wwtpoh@oakharbor.org

From: **Vin Johnsen**

Fax Number: 253-851-3822
Phone Number: 253-853-5999
E mail address: vjohnsen@solutions-ics.com

Number of pages: 4

Dear Bob:

Harle and I talked about your project and I think you will have good success in removing the diesel contamination. Here is a copy of the method I'm suggesting. It should take care of the pit and the Porous Surface Stain Cleaning method will handle the dirt on the tarps.

We appreciate your help and maybe we can return the favor by helping you handle your evactor waste. Rob indicated that you have an ongoing problem with that.

Sincerely, **Vin Johnsen**

Best Management Practice
Oak Harbor Waste Plant Pit Cleaning

We surveyed the old diesel storage tank site. Several yards of soil had been removed and placed on tarps. The pit is still open and contains standing water. The use of ECS's FM 186-2 will neutralize the harmful effects of hydrocarbon contamination and reduce it's toxicity, flammability, and corrosiveness.

When the cleaning takes place, the hydrocarbon is now available for natural bacteria to take it in as food. This eliminates the contamination in a short period of time.

Adding FM 186-2 solution to clean hydrocarbon staining in your pit requires attention to the water table. When the water table is high (pits fill rapidly with groundwater) care must be taken not to "push the contamination" into the ground water. Minimize this problem by adding the FM 186-2 to the pit and immediately pumping out the solution.

This solution should be disposed of by pumping it into your treatment facility.

The following procedure can be followed for maximum results:

1. Insert sump pump into the pit.
2. Add FM 186-2 solution to the pit to remove any sheen.
3. Pump the water out of the pit into the waste treatment plant.
4. Repeat these steps until the water in the pit is clean.
5. Let the pit stand for a day (or longer)
6. Again, follow steps 1 through 5.
7. Soil that has already been removed from the pit can be cleaned by using the Porous Surface Cleaning Method.

ENVIRONMENTAL CHEMICAL SOLUTIONS, INC.

Best Management Practice
Porous Surface Stain Cleaning

Hydrocarbon contamination is most commonly found on paved and asphalt areas. There are times when this contamination falls on soil, gravel or other more porous surfaces. In these cases, the use of the hydrocarbon mitigation agent FM 186-2 is the best available technology for this application.

The addition of FM 186-2 begins the remediation of the contamination. As with cleaning procedures, the mixing of the FM 186-2 with the hydrocarbon is important. In addition, turning of the surface by mechanical action, increases the oxygen level within the substrate. This enhances the natural bacterial growth which is the key to the elimination of the contamination.

The following procedure should be followed for maximum results:

1. Assess the extent of the contamination. This involves both the amount and the area that the hydrocarbon reached.

2. Turn over the surface of the contaminated area. This can be done by hand, shovel, rototiller, or if the area is large enough by earth moving equipment. By turning the surface additional oxygen and mixing is provided which allows more rapid soil bacterial growth.

3. Apply 5 gallons of FM 186-2 solution per cubic yard of soil.

4. Apply one cup lawn fertilizer to the area. (Note: Be sure that the fertilizer does not contain any additional component that inhibits bacterial growth.)

5. Turn over the surface again to completely mix the FM 186-2 and the fertilizer.

6. Add approximately 10 gallons of water to each cubic yard of soil. Keep the soil moist but do not over water. Too much water will slow the remediation process.

Best Management Practice
Porous Surface Stain Cleaning (continued)

7. Sampling can be done at this point. This will give an idea of the actual amount of contamination present The action of FM 186-2 will cause an increase in the hydrocarbon test results due to the strong microencapsulating action. Samples can also be evaluated by the diesel or other hydrocarbon smell. As the process continues, the smell is a good indicator of progress.

8. After 45 days, resample the area and evaluate progress. This can be accomplished both by test results and the presence of hydrocarbon odor.

9. Keep area moist and continue to monitor until hydrocarbon odor is no longer present.

Attachment 4. Invoice from Environmental Chemical Solutions, Inc.

- Invoice from Environmental Chemical Solutions, Inc., showing the amount of FM-182-2 bought by the City of Oak Harbor.

(See next page)

ENVIRONMENTAL CHEMICAL SOLUTIONS, INC.

PO Box 2029
Gig Harbor, Wa 98335

4771

Invoice

DATE	INVOICE #
9/7/2000	1887

BILL TO	SHIP TO
City of Oak Harbor 865 SE Barrington Dr. Oak Harbor, WA 98277	City of Oak Harbor 1501 SE Citybeach Street Oak Harbor, WA 98277

P.O. NO.	TERMS	REP	SHIP DATE	SHIP VIA	FOB	VENDOR NO.
R. Jarski	NET 30	HR	9/7/2000	Delivered		

ITEM	DESCRIPTION	QTY	Price Each	AMOUNT
ST1001	Starter Kit - Two gallon sprayer w/ FM 186-2, Five gallons FM 186-2.		110.00	110.00T
FM1862-5	Five gallons, FM 186-2	4	61.25	245.00T
	Oak Harbor Sales Tax		8.00%	28.40
			Total	**$383.40**

Phone: 253-853-5999
Fax: 253-851-3822
International Chemical Systems, Inc.

Attachment 5. Stockpile Environmental Sampling Events.

- Laboratory results from environmental soil sampling of onsite stockpile conducted on May 15, 2001 and analyzed by Edge Analytical, Inc.
- Chain of Custody for environmental sampling conducted on May 15, 2001.
- Laboratory results from environmental soil sampling of onsite stockpile conducted on August 22, 2001 and analyzed by Edge Analytical, Inc.

(see next page)

Avocet Environmental Testing
1500 North State Street, Suite 200
Bellingham, WA 98225
(360) 734-9033

AVOCET
ENVIRONMENTAL TESTING

Client	**City of Oak Harbor**
Contact Name	Scott Hubbard
Avocet Lab #	05774839 - 05774843
Chain of Custody #	C 13330
Date Sampled	05/15/01
Date Received	05/16/01
Date Reported	05/31/01
Analysis	**NWTPH - Dx**
Matrix	Soil

LABORATORY NARRATIVE

The samples were received by the laboratory in good condition and were analyzed according to the Chain of Custody. No difficulties were encountered in the preparation or analysis of the samples. Analysis was performed by a subcontracted lab. Results are contained in the following report.

Analyzing Lab	Edge Analytical
Lab Reference Number	01-2469

Laboratory Supervisor

EDGE ANALYTICAL
11525 Knudson Rd.
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

SOILS

WSDOE Lab C057

DATA REPORT

Client Name: AVOCET
1500 N State St
Bellingham, WA 98225

Method: NWTPH-Dx
SEMI-VOLATILE PETROLEUM PRODUCTS
Matrix: Soil

Reference Number: 01-2469
Report Date: 5/29/01
Project: City of Oak Harbor

Analyst: TW
Collect Date: ~~5/15/01~~
Supervisor:

LAB NUMBER	FIELD ID	COMPOUNDS	RESULT	Cleanup Level	MRL	UNITS	DATE ANALYZED	COMMENT
4269	74839 - #1	DIESEL (C12 - C24)	120	200	25	mg/Kg	5/18/01	not identified as diesel fuel
		HEAVIER OILS (>C24)	ND	200	40	mg/Kg		
4270	74840 - #2	DIESEL (C12 - C24)	140	200	25	mg/Kg	5/18/01	not identified as diesel fuel
		HEAVIER OILS (>C24)	ND	200	40	mg/Kg		
4271	74841 - #3	DIESEL (C12 - C24)	53	200	25	mg/Kg	5/18/01	not identified as diesel fuel
		HEAVIER OILS (>C24)	ND	200	40	mg/Kg		
4272	74842 - #4	DIESEL (C12 - C24)	259	200	25	mg/Kg	5/18/01	not identified as diesel fuel
		HEAVIER OILS (>C24)	ND	200	40	mg/Kg		
4273	84843 - #5	DIESEL (C12 - C24)	416	200	25	mg/Kg	5/18/01	not identified as diesel fuel
		HEAVIER OILS (>C24)	ND	200	40	mg/Kg		

- White C

Notation:

ND - A result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.
Cleanup Level - The regulatory limit for Method A Cleanup Levels (MTCA, Chapter173-340 WAC) contaminants in the specified matrix.
MRL - Method Reporting Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.

FORM: HCID

EDGE ANALYTICAL
11525 Knudson Rd
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

QUALITY CONTROL REPORT
BLANK REPORT

Reference Number: 01-2469
Report Date: 05/29/01

Batch	Analyte	Result	Units	Limit	Method	Type*	Comments
DX_010518	DIESEL (C12 - C24)	ND	mg/Kg	0.00	NWTPH-Dx	MB	
	HEAVIER OILS (>C24)	ND	mg/Kg	0.00	NWTPH-Dx	MB	
	2-FLUOROTOLUENE (Surr)	104	%	0.00	NWTPH-Dx	MB	

*Notation:

LRB: Laboratory Reagent Blanks are used to determine the background level of the analytes in a laboratory batch. Therefore, this report may include analytes not requested for your submitted samples.

MB: Method Blanks are used to determine background levels of analytes in digested and extracted laboratory reagent water.

EDGE ANALYTICAL

11525 Knudson Rd
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

QUALITY CONTROL REPORT
QCS/LFB REPORT

Reference Number: 01-2469
Report Date: 05/29/01

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	Type*	Comment
DX_010518	DIESEL (C12 - C24)	103	104	mg/Kg	NWTPH-Dx	99	80-120	LFB	
	HEAVIER OILS (>C24)	176	200	mg/Kg	NWTPH-Dx	88	80-120	LFB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an externa source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

EDGE ANALYTICAL

11525 Knudson Rd

Burlington, WA 98233

(800) 755-9295

(360) 757-1400 - FAX (360) 757-1402

QUALITY CONTROL REPORT
Duplicate Report

Reference Number: 01-2469
Report Date: 05/29/01

Batch	Duplicate Sample	Analyte	Result	Duplicate Result	Units	Method	%RPD	Limits
DX_010518	4273	DIESEL (C12 - C24)	416	412	mg/Kg	NWTPH-Dx	**1.0**	0-120
		HEAVIER OILS (>C24)	ND	ND	mg/Kg	NWTPH-Dx	**NA**	0-120
		2-FLUOROTOLUENE (Surr)	102	100	%	NWTPH-Dx	**2.0**	0-120

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Duplicate analysis is used to validate all samples processed in a laboratory batch. Therefore, the duplicate analysis results in this report may not have come from the samples you submitted or may include analytes not requested.

AVOCET ENVIRONMENTAL TESTING

CHAIN OF CUSTODY

C 13330

1500 North State Street, Suite 200
Bellingham, WA 98225
(360) 734-9033 FAX (360) 734-0467
TOLL FREE 800/[redacted]-9427

227

CLIENT City of Oak Harbor
ADDRESS 1501 SE. City Beach St
CITY, STATE, ZIP Oak Harbor, WA 98277

CONTACT NAME Scott Hubbard
DAY PHONE (360) 679-5551 X233
FAX (360) 675-6858

BILLING INFORMATION IF DIFFERENT THAN CLIENT:
NAME City of O.H.
ADDRESS 865 SE. Barrington Dr
CITY, STATE, ZIP Oak Harbor, WA 98277
COLLECTED BY Scott Hubbard
PHONE (360) 678-1597

PROJECT NAME: Diesel Tank Soil Test

P.O.#

SAMPLE IDENTIFICATION	MATRIX	# & TYPE OF CONTAINERS	SAMPLE DATE/TIME	PRESERVATION	ANALYSIS METHOD REQUESTED	LOG # (LAB USE ONLY)
#1 NW Corner		GLASS / PLASTIC 1 / OTHER	DATE 5-15-01 TIME	☐ Ice Other: NA	Diesel, Heavier Oils (NWTPH-DX)	05994839
#2 SW Corner		GLASS / PLASTIC 1 / OTHER	DATE " TIME	☐ Ice Other:	"	4840
#3 NE Corner		GLASS / PLASTIC 1 / OTHER	DATE " TIME	☐ Ice Other:	"	4841
#4 SE Corner		GLASS / PLASTIC 1 / OTHER	DATE " TIME	☐ Ice Other:	"	4842
#5 Middle		GLASS / PLASTIC 1 / OTHER	DATE " TIME	☐ Ice Other:	"	4843
		GLASS / PLASTIC / OTHER	DATE TIME	☐ Ice Other:		
		GLASS / PLASTIC / OTHER	DATE TIME	☐ Ice Other:		
		GLASS / PLASTIC / OTHER	DATE TIME	☐ Ice Other:		
		GLASS / PLASTIC / OTHER	DATE TIME	☐ Ice Other:		
		GLASS / PLASTIC / OTHER	DATE TIME	☐ Ice Other:		

REMARKS:

RECEIVED VIA: ☒ AET ☐ COURIER ☐ OTHER
ON ICE? ☒ YES ☐ NO
TEMP °C
CUSTODY SEAL? ☐ YES ☐ NO ☒ N/A

		DATE	TIME
RELEASING SIGNATURE 1.	Scott M. Hubbard	5-16-01	
RECEIVING SIGNATURE 1.	D. Stone	5-16-01	1200
RELEASING SIGNATURE 2.	D. Stone	5-16-01	1530
RECEIVING SIGNATURE 2.	Madeleine Brown	5/16/01	1527

Avocet Environmental Testing
1500 North State Street, Suite 200
Bellingham, WA 98225
(360) 734-9033

AVOCET
ENVIRONMENTAL TESTING

Client	**City of Oak Harbor**
Contact Name	Scott Hubbard
Avocet Lab #	05777783
Chain of Custody #	C 13337
Date Sampled	08/22/01
Date Received	08/22/01
Date Reported	09/11/01
Analysis	**NWTPH - Dx**
Matrix	Soil

LABORATORY NARRATIVE

The samples were received by the laboratory in good condition and were analyzed according to the Chain of Custody. No difficulties were encountered in the preparation or analysis of the samples. Analysis was performed by a subcontracted lab. Results are contained in the following report.

Analyzing Lab	Edge Analytical
Lab Reference Number	01-4403

Laboratory Supervisor

EDGE ANALYTICAL
11525 Knudson Rd.
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

WSDOE Lab C057

DATA REPORT

Client Name: AVOCET
1500 N State St
Bellingham, WA 98225

Method: NWTPH-Dx
SEMI-VOLATILE PETROLEUM PRODUCTS

Matrix: Soil

Reference Number: 01-4403
Report Date: 8/31/01
Project: City of Oak Harbor

Analyst: TW
Collect Date: 8/22/01
Supervisor:

LAB NUMBER	FIELD ID	COMPOUNDS	RESULT	Cleanup Level	MRL	UNITS	DATE ANALYZED	COMMENT
7682	77783 - oil tank soil-RBC plant	DIESEL (C12 - C24)	ND	200	25	mg/Kg	8/24/01	
		HEAVIER OILS (>C24)	ND	200	40	mg/Kg		

Notation:

ND - A result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.
Cleanup Level - The regulatory limit for Method A Cleanup Levels (MTCA, Chapter173-340 WAC) contaminants in the specified matrix.
MRL - Method Reporting Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.

11525 Knudson Rd
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

QUALITY CONTROL REPORT
BLANK REPORT

Reference Number: 01-4403
Report Date: 08/31/01

Batch	Analyte	Result	Units	Limit	Method	Type*	Comments
DX_010824	DIESEL (C12 - C24)	ND	mg/Kg	0.00	NWTPH-Dx	MB	
	HEAVIER OILS (>C24)	ND	mg/Kg	0.00	NWTPH-Dx	MB	
	2-FLUOROTOLUENE (Surr)	99	%	0.00	NWTPH-Dx	MB	

*Notation:

LRB: Laboratory Reagent Blanks are used to determine the background level of the analytes in a laboratory batch. Therefore, this report may include analytes not requested for your submitted samples.

MB: Method Blanks are used to determine background levels of analytes in digested and extracted laboratory reagent water.

11525 Knudson Rd
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

QUALITY CONTROL REPORT
QCS/LFB REPORT

Reference Number: 01-4403
Report Date: 08/31/01

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	Type*	Comment
DX_010824	DIESEL (C12 - C24)	115	104	mg/Kg	NWTPH-Dx	111	80-120	LFB	
	HEAVIER OILS (>C24)	208	200	mg/Kg	NWTPH-Dx	104	80-120	LFB	
DX_010824	DIESEL (C12 - C24)	564	518	mg/Kg	NWTPH-Dx	109	80-120	LFB	
	HEAVIER OILS (>C24)	981	1000	mg/Kg	NWTPH-Dx	98	80-120	LFB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an externa source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to

Attachment 6. Groundwater Sampling Events.

- Laboratory results from environmental groundwater sampling conducted on July 20, 2000 and analyzed by Edge Analytical, Inc.
- Laboratory results from environmental soil sampling of onsite stockpile conducted on December 29, 2004 and analyzed by Anatek Lab, Inc.
- Chain of Custody for environmental sampling conducted on December 29, 2004.
- Sampling locations for groundwater sampling event on December 29, 2004.
- Laboratory results from environmental soil sampling of onsite stockpile conducted on April 13, 2007 and analyzed by CCI Analytical Laboratories.
- Chain of Custody for environmental sampling conducted on April 13, 2007.
- Laboratory results from environmental soil sampling of onsite stockpile conducted on April 25, 2008 and analyzed by CCI Analytical Laboratories.
- Chain of Custody for environmental sampling conducted on April 24, 2008.

(see next page)

EDGE ANALYTICAL
11525 Knudson Rd.
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

WSDOE Lab C057

DATA REPORT

Client Name: City of Oak Harbor WWTP
3075 300 Ave W
Oak Harbor, WA 98277

Method: NWTPH-Dx
SEMI-VOLATILE PETROLEUM PRODUCTS
Matrix: Wastewater

Reference Number: 00-3451
Report Date: 7/31/00
Project: Tank Closure
Analyst: TW
Collect Date: 7/20/00
Supervisor:

LAB NUMBER	FIELD ID	COMPOUNDS	RESULT	Cleanup Level	MRL	UNITS	DATE ANALYZED	COMMENT
5970	#5 - Center - Liquid	DIESEL (C12 - C24)	ND	1	0.25	mg/L	7/28/00	
		HEAVIER OILS (>C24)	ND	1	0.5	mg/L		

Notation:

ND - A result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.
Cleanup Level - The regulatory limit for Method A Cleanup Levels (MTCA, Chapter173-340 WAC) contaminants in the specified matrix.
MRL - Method Reporting Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.

FORM: HCID

EDGE ANALYTICAL
11525 Knudson Rd
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

QUALITY CONTROL REPORT
BLANK REPORT

Reference Number: 00-3451
Report Date: 07/31/00

Batch	Analyte	Result	Units	Limit	Method	Type*	Comments
DX_000725	DIESEL (C12 - C24)	ND	mg/Kg	0.00	NWTPH-Dx	MB	
	HEAVIER OILS (>C24)	ND	mg/Kg	0.00	NWTPH-Dx	MB	
	2-FLUOROTOLUENE (Surr)	100	%	0.00	NWTPH-Dx	MB	
DX_000728	DIESEL (C12 - C24)	ND	mg/L	0.00	NWTPH-Dx	MB	
	HEAVIER OILS (>C24)	ND	mg/L	0.00	NWTPH-Dx	MB	
	O-TERPHENYL	95	%	0.00	NWTPH-Dx	MB	

*Notation:

LRB: Laboratory Reagent Blanks are used to determine the background level of the analytes in a laboratory batch. Therefore, this report may include analyte not requested for your submitted samples.

MB: Method Blanks are used to determine background levels of analytes in digested and extracted laboratory reagent water.

QUALITY CONTROL REPORT
SURROGATE REPORT

Reference Number: 00-3451
Report Date: 07/31/00

Lab No	Analyte	Result	Units	Method	Limit
DX_000725					
5966	2-FLUOROTOLUENE (Surr)	97	%	NWTPH-Dx	Acceptance Limits: 50-150%
DX_000725					
5967	2-FLUOROTOLUENE (Surr)	108	%	NWTPH-Dx	Acceptance Limits: 50-150%
DX_000725					
5968	2-FLUOROTOLUENE (Surr)	104	%	NWTPH-Dx	Acceptance Limits: 50-150%
DX_000725					
5969	2-FLUOROTOLUENE (Surr)	105	%	NWTPH-Dx	Acceptance Limits: 50-150%
DX_000728					
5970	O-TERPHENYL	96	%	NWTPH-Dx	Acceptance Limits: 50-150%

*Notation:

A surrogate is a pure compound added to a sample in the laboratory just before processing so that the overall efficiency of a method can be determined.

EDGE ANALYTICAL
11525 Knudson Rd
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

QUALITY CONTROL REPORT
QCS/LFB REPORT

Reference Number: 00-3451
Report Date: 07/31/00

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits	Type*	Comment
DX_000725	DIESEL (C12 - C24)	106	104	mg/Kg	NWTPH-Dx	102	80-120	LFB	
	HEAVIER OILS (>C24)	114	124	mg/Kg	NWTPH-Dx	92	80-120	LFB	
DX_000725	DIESEL (C12 - C24)	507	518	mg/Kg	NWTPH-Dx	98	80-120	LFB	
	HEAVIER OILS (>C24)	604	618	mg/Kg	NWTPH-Dx	98	80-120	LFB	
DX_000728	DIESEL (C12 - C24)	2.18	2.6	mg/L	NWTPH-Dx	84	80-120	LFB	
	HEAVIER OILS (>C24)	2.57	3.09	mg/L	NWTPH-Dx	83	80-120	LFB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

QCS: Quality Control Sample, a solution containing known concentrations of method analytes which is used to fortify an aliquot of reagent matrix. The QCS is obtained from an externa source and is used to check lab performance.

LFB: Laboratory Fortified Blank, an aliquot of reagent matrix to which known quantities of method analytes are added in the lab. The LFB is analyzed exactly like a sample, and its purpose is to determine whether method performance is within accepted control limits.

11525 Knudson Rd
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

QUALITY CONTROL REPORT
Duplicate Report

Reference Number: 00-3451
Report Date: 07/31/00

Batch	Duplicate Sample	Analyte	Result	Duplicate Result	Units	Method	%RPD	Limits
DX_000725	6085	DIESEL (C12 - C24)	ND	ND	mg/Kg	NWTPH-Dx	NA	0-120
		HEAVIER OILS (>C24)	ND	ND	mg/Kg	NWTPH-Dx	NA	0-120
		2-FLUOROTOLUENE (Surr)	105	104	%	NWTPH-Dx	1.0	0-120
DX_000728	5977	DIESEL (C12 - C24)	ND	ND	mg/L	NWTPH-Dx	NA	0-120
		HEAVIER OILS (>C24)	ND	ND	mg/L	NWTPH-Dx	NA	0-120
		O-TERPHENYL	94	91	%	NWTPH-Dx	3.2	0-45

%RPD = Relative Percent Difference
NA = Indicates %RPD could not be calculated

Duplicate analysis is used to validate all samples processed in a laboratory batch. Therefore, the duplicate analysis results in this report may not have come from the samples you submitted or may include analytes not requested.

Avocet Environmental Testing
1500 North State Street, Suite 200
Bellingham, WA 98225
(360) 734-9033

AVOCET
ENVIRONMENTAL TESTING

Client	**City of Oak Harbor WWTP**
Contact Name	Scott Hubbard
Avocet Lab #	05722768-71
Chain of Custody #	C14520
Date Sampled	12/29/04
Date Received	12/29/04
Date Reported	01/20/05
Analysis	**Petroleum - NWTPH-D**
Matrix	Ground Water

LABORATORY NARRATIVE

The samples were received by the laboratory in good condition and were analyzed according to the Chain of Custody. No difficulties were encountered in the preparation or analysis of the samples. Analysis was performed by a subcontracted lab. Results are contained in the follow report.

Analyzing Lab	Anatek Labs, Inc.
Lab Reference Number	05X0031-01-04

Laboratory Supervisor

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

AVOCET ENVIRONMENTAL TESTING PROJECT: CITY OF OAK HARBOR

MADELL BRIGGS
1500 N. STATE ST. STE. 200
BELLINGHAM, WA 98225

CLEAN up STANDARD
in gw
diesel 500 mg/L
oil 500 mg/L

Certificate of Analysis

Petroleum -NWTPH-D Extended by GC/FID (8015 modified)

		Analyte	Result	Units	PQL
Sample Name:	**22768**	Diesel	0.41	mg/L	0.1
Sample Location:		Lube Oil	5.37	mg/L	0.5
Sampling Date:	12/29/2004				
Date Received:	1/5/2005				
Lab #:	05X0031-01	*NWTPH-D Surrogate (Hexacosane) Percent Recovery*	85.5		
Matrix:	GROUND WATER				
Analysis Date NWTPH-D:	1/6/2005	*Surrogate %R Acceptable Range:*	50-150		
		Comments:			

		Analyte	Result	Units	PQL
Sample Name:	**22769**	Diesel	ND	mg/L	0.1
Sample Location:		Lube Oil	2.42	mg/L	0.5
Sampling Date:	12/29/2004				
Date Received:	1/5/2005				
Lab #:	05X0031-02	*NWTPH-D Surrogate (Hexacosane) Percent Recovery*	98.9		
Matrix:	GROUND WATER				
Analysis Date NWTPH-D:	1/6/2005	*Surrogate %R Acceptable Range:*	50-150		
		Comments:			

		Analyte	Result	Units	PQL
Sample Name:	**22770**	Diesel	ND	mg/L	0.1
Sample Location:		Lube Oil	1.24	mg/L	0.5
Sampling Date:	12/29/2004				
Date Received:	1/5/2005				
Lab #:	05X0031-03	*NWTPH-D Surrogate (Hexacosane) Percent Recovery*	101		
Matrix:	GROUND WATER				
Analysis Date NWTPH-D:	1/6/2005	*Surrogate %R Acceptable Range:*	50-150		
		Comments:			

		Analyte	Result	Units	PQL
Sample Name:	**22771**	Diesel	ND	mg/L	0.1
Sample Location:		Lube Oil	2.32	mg/L	0.5
Sampling Date:	12/29/2004				
Date Received:	1/5/2005				
Lab #:	05X0031-04	*NWTPH-D Surrogate (Hexacosane) Percent Recovery*	93.3		
Matrix:	GROUND WATER				
Analysis Date NWTPH-D:	1/6/2005	*Surrogate %R Acceptable Range:*	50-150		
		Comments:			

Lab Supervisor: John Cook

Report Date: 10-Jan-05

ND Not Detected PQL Practical Quantitation Limit

Anatek labs, Inc. 1282 Alturas Dr. Moscow, ID 83843 (208)883-2839

Quality Control Report - TPHD/HCID by GC/FID

Units are mg/L

Analyte	Control Type	Sample	Sample	Units	Spike	MS OR LCS	%R	MSD	%R	RPD	%R LCL	%R UCL	RPD AL	Analysis Date
Diesel	LCS	BLANK	0	mg/L	0.5	0.405	81.0				50	150		1/6/2005
Diesel	MS	05X0031-03	0	mg/L	0.5	0.670	134.0				50	150		1/6/2005
Diesel	LCS	BLANK	0	mg/L	0.5	0.339	67.8				50	150		1/5/2005

9K00...

AVOCET ENVIRONMENTAL TESTING

CHAIN OF CUSTODY

C14520

1500 North State Street, Suite 200
Bellingham, WA 98225
(360) 734-9033 FAX (360) 734-0467
TOLL FREE 800/227-9427

CLIENT: City of Oak Harbor WWTP
ADDRESS: 1501 SE City Beach St.
CITY, STATE, ZIP: Oak Harbor WA 98277

CONTACT NAME: Scott Hubbard
DAY PHONE: (360) 679-5551 X233
FAX: (360) 675-6858

BILLING INFORMATION IF DIFFERENT THAN CLIENT.
NAME: City of Oak Harbor
ADDRESS: 865 SE Barrington Dr
CITY, STATE, ZIP: Oak Harbor, WA 98277
COLLECTED BY: Scott Hubbard
PHONE: (360) 679-5551 X233

PROJECT NAME: WWTP Groundwater

P.O.#

SAMPLE DATA		CONTAINER	DATE/TIME	PRESERVATION	ANALYSIS REQUESTED	LAB #
Site #1		GLASS 1 / PLASTIC / OTHER	DATE / TIME	☒ Ice / Other:	Total Hydrocarbon as Diesel (NWTPH-DX)	05T2 2768
Site #2		GLASS 1 / PLASTIC / OTHER	DATE / TIME	☒ Ice / Other:	"	2769
Site #3		GLASS 1 / PLASTIC / OTHER	DATE / TIME	☒ Ice / Other:	"	2770
Site #4		GLASS 1 / PLASTIC / OTHER	DATE / TIME	☒ Ice / Other:	"	2771
		GLASS / PLASTIC / OTHER	DATE / TIME	☒ Ice / Other:		
		GLASS / PLASTIC / OTHER	DATE / TIME	☐ Ice / Other:		
		GLASS / PLASTIC / OTHER	DATE / TIME	☐ Ice / Other:		
		GLASS / PLASTIC / OTHER	DATE / TIME	☐ Ice / Other:		
		GLASS / PLASTIC / OTHER	DATE / TIME	☐ Ice / Other:		
		GLASS / PLASTIC / OTHER	DATE / TIME	☐ Ice / Other:		

REMARKS

RECEIVED VIA: ☐ AET COURIER ☐ OTHER: ______

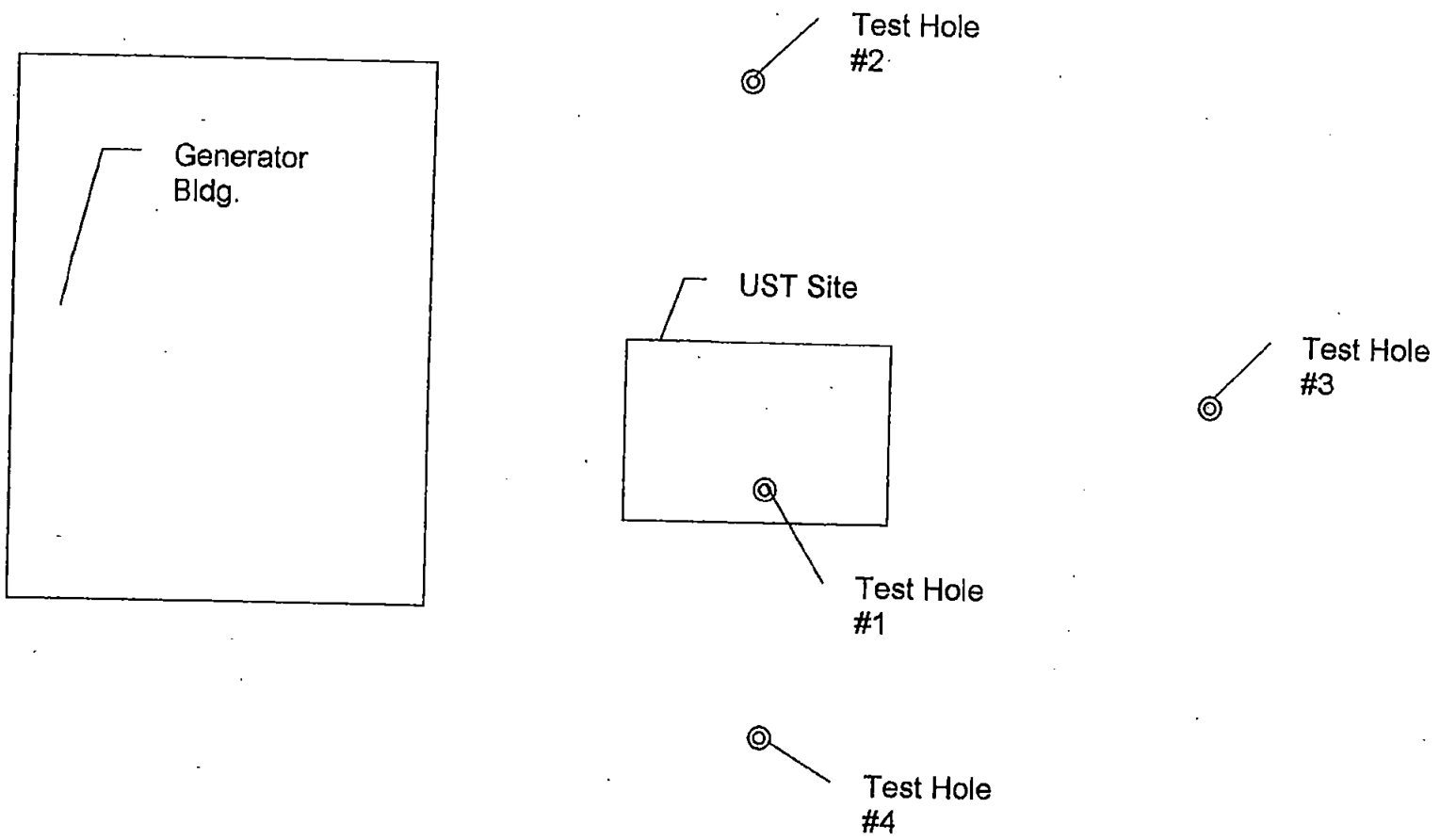
ON ICE? ☐YES ☐NO TEMP ____ °C

CUSTODY SEAL ☐YES ☐NO ☐N/A

RELEASING SIGNATURE 1: Scott M Hubbard DATE 12-29-04 TIME 2:05 PM
RECEIVING SIGNATURE 1: [signature] DATE 12/29/04 TIME 1455

RELEASING SIGNATURE 2: [signature] DATE 12/29/04 TIME 1550
RECEIVING SIGNATURE 2: V. Davis DATE 12.29 TIME 1557

City of Oak Harbor, RBC Wastewater Treatment
1501 SE City Beach Street
UST SITE LOCATION



CCI
ANALYTICAL
LABORATORIES

CERTIFICATE OF ANALYSIS

CLIENT: EARTHWORKS ENVIRONMENTAL, INC.
1200 DUPONT ST. SUITE 2-I
BELLINGHAM, WA 98225

DATE: 4/13/2007
CCIL JOB #: 0704063
DATE RECEIVED: 4/12/2007
WDOE ACCREDITATION #: C142

CLIENT CONTACT: JEFF NINNEMANN
CLIENT PROJECT ID: CITY OF OAK HARBOR WT.
CLIENT SAMPLE ID: 4/11/2007 11:15 07/04/11-1
CCIL SAMPLE #: -01

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	ND(<130)	UG/L	4/12/2007	DLC
TPH-Oil Range	NWTPH-DX	ND(<250)	UG/L	4/12/2007	DLC

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:

122°39'7.61"W, 48°17'11.196"
Degrees Minutes Seconds

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

CCI
ANALYTICAL
LABORATORIES

CERTIFICATE OF ANALYSIS

CLIENT: EARTHWORKS ENVIRONMENTAL, INC.
1200 DUPONT ST. SUITE 2-I
BELLINGHAM, WA 98225

DATE: 4/13/2007
CCIL JOB #: 0704063
DATE RECEIVED: 4/12/2007
WDOE ACCREDITATION #: C142

CLIENT CONTACT: JEFF NINNEMANN
CLIENT PROJECT ID: CITY OF OAK HARBOR WT.

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	METHOD	SUR ID	% RECV
0704063-01	NWTPH-DX	C25	96

APPROVED BY:

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

Hol[illegible] Everett, WA 98208
Phone (425) 356-2600
(206) 292-9059 Seattle
(425) 356-2626 Fax
http://www.ccilabs.com

Cha[illegible] Of [redacted]stody
Laboratory Analysis Request

Job [illegible] Laboratory [illegible]

Date ______ Page ______ Of ______

PROJECT ID: [illegible]
REPORT TO COMPANY: [illegible]
PROJECT MANAGER: [illegible]
ADDRESS: [illegible]
PHONE: [illegible] FAX: [illegible]
P.O. NUMBER: E-MAIL: [illegible]
INVOICE TO COMPANY: [illegible]
ATTENTION: [illegible]
ADDRESS: [illegible]

REPORT COPY

	SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA-8021	MTBE by EPA-8021 ☐ EPA-8260 ☐	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM ☐	PCB ☐ Pesticides ☐ by EPA 8081/8082	Metals-MTCA-5 ☐ RCRA-8 ☐ Pri Pol ☐ TAL ☐	Metals Other (Specify)	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	OTHER (Specify)							NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1.	[illegible]	9/11/07	11:15	W	1		X																						
2.																													
3.																													
4.																													
5.																													
6.																													
7.																													
8.																													
9.																													
10.																													

SPECIAL INSTRUCTIONS

CCI Analytical Laboratories, Inc accepts and processes this request on the terms and conditions set forth on the reverse side. By its signature hereon, Customer accepts these terms and conditions.

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: [illegible], EEI, 09/11/07 [illegible]
   Received By: [illegible], CCAL [illegible]
2. Relinquished By: ______
   Received By: ______

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis

10 (Standard) 5 3 2 1 SAME DAY

Fuels & Hydrocarbon Analysis

5 (Standard) 3 1 SAME DAY

OTHER:

Specify: ______

* Turnaround request less than standard may incur Rush Charges

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LABORATORIES
A Division of DataChem Laboratories, Inc

CERTIFICATE OF ANALYSIS

CLIENT: EARTHWORKS ENVIRONMENTAL, INC
1200 DUPONT ST. SUITE 2-I
BELLINGHAM, WA 98225

DATE: 4/25/2008
CCIL JOB #: 0804107
DATE RECEIVED: 4/24/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: JEFF NINNEMANN
CLIENT PROJECT ID: NONE GIVEN
CLIENT SAMPLE ID: 4/23/2008 10:50 42308-1
CCIL SAMPLE #: -01

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	ND(<130)	UG/L	4/24/2008	EBS
TPH-Oil Range	NWTPH-DX	ND(<250)	UG/L	4/24/2008	EBS

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:

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

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ANALYTICAL
LABORATORIES
A Division of DataChem Laboratories, Inc

CERTIFICATE OF ANALYSIS

CLIENT: EARTHWORKS ENVIRONMENTAL, INC.
1200 DUPONT ST SUITE 2-I
BELLINGHAM, WA 98225

DATE: 4/25/2008
CCIL JOB #: 0804107
DATE RECEIVED: 4/24/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: JEFF NINNEMANN
CLIENT PROJECT ID: NONE GIVEN
CLIENT SAMPLE ID: 4/23/2008 11:20 42308-2
CCIL SAMPLE #: -02

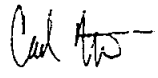
DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	ND(<130)	UG/L	4/24/2008	EBS
TPH-Oil Range	NWTPH-DX	ND(<250)	UG/L	4/24/2008	EBS

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:



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ANALYTICAL
LABORATORIES
A Division of DataChem Laboratories, Inc

CERTIFICATE OF ANALYSIS

CLIENT: EARTHWORKS ENVIRONMENTAL, INC.
1200 DUPONT ST. SUITE 2-I
BELLINGHAM, WA 98225

DATE: 4/25/2008
CCIL JOB #: 0804107
DATE RECEIVED: 4/24/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: JEFF NINNEMANN
CLIENT PROJECT ID: NONE GIVEN
CLIENT SAMPLE ID: 4/23/2008 11:35 42308-3
CCIL SAMPLE #: -03

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	ND(<130)	UG/L	4/24/2008	EBS
TPH-Oil Range	NWTPH-DX	ND(<250)	UG/L	4/24/2008	EBS

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:

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

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CERTIFICATE OF ANALYSIS

CLIENT: EARTHWORKS ENVIRONMENTAL, INC.
1200 DUPONT ST. SUITE 2-I
BELLINGHAM, WA 98225

DATE: 4/25/2008
CCIL JOB #: 0804107
DATE RECEIVED: 4/24/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: JEFF NINNEMANN
CLIENT PROJECT ID: NONE GIVEN
CLIENT SAMPLE ID: 4/23/2008 11:58 42308-4
CCIL SAMPLE #: -04

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	ND(<130)	UG/L	4/24/2008	EBS
TPH-Oil Range	NWTPH-DX	ND(<250)	UG/L	4/24/2008	EBS

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:

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

CCI
ANALYTICAL
LABORATORIES
A Division of DataChem Laboratories, Inc

CERTIFICATE OF ANALYSIS

CLIENT: EARTHWORKS ENVIRONMENTAL, INC.
1200 DUPONT ST SUITE 2-I
BELLINGHAM, WA 98225

DATE: 4/25/2008
CCIL JOB #: 0804107
DATE RECEIVED: 4/24/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: JEFF NINNEMANN
CLIENT PROJECT ID: NONE GIVEN

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	METHOD	SUR ID	% RECV
0804107-01	NWTPH-DX	C25	115
0804107-02	NWTPH-DX	C25	114
0804107-03	NWTPH-DX	C25	118
0804107-04	NWTPH-DX	C25	110

APPROVED BY

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

[redacted] CCI Analytical Laboratories
8620 Holly Drive
Everett, WA 98208
Phone (425) 356-2600
(206) 292-9059 Seattle
(425) 356-2626 Fax
http://www.ccilabs.com

Chain Of Custody/
Laboratory Analysis Request

Lab Job # (Laboratory Use Only)

Date 4/25/08 Page 1 Of 1

PROJECT ID:
REPORT TO COMPANY: Earthworks Environmental Inc
PROJECT MANAGER: Jeff Nimmerman
ADDRESS: 1200 Dupont St Suite 2A
Bellingham, WA 98225
PHONE: 360-738-6600 FAX:
P.O. NUMBER: E-MAIL:
INVOICE TO COMPANY: Earthworks Environmental Inc
ATTENTION: Jeff Nimmerman
ADDRESS: Same as above

(W)

ANALYSIS REQUESTED / OTHER (Specify)

#	SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA-8021	MTBE by EPA-8021 ☐ EPA-8260 ☐	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM ☐	PCB ☐ Pesticides ☐ by EPA 8081/8082	Metals-MTCA-5 ☐ RCRA-8 ☐ Pri Pol ☐ TAL ☐	Metals Other (Specify)	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	OTHER (Specify)							NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1.	42508-1	4/25/08	10:50	Grab	1		X																					1	
2.	42508-2	4/25/08	11:20	Grab	2		X																					1	
3.	42508-3	4/25/08	11:35	Grab	3		X																					1	
4.	42508-4	4/25/08	11:50	Grab	4		X																					1	
5.		4/25/08																											
6.																													
7.																													
8.																													
9.																													
10.																													

REPORT COPY

SPECIAL INSTRUCTIONS

CCI Analytical Laboratories, Inc accepts and processes this request on the terms and conditions set forth on the reverse side. By its signature hereon, Customer accepts these terms and conditions.

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: Jeff Nimmerman, Earthworks Env Inc, 4/25/08 12:15
   Received By: [illegible]
2. Relinquished By:
   Received By:

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis

☐ 10 Standard ☐ 5 ☐ 3 ☐ 2 ☐ 1 ☐ SAME DAY

Fuels & Hydrocarbon Analysis

☒ 5 Standard ☐ 3 ☐ 1 ☐ SAME DAY

OTHER:

Specify:

* Turnaround request less than standard may incur Rush Charges

Attachment 7. Sediment Sampling Report

- Sediment Sampling Results Summary City of Oak Harbor by URS Corporation dated February 9, 2007.

(see next page)

DRAFT REPORT

SEDIMENT SAMPLING RESULTS SUMMARY
CITY OF OAK HARBOR

Prepared for:

City of Oak Harbor

Prepared by:

URS Corporation
1501 4th Avenue, Suite 1400
Seattle, Washington 98101

February 9, 2007

CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 BACKGROUND

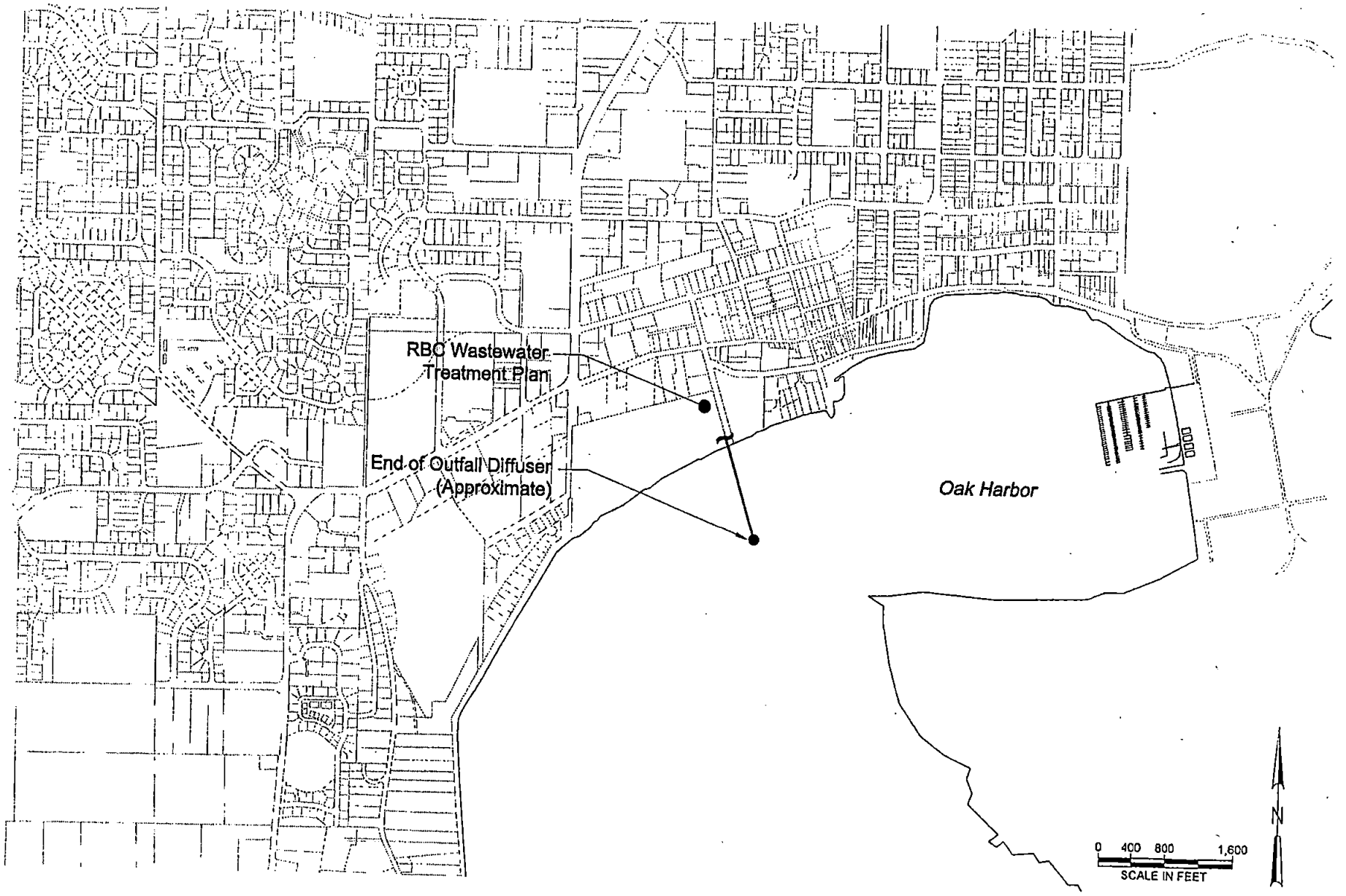
The City of Oak Harbor conducted baseline sediment sampling in the vicinity of Outfall 001. This outfall receives treated wastewater from the City of Oak Harbor (COH) Rotating Biological Contactor (RBC) Wastewater Treatment Plant (WWTP) located at 1501 SE City Beach Drive in Oak Harbor, Washington. The 18-inch outfall was constructed in the mid-1950s and currently discharges a maximum of 0.7 million gallons per day of treated domestic sewage under National Pollutant Discharge Elimination System (NPDES) Permit WA-002056-7. This NPDES permit also allows discharge for the COH Outfall 002. Outfall 002 discharges wastewater from a separate WWTP (Seaplane Base Lagoons) into Crescent Harbor. This summary report does not present data associated with Outfall 002.

1.2 OBJECTIVE

The objective of this summary report is to present analytical results from sediment samples collected in the vicinity of the COH wastewater Outfall 001. The results will be used to support the current NPDES permit process. To meet this objective, sediment samples were collected at seven on-site locations and one reference station and analyzed for the full suite of 47 Washington Sediment Management Standards (SMS) chemicals and conventional sediment variables.

1.3 SITE DESCRIPTION

The project site is located in the City of Oak Harbor, Island County, Washington (Figure 1-1). The outfall extends approximately 1,160 feet offshore to a depth of approximately -15 feet Mean Lower Low Water (MLLW) in a constricted portion of Oak Harbor. The outfall is constructed of 18-inch corrugated steel outfall pipe and terminates in a 6-inch port that discharges vertically and an 8-inch port that discharges horizontally. The outfall location and sediment sampling stations are presented in Figure 1-2.

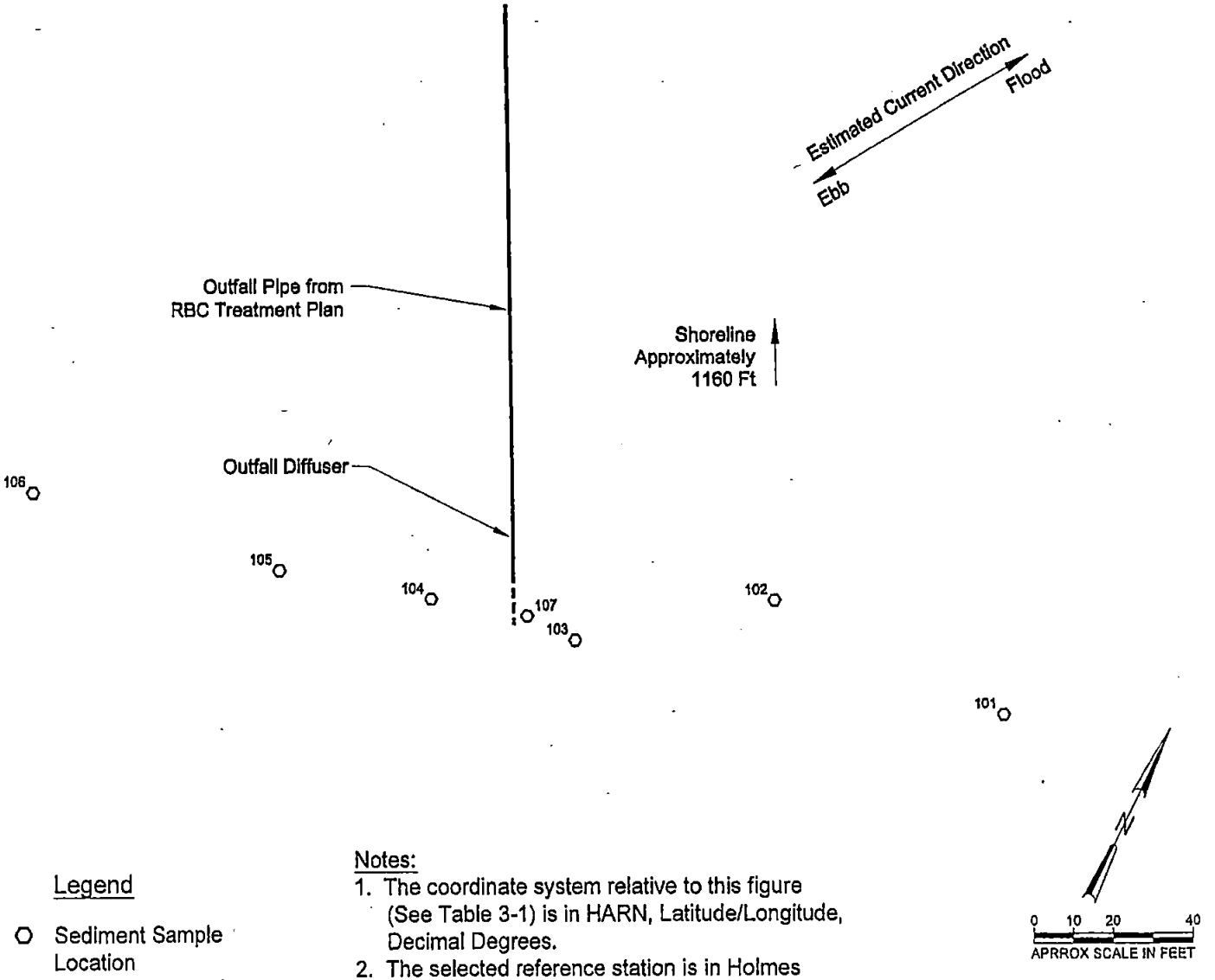


FILENAME: T:\Misc-Jobs\Oak Harbor\Figure 1-1 2006 Summ.dwg
EDIT DATE: 02/06/07 AT: 09:40

URS

Figure 1-1
Location Map

City of Oak Harbor
Oak Harbor, WA
Outfall 001
2006 SUMMARY REPORT



Legend

○ Sediment Sample Location

Notes:

1. The coordinate system relative to this figure (See Table 3-1) is in HARN, Latitude/Longitude, Decimal Degrees.
2. The selected reference station is in Holmes Harbor. (URS Station ID 100)

FILENAME: T:\Misc-Jobs\Oak Harbor\Figure 1-2.dwg
EDIT DATE: 02/06/07 AT: 09:43

URS

Figure 1-2
Sediment Sampling Locations

City of Oak Harbor
Oak Harbor, WA
Outfall 001
2006 SUMMARY REPORT

2.0 FIELD ACTIVITIES

Sediment sampling activities were conducted between September 26 and September 27, 2006. Sampling was performed in accordance with the City of Oak Harbor Outfall 001 *Final Sediment Sampling Plan* (URS, 2006). The following subsections briefly describe the sampling activities and documents deviations from the field sampling plan.

To complete the sampling activities, URS was assisted by Entrix Incorporated. Entrix provided the research vessel and sampling equipment. Entrix also provided expert field oversight of the sampling operations to help ensure compliance with the sampling plan and the Puget Sound Estuary Protocols (PSEP).

2.1 STATION POSITIONING

The sampling stations were occupied by the research vessel as specified in the project plans. Each sample station was located using a differentially corrected global positioning system (DGPS). To ensure accuracy, the DGPS antenna was positioned above the winch cable. The depth to bottom was determined by a fathometer. Table 2-1 shows the sample station coordinates.

2.2 SAMPLE COLLECTION

A 0.1 square meter stainless steel vanVeen sampler was used for sample collection. Once it was been verified the sampling vessel was on station, the vanVeen sampler was lowered at a rate of one foot per second until impact with the bottom. The vanVeen sampler was retrieved from the bottom at the same rate. Weights were required to achieve penetration into the coarse grained sediment at all stations.

The grab sampler was placed on a processing stand and overlying water removed using a siphon tube or suction bulb. The contents of the sampler were inspected to ensure that the acceptability criteria defined in the field sampling plan were satisfied.

The collected sediment sample was carefully inspected and characterized in the field log. Unrepresentative material such as woody debris, shells, large biota, fragments or rocks were removed from the grab and documented in the field notes. The sample crew ensured that sediment that came in contact with the vanVeen sampler was excluded in the aliquots for chemical analysis. Aliquots of sediments were immediately transferred to clean laboratory-supplied sample containers for volatile organic compound, total sulfide, total volatile solids, and acid-volatile sulfide analyses using a stainless steel spoon. The remaining sediment was transferred to a stainless steel bowl and homogenized. Portions of the homogenized sediments were placed into the remaining clean laboratory-supplied sample containers. Additional homogenized sediment was placed into clean laboratory-supplied sample containers for bioassay archive. All unused sediment was discarded in the water at a location downcurrent of the unsampled stations prior to equipment decontamination.

Quality Assurance (QA) samples were collected in accordance with the project plan. QA samples included a field duplicate collected at location 106, matrix spike and matrix spike duplicate (MS/MSD) volume collected at location 102, and an equipment rinsate collected following the decontamination of the sampling equipment for location 105. Sediment sampling logs are presented in Appendix A.

2.3 DECONTAMINATION

Sampling equipment was decontaminated as specified by the project plans. The vanVeen grab sampler was pre-washed with ambient seawater to remove attached sediments. This was followed by washing with Alconox detergent and rinsing with deionized water between each sampling station. The vanVeen grab sampler was rinsed with ambient seawater only when repeated grabs occurred at the same station.

All other sample utensils (stainless steel bowls, spoons, stainless steel rulers) were decontaminated prior to collecting sediments. The utensils were rinsed in potable water to remove attached sediments, washed in Alconox detergent, and rinsed in deionized water. In addition, a 10 percent nitric acid rinse and final acetone rinse was performed and the utensils were allowed to air dry. After air drying, the decontaminated utensils were placed inside an aluminum foil wrap (dull side of foil facing in) for storage prior to the next use.

Approximately 5 gallons of decontamination washwater was generated. The decontamination washwater was placed in sealed and labeled 5-gallon bucket and transported to the COH WWTP for disposal by the COH.

2.4 SAMPLE HANDLING

Samples were handled in accordance with the project plans. Sample containers were placed into a laboratory-supplied cooler containing ice immediately following sample collection. Samples were logged on Chain-of-Custody (COC) forms following sample collection. The COC form remained with the samples at all times.

2.5 SAMPLE ANALYSIS

Environmental samples were analyzed for the full suite of 47 SMS chemicals and conventional sediment variables by the analytical methods presented in Table 2-2. A detailed review of the analytical data quality and the laboratory summary data package is presented as Appendix B.

Table 2-1
Sample Station Coordinates

Station Number	Latitude	Longitude	Depth (ft MLLW)
100[a]	48 01 53.04197	122 19 14.73434	110.7
101	48 16 57.35864	122 38 59.31265	22.3
102	48 16 57.34784	122 38 59.99665	21.5
103	48 16 57.03464	122 39 00.42865	18.0
104	48 16 56.96264	122 39 00.82465	18.6
105	48 16 56.85464	122 39 01.22065	18.4
106	48 16 56.74664	122 39 01.90465	15.6
107	48 16 57.03464	122 39 00.57265	21.6

Notes:
Coordinates are in Latitude and Longitude in Degree Minutes Decimal Seconds, HARN.
[a] PSEP Reference Station 06 at Holmes Harbor

Table 2-2
Analytical Methods

Analyses	Analytical Method
Total Metals	EPA SW846 6010B/7471A
VOCs	EPA SW846 8260B
SVOCs	EPA SW846 8270D/8270-SIM
Pesticides	EPA SW846 8081A
PCBs	EPA SW846 8082
Grain Size	PSEP Method (1986a)
TOC	Plumb, 1981
Ammonia	Plumb, 1981-modified
Total sulfides	EPA SW846 9030B
Acid Volatile Sulfides (AVS)	EPA Method (1991)
Total Solids	PSEP Method (1986a)
Total Volatile Solids (TVS)	PSEP Method (1986a)

3.0 SUMMARY OF DETECTED ANALYTES

3.1 GRAIN SIZE

Fine-grained sediments were measured as the predominate grain size types in the study area and reference station samples. Very fine sand, silt, and clays "fines" were found to be greater than 64% by dry weight sieve analysis at all sample locations. The highest concentration of fines (78.8%) was measured at Station OH-101 and the lowest concentration (64.4%) was measured at Station OH-106. Grain size data are presented in Appendix B.

3.2 SEDIMENT CONVENTIONAL VARIABLES

Total organic carbon (TOC) concentrations measured at the study area and reference sample stations ranged from 1.18% to 2.07%. Nitrogen measured as ammonia concentrations ranged from 6.92 mg/kg to 25.1 mg/kg. Sulfide concentrations ranged from approximately 306 mg/kg to 1,420 mg/kg. Acid-volatile sulfide concentrations ranged from approximately 397 mg/kg to 1,210 mg/kg. The percent total solids were consistent between stations and ranged between 41.2% and 50.2%. The percent total volatile solids were consistent between stations and ranged between 4.70% and 6.53%. In general, conventional parameter concentrations were lowest at Station 100 (PSAMP reference station) and highest at Station 107 (sample location closest to the outfall diffuser). Conventional parameter results are presented in Table 3-1.

3.3 VOLATILE ORGANIC COMPOUNDS

Volatile organic compounds were not detected above the laboratory reporting limits or TOC-normalized reporting limits in sediments collected from the study area and reference sample stations. Volatile organic compound results are presented in Table 3-1.

3.4 SEMIVOLATILE ORGANIC COMPOUNDS

Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, fluorene, phenanthrene, pyrene, 4-methylphenol, anthracene, indeno(1,2,3-cd)pyrene, dibenz (a,h)anthracene, and/or benzo(g,h,i)perylene were detected in one or more sediment samples. With the exception of benzyl alcohol at Stations OH-104, OH-105, OH-106, and OH-107, the analytical results and/or laboratory reporting limits (pre- and post-TOC normalization) did not exceed Sediment Quality Standard (SQS) criteria (Ecology, 2003). Benzyl alcohol was reported as not detected in all of the samples collected during this sampling event; however, the reporting limits for this compound were elevated by the laboratory due to chromatographic interferences from sample matrix effects. All sample extracts were cleaned prior to analysis using gel-permeation chromatography (GPC). The laboratory elected to not clean the samples further due to limited extract volume after GPC cleaning. A review of the sample chromatograms presented in the raw data packages indicates that benzyl alcohol is not likely present in the sediment samples. Semivolatile organic compound results are presented in Table 3-1.

3.5 ORGANOCHLORINE PESTICIDES AND POLYCHLORINATED BIPHENYLS (PCBS)

Organochlorine pesticides and PCBs were not detected above the laboratory reporting limits or TOC-normalized reporting limits in sediments collected from the study area and reference sample stations with the exceptions of hexachlorobenzene and Aroclor 1260 at Station 101. The results reported for these analytes were below their respective SQS criteria. Organochlorine pesticide and PCB results are presented in Table 3-1.

3.6 TOTAL METALS

Arsenic, cadmium, chromium, copper, lead, mercury and zinc were detected in one or more sediment samples. The detected metals concentrations did not exceed SQS criteria. In general, metals concentrations at the reference sample location (OH-100) were consistent or slightly higher than concentrations detected within the study area. Metals results are presented in Table 3-1.

Table 3-1
Analytical Results for Sediments
City of Oak Harbor
September 2006

Analyte	SQS Criteria[a]	OH-100 9/27/06	OH-101 9/27/06	OH-102 9/27/06
Volatile Organic Compounds (ug/kg)				
1,4-Dichlorobenzene*	3,100	2.9 U / 153 U	2.5 U / 132 U	2.5 U / 161 U
1,2-Dichlorobenzene*	2,300	2.9 U / 153 U	2.5 U / 132 U	2.5 U / 161 U
1,2,4-Trichlorobenzene*	810	6.2 U / 328 U	6.2 U / 328 U	6.2 U / 400 U
Semivolatile Organic Compounds (ug/kg)				
Total LPAH[b]	370,000	9.8 / 519	58 / 3,069	62.8 / 4,052
Total HPAH[c]	960,000	123.2 J / 6,518 J	364.2 J / 19,270 J	356 J / 22,966 J
Phenol	420	23 U	13 U	9.3 U
4-Methylphenol	670	87	12	11
Benzoic Acid	650	86 UJ	62 UJ	62 UJ
Naphthalene*	99,000	6.2 U / 328 U	6.2 U / 328 U	6.2 U / 400 U
Dimethylphthalate*	53,000	6.2 U / 328 U	6.2 U / 328 U	6.2 U / 400 U
Acenaphthylene*	66,000	6.2 U / 328 U	6.2 U / 328 U	6.2 U / 400 U
Diethylphthalate*	61,000	12 U / 635 U	6.2 U / 328 U	12 U / 774 U
Phenanthrene*	100,000	9.8 / 519	23 / 1,217	25 / 1,613
Anthracene*	220,000	6.2 U / 328 U	35 / 1,852	31 / 2,000
Di-n-Butylphthalate*	220,000	8 U / 423 U	9.3 U / 492 U	8.7 U / 561 U
Fluoranthene*	160,000	28 / 1,481	85 / 4,497	86 / 5,548
Pyrene*	1,000,000	19 / 1,005	54 / 2,857	53 / 3,419
Benzo(a)anthracene*	110,000	6.8 / 360	26 / 1,376	30 / 1,935
Chrysene*	110,000	11 / 582	46 / 2,434	39 / 2,516
Benzo(b)fluoranthene*	230,000	14 / 741	51 / 2,698	50 / 3,226
Benzo(k)fluoranthene*	230,000	17 J / 899 J	38 J / 2,011 J	43 J / 2,774 J
Total Benzofluoranthenes*[d]	230,000	31 J / 1,640 J	89 J / 4,709 J	93 J / 6,000 J
bis(2-Ethylhexyl)phthalate*	47,000	12 U / 635 U	84 U / 4,444 U	120 U / 7,742 U
Di-n-Octyl phthalate*	58,000	6.2 U / 328 U	6.2 U / 328 U	6.2 U / 400 U
Benzo(a)pyrene*	99,000	8 / 423	25 / 1,323	26 / 1,677
Benzyl Alcohol	57	31 UJ	54 UJ	56 UJ
2-Methylphenol	63	6.2 U	6.2 U	6.2 U
2,4-Dimethylphenol	29	6.2 U	6.2 U	6.2 U
2-Methylnaphthalene*	38,000	6.2 U / 328 U	6.2 U / 328 U	6.2 U / 400 U
Acenaphthene*	16,000	6.2 UJ / 328 UJ	6.2 UJ / 328 UJ	6.2 UJ / 400 UJ
Dibenzofuran*	15,000	6.2 U / 328 U	6.2 U / 328 U	6.2 U / 400 U
Fluorene*	23,000	6.2 U / 328 U	6.2 U / 328 U	6.8 / 439
N-Nitrosodiphenylamine*	11,000	6.2 U / 328 U	6.2 U / 328 U	6.2 U / 400 U
Pentachlorophenol	360	31 U	31 U	31 U
Butylbenzylphthalate*	4,900	6.2 U / 328 U	6.2 U / 328 U	6.2 U / 400 U
Indeno(1,2,3-cd)pyrene*	34,000	7.4 / 392	16 / 847	14 / 903
Dibenz(a,h)anthracene*	12,000	6.2 U / 328 U	6.2 / 328	6.2 U / 400 U
Benzo(g,h,i)perylene*	31,000	12 / 635	17 / 899	15 / 968

OH-103 9/26/06	OH-104 9/26/06	OH-105 9/26/06	OH-106 9/26/06	Field Duplicate	OH-107 9/26/06
.9 U / 161 U	1.8 U / 145 U	1.9 U / 92 U	1.7 U / 144 U	1.6 U / 105 U	1.8 U / 124 U
.9 U / 161 U	1.8 U / 145 U	1.9 U / 92 U	1.7 U / 144 U	1.6 U / 105 U	1.8 U / 124 U
.2 U / 525 U	6.2 U / 500 U	6.2 U / 300 U	6.1 U / 517 U	6.1 U / 401 U	6.2 U / 428 U
57.2 / 5,694	32 / 2,580	43 / 2,077	35 / 2,966	30 / 1,974	83.7 / 5,772
.6 J / 31,660 J	343.2 J / 27,676 J	403.8 J / 19,509 J	279.6 J / 23,695 J	269.4 J / 17,722 J	491.4 J / 33,890 J
7.4 U	8.7 U	7.4 U	6.1 U	10 U	7.4 U
18	11	9.9	8 J	66 J	9.3
62 UJ	62 UJ	62 UJ	61 UJ	61 UJ	62 UJ
6.2 U / 525 U	6.2 U / 500 U	6.2 U / 300 U	6.1 U / 517 U	6.1 U / 401 U	6.2 U / 428 U
.2 U / 525 U	6.2 U / 500 U	6.2 U / 300 U	6.1 U / 517 U	6.1 U / 401 U	6.2 U / 428 U
.2 U / 525 U	6.2 U / 500 U	6.2 U / 300 U	6.1 U / 517 U	6.1 U / 401 U	6.2 U / 428 U
6.2 U / 525 U	6.2 U / 500 U	15 U / 725 U	9.8 U / 831 U	8 U / 526 U	7.4 U / 510 U
22 / 1,864	19 / 1,532	26 / 1,256	22 / 1,864	16 / 1,053	50 / 3,448
39 / 3,305	13 / 1,048	17 / 821	13 / 1,102	14 / 921	25 / 1,724
6.2 U / 525 U	6.8 U / 548 U	8 U / 386 U	8 U / 678 U	8 U / 526 U	8.7 U / 600 U
66 / 5,593	79 / 6,371	90 / 4,348	73 / 6,186	55 / 3,618	130 / 8,966
53 / 4,492	47 / 3,790	55 / 2,657	44 / 3,729	45 / 2,961	68 / 4,690
31 / 2,627	31 / 2,500	33 / 1,594	19 / 1,610	22 / 1,447	43 / 2,966
42 / 3,559	36 / 2,903	44 / 2,126	32 / 2,712	31 / 2,039	50 / 3,448
58 / 4,915	47 / 3,790	55 / 2,657	38 / 3,220	42 / 2,763	62 / 4,276
46 J / 3,898 J	42 J / 3,387 J	54 J / 2,609 J	34 J / 2,881 J	36 J / 2,368 J	60 J / 4,138 J
4 J / 3,944 J	89 J / 7,177 J	109 J / 5,538 J	72 J / 6,101 J	78 J / 5,131 J	122 J / 8,414 J
U / 11,017 U	130 U / 10,484 U	160 U / 7,729 U	77 U / 6,525 U	85 U / 5,592 U	160 U / 11,034 U
6.2 U / 525 U	6.2 U / 500 U	6.8 U / 329 U	6.1 U / 517 U	6.1 U / 401 U	6.2 U / 428 U
34 / 2,881	27 / 2,177	35 / 1,691	20 / 1,695	20 / 1,316	40 / 2,759
57 UJ	**68 UJ**	**63 UJ**	47 UJ	**58 UJ**	**82 UJ**
6.2 U	6.2 U	6.2 U	6.1 U	6.1 U	6.2 U
6.2 U	6.2 U	6.2 U	6.1 U	6.1 U	6.2 U
.2 U / 525 U	6.2 U / 500 U	6.2 U / 300 U	6.1 U / 517 U	6.1 U / 401 U	6.2 U / 428 U
.2 UJ / 525 UJ	6.2 UJ / 500 UJ	6.2 UJ / 300 UJ	6.1 UJ / 517 UJ	6.1 UJ / 401 UJ	6.2 UJ / 428 UJ
2 U / 525 U	6.2 U / 500 U	6.2 U / 300 U	6.1 U / 517 U	6.1 U / 401 U	6.2 U / 428 U
5.2 / 525	6.2 U / 500 U	6.2 U / 300 U	6.1 U / 517 U	6.1 U / 401 U	8.7 / 600
6.2 U / 525 U	6.2 U / 500 U	6.2 U / 300 U	6.1 U / 517 U	6.1 U / 401 U	6.2 U / 428 U
31 U	31 U	31 U	31 U	31 U	31 U
.2 U / 525 U	6.2 U / 500 U	6.2 U / 300 U	6.1 U / 517 U	6.1 U / 401 U	6.2 U / 428 U
18 / 1,525	14 / 1,129	16 / 773	9.8 / 831	9.2 / 605	16 / 1,103
1.6 / 729	6.2 / 500	6.8 / 329	6.1 U / 517 U	6.1 U / 401 U	7.4 / 510
.7 / 1,441	14 / 1,129	15 / 725	9.8 / 831	9.2 / 605	15 J / 1,034 J

Table 3-1
Analytical Results for Sediments
City of Oak Harbor
September 2006

Analyte	SQS Criteria[a]	OH-100 9/27/06	OH-101 9/27/06	OH-102 9/27/06
Organochlorine Pesticides (ug/kg)				
Hexachlorobenzene	380	1.9 U / 101 U	3.8 / 201	0.98 U / 63 U
Hexachlorobutadiene	3,900	1.9 U / 101 U	0.98 U / 52 U	0.98 U / 63 U
Polychlorinated Biphenyls (ug/kg)				
Aroclor 1016*	--	50 U / 2,646 U	3.6 U / 190 U	3.9 U / 252 U
Aroclor 1221*	--	50 U / 2,646 U	7.1 UJ / 376 UJ	12 UJ / 774 UJ
Aroclor 1232*	--	76 UJ / 4,021 UJ	11 UJ / 582 UJ	7.9 UJ / 510 UJ
Aroclor 1242*	--	50 U / 2,646 U	7.1 UJ / 376 UJ	3.9 U / 252 U
Aroclor 1248*	--	50 U / 2,646 U	3.6 U / 190 U	3.9 U / 252 U
Aroclor 1254*	--	50 U / 2,646 U	3.6 U / 190 U	3.9 U / 252 U
Aroclor 1260*	--	50 U / 2,646 U	5.1 / 270	3.9 U / 252 U
Total PCBs*	12,000	76 UJ / 4,021 UJ	5.1 / 270	12 UJ / 774 UJ
Metals (mg/kg)				
Arsenic	57	10 U	10 U	10 U
Cadmium	5.1	2.0	1.0	1.0
Chromium	260	71.0	61.0	63.0
Copper	390	47.6	47.1	48.6
Lead	450	10	9	10
Mercury	0.41	0.10	0.09 U	0.10 U
Silver	6.1	0.7 U	0.7 U	0.7 U
Zinc	410	90.0	86.0	90.0
Conventional Parameters				
N-Ammonia (mg/kg)	--	6.92	11.80	16.60
Sulfide (mg/kg)	--	306 J	1,040 J	1,320 J
Acid Volatile Sulfide (mg/kg)	--	397 J	1,080 J	1,210 J
Total Solids (%)	--	41.2	42.7	43.2
Preserved Total Solids (%)	--	41.1	43.8	42.5
Total Volatile Solids (%)	--	6.53	5.83	5.89
Total Organic Carbon (%)	--	1.890	1.890	1.550

Notes:
[a]SQS criteria taken from *Sediment Sampling and Analysis Plan Appendix*; Washington State Department of Ecology, Publication 03-09-043, Revisec
[b]Total LPAH includes the sum of detected naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene.
[c]Total HPAH includes the sum of detected fluoranthene, pyrene, benz(a,h)anthracene, chrysene, total benzofluoranthenes, benzo(a)pyrene, indeno(1
[d]Total benzofluoranthenes include the sum of the b, j, and k isomers.
J - Estimated Value
SQS - Sediment Quality Standard
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
Numbers in bold font indicate that the result or reporting limit exceeds a SQS.
*For compounds requiring TOC normalization, results are shown with the 'dry weight corrected laboratory result / TOC-normalized result.'
Sediment sample results reported on a dry-weight basis.

OH-103 9/26/06	OH-104 9/26/06	OH-105 9/26/06	OH-106 9/26/06	OH-106 9/26/06 Field Duplicate	OH-107 9/26/06
.98 U / 83 U	0.99 U / 80 U	0.99 U / 48 U	0.99 U / 84 U	0.98 U / 64 U	0.98 U / 68 U
0.98 U / 83 U	0.99 U / 80 U	0.99 U / 48 U	0.99 U / 84 U	0.98 U / 64 U	0.98 U / 68 U
3.9 U / 331 U	3.9 U / 315 U	4.0 U / 193 U	3.9 U / 331 U	4.0 U / 263 U	3.9 U / 269 U
3.9 U / 331 U	12 UJ / 968 UJ	12 UJ / 580 UJ	12 UJ / 1,017 UJ	4.0 U / 263 U	14 UJ / 966 UJ
3.9 U / 331 U	12 UJ / 968 UJ	7.9 UJ / 382 UJ	3.9 U / 331 U	4.0 U / 263 U	7.8 UJ / 538 UJ
3.9 U / 331 U	3.9 U / 315 U	4.0 U / 193 U	3.9 U / 331 U	4.0 U / 263 U	3.9 U / 269 U
3.9 U / 331 U	3.9 U / 315 U	4.0 U / 193 U	3.9 U / 331 U	4.0 U / 263 U	3.9 U / 269 U
3.9 U / 331 U	3.9 U / 315 U	7.9 UJ / 382 UJ	3.9 U / 331 U	4.0 U / 263 U	3.9 U / 269 U
3.9 U / 331 U	3.9 U / 315 U	4.0 U / 193 U	3.9 U / 331 U	4.0 U / 263 U	3.9 U / 269 U
3.9 U / 331 U	12 UJ / 968 UJ	12 UJ / 580 UJ	12 UJ / 1,017 UJ	4.0 U / 263 U	14 UJ / 966 UJ
10 U	10	10 U	10	10 U	10 U
0.8	0.7	0.8	0.7	0.6	0.8
49.0	47.0	50.0	47.0	43.0	49.0
39.5	37.4	39.7	34.4	32.0	38.4
10	10	10	9	9	10
0.08	0.10 U	0.10 U	0.07	0.10 U	0.07
0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
73.0	72.0	78.0	70.0	63.0	76.0
17.90	14.20	12.20	10.80	12.90	25.10
1,030 J	876 J	1,010 J	829 J	795 J	1,420 J
710 J	937 J	1,010 J	744 J	691 J	1,160 J
46.7	45.9	47.0	50.0	50.2	46.2
47.9	47.0	46.8	51.2	50.8	47.3
5.27	5.60	5.23	4.70	4.73	6.27
1.180	1.240	2.070	1.180	1.520	1.450

o3 (WAC 173-204).

rene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene.

4.0 CONCLUSIONS

Samples collected at each location were analyzed for the full-suite of 47 SMS chemicals. No SMS chemicals were reported as detected above their respective SQS criteria; however, the reporting limits for benzyl alcohol exceeded the SQS criteria in several samples due to chromatographic interferences due to sample matrix effects. The laboratory used GPC cleanup technique to resolve the interferences. Benzyl alcohol was not detected in any samples collected during this sampling event and a review of the chromatograms provided in the raw data package indicate that this compound is not likely present in the sediment samples. The reporting limits for benzyl alcohol in all sediment samples were also compared to lowest apparent effects threshold (LAETs, Barrick et al, 1998); however, the LAET for this compound is equal to the SQS criteria.

Analytical results for the sediments in the vicinity of the Outfall 001 are comparable to sediments collected at the reference station in Holmes Harbor. SMS contaminants do not appear to be accumulating in these sediments.