DEPARTMENT OF ECOLOGY
State of Washington

Cleanup Site Details

Cleanup Site ID: 2291

Cleanup Site ID: 2291 **Facility/Site ID:** 1150 **UST ID:** 4929 Site Page | Site Documents | View Map

Cleanup Site Name: Texaco Bulk Plant Thomas Oil Site Glossary

Alternate Names: Pacific Oil Products, PORT TOWNSEND TEXACO, TEXACO BULK PLANT THOMAS OIL SITE, THOMAS OIL INC

LOCATION

Address: 431 WATER ST **City:** PORT TOWNSEND **Zip Code:** 98368 **County:** Jefferson

Latitude: 48.11612 **Longitude:** -122.75223 **WRIA:** 17 **Legislative District:** 24 **Congressional District:** 6 **TRS:** 30N 1W 1

DETAIL

Status: No Further Action **NFA Received?** Yes **Is PSI site?** Yes

Statute: MTCA **NFA Date:** 4/20/2004 **Current VCP?** No **Past VCP?** Yes

Site Rank: 2 - Moderate-High Risk **NFA Reason:** Voluntary Cleanup Program Review **Brownfield?** No

Site Manager: Maggi, Martha **Responsible Unit:** Southwest **Active Institutional Control?** No

CLEANUP UNITS

Cleanup Unit Name	Unit Type	Unit Status	Resp Unit	Unit Manager	Current Process
THOMAS OIL INC	Upland	No Further Action Required	SW	Maggi, Martha	Standard Voluntary Cleanup

ACTIVE INSTITUTIONAL CONTROLS

Instrument Type	Restriction Media	Restrictions/Requirements	Date	Recording Number	Recording County	Tax Parcel
There are no current Institutional Controls in effect for this site.						

AFFECTED MEDIA & CONTAMINANTS

	MEDIA					
Contaminant	**Soil**	**Groundwater**	**Surface Water**	**Sediment**	**Air**	**Bedrock**
Metals Priority Pollutants	R					
Non-Halogenated Solvents	B					
Petroleum Products-Unspecified	R	B				

Key:
B - Below Cleanup Level
C - Confirmed Above Cleanup Level
RA - Remediated-Above
S - Suspected
R - Remediated
RB - Remediated-Below

SITE ACTIVITIES

Activity	Status	Start Date	End Date/ Completion Date
Site Hazard Assessment/Federal Site Inspection	Completed		8/18/1991
Site Hazard Assessment/Federal Site Inspection	Completed	7/28/1992	8/28/1992
Hazardous Sites Listing/NPL	Completed		8/25/1992
Early Notice Letter(s)	Completed		9/24/1992
Cleanup Action Plan	Completed	1/1/2000	4/27/2000
Routine Cleanup	Completed	1/22/2002	11/30/2003
VCP Opinion on Remedial Investigation Work Plan	Completed	1/22/2002	4/20/2004
Site Status Changed to NFA	Completed		4/20/2004

Cleanup Site Details

Cleanup Site ID: 2291

SITE ACTIVITIES

Activity	Status	Start Date	End Date/ Completion Date
Remove site from Hazardous Sites List	Completed		6/30/2004

TEXACO BULK PLANT, PORT TOWNSEND

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Removal from Hazardous Sites List Proposed

The Washington State Department of Ecology proposes to remove the Texaco Bulk Plant from the Hazardous Sites List (required by the Model Toxics Control Act, Chapter 70.105D RCW). The site had petroleum (diesel, gasoline, oil) contamination in soil and groundwater above cleanup standards. In August 1992, the site was ranked on the Hazardous Sites List as a 2 (1 being high priority relative to other sites statewide; 5 being low). The site ranking was based on the site's location on Port Townsend Bay as well as site groundwater mixing with surface water (Port Townsend Bay), a potential pathway for contaminants.

Your comments on the proposed removal of the Texaco Bulk Plant from the Hazardous Sites List are welcome through **April 16, 2004**. The box to the right provides information about where to review the supporting documents (remedial investigation/feasibility study, cleanup action plan, cleanup report, groundwater monitoring reports) as well as where to submit comments.

Site Background

The 1.4-acre Texaco Bulk Plant is located at 431 Water Street in Port Townsend. The site is a former bulk fuel storage and distribution plant. The site is bordered by the beach and Admiralty Inlet/Port Townsend Bay to the southeast, by Jackson Street and Point Hudson Marina to the northeast, by Water Street and commercial buildings to the northwest, and by a vacant gravel lot and city park to the southwest. Union Oil Company of California (Unocal) purchased a portion of the property in 1927 and operated the bulk plant from the early 1930's until 1945. By 1945, Signal Oil Company (Texaco) was also using the site. From the 1940's to 1980, Unocal and the RE Ammeter Burner Oil Sales Company (who purchased another portion of the property in 1945) were the site operators. Thomas Oil Company bought the site in 1980 and operated it as a bulk facility until the late 1980's. In September 2000, the Northwest Maritime Center (a non-profit organization) purchased the contaminated site to develop it as a public maritime center, including public shoreline access.

Contamination was first found in site soil and groundwater in 1989 during an environmental assessment being conducted for a proposed property development. Samples showed diesel and gasoline contamination exceeding cleanup standards in soil as deep as the water table (about 8 to 10 feet).

All the above ground petroleum storage tanks and associated fuel racks were demolished and removed in 1996. The

Continued on Page 2

March 2004

FACT SHEET

Ecology Southwest Regional Office
Toxics Cleanup Program
300 Desmond Drive SE
P.O. Box 47775
Olympia, WA 98504-7775
(360) 407-6300 (voice)
(360) 407-6306 (TDD)

PUBLIC COMMENT PERIOD ON PROPOSED REMOVAL FROM HAZARDOUS SITES LIST:

March 16, 2004 to April 16, 2004

Comments and requests for updates should be directed to Martha Maggi, Site Manager, at the Ecology address listed above, e-mail mmag461@ecy.wa.gov, or call (360) 407-6248.

INFORMATION REPOSITORIES

The supporting documents can be reviewed at the following locations:

www.ecy.wa.gov/programs/tcp/sites/sites_information.hmtl

www.ecy.wa.gov, then click on "Public Events Calendar"

Ecology Southwest Regional Office address listed above

Port Townsend Library
1220 Lawrence Street
Port Townsend, WA 98368-6527
(360) 385-3181

Printed on Recycled Paper

If you have special accommodation needs, please call (360) 407-6300, (360) 407-6306 (TDD), 711, or 1-800-833-6388 (TTY).

Continued from Page 1

voluntary cleanup was conducted during the summer of 2002. One building, which houses a kayak and boat storage/rental, remains on-site. The concrete containment walls for the former Unocal tank cluster as well as concrete tank pads, pipelines, and the old dock that extended into the bay have been removed. A new dock and public access improvements are now under construction by the Northwest Maritime Center.

In March 2000, Ecology and the Port of Port Townsend settled on an interagency agreement requiring the Port of Port Townsend to conduct a remedial investigation/feasibility study (RI/FS) and to develop a cleanup action plan. The remedial investigation determines the nature, extent, and magnitude of site contamination. The feasibility study evaluates site cleanup alternatives. The cleanup action plan specifies the preferred cleanup alternative and site cleanup goals for soil and groundwater.

Ecology's Recommendation

The requirements of the interagency agreement have been met. The Northwest Maritime Center settled financially with former operator Unocal and repaid Ecology for money granted under the interagency agreement.

Cleanup included excavating and disposing of 1745 cubic yards (175 dump truck loads) of petroleum-contaminated soil and one cubic yard (one dump truck load) of metals-contaminated sand blast grit as well as backfilling the excavation areas with clean soil. In addition, before more buildings are constructed, a soil vapor study must be conducted to determine the need to have soil vapors vented from underneath the building(s) and discharged outside. Groundwater monitoring was conducted twice the first year after excavation and then annually for two years. Drinking water was not impacted. The cleanup report and confirmational groundwater monitoring reports show that contamination has been removed. Removing the source of contamination effectively cleaned up the site. The RI/FS, cleanup action plan, cleanup report, and groundwater monitoring reports are available for review.

Ecology Wants Your Comments!

Interested citizens may review and comment on the proposed removal of the site from the Hazardous Sites List through **April 16, 2004**. To review more detailed site documents than the documents in the information repositories, contact Ecology's regional records center at (360) 407-6365 to schedule an appointment. Written comments should be sent to Martha Maggi, Site Manager, at the Ecology address listed in the box on page one.

Continued from Page 2

Ecology Southwest Regional Office
Toxics Cleanup Program
300 Desmond Drive SE
P.O. Box 47775
Olympia, WA 98504-7775

Electronic Copy

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

CERTIFIED MAIL

April 20, 2004

Mr. Dave Robison
Executive Director, Northwest Maritime Center
Post Office Box 82
Port Townsend, WA 98368

Re: Northwest Maritime Center Voluntary Cleanup

Dear Mr. Robison:

Thank you for submitting the final Ground Water Monitoring Report for the Northwest Maritime Center voluntary cleanup for review by the State of Washington Department of Ecology (Ecology). Ecology appreciates your initiative in pursuing this administrative option under the Model Toxics Control Act (MTCA).

I have reviewed results from the four ground water monitoring events, dated November 11, 2002; February 24, 2003; May 15, 2003; and August 12, 2003; for the Northwest Maritime Center, also known as the former Thomas Oil Site or former Texaco Bulk Plant, located at 431 Water Street in Port Townsend.

The above reports will be kept in the Central Files of the Southwest Regional Office of Ecology for review by appointment only. Appointments can be made by calling the resource contact at (360) 407-6365.

Based upon the above listed information Ecology has determined that, at this time, the release of petroleum constituents into the ground water no longer poses a threat to human health or the environment. An interim No Further Action letter for soil was issued on October 4, 2002, and required four quarterly ground water monitoring events, which have now been completed.

As noted in the October, 2002, letter, this no further action determination is contingent upon further evaluation of the potential need of vapor controls for buildings proposed to be developed on site. Please notify Ecology when this evaluation is completed during site development.

Therefore, Ecology is issuing this determination that no further remedial action is necessary at this site under MTCA, chapter 70.105D RCW. However, please note that because your actions were not conducted under a consent decree with Ecology, this letter is written pursuant to RCW 70.105D.030(1)(i) and does not constitute a settlement by the state under RCW 70.105D.040(4) and is not binding on Ecology.

Ecology's no further action determination is made only with respect to the release identified in the independent remedial action report dated August 12, 2002. This no further action determination applies only to the area of the property affected by the release identified in the report at 431 Water Street, Port Townsend. It does not apply to any other release or potential release at the property, any other areas on the property, nor any other properties owned or operated by Northwest Maritime Center, or the former Thomas Oil Company or Unocal.

Ecology will update its database to reflect this "No Further Action" determination. Ecology will remove your site from the Hazardous Sites List since no comments were received during the thirty (30) day public comment period regarding delisting.

The state, Ecology, and its officers and employees are immune from all liability and no cause of action of any nature may arise from any act or omission in providing this determination.

If you have any questions, please contact me at (360) 407-6248. It has been a pleasure to work with you, and Ecology wishes continued success for the Northwest Maritime Center.

Sincerely,

Martha Maggi

Martha Maggi, LHG
Project Manager
Toxics Cleanup Program

cc: Chuck Cline, Ecology
Jessica Hulse, ENSR, representing Unocal

Cleanup Action Report
Soil Remedial Excavation
Thomas Oil Site/Northwest Maritime Center
431 Water Street
Port Townsend, Washington
VCP Number SW0384

August 12, 2002

For

City of Port Townsend

CLEANUP ACTION REPORT
SOIL REMEDIAL EXCAVATION
THOMAS OIL SITE/NORTHWEST MARITIME CENTER
431 WATER STREET
PORT TOWNSEND, WASHINGTON
VCP NUMBER SW0384
FOR
CITY OF PORT TOWNSEND

INTRODUCTION AND BACKGROUND

This report documents the results of soil remedial excavation activities completed during June and July 2002 at the Thomas Oil Site/Northwest Maritime Center located at 431 Water Street in Port Townsend, Washington (referred herein as the "site"). The reader is referred to the previous reports listed below for the site use and ownership history. The site location is shown in relation to surrounding physical features on Figure 1. The site layout, property line, former facilities and surrounding properties are shown in Figure 2.

The site topography is relatively flat with a slight downward slope toward Admiralty Inlet/Port Townsend Bay, southeast of the site. Ground surface conditions outside the building areas consisted mainly of gravel and concrete at the time the remedial excavation was conducted. The site is fenced. Point Hudson Marina and vacated Jackson Street are located northeast of the site, commercial buildings are situated across Water Street to the northwest, a vacant gravel lot and city park are situated to the southwest and Port Townsend Bay/Admiralty Inlet is located southeast of the site.

Previous environmental reports for the site are as follows:

1. April 1989 report for Pacific Oil Products by AGI Technologies.
2. September 1989 report for Pacific Oil Products by AGI Technologies.
3. "Site Assessment Summary, Former Texaco and Unocal Bulk Facilities, 431 Water Street, Port Townsend, Washington," dated May 25, 1995 for Pacific Oil Products by AGI Technologies.
4. "Remedial Investigation/Feasibility Study (RI/FS), Thomas Oil Site, Port Townsend, Washington," dated May 5, 2000 for The Port of Port Townsend and Northwest Maritime Center by HartCrowser.
5. "Cleanup Action Plan (CAP), Thomas Oil Site, Port Townsend, Washington," dated May 17, 2000 for The Port of Port Townsend and Northwest Maritime Center by HartCrowser.

The RI/FS documents soil and groundwater conditions at the site based on past sampling conducted. The Cleanup Action Plan (CAP) documents the remedy selection and applicable cleanup standards and cleanup action levels for the site. The preferred cleanup remedy as detailed in the CAP is to remove accessible soil with concentrations of petroleum greater than the TPH action level of 6,500 milligrams per kilogram (mg/kg) and to remove a localized area of metals-impacted sand blast grit. These areas are referred to as "hot spots." The cleanup remedy also includes capping with a clean (noncontaminated) soil cover to prevent direct contact exposures and natural attenuation with engineering and institutional controls.

PURPOSE AND SCOPE

The purpose of the 2002 remedial excavation was to remove accessible "hot spot" contaminated soil as documented in the RI/FS and CAP. GeoEngineers' specific scope of services completed for this phase of activities is listed below:

1. Participated in a pre-construction site meeting with representatives to discuss project logistics and schedule.
2. Developed a public notice that describes cleanup activities.
3. Notified Ecology's Toxics Cleanup Program at least one week prior to beginning site work.
4. Obtained pre-approval for receipt of petroleum-contaminated soil and metals-impacted soil from the site at Waste Management's Olympic View, Kitsap County, Washington landfill.
5. Obtained pre-approval from the City of Port Townsend for short-term discharge to the sanitary sewer of accumulated water removed during remedial excavation activities.
6. Prepared a written site safety plan for GeoEngineer's personnel during performance of the work.
7. Obtained characterization samples representative of metals-contaminated soil to be removed for off-site disposal. Submitted the sample for analysis of pH by EPA Methods, total metals by EPA Method 6000/7000 series, and leachable metals by Toxicity Characteristic Leaching Procedure (TCLP) using EPA testing methodology.
8. Observed soil conditions and use soil field screening to advise the contractor regarding vertical and lateral limits of remedial excavation and segregation of apparent noncontaminated overburden. Soil field screening methods consisted of visual observation, water sheen and headspace vapor screening.
9. Obtained cleanup confirmation soil samples from the base and walls of the remedial excavations at the rate of approximately one sample per 400 square feet of excavation surface area.
10. Field screened samples and submitted the cleanup confirmation soil samples to North Creek Analytical laboratory for chemical analyses of one of more the following: benzene, ethyl-benzene, toluene and xylenes (BETX) by EPA Method 8021B, gasoline-range hydrocarbons by Ecology Method NWTPH-Gx, diesel- and heavy oil-range hydrocarbons by Ecology Method NWTPH-Dx, polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270 using GC/MS-SIM and total metals by EPA 6000/7000 series.
11. Obtained a characterization sample of water removed during the remedial excavation activities for testing in accordance with sanitary sewer discharge criteria. Submitted the water sample for analyses of total metals by EPA Method 6000/7000 series, fats, oils and grease (FOG) by EPA Method 1664, pH, total suspended solids and volatile suspended solids by APHA/EPA Methods.
12. Evaluated the field and laboratory data with respect to the site cleanup action levels and cleanup standards and prepared a summary report of the remedial excavation activities.

REMEDIAL EXCAVATION

GENERAL

Remedial excavation and capping were performed in June and July 2002. The City of Port Townsend selected Wyser Construction to perform the demolition and remediation activities at the site. GeoEngineers was selected by the City of Port Townsend as the project environmental

consultant to observe and document remedial excavation. Demolition and remediation activities were conducted in general accordance with the Project Manual Bid Documents prepared by the City of Port Townsend (Project B-01-DC-53-0001), including the "Work Plan, Demolition and Remediation Activities," dated April 9, 2002.

AUTHORIZATIONS AND PERMITS

The Washington State Department of Ecology concurred with the remedy selection and Work Plan as documented in their letters dated May 12, 2000 and March 29, 2002 to the Northwest Maritime Center. The site is entered in the Voluntary Cleanup Program (VCP).

Project permits were obtained by the Northwest Maritime Center and are on file at their offices in Port Townsend.

GeoEngineers obtained clearance from Waste Management's Olympic View landfill in Kitsap County, Washington for their acceptance of petroleum- and metals-contaminated soil to be excavated from the site. Based on previous soil sample data from the site, Waste Management provided authorization for acceptance of petroleum-contaminated soil excavated from the site. Supplemental authorization was received for the metals-impacted sand based on waste characterization sampling. Copies of the landfill profiles are included in Appendix A.

GeoEngineers obtained wastewater discharge approval from the City of Port Townsend for discharge of water removed during remedial excavation activities. Copies of the water discharge documentation are included in Appendix B.

CLEANUP STANDARDS AND ACTION LEVELS

The CAP references the following cleanup standards and action levels for soil at the site.

Constituent	Proposed Cleanup Level
Benzene	0.15[1]
Ethylbenzene	280[2]
Toluene	1,400[2]
Xylenes	800[2]
Non-Carcinogenic TPH	3,400[3]
Middle Distillate Hydrocarbons	6,500[4]
CPAHs (carcinogenic polynuclear aromatic hydrocarbons)	1[5]
Arsenic	20[5]
Cadmium	1[5]
Copper	2,960[1]
Lead	250[5]
Zinc	24,000[1]

1. Based on MTCA Method B direct contact cleanup level.
2. Based on MTCA Method B surface water protection. Proposed cleanup levels were calculated using the three phase approach. A site average TOC level of 1 percent was used.
3. Based on MTCA Method B direct contact cleanup level using Interim TPH Policy.
4. Based on API residual saturation literature value for middle distillates in a medium to coarse sand.
5. Based on proposed MTCA Method A residential cleanup levels (Ecology, 1999).

The middle distillate hydrocarbons residual saturation value of 6,500 mg/kg was used as the cleanup action level for petroleum (TPH as the sum of gasoline-, diesel- and heavy oil-range hydrocarbons) in soil.

DEMOLITION

Wyser Construction performed building demolition in advance of excavation activities in accordance with the City's project manual bid documents. GeoEngineers did not observe demolition activities.

REMEDIAL EXCAVATION APPROACH

Soil remedial excavation activities were performed by Wyser Construction of Everett, Washington between June 24 and July 3, 2002. GeoEngineers' representative was present on site daily during soil excavation activities. Three hot spot excavation areas are identified in the CAP: (1) the vicinity of the former Unocal tank farm (referred to as Excavation1, or Ex1 in this report); (2) metal-impacted soil at the corner of Ex1; and (3) an area north of the warehouse, referred to as Excavation 2, or Ex2, in this report). A third small hot spot soil excavation, referred to as Ex3, also was performed near the northeast side of the former Texaco tank area. Ex3 was performed because during demolition activities, a fuel pipe was observed leaking into the subsurface at the Ex3 location. Soil sample identifications used during remedial excavation were based on the sample location (e.g., Ex1), the consecutive sample number (e.g., Ex-1-1) followed by the sample depth in feet bgs (e.g., Ex1-1-1.0).

The metals-impacted soil was removed initially from Ex1 and cleanup confirmation samples were obtained. The area of metals-impacted sand was located in the north corner of Ex1 from approximately 1 foot to 4 feet bgs.

Removal of petroleum-impacted soil at Ex1 and Ex2 was initially performed to the depths and size indicated in the CAP. Segregation of overburden soil (to be reused on site as backfill) from impacted soil (to be transported off site for disposal) was based on the depths and locations indicated in the CAP. Cleanup confirmation soil samples were then obtained from the excavation limits for chemical analyses. If the concentration of TPH (as the sum of gasoline-, diesel- and heavy oil-range hydrocarbons) was greater than the action level of 6,500 mg/kg in any sample, then additional excavation was conducted and the area was resampled. Overexcavation also was performed if the concentration of CPAHs in cleanup confirmation soil samples was greater than the cleanup level of 1 mg/kg. In most cases, overexcavation also was performed if the concentration of benzene in cleanup confirmation soil samples was greater than the cleanup level of 0.15 mg/kg.

Soil field screening using visual, headspace vapors and water sheen screening were conducted on cleanup confirmation samples for comparison purposes; however, field screening could not be used to distinguish soil that was above or below the TPH action level and field screening was not used to segregate overburden from impacted soil. Overburden soil was sampled before reuse to confirm that contaminant concentrations were less than the action levels (see report section titled Overburden Soil).

The approximate location of the excavations and soil samples from the excavations are shown in Figure 3. Soil sample chemical analytical data are summarized in Tables 1 and 2. Field procedures are described in Appendix C. Chemical analytical data sheets and our review of the laboratory quality control (QC) data are provided in Appendix E.

Ex1, Ex2 and Ex3 were excavated to maximum depths of 12 feet, 10 feet and 2 feet bgs, respectively. Excavation activities were conducted when tides were generally at their lowest. Groundwater was encountered in Ex1 and Ex2 at approximately 8 feet bgs during excavation activities. Groundwater was not observed in Ex3 at the time of excavation. Accumulation of groundwater in the 2002 excavations was generated during high tides. Groundwater seeped into the excavations at 11 feet and 9 feet bgs in Ex1 and Ex2, respectively.

Subsurface soil conditions at the excavation locations consisted of silty sand fill from ground surface to approximately one foot below ground surface (bgs). Soil underlying the silty sand fill generally consisted of silty sand with gravel, shell fragments and occasional cobbles to approximately 11 feet bgs (Ex1 and Ex2). Subsurface soil at the Ex3 location consisted of silty sand.

CLEANUP CONFIRMATION SOIL SAMPLES

Metals Impacted Soil

Metals-impacted sand blast grit was located in the north corner of Ex1 from approximately 1 to 4 feet bgs. Soil representative of the metals-contaminated sand blast grit (Blast Grit-1) to be removed from Ex1 was obtained and submitted for chemical analysis of pH, total metals and TCLP metals for waste profiling purposes.

The metals-impacted soil was visually obvious and was removed and drummed. Following removal of the first 1-foot layer of metals-impacted sand, soil sample Ex1-1-1.0 was obtained. Metals concentrations in this sample (Table 1) were greater than the cleanup levels and so additional excavation was performed at this area. The final cleanup confirmation sample from the metals-impacted soil area was sample Ex1-31-4.0. Concentrations of metals in the final cleanup confirmation sample were less than the applicable cleanup levels.

A total of 1.49 tons (approximately one cubic yard) of metals-contaminated sand blast grit was transported off site to Waste Management's Olympic View landfill in Kitsap County, Washington.

Excavation 1, Former Unocal Tank Area

The final maximum depth of Ex1 was 12 feet bgs. A total of 54 samples were obtained from Ex1. Thirteen of these samples (Ex1-1 through Ex1-3, Ex1-13, Ex1-14, Ex1-16, Ex1-18, Ex1-19, Ex1-22, Ex1-23, Ex1-25, Ex1-28 and Ex1-33) were subsequently overexcavated (see Tables 1 and 2 and Figure 3 for full sample identification) because TPH and/or benzene concentrations in these samples were greater than the TPH action level of 6,500 mg/kg or the benzene cleanup level of 0.15 mg/kg. Approximately 450 tons (300 cubic yards) of clean overburden and 1,963 tons (1,309 cubic yards) of contaminated soil were removed from Ex1. The final excavation limits were represented by 41 excavation base and sidewall cleanup confirmation soil samples (Tables 1 and 2 and Figure 3).

Concentrations of TPH were less than the action level of 6,500 mg/kg in all 41 of the final cleanup confirmation samples. Concentrations of BETX and CPAHs were less than the cleanup standards in all 41 of the final cleanup confirmation samples except for three sidewall soil samples in which benzene concentrations were slightly greater than the cleanup standard of 0.15 mg/kg (Ex1-29-7.0, benzene = 0.193 mg/kg; Ex1-30-7.0, benzene = 0.182 mg/kg and Ex1-32-7.0, benzene = 0.165 mg/kg). Cleanup compliance with benzene was evaluated following MTCA statistical guidance as indicated in the report section below titled MTCA Statistical Evaluation.

Excavation 2, Former Fuel USTs

The final maximum depth of Ex2 was 10 feet bgs. A total of 15 soil samples were obtained from Ex2. One of these samples (Ex2-3-5.0) was subsequently overexcavated (see Tables 1 and 2 and Figure 3) because the benzene concentration in this sample was greater than the cleanup level. Approximately 90 tons (60 cubic yards) of clean overburden and 480 tons (320 cubic yards) of contaminated soil were removed from Ex2. The final excavation limits were represented by 14 excavation base and sidewall cleanup confirmation soil samples (Tables 1 and 2 and Figure 3). Concentrations of TPH were less than the action level of 6,500 mg/kg in all 14 of the final cleanup confirmation samples. Concentrations of BETX and CPAHs were less than the cleanup standards in all 14 of the final cleanup confirmation samples.

Excavation 3, Texaco Tank Area

Soil in the area of Ex3 was removed because of a small (less than 1 gallon) release discovered from an underground pipe observed at this location during demolition activities at the site. This small excavation was completed to a maximum depth of 2 feet bgs. A total of 4 samples were obtained from Ex3. One of these samples (SS-1) was subsequently overexcavated (see Tables 1 and 2 and Figure 3) because the concentration of CPAHs was greater than the cleanup standard of 1 mg/kg. No clean overburden and approximately 1.5 tons (1 cubic yard) of contaminated soil were removed from Ex3. The final excavation limits were represented by 3 excavation base and sidewall cleanup confirmation soil samples (Tables 1 and 2 and Figure 3). The detected concentrations of CPAHs were less than the cleanup standard of 1 mg/kg in the three final base and sidewall cleanup confirmation soil samples.

MTCA Statistical Evaluation

Cleanup confirmation compliance with the benzene cleanup standard was evaluated in accordance with the statistical evaluation procedures described in Ecology's publication "Statistical Guidance for Ecology Site Managers (Publication 92-54, August 1992)." Cleanup confirmation soil sample benzene data met the following three criteria as outlined in the document:

1. Less than 10 percent of the samples had benzene concentrations that exceeded the cleanup level.
2. No single sample concentration of benzene was more than two times the cleanup level.
3. The 95 percent upper confidence limit (UCL) of the data set was less than the cleanup level. This criterion was evaluated using Ecology's MTCAStat software. MTCAStat printouts are included in Appendix D. We evaluated the data assuming non-detects have a value of ½ the detection limit; this is a standard assumption per MTCA statistical guidance. We evaluated two data sets: the 38 final cleanup confirmation samples tested for benzene from Excavation 1 were evaluated as a data set and the 52 final cleanup confirmation samples tested for benzene from Excavations 1 and 2 were evaluated as a data set. Histograms for both data sets are attached in Appendix D. As is typical for environmental data sets of this type, neither the lognormal or normal sample distributions fit the data well. However, in the absence of any other way to calculate a 95 percent UCL for the data sets, MTCAStat calculated the 95 percent UCL using the lognormal and normal distributions assumptions. In all cases, the 95 percent UCL was less than the cleanup level. Specifically, the 95 percent UCLs were 0.0414 and 0.0491 for lognormal and normal distributions, respectively, for the 38 sample data set and 0.0678 and 0.0701 for lognormal and normal distributions, respectively, for the 52 sample data set.

DISPOSITION OF PETROLEUM-CONTAMINATED SOIL

Waste Management accepted the petroleum-contaminated soil excavated from the site during the 2002 remedial activities, as discussed above. A total of 2,445 tons (about 1,630 in-place cubic yards) of petroleum-contaminated soil were removed from the excavations. Petroleum-contaminated soil either was temporarily stockpiled before loading or was loaded directly into trucks and transported to Waste Management's Olympic View landfill. The tipping receipts are included in Appendix A.

OVERBURDEN SOIL

Overburden was removed from Ex1 and Ex2 and segregated for stockpiling and testing prior to reuse. Approximately 540 tons (360 in-place cubic yards) of apparently noncontaminated soil overburden was stockpiled and was sampled as three populations: SP1, SP2 and ISP1 as summarized in Tables 3 and 4. Five discrete soil samples were obtained from SP1 (SP1-1 through SP1-5), three discrete soil samples from SP2 (SP2-1 through SP2-3) and three discrete soil samples from ISP1 (ISP1-1 through ISP1-3). The soil samples were submitted for chemical analysis of BETX, petroleum hydrocarbons and PAHs. BETX, petroleum hydrocarbons and PAHs either were not detected or were detected at concentrations less than the cleanup standards in the overburden stockpile samples. Soil stockpile sample chemical analytical data are summarized in Tables 3 and 4. Laboratory reports, chain of custody and quality control (QC) data are provided in Appendix C.

BACKFILLING AND CAPPING

Backfilling, compaction and capping were conducted by Wyser. GeoEngineers did not monitor backfilling, compaction and capping activities. We understand that approximately 5 feet of 2- to 4-inch quarry spalls were placed in base of the excavations and up to the groundwater seep zones. The clean overburden and approximately 3,883 tons of imported pit run material were used as backfill above the quarry spalls up to the ground surface. We understand that capping and final grading were performed as per the project manual bid documents.

WASTEWATER CHARACTERIZATION

GeoEngineers obtained one water sample (BT-1) from the onsite Baker Tank that stored water pumped from the 6,500-gallon oil/water separator that was removed during demolition. The water sample was obtained for waste discharge characterization testing per City of Port Townsend requirements prior to discharge into the sanitary sewer. Based on chemical analytical results, the specified analyte concentrations were within the limits of City of Port Townsend's disposal criteria. A copy of the City of Port Townsend's sanitary sewer discharge criteria is included in Appendix B. One 55-gallon drum of water from previous groundwater monitoring events conducted by others was disposed of into the petroleum-contaminated soil stockpile pending offsite disposal.

CONCLUSIONS

Soil remedial excavation was conducted in June and July 2002 to remove all "hot spot" areas of contaminated soil in accordance with the Cleanup Action Plan for the site. Following soil removal, the site was capped with at least 1 to 2 feet of imported, noncontaminated soil.

A total of approximately 1.5 tons of metals-impacted sand and 2,443 tons of petroleum-impacted soil were successfully removed from the site during the June and July 2002 remedial excavation activities. Based on analytical results from 55 cleanup confirmation soil samples obtained from the final limits of the three excavations completed, soil with petroleum concentrations greater than the TPH action level of 6,500 mg/kg was successfully removed from the site. Concentrations of metals, BETX and CPAHs were less than the cleanup standards in all final cleanup confirmation samples with the exception of three soil samples that contained benzene concentrations slightly greater than the cleanup level of 0.15 mg/kg. Based on statistical evaluation of the soil sample data using Ecology's statistical guidance, benzene data for the excavations are in compliance with the cleanup level for benzene.

LIMITATIONS

We have prepared this report for use by the City of Port Townsend and Northwest Maritime Center for remedial monitoring services completed at the Thomas Oil Site/Northwest Maritime Center. This report may be provided to Unocal and Ecology for review.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Please refer to Appendix E titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

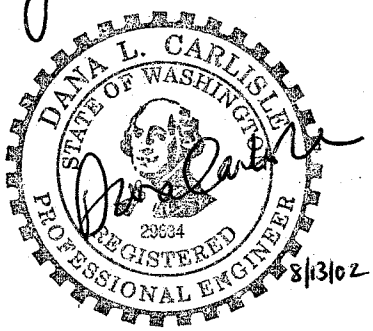
We appreciate the opportunity to be of continued service to the City of Port Townsend and Northwest Maritime Center. Please contact us if you have questions regarding this project.

Respectfully submitted,

GeoEngineers, Inc. by

Tina King

Tina King, P.G.
Project Manager



Dana Carlisle, P.E.
Associate

EXPIRES 8/18/03

TMK:DLC:ja:nh
Redm\00\finals\0785300200R.doc

TABLE 1 (PAGE 1 OF 4)
SUMMARY OF SOIL FIELD SCREENING AND BETX
CLEANUP CONFIRMATION SAMPLES
THOMAS OIL SITE/NW MARITIME CENTER
PORT TOWNSEND, WASHINGTON

Soil Sample Number - Depth Sampled[1] (feet bgs)	Date Sampled	Sample Location	Field Screening Results[2]		BETX[3] (mg/kg)				Gasoline-range Hydrocarbons[4] (mg/kg)	Diesel-range Hydrocarbons[5] (mg/kg)	Heavy Oil-range Hydrocarbons[5] (mg/kg)	Sum of TPH (mg/kg)
			Headspace Vapors (ppm)	Sheen	B	E	T	X				
Excavation 1--Unocal Tank Farm												
Ex1-1-1.0[6]	06/24/02	Northeast Wall	<100	SS	**Tested for Metals[7]**							
Ex1-2-6.0[6]	06/24/02	Southeast Wall	<100	HS	0.949	13.8	4.09	60.2	2,800[8]	4,250[9]	<500	7,050
Ex1-3-7.0[6]	06/24/02	Southeast Wall	<100	HS	1.72	1.47	<0.500	6.21	1,540[8]	2,420	70.6	3,960
Ex1-4-10.0	06/24/02	East Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	<6,500
Ex1-5-10.0	06/24/02	Southeast Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	<6,500
Ex1-6-11.0	06/24/02	Southeast Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	7.05[8]	11.8	<25.0	18.9
Ex1-7-10.0	06/24/02	South Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	16.1[8]	23.2	<25.0	39.3
Ex1-8-10.0	06/24/02	Northeast Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	41.2[8]	18.1	<25.0	59.3
Ex1-9-11.0	06/24/02	Central Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	ND
Ex1-10-11.0	06/24/02	Central Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	24.1[8]	25.1	<25.0	49.2
Ex1-11-10.0	06/24/02	Southwest Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	8.33[8]	12.7	<25.0	21.03
Ex1-12-9.0	06/24/02	Northeast Wall	<100	HS	<0.0300	<0.0500	<0.0500	<0.100	6.97[8]	18.7	<25.0	25.67
Ex1-13-6.0[6]	06/25/02	Northeast Wall	<100	HS	<0.0300	<0.0500	<0.0500	1.51	647[8]	8,740	<1,000	9,387
Ex1-14-6.0[6]	06/25/02	North Wall	<100	MS	0.864	1.99	<1.00	10.7	1,680	264	33.1	1,977.1
Ex1-15-7.0	06/25/02	North Wall	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	13.9	<25.0	13.9
Ex1-16-10.0[6]	06/25/02	North Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	15,900	2,550	18,450
Ex1-17-10.0	06/25/02	North Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	ND
Ex1-18-7.0[6]	06/25/02	Northeast Wall	<100	MS	<0.600	5.09	<0.100	21.3	2,760[9]	14,200	<2,500	16,960
Ex1-19-7.0[6]	06/25/02	Northeast Wall	<100	HS	0.414	3.80	0.624[10]	14.7	2,230[9]	17,200	<2,500	19,430
Ex1-20-11.0	06/25/02	North Base	<100	MS	<0.0300	<0.0500	<0.0500	0.222	23.5[8]	329	150	502.5
Ex1-21-10.0	06/25/02	Northwest Base	<100	MS	<0.0300	<0.0500	<0.0500	0.104	7.83	69.5	35.5	112.83
Ex1-22-9.0[6]	06/25/02	West Wall	<100	MS	6.76	58.7	<2.50	246	5,610[9]	14,700	4,520	24,830
Ex1-23-10.0[6]	06/26/02	Southwest Base	<100	MS	19.7	70.3	8.63	227	5,200	9,550	5,170	19,920
Ex1-24-10.0	06/26/02	Northeast Base	<100	MS	0.0805	<0.0500	<0.0500	<0.100	33.4	19.9	<25.0	53.3
Ex1-25-10.0[6]	06/26/02	Central Base	<100	MS	0.180	<0.0500	<0.0500	<0.100	44.8[9]	179	<25.0	224
Cleanup Action Level					0.15	280	1,400	800	NA			6,500

Notes appear on page 4 of 4.

TABLE 1 (Page 2 of 4)

Soil Sample Number - Depth Sampled[1] (feet bgs)	Date Sampled	Sample Location	Field Screening Results[2]		BETX[3] (mg/kg)				Gasoline-range Hydrocarbons[4] (mg/kg)	Diesel-range Hydrocarbons[5] (mg/kg)	Heavy Oil-range Hydrocarbons[5] (mg/kg)	Sum of TPH (mg/kg)
			Headspace Vapors (ppm)	Sheen	B	E	T	X				
Ex1-26-10.0	06/26/02	Central Base	<100	MS	0.0725	<0.0500	<0.0500	<0.100	28.7[9]	415	<25.0	444
Ex1-27-10.0	06/26/02	Southwest Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	9.49	18.8	<25.0	28.3
Ex1-28-7.0[6]	06/26/02	Northwest Wall	<100	HS	3.30	1.20[10]	<0.100	6.76[10]	1,830[9]	3,960	2,900	8,690
Ex1-29-7.0	06/26/02	Southwest Wall	<100	HS	0.193	0.478	<0.200	4.05	567[8]	493	36.6	1,097
Ex1-30-7.0	06/26/02	Southwest Wall	<100	HS	0.182	0.983	<0.200	3.35	434[8]	5,330	543	6,307
Ex1-31-4.0[7]	06/26/02	Northeast Wall-replaces Ex1-1-1.0	<100	NS	Tested for Metals[6]							
Ex1-32-7.0	06/28/02	Southeast Wall replaces Ex1-2-6.0	<100	MS	0.165	<0.250	<0.250	<0.500	288[8]	747	31.6	1,067
Ex1-33-7.0[6]	06/28/02	Southeast Wall replaces Ex1-3-7.0	<100	MS	28.5	205	13.0	1,020	17,000[8]	10,400	<2,500	27,400
Ex1-34-7.0[6]	06/28/02	Southwest Wall replaces Ex1-28-7.0	<100	MS	<0.0300	0.548[10]	<0.500	2.28	1,070[8]	4,710	6,710	12,490
Ex1-35-9.0	06/28/02	Northwest Wall replaces Ex1-22-9.0	<100	MS	0.0601	0.260	<0.0500	0.986	92.6[8]	549	923	1,565
Ex1-36-12.0	06/28/02	Southwest Base replaces Ex1-23-10.0	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	5.05[8]	47.4	52.0	104
Ex1-37-6.0[6]	07/01/02	Northeast Wall replaces Ex1-13-6.0	<100	MS	<0.300	<0.500	<0.500	1.34[10]	548[8]	9,720	<2,500	10,268
Ex1-38-7.0	07/01/02	Northeast Wall replaces Ex1-19-7.0	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	36.8[9]	<25.0	36.8
Ex1-39-7.0	07/01/02	Northeast Wall replaces Ex1-18-7.0	<100	MS	<0.274	<0.456	<0.456	<0.912	<45.6	343	254	597
Ex1-40-6.0	07/01/02	North Wall replaces Ex1-14-6.0	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	ND
Ex1-41-12.0	07/01/02	Central Base replaces Ex1-25-10.0	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	ND
Ex1-42-12.0	07/01/02	North Base replaces Ex1-16-10.0	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	ND
Ex1-43-6.0	07/02/02	Southeast Wall replaces Ex1-33-7.0	<100	SS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	ND
Ex1-44-7.0	07/02/02	Southeast Wall	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	52.9[9]	32.6	84.7
Ex1-45-6.0	07/02/02	Southeast Wall	<100	SS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	ND
Ex1-46-10.0	07/02/02	Southeast Base	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	ND
Ex1-47-7.0	07/03/02	Southwest Wall replaces Ex1-34-7.0	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	65.4[11]	502	567
					0.15	280	1,400	800	NA			6,500

Notes appear on page 4 of 4.

TABLE 1 (Page 3 of 4)

Soil Sample Number - Depth Sampled[1] (feet bgs)	Date Sampled	Sample Location	Field Screening Results[2]		BETX[3] (mg/kg)				Gasoline-range Hydrocarbons[4] (mg/kg)	Diesel-range Hydrocarbons[5] (mg/kg)	Heavy Oil-range Hydrocarbons[5] (mg/kg)	Sum of TPH (mg/kg)
			Headspace Vapors (ppm)	Sheen	B	E	T	X				
Ex1-48-7.0	07/03/02	Southwest Wall	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	12.1[11]	37.3	49.4
Ex1-49-7.0	07/03/02	Southwest Wall	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	10.2	<25.0	10.2
Ex1-50-7.0	07/03/02	Southwest Wall	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	50.6[9]	<25.0	50.6
Ex1-51-7.0	07/03/02	Southwest Wall	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	27.4[9]	<25.0	27.4
Ex1-52-10.0	07/03/02	Southwest Base	<100	SS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	<10.0	<25.0	ND
Ex1-53-10.0	07/03/02	Southwest Base	<100	SS	<0.0300	<0.0500	<0.0500	<0.100	14.7[8]	28.5	47.4	90.6
Ex1-54-7.0	07/03/02	replaces Ex1-37-6.0	<100	SS	<0.0300	<0.0500	<0.0500	0.148[10]	110[8]	3,100	52.1[12]	3,262
Excavation 2--Central Portion of the Site												
Ex2-1-9.0	06/26/02	East Base	100	HS	<0.300	0.166	<0.500	0.713	63.4[8]	179	<25.0	242
Ex2-2-9.0	06/26/02	South Base	<100	HS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	15.2	<25.0	15.2
Ex2-3-5.0[6]	06/26/02	Northeast Wall	200	HS	0.850	5.38[10]	<1.00	7.48[10]	1,800[9]	3,360	<250	5,160
Ex2-4-6.0	06/26/02	Southeast Wall	150	HS	<0.300	2.23[10]	<0.500	4.72[10]	825	2,420	<250	3,245
Ex2-5-7.0	06/26/02	Southeast Wall	175	MS	0.0970	2.13[10]	0.0827[10]	3.54[10]	1,180[9]	2,020	<250	3,200
Ex2-6-5.0	06/26/02	Southwest Wall	200	HS	<0.600	2.63[10]	<1.00	4.28[10]	1,010[9]	2,380	<250	3,349
Ex2-7-6.0	06/28/02	Southwest Wall	<100	HS	<0.0300	<0.500	<0.500	<1.00	269[8]	1,280	<125	1,577
Ex2-8-6.0	06/28/02	Northwest Wall	<100	HS	<0.120	<0.200	<0.200	0.418[10]	254[8]	2,190	<250	2,444
Ex2-9-6.0	06/28/02	Northwest Wall	<100	HS	<0.600	5.66	<1.00	8.26	1,400	1,600	<250	3,000
Ex2-10-6.0	06/28/02	Northeast Wall	<100	HS	<0.0300	<0.0500	<0.0500	0.107[10]	27.6[8]	204	<25.0	232
Ex2-11-9.0	06/28/02	North Base	<100	MS	<0.300	1.92	<0.500	6.88	446	244	<25.0	690
Ex2-12-10.0	06/28/02	North Base	<100	MS	<0.0600	0.447	<0.100	1.58	127[9]	165	<25.0	292
Ex2-13-9.0	06/28/02	Center Base	<100	MS	0.0712[10]	0.952	0.079[10]	3.3	191	204	25.2	420
Ex2-14-9.0	06/28/02	Center Base	<100	MS	<0.120	0.811	<0.200	2.79	223[9]	273	<50.0	496
Ex2-15-5.0	07/01/02	replaces Ex2-3-5.0	<100	MS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	179[9]	50.2	229
Excavation 3--Other												
SS-1[6]	07/01/02	Surface Sample	<100	SS	0.0388	0.0798	0.204	0.470	12.9[8]	138[9]	57.0	208
SS-2-1.0	07/03/02	Northwest Wall	<100	SS	Tested for PAHs, see Table 2							
SS-3-1.0	07/03/02	Southeast Wall	<100	SS	Tested for PAHs, see Table 2							
SS-4-2.0	07/03/02	Base	<100	SS	Tested for PAHs, see Table 2							
Cleanup Action Level					0.15	280	1400	800				6,500

Notes appear on page 4 of 4.

TABLE 1 (Page 4 of 4)

Notes:

[1]Approximate sample locations are shown in Figure 3. The final number in the sample identification indicates the sample depth in feet below ground surface.

[2]Field screening methods are described in Appendix C. NS = No sheen; SS = slight sheen; MS = moderate sheen; HS = heavy sheen. Headspace vapors measured with a Bacharach TLV Sniffer calibrated to hexane.

[3]B = benzene, E = ethylbenzene, T = toluene, X = xylenes. BETX analyzed by EPA Method 8021B.

[4]Analyzed by Ecology Method NWTPH-Gx.

[5]Analyzed by Ecology Method NWTPH-Dx.

[6]Soil was subsequently overexcavated.

[7]Total metals analyzed by EPA Method 6000/7000 Series Method. Ex1-1-1.0 (overexcavated) contained Arsenic = 61.2 mg/kg, Cadmium = 3.67 mg/kg, Copper = 125 mg/kg, Lead = 558 mg/kg and Zinc = 1,040 mg/kg. Ex1-31-4.0 contained Arsenic = 0.0905 mg/kg and Barium = 0.378. Action levels for metals are as follows: Arsenic = 20 mg/kg, Cadmium = 1 mg/kg, Copper = 2,960 mg/kg, Lead = 250 mg/kg and Zinc = 24,000 mg/kg.

[8]Sample chromatogram indicates overlap primarily of diesel.

[9]Chromatographic pattern does not resemble the fuel standard used for quantification.

[10]Concentration may be artificially elevated due to coeluting compounds or components.

[11]Concentration primarily due to overlap of heavy oil.

[12]Concentration primarily due to overlap of diesel.

ND = not detected

bgs = below ground surface; mg/kg = milligrams per kilogram; "--" = not tested; ppm = parts per million

Shaded concentration indicates a value greater than the cleanup action level.

Chemical analysis conducted by North Creek Analytical of Bothell, Washington. The laboratory reports are presented in Appendix E.

TABLE 3
SUMMARY OF SOIL FIELD SCREENING AND BETX AND PETROLEUM HYDROCARBONS CHEMICAL ANALYTICAL RESULTS
STOCKPILE SAMPLES
THOMAS OIL SITE/NW MARITIME CENTER
PORT TOWNSEND, WASHINGTON

Soil Sample Number	Date Sampled	Field Screening Results[1]		BETX[2] (mg/kg)				Gasoline-range Hydrocarbons[3] (mg/kg)	Diesel-range Hydrocarbons[4] (mg/kg)	Heavy Oil-range Hydrocarbons[4] (mg/kg)	Sum of TPH (mg/kg)
		Headspace Vapors (ppm)	Sheen	B	E	T	X				
Excavation 1--Unocal Tank Farm											
SP1-1	06/25/02	<100	NS	<0.0300	<0.0500	<0.0500	0.101	<5.00	488	340	828
SP1-2	06/25/02	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	830	820	1,650
SP1-3	06/25/02	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	534	391	925
SP1-4	06/25/02	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	756	978	1,734
SP1-5	06/25/02	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	524	303	827
Excavation 2--Central Portion of the Site											
SP2-1	07/01/02	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	105	46.8	152
SP2-2	07/01/02	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	107	42.4	149
SP2-3	07/01/02	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	<5.00	85.8	37.4	123
ISP1-1	07/01/02	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	13.8	138	41.0	193
ISP1-2	07/01/02	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	33.1	853	107	993
ISP1-3	07/01/02	<100	NS	<0.0300	<0.0500	<0.0500	<0.100	22.4	540	57.1	620
Cleanup Action Level				0.15	280	1,400	800	NA			6,500

Notes:

[1]Field screening methods are described in Appendix C. NS = no sheen; SS = slight sheen; MS = moderate sheen; HS = heavy sheen. Headspace vapors measured with a Bacharach TLV Sniffer calibrated to hexane.

[2]B=benzene, E=ethylbenzene, T=toluene, X=xylenes. BETX analyzed by EPA Method 8021B.

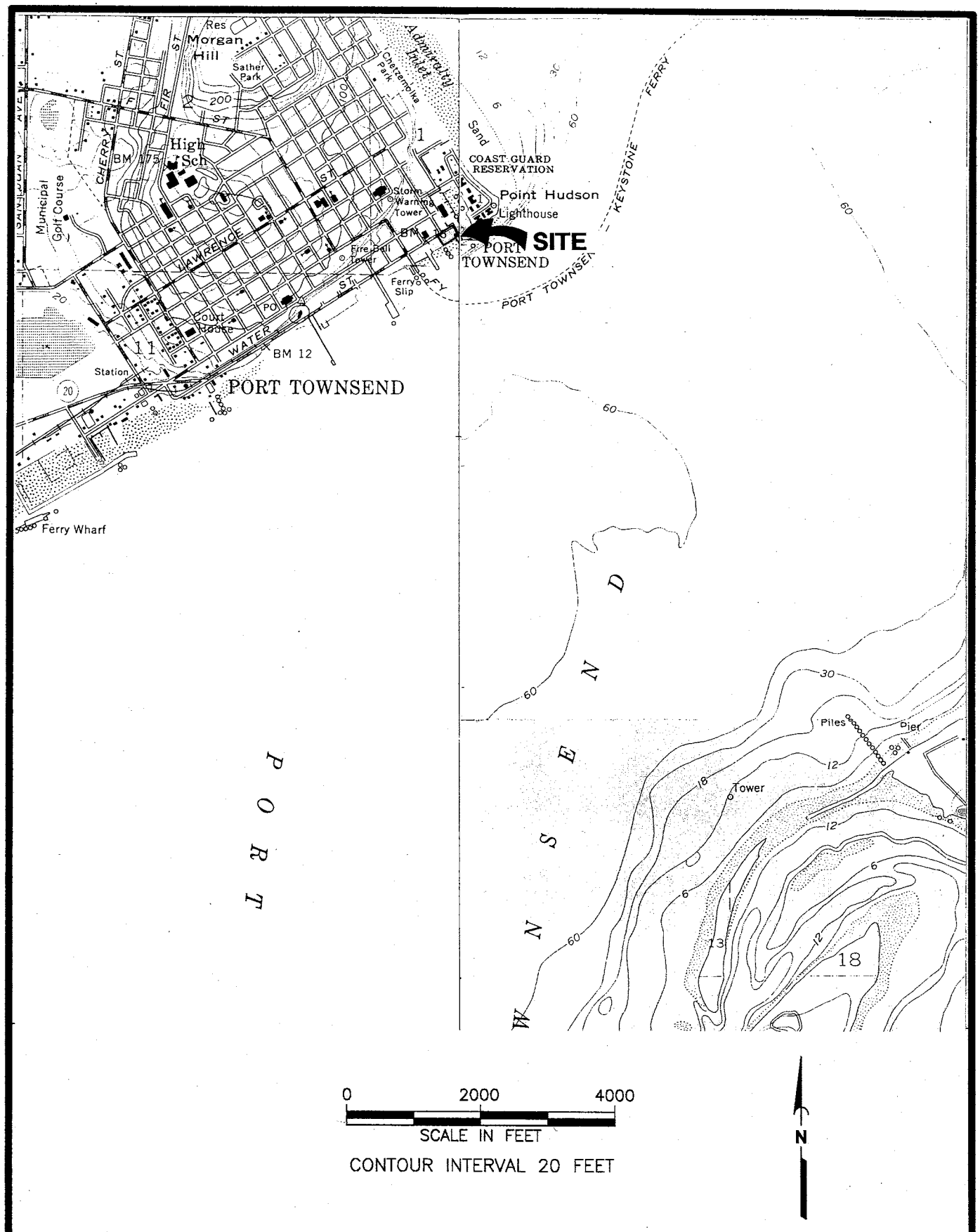
[3]Analyzed by Ecology Method NWTPH-Gx.

[4]Analyzed by Ecology Method NWTPH-Dx.

mg/kg = milligrams per kilogram; ppm = parts per million

NA = not applicable

Chemical analysis conducted by North Creek Analytical of Bothell, Washington. The laboratory reports are presented in Appendix E.



Reference: USGS 7.5' topographic quadrangle maps "Port Townsend, and Nordland, Wash." 1973.

REDMOND 7853-002-00 TMK:HLA 07/15/02

Geo Engineers

VICINITY MAP

FIGURE 1

TABLE 2 (PAGE 1 OF 3)
SUMMARY OF SOIL FIELD SCREENING AND PAH CHEMICAL ANALYTICAL RESULTS
CLEANUP CONFIRMATION SAMPLES
THOMAS OIL SITE/NW MARITIME CENTER
PORT TOWNSEND, WASHINGTON

Soil Sample Number - Depth Sampled[1] (feet bgs)	Date Sampled	Sample Location	Field Screening Results[1]		Noncarcinogenic PAHs[2] (mg/kg)											Carcinogenic PAHs[2] (mg/kg)							Sum of cPAHs
			Headspace Vapors (ppm)	Sheen	Acenaphthene	Acenaphthylene	Anthracene	Benzo (ghi) perylene	Fluoranthene	Fluorene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Chrysene	Dibenz (a,h) anthracene	Indeno (1,2,3-cd) pyrene	
Excavation 1--Unocal Tank Farm																							
Ex1-1-1.0[3]	06/24/02	Northeast Wall	37	SS	**PAHs not analyzed - see Table 1 for details**																		
Ex1-2-6.0[3]	06/24/02	Southeast Wall	97	HS	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	51.6	26.6	37.5	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	ND
Ex1-3-7.0[3]	06/24/02	Southeast Wall	100	HS	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	20.9	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	ND
Ex1-4-10.0	06/24/02	East Base	97	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0149	0.0149	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-5-10.0	06/24/02	Southeast Base	72	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-6-11.0	06/24/02	Southeast Base	61	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0129	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-7-10.0	06/24/02	South Base	64	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0148	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-8-10.0	06/24/02	Northeast Base	73	MS	0.0123	<0.0100	0.0108	<0.0100	<0.0100	0.0152	0.0202	0.0173	0.0101	0.0123	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-9-11.0	06/24/02	Central Base	69	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-10-11.0	06/24/02	Central Base	54	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0404	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-11-10.0	06/24/02	Southwest Base	54	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0191	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-12-9.0	06/24/02	Northeast Wall	92	HS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0355	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-13-6.0[3]	06/25/02	Northeast Wall	57	HS	4.85	<0.500	<0.500	<0.500	2.26	8.86	39.3	<0.500	<0.500	17.4	1.90	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	ND
Ex1-14-6.0[3]	06/25/02	North Wall	43	MS	<0.200	<0.200	1.83	<0.200	<0.200	8.13	21.1	<0.200	<0.200	13.4	0.631	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	ND
Ex1-15-7.0	06/25/02	North Wall	62	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-16-10.0[3]	06/25/02	North Base	71	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0175	<0.0100	<0.0100	0.0160	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-17-10.0	06/25/02	North Base	79	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-18-7.0[3]	06/25/02	Northeast Wall	53	MS	<1.00	<1.00	<1.00	<1.00	2.60	<1.00	60.4	<1.00	<1.00	21.1	2.01	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND
Ex1-19-7.0[3]	06/25/02	Northeast Wall	47	HS	4.96	<0.500	<0.500	<0.500	<0.500	<0.500	71.0	<0.500	<0.500	20.5	1.24	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	ND
Ex1-20-11.0	06/25/02	North Base	69	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0706	0.0209	<0.0100	0.117	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-21-10.0	06/25/02	Northwest Base	71	MS	<0.0100	<0.0100	0.0106	<0.0100	<0.0100	<0.0100	0.2110	<0.0100	<0.0100	0.0626	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-22-9.0[3]	06/25/02	West Wall	70	MS	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	63.1	34.4	12.9	12.8	1.38	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND
Ex1-23-10.0[3]	06/26/02	Southwest Base	74	MS	1.43	<0.400	<0.400	<0.400	1.15	3.25	29.8	7.53	9.59	5.07	0.698	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	ND
Ex1-24-10.0	06/26/02	Northeast Base	62	MS	<0.0100	<0.0100	0.0110	<0.0100	0.0181	<0.0100	<0.0100	<0.0100	<0.0100	0.0626	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-25-10.0[3]	06/26/02	Central Base	50	MS	0.0201	<0.0100	<0.0100	<0.0100	0.0372	<0.0100	<0.0100	<0.0100	<0.0100	0.0327	0.0253	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-26-10.0	06/26/02	Central Base	<100	MS	<0.0100	<0.0100	0.0110	<0.0100	0.0572	<0.0100	<0.0100	<0.0100	<0.0100	0.0798	0.0482	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-27-10.0	06/26/02	Southwest Base	<100	MS	<0.0100	<0.0100	0.0162	<0.0100	0.0132	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-28-7.0[3]	06/26/02	Northwest Wall	<100	HS	<0.0100	<0.0100	<0.0100	0.0116	<0.0100	0.327	4.66	<0.0100	<0.0100	0.476	0.116	0.0160	<0.0100	0.0363	0.0421	0.0123	<0.0100	<0.0100	0.107
Ex1-29-7.0	06/26/02	Southwest Wall	<100	HS	<0.0100	<0.0100	<0.0100	<0.0100	0.0386	0.136	4.29	<0.0100	0.321	0.1110	0.0205	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-30-7.0	06/26/02	Southwest Wall	<100	HS	<0.200	<0.200	0.416	<0.200	0.400	1.45	84.1	7.87	33.4	0.954	0.200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Cleanup Action Level					NA											NA							1.0

Notes appear on page 3 of 3.

TABLE 2 (Page 2 of 3)

Soil Sample Number - Depth Sampled[1] (feet bgs)	Date Sampled	Sample Location	Field Screening Results[1]		Noncarcinogenic PAHs[2] (mg/kg)											Carcinogenic PAHs[2] (mg/kg)							Sum of cPAHs
			Headspace Vapors (ppm)	Sheen	Acenaphthene	Acenaphthylene	Anthracene	Benzo (ghi) perylene	Fluoranthene	Fluorene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Chrysene	Dibenz (a,h) anthracene	Indeno (1,2,3-cd) pyrene	
Ex1-31-4.0	06/26/02	Northeast Wall-replaces Ex1-1-1.0	<100	NS	PAHs not analyzed - see Table 1 for details																		
Ex1-32-7.0	06/28/02	Southeast Wall replaces Ex1-2-6.0	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.490	<0.0100	<0.0100	<0.0100	0.0268	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-33-7.0[3]	06/28/02	Southeast Wall replaces Ex1-3-7.0	<100	MS	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	100	129	52.5	1.35	0.147	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	ND
Ex1-34-7.0[3]	06/28/02	Southwest Wall replaces Ex1-28-7.0	<100	MS	<0.500	<0.500	<0.500	0.0518	<0.500	<0.500	3.53	<0.500	<0.500	0.518	0.199	0.0558	<0.500	<0.500	<0.500	0.0677	<0.500	<0.500	0.124
Ex1-35-9.0	06/28/02	Northwest Wall replaces Ex1-22-9.0	<100	MS	<0.500	<0.500	<0.500	0.0702	<0.500	<0.500	0.937	0.332	0.152	0.347	0.183	0.0702	0.0585	<0.500	<0.500	0.0937	<0.500	<0.500	0.222
Ex1-36-12.0	06/28/02	Southwest Base replaces Ex1-23-10.0	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	0.0232	<0.0100	0.0559	<0.0100	<0.0100	0.0537	0.0167	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-37-6.0[3]	07/01/02	Northeast Wall replaces Ex1-13-6.0	<100	MS	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	2.83	<0.0500	<0.0500	1.68	0.811	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	ND
Ex1-38-7.0	07/01/02	Northeast Wall replaces Ex1-19-7.0	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0289	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-39-7.0	07/01/02	Northeast Wall replaces Ex1-18-7.0	<100	MS	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	<0.0912	ND
Ex1-40-6.0	07/01/02	North Wall replaces Ex1-14-6.0	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-41-12.0	07/01/02	Central Base replaces Ex1-25-10.0	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-42-12.0	07/01/02	North Base replaces Ex1-16-10.0	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-43-6.0	07/02/02	Southeast Wall replaces Ex1-33-7.0	<100	SS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-44-7.0	07/02/02	Southeast Wall	<100	MS	<0.0100	<0.0100	<0.0100	0.0129	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-45-6.0	07/02/02	Southeast Wall	<100	SS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-46-10.0	07/02/02	Southeast Base	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0106	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-47-7.0	07/03/02	Southwest Wall replaces Ex1-34-7.0	<100	NS	<0.0100	0.0161	<0.0100	0.137	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-48-7.0	07/03/02	Southwest Wall	<100	NS	<0.0100	<0.0100	<0.0100	0.0171	0.0350	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0409	0.0297	0.0238	0.0327	<0.0100	0.0164	<0.0100	0.0141	0.117
Ex1-49-7.0	07/03/02	Southwest Wall	<100	NS	<0.0100	<0.0100	<0.0100	0.0153	0.0182	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0161	0.0146	<0.0100	0.0102	<0.0100	0.0164	<0.0100	<0.0100	0.0824
Ex1-50-7.0	07/03/02	Southwest Wall	<100	NS	<0.0100	<0.0100	0.0231	0.0107	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0124	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0824
Ex1-51-7.0	07/03/02	Southwest Wall	<100	NS	<0.0100	<0.0100	0.0185	0.0121	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex1-52-10.0	07/03/02	Southwest Base	<100	SS	<0.0100	<0.0100	<0.0100	0.0121	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0100
Ex1-53-1.0	07/03/02	Southwest Base	<100	SS	<0.0100	<0.0100	<0.0100	<0.0100	0.0139	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0102	0.0117	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0117
Ex1-54-7.0	07/03/02	Northeast Wall replaces Ex1-37-6.0	<100	SS	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.325	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	ND
Cleanup Action Level					NA											NA							1.0

Notes appear on page 3 of 3.

TABLE 2 (Page 3 of 3)

Soil Sample Number - Depth Sampled[1] (feet bgs)	Date Sampled	Sample Location	Field Screening Results[1]		Noncarcinogenic PAHs[2] (mg/kg)											Carcinogenic PAHs[2] (mg/kg)							Sum of cPAHs
			Headspace Vapors (ppm)	Sheen	Acenaphthene	Acenaphthylene	Anthracene	Benzo (ghi) perylene	Fluoranthene	Fluorene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Chrysene	Dibenz (a,h) anthracene	Indeno (1,2,3-cd) pyrene	
Excavation 2--Central Portion of the Site																						
Ex2-1-9.0	06/26/02	East Base	100	HS	<0.0100	<0.0100	<0.0100	<0.0100	0.0170	0.0596	0.181	0.0108	<0.0100	0.0511	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-2-9.0	06/26/02	South Base	<100	HS	<0.0100	<0.0100	<0.0100	<0.0100	0.0149	<0.0100	0.0141	<0.0100	<0.0100	0.0126	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-3-5.0[2]	06/26/02	Northeast Wall	200	HS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.865	15.0	0.292	<0.0100	0.764	0.0270	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-4-6.0	06/26/02	Southeast Wall	150	HS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	1.27	26.3	0.586	5.04	0.834	0.0293	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-5-7.0	06/26/02	Southeast Wall	175	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.714	10.8	<0.0100	0.930	0.345	0.0163	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-6-5.0	06/26/02	Southwest Wall	200	HS	<0.0500	<0.0500	0.122	<0.0500	<0.0500	<0.0500	2.20	0.241	<0.0500	0.220	0.0648	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	ND
Ex2-7-6.0	06/28/02	Southwest Wall	<100	HS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	1.39	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-8-6.0	06/28/02	Northwest Wall	<100	HS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-9-6.0	06/28/02	Northwest Wall	<100	HS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	3.65	<0.0100	0.675	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-10-6.0	06/28/02	Northeast Wall	<100	HS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-11-9.0	06/28/02	North Base	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	0.0107	<0.0100	0.415	0.0519	0.0331	0.0787	0.0161	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-12-10.0	06/28/02	North Base	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	0.0138	<0.0100	0.681	0.0857	0.0704	0.100	0.0194	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-13-9.0	06/28/02	Center Base	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	0.0166	<0.0100	0.403	0.0623	0.0488	0.0778	0.0228	<0.0100	<0.0100	<0.0100	<0.0100	0.0104	<0.0100	<0.0100	0.0104
Ex2-14-9.0	06/28/02	Center Base	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	0.0120	<0.0100	0.479	0.0645	0.0396	0.0876	0.0184	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Ex2-15-5.0	07/01/02	Northeast Wall replaces Ex2-3-5.0	<100	MS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0796	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Excavation 3--Other																						
SS-1[3]	07/01/02	Surface Sample	<100	SS	0.0375	0.256	0.290	0.367	1.05	<0.0100	0.152	0.171	0.0472	0.585	1.33	0.541	0.567	0.603	0.187	0.625	<0.0100	0.277	2.8
SS-2-1.0	07/03/02	Northwest Wall	<100	SS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0217	0.0322	0.0168	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
SS-3-1.0	07/03/02	Southeast Wall	<100	SS	0.0393	<0.0100	<0.0100	0.0329	0.0526	0.0687	0.325	0.275	0.0407	0.256	0.130	<0.0100	0.0203	<0.0100	<0.0100	0.0224	<0.0100	0.0189	0.0616
SS-4-2.0	07/03/02	Base replaces SS-1	<100	SS	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND
Cleanup Action Level					NA											NA							1.0

Notes:

[1]Field screening methods are described in Appendix C. NS = No sheen; SS = slight sheen; MS = moderate sheen; HS = heavy sheen. Headspace vapors measured with a Bacharach TLV Sniffer calibrated to hexane.

[2]Analyzed by GC/MS-SIM (EPA Method 8270).

[3]Sample subsequently overexcavated.

mg/kg = milligrams per kilogram; ppm = parts per million

ND = not detected

NA = not applicable

Shaded concentration indicates value greater than cleanup action level.

Chemical analysis conducted by North Creek Analytical of Bothell, Washington. The laboratory reports are presented in Appendix E.

TABLE 4
SUMMARY OF SOIL FIELD SCREENING AND PAH CHEMICAL ANALYTICAL RESULTS
STOCKPILE SAMPLES
THOMAS OIL SITE/NW MARITIME CENTER
PORT TOWNSEND, WASHINGTON

Soil Sample Number	Date Sampled	Field Screening Results[1]		Noncarcinogenic PAHs[2] (mg/kg)											Carcinogenic PAHs[2] (mg/kg)							Sum of cPAHs
		Headspace Vapors (ppm)	Sheen	Acenaphthene	Acenaphthylene	Anthracene	Benzo (ghi) perylene	Fluoranthene	Fluorene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Chrysene	Dibenz (a,h) anthracene	Indeno (1,2,3-cd) pyrene	
Excavation 1–Unocal Tank Farm																						
SP1-1	06/25/02	<100	NS	<0.0100	0.0117	0.0199	0.0165	0.0763	<0.0100	0.0199	0.0206	0.0144	0.0378	0.0818	0.0399	0.0412	0.0405	0.0399	0.0495	<0.0100	0.0117	0.2227
SP1-2	06/25/02	<100	NS	<0.0100	<0.0100	<0.0100	0.0361	0.0361	<0.0100	<0.0100	0.0118	0.0111	<0.0100	0.0417	0.0257	0.0215	0.0264	0.0125	0.0250	<0.0100	0.0167	0.1278
SP1-3	06/25/02	<100	NS	<0.0100	<0.0100	<0.0100	<0.500	<0.500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0153	0.0118	<0.0100	<0.0100	0.0181	<0.0100	<0.0100	0.0452
SP1-4	06/25/02	<100	NS	<0.0100	<0.0100	0.0361	0.0618	0.0527	<0.0100	0.0208	0.0118	<0.0100	0.0187	0.0632	0.0534	0.0604	0.0673	0.0305	0.0645	<0.0100	0.0368	0.3129
SP1-5	06/25/02	<100	NS	<0.0100	0.0288	0.0394	0.0345	0.220	<0.0100	0.0387	0.0232	0.0183	0.0795	0.200	0.125	0.141	0.120	0.134	0.152	<0.0100	0.0317	0.7047
Excavation 2–Central Portion of the Site																						
SP2-1	07/01/02	<100	NS	<0.0100	<0.0100	<0.0100	0.0107	0.0649	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0413	0.0235	0.0192	0.0185	0.0107	0.0242	<0.0100	<0.0100	0.0961
SP2-2	07/01/02	<100	NS	0.0123	<0.0100	<0.0100	0.0107	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0370	<0.0100	0.0142	0.0178	0.0114	<0.0100	<0.0100	<0.0100	0.0434
SP2-3	07/01/02	<100	NS	<0.0100	<0.0100	<0.0100	0.0135	0.0765	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0553	0.0255	0.0220	0.0213	0.0142	0.0241	<0.0100	0.0106	0.1177
ISP1-1	07/01/02	<100	NS	<0.0100	<0.0100	<0.0100	0.0136	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0163	<0.0100	<0.0100	0.0102	<0.0100	<0.0100	<0.0100	<0.0100	0.0102
ISP1-2	07/01/02	<100	NS	<0.0100	<0.0100	<0.0100	<0.0100	0.0300	<0.0100	0.249	0.131	<0.0100	<0.0100	0.0454	0.0240	0.0160	<0.0100	<0.0100	0.0227	<0.0100	<0.0100	0.0627
ISP1-3	07/01/02	<100	NS	<0.0100	<0.0100	<0.0100	<0.0100	0.0189	<0.0100	0.108	0.0608	<0.0100	<0.0100	0.0405	0.0189	0.0140	0.0147	<0.0100	0.0168	<0.0100	<0.0100	0.0644
Cleanup Action Level				NA											NA							1.0

Notes:

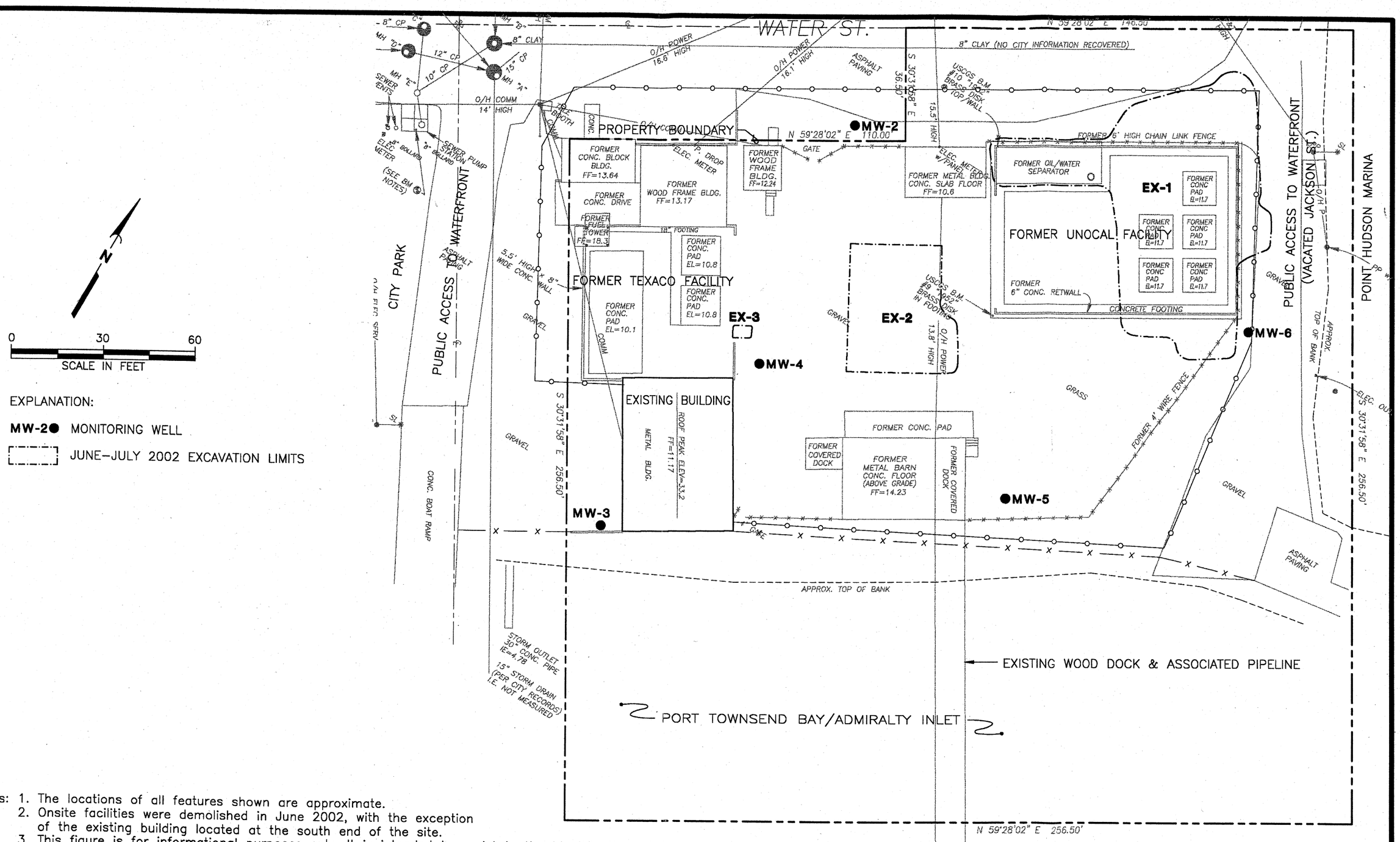
[1]Field screening methods are described in Appendix C. NS = No sheen; SS = slight sheen; MS = moderate sheen; HS = heavy sheen. Headspace vapors measured with a Bacharach TLV Sniffer calibrated to hexane.

[2]PAHs = Polycyclic Aromatic Hydrocarbons analyzed by GC/MS-SIMs (EPA-8270).

mg/kg=milligrams per kilogram; ppm=parts per million

NA = not applicable

Chemical analysis conducted by North Creek Analytical of Bothell, Washington. The laboratory reports are presented in Appendix E.



EXPLANATION:

MW-2● MONITORING WELL

JUNE–JULY 2002 EXCAVATION LIMITS

Notes:
1. The locations of all features shown are approximate.
2. Onsite facilities were demolished in June 2002, with the exception of the existing building located at the south end of the site.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

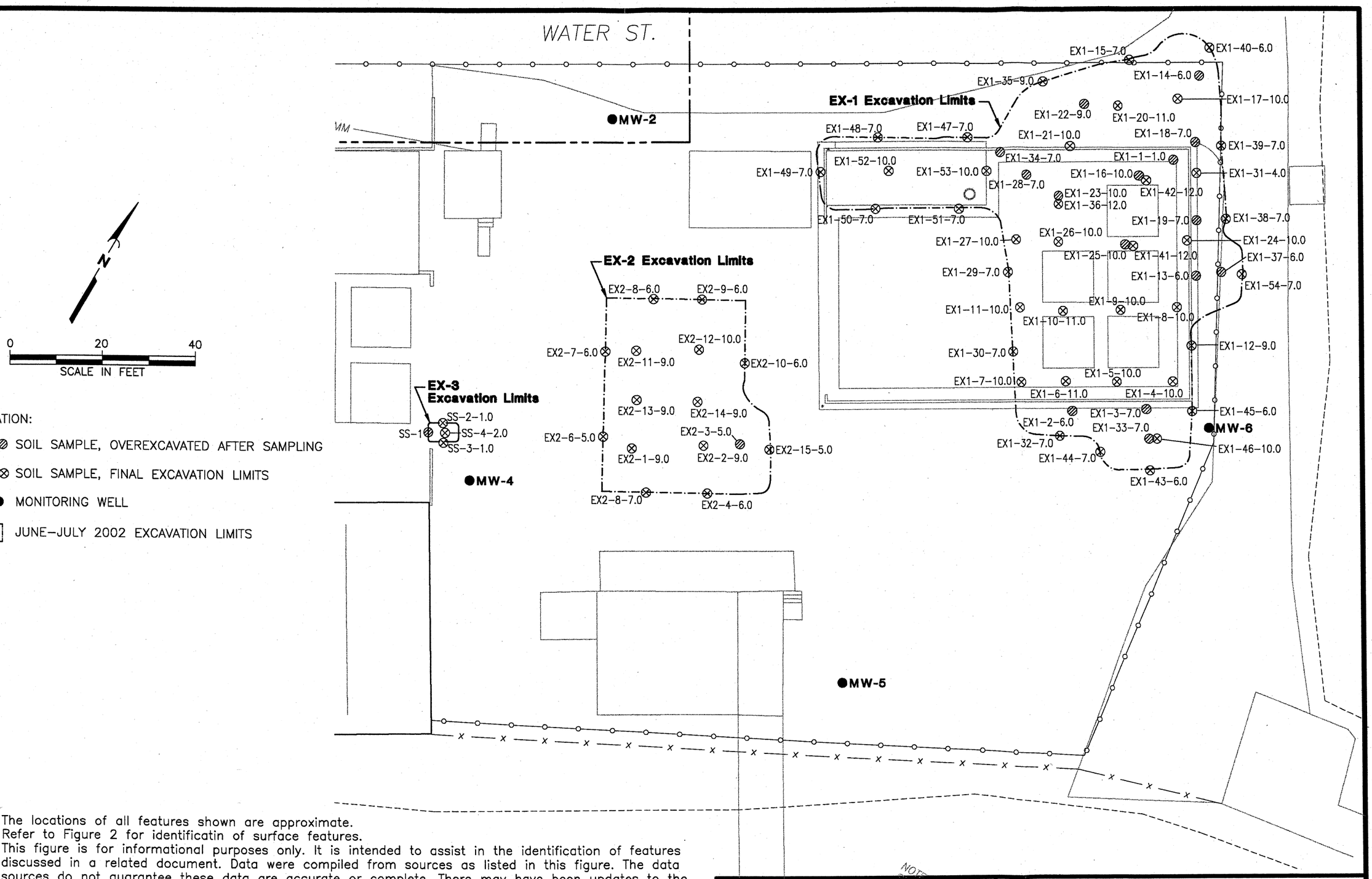
Reference: Drawing entitled "Temporary Erosion and Sediment Control Plan with Demolition Notes, Northwest Maritime Center, Demolition & Remediation Work" Port Townsend, WA" dated 03/19/02.

GeoEngineers

SITE PLAN

FIGURE 2

REDM\P:\7853002\00\CAD\785300200A.DWG TMK:HLA 07/23/02



EXPLANATION:

SS-1 ⊘ SOIL SAMPLE, OVEREXCAVATED AFTER SAMPLING

SS-2-1.0 ⊗ SOIL SAMPLE, FINAL EXCAVATION LIMITS

MW-2● MONITORING WELL

JUNE–JULY 2002 EXCAVATION LIMITS

Notes: 1. The locations of all features shown are approximate.
2. Refer to Figure 2 for identificatin of surface features.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Reference: Drawing entitled "Temporary Erosion and Sediment Control Plan with Demolition Notes, Northwest Maritime Center, Demolition & Remediation Work" Port Townsend, WA" dated 03/19/02.

GeoEngineers

REMEDIAL EXCAVATION SOIL CONFIRMATION SAMPLES

FIGURE 3

REDM\P:\785002\00\CAD\785300200B.DWG TMK:HLA 07/19/02

GROUNDWATER MONITORING REPORT
THIRD QUARTER 2003, FINAL MONITORING REPORT

Northwest Maritime Center/Former Thomas Oil Site
431 Water Street
Port Townsend, Washington

GeoEngineers
8410 154th Avenue Northeast
Redmond, Washington 98052
Telephone: (425) 861-6000
Fax: (425) 861-6050
www.geoengineers.com

Report date:	September 22, 2003
GeoEngineers file no.:	7853-002-01
Ecology facility no.:	1150, VCP Site
Client:	City of Port Townsend, c/o Dave Robison, Northwest Maritime Center P.O. Box 82, Port Townsend, WA 98368
GeoEngineers project manager:	Tina King, L.G.
Sample date:	August 12, 2003
Wells gauged:	MW-2, MW-3, MW-5 and MW-6: Depths to water measured within 1/2 hour of low tide. Monitoring well MW-1 was removed prior to the 2002 remedial excavation activities. MW-4 cannot be sampled because it was damaged prior to the 2002 remedial excavation activities.
Free product (well/thickness):	None
Groundwater flow direction:	East
Direction similar to previous events?:	Groundwater direction varies due to tidal fluctuation.
Wells sampled:	MW-2, MW-3, MW-5 and MW-6
Purge/sample methods:	Purge 3 well volumes and sample by hand bailing techniques
Chemical testing:	NWTPH-G/BETX, NWTPH-Dx with sulfuric acid/silica gel cleanup, and total suspended solids. The scope of the August 2003 sampling event is based on the groundwater compliance monitoring plan outlined in the "Cleanup Action Plan" for the site dated May 17, 2000 and Washington State Department of Ecology's October 4, 2002 letter to Northwest Maritime Center ("No Further Action" determination).
Results similar to previous events?:	Yes. Petroleum-related contaminants either were not detected, or the detected concentrations were less than the site-specific MTCA cleanup levels (Table 2).
Notes:	The August 12, 2003 sampling event represents the fourth groundwater monitoring event following the soil cleanup conducted in summer 2002. Based on the Washington State Department of Ecology's October 4, 2002 letter to Northwest Maritime Center, the requirement for one year of quarterly groundwater monitoring where contaminants either are not detected or are detected at concentrations less than the approved action levels, has been met. A no further action status for the site is requested. After receiving the NFA status, the monitoring wells on the site will be abandoned in accordance with resource protection well requirements.

Prepared by:

DANA L. CARLISLE
STATE OF WASHINGTON
22334
REGISTERED
PROFESSIONAL ENGINEER

9.23.03

Dana Carlisle, P.E. 09/18/03
Associate

Attachments:
Table 1: Summary of Groundwater Elevations
Table 2: Summary of Groundwater Chemical Analytical Data – Monitoring Wells
Figure 1: Vicinity Map
Figure 2: Groundwater Elevations – 08/12/03
Figure 3: Summary of Groundwater Chemical Analytical Data
Chemical Analytical Data Report

Distribution:
Client (one copy)

Martha Maggi, Washington State Department of Ecology, SWRO (1 copy)

Dr. Mark Brearley, R.G., Unocal RRMC (1 copy)

TABLE 1
SUMMARY OF GROUNDWATER ELEVATIONS
NORTHWEST MARITIME CENTER / FORMER THOMAS OIL SITE
PORT TOWNSEND, WASHINGTON

Monitoring Well[1] (Casing Elevation)	Date Measured	Depth to Groundwater from Casing Rim[2] (feet)	Groundwater Elevation[3] (feet)
MW-2	11/04/02	8.14	5.18
(13.32)	02/24/03	7.92	5.40
	05/15/03	8.68	4.64
	08/12/03	8.34	4.98
MW-3	11/04/02	6.23	5.47
(11.70)	02/24/03	6.59	5.11
	05/15/03	7.42	4.28
	08/12/03	7.54	4.16
MW-4	11/04/02	Note 4	Note 4
(12.02)	02/24/03	Note 4	Note 4
	05/15/03	Note 4	Note 4
	08/12/03	Note 4	Note 4
MW-5	11/04/02	5.56	5.90
(11.46)	02/24/03	6.02	5.44
	05/15/03	7.17	4.29
	08/12/03	7.30	4.16
MW-6	11/04/02	8.51	5.70
(14.21)	02/24/03	9.35	4.86
	05/15/03	10.38	3.83
	08/12/03	10.51	3.70

Notes:
[1]The approximate locations of the monitoring wells are shown in Figure 2.
[2]Depth to water was measured within 1/2 hour of low tide.
[3]Elevations relative to unknown datum selected by AGI.
[4]Well is damaged and could not be accessed.

Redm:\01\finals\785300201GW0803T1&2\Table1.xls

TABLE 2 (Page 1 of 2)
SUMMARY OF GROUNDWATER CHEMICAL ANALYTICAL DATA
MONITORING WELLS

NORTHWEST MARITIME CENTER / FORMER THOMAS OIL SITE

PORT TOWNSEND, WASHINGTON

Monitoring Well[1]	Date Sampled	BETX[2] (µg/l)				Gasoline-range Hydrocarbons[3] (mg/l)	Diesel-range Hydrocarbons[4] (mg/l)	Heavy Oil-range Hydrocarbons[4] (mg/l)	Total Suspended Solids[5] (mg/l)
		B	E	T	X				
MW-2	11/04/02	0.502	<0.500	<0.500	<1.00	0.225	0.909	<0.500	59
	02/24/03	<0.500	<0.500	<0.500	<1.00	0.242	0.295	<0.500	36
	05/15/03	<0.500	<0.500	<0.500	<1.00	0.177	0.386	<0.500	54
	08/12/03	<0.500	<0.500	<0.500	<1.00	0.114	1.31	<0.500	13
MW-3	11/04/02	<0.500	<0.500	<0.500	<1.00	<0.0500	0.844	1.13	680
	02/24/03	<0.500	<0.500	<0.500	<1.00	<0.0500	0.455[9]	0.696	380
	05/15/03	<0.500	<0.500	<0.500	<1.00	<0.0500	0.338[9]	<0.500	290
	08/12/03	<0.500	<0.500	<0.500	<1.00	<0.0500	0.290	0.569	70
MW-4[6]	11/04/02	--	--	--	--	--	--	--	--
	02/24/03	--	--	--	--	--	--	--	--
	05/15/03	--	--	--	--	--	--	--	--
	08/12/03	--	--	--	--	--	--	--	--
MW-5	11/04/02	<0.500	<0.500	<0.500	<1.00	<0.0500	0.289	<0.500	1,000
	02/24/03	<0.500	<0.500	<0.500	<1.00	<0.0500	<0.250	<0.500	370
	05/15/03	<0.500	<0.500	<0.500	<1.00	<0.0500	0.250	<0.500	230
	08/12/03	<0.500	<0.500	<0.500	<1.00	<0.0500	0.250	<0.500	240
MW-6	11/04/02	<0.500	<0.500	<0.500	<1.00	<0.0500	<0.250	<0.500	1,100
	02/24/03	<0.500	<0.500	<0.500	<1.00	<0.0500	<0.250	<0.500	750
	05/15/03	<0.500	<0.500	<0.500	<1.00	<0.0500	<0.250	<0.500	500
	08/12/03	<0.500	<0.500	<0.500	<1.00	<0.0500	<0.250	<0.500	750
Site Specific MTCA Method B Cleanup Level[7]		43	6,910	48,500	16,000	1.0	10[8]		NA

Notes appear on page 2 of 2.

TABLE 2 (Page 2 of 2)

Notes:

[1]Approximate monitoring well locations are shown in Figures 2 and 3.

[2]BETX = benzene, ethylbenzene, toluene and xylenes. Analyzed by EPA Method 8021B.

[3]Gasoline-range hydrocarbons by Ecology Method NWTPH-G.

[4]Diesel- and heavy oil-range hydrocarbons by Ecology Method NWTPH-D extended with a sulfuric acid/silica gel cleanup.

[5]Analyzed by APHA/EPA Methods.

[6]Well is damaged and cannot be sampled.

[7]Based on Table 3 of the Cleanup Action Plan dated May 17, 2000.

[8]Sum of diesel- and heavy oil-range hydrocarbons.

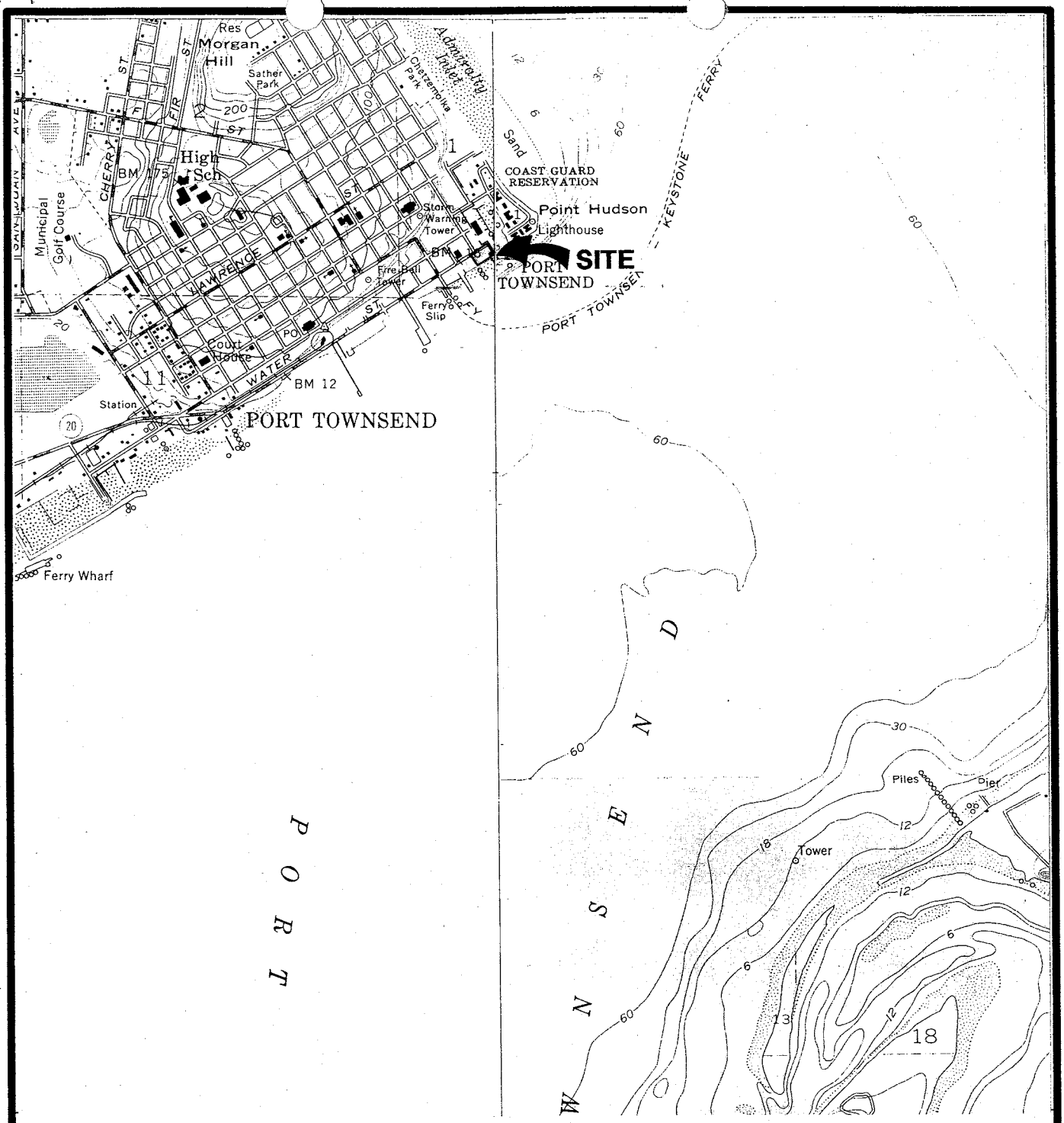
[9]The sample chromatographic pattern does not resemble the fuel standard used for quantitiation.

µg/l = micrograms per liter; mg/l = milligrams per liter

NA = not applicable; "--" = not sampled

Chemical analyses conducted by North Creek Analytical of Bothell, Washington. The laboratory report for the current reporting period is included in Attachment A.

Redm:\01\finals\785300201GW0803T1&2\Table2.xls



Reference: USGS 7.5' topographic quadrangle maps "Port Townsend, and Nordland, Wash." 1973.

REDMOND 7853-002-00 TMK:HLA 07/15/02

4/1/03

8/13/02

Geo Engineers

VICINITY MAP

FIGURE 1

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

25 August 2003

Tina King
Geo Engineers - Redmond
8410 154th Ave NE
Redmond, WA/USA 98052

RE: NW Maritime/Port Townsend

Enclosed are the results of analyses for samples received by the laboratory on 08/15/03 17:37. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Gerdes
Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers - Redmond	Project: NW Maritime/Port Townsend	
8410 154th Ave NE	Project Number: 7853-002-01	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	08/25/03 12:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
002 MW02 081203	B3H0394-01	Water	08/12/03 10:30	08/15/03 17:37
002 MW03 081203	B3H0394-02	Water	08/12/03 10:45	08/15/03 17:37
002 MW05 081203	B3H0394-03	Water	08/12/03 11:00	08/15/03 17:37
002 MW06 081203	B3H0394-04	Water	08/12/03 11:15	08/15/03 17:37

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes

Jeff Gerdes, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers - Redmond	Project: NW Maritime/Port Townsend	
8410 154th Ave NE	Project Number: 7853-002-01	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	08/25/03 12:33

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
002 MW02 081203 (B3H0394-01) Water	**Sampled: 08/12/03 10:30**		**Received: 08/15/03 17:37**						
Gasoline Range Hydrocarbons	**114**	50.0	ug/l	1	3H21002	08/21/03	08/21/03	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*90.6 %*	*62-127*			"	"	"	"	
Surrogate: 4-BFB (PID)	*112 %*	*72-127*			"	"	"	"	
002 MW03 081203 (B3H0394-02) Water	**Sampled: 08/12/03 10:45**		**Received: 08/15/03 17:37**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	3H21002	08/21/03	08/21/03	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*85.2 %*	*62-127*			"	"	"	"	
Surrogate: 4-BFB (PID)	*109 %*	*72-127*			"	"	"	"	
002 MW05 081203 (B3H0394-03) Water	**Sampled: 08/12/03 11:00**		**Received: 08/15/03 17:37**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	3H21002	08/21/03	08/21/03	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*93.3 %*	*62-127*			"	"	"	"	
Surrogate: 4-BFB (PID)	*109 %*	*72-127*			"	"	"	"	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers - Redmond	Project: NW Maritime/Port Townsend	
8410 154th Ave NE	Project Number: 7853-002-01	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	08/25/03 12:33

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
002 MW06 081203 (B3H0394-04) Water Sampled: 08/12/03 11:15 Received: 08/15/03 17:37									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	3H21002	08/21/03	08/21/03	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*84.2 %*	*62-127*			"	"	"	"	
Surrogate: 4-BFB (PID)	*111 %*	*72-127*			"	"	"	"	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes

Jeff Gerdes, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers - Redmond	Project: NW Maritime/Port Townsend	
8410 154th Ave NE	Project Number: 7853-002-01	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	08/25/03 12:33

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
002 MW02 081203 (B3H0394-01) Water	**Sampled: 08/12/03 10:30**		**Received: 08/15/03 17:37**						
Diesel Range Hydrocarbons	**1.31**	0.250	mg/l	1	3H19009	08/19/03	08/20/03	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*101 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*109 %*	*50-150*			"	"	"	"	
002 MW03 081203 (B3H0394-02) Water	**Sampled: 08/12/03 10:45**		**Received: 08/15/03 17:37**						
Diesel Range Hydrocarbons	**0.290**	0.250	mg/l	1	3H19009	08/19/03	08/20/03	NWTPH-Dx	
Lube Oil Range Hydrocarbons	**0.569**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*98.3 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*108 %*	*50-150*			"	"	"	"	
002 MW05 081203 (B3H0394-03) Water	**Sampled: 08/12/03 11:00**		**Received: 08/15/03 17:37**						
Diesel Range Hydrocarbons	ND	0.250	mg/l	1	3H19009	08/19/03	08/20/03	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*90.3 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*93.5 %*	*50-150*			"	"	"	"	
002 MW06 081203 (B3H0394-04) Water	**Sampled: 08/12/03 11:15**		**Received: 08/15/03 17:37**						
Diesel Range Hydrocarbons	ND	0.250	mg/l	1	3H19009	08/19/03	08/20/03	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*87.4 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*83.4 %*	*50-150*			"	"	"	"	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers - Redmond	Project: NW Maritime/Port Townsend	
8410 154th Ave NE	Project Number: 7853-002-01	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	08/25/03 12:33

Conventional Chemistry Parameters by APHA/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
002 MW02 081203 (B3H0394-01) Water	**Sampled: 08/12/03 10:30**		**Received: 08/15/03 17:37**						
Total Suspended Solids	**13**	4.0	mg/l	1	3H18053	08/18/03	08/18/03	EPA 160.2	
002 MW03 081203 (B3H0394-02) Water	**Sampled: 08/12/03 10:45**		**Received: 08/15/03 17:37**						
Total Suspended Solids	**70**	4.0	mg/l	1	3H18053	08/18/03	08/18/03	EPA 160.2	
002 MW05 081203 (B3H0394-03) Water	**Sampled: 08/12/03 11:00**		**Received: 08/15/03 17:37**						
Total Suspended Solids	**240**	4.0	mg/l	1	3H18053	08/18/03	08/18/03	EPA 160.2	
002 MW06 081203 (B3H0394-04) Water	**Sampled: 08/12/03 11:15**		**Received: 08/15/03 17:37**						
Total Suspended Solids	**750**	4.0	mg/l	1	3H18053	08/18/03	08/18/03	EPA 160.2	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes

Jeff Gerdes, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers - Redmond	Project: NW Maritime/Port Townsend	
8410 154th Ave NE	Project Number: 7853-002-01	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	08/25/03 12:33

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3H21002: Prepared 08/21/03 Using EPA 5030B (P/T)										
Blank (3H21002-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*43.1*		"	*48.0*		*89.8*	*62-127*			
Surrogate: 4-BFB (PID)	*54.0*		"	*48.0*		*112*	*72-127*			
LCS (3H21002-BS1)										
Gasoline Range Hydrocarbons	461	50.0	ug/l	500		92.2	80-120			
Benzene	6.71	0.500	"	6.65		101	80-120			
Toluene	33.3	0.500	"	37.0		90.0	80-120			
Ethylbenzene	8.81	0.500	"	8.55		103	80-120			
Xylenes (total)	43.4	1.00	"	43.0		101	80-120			
Surrogate: 4-BFB (FID)	*54.3*		"	*48.0*		*113*	*62-127*			
Surrogate: 4-BFB (PID)	*54.2*		"	*48.0*		*113*	*72-127*			
LCS Dup (3H21002-BSD1)										
Gasoline Range Hydrocarbons	489	50.0	ug/l	500		97.8	80-120	5.89	25	
Benzene	7.07	0.500	"	6.65		106	80-120	5.22	40	
Toluene	35.2	0.500	"	37.0		95.1	80-120	5.55	40	
Ethylbenzene	9.31	0.500	"	8.55		109	80-120	5.52	40	
Xylenes (total)	45.4	1.00	"	43.0		106	80-120	4.50	40	
Surrogate: 4-BFB (FID)	*55.0*		"	*48.0*		*115*	*62-127*			
Surrogate: 4-BFB (PID)	*55.4*		"	*48.0*		*115*	*72-127*			
Matrix Spike (3H21002-MS1)					**Source: B3H0404-05**					
Gasoline Range Hydrocarbons	436	50.0	ug/l	500	18.0	83.6	72-119			
Benzene	7.22	0.500	"	6.65	0.189	106	70-129			
Toluene	35.2	0.500	"	37.0	0.447	93.9	73-114			
Ethylbenzene	9.23	0.500	"	8.55	0.143	106	82-120			
Xylenes (total)	45.2	1.00	"	43.0	0.763	103	74-118			
Surrogate: 4-BFB (FID)	*50.7*		"	*48.0*		*106*	*62-127*			
Surrogate: 4-BFB (PID)	*56.5*		"	*48.0*		*118*	*72-127*			

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers - Redmond	Project: NW Maritime/Port Townsend	
8410 154th Ave NE	Project Number: 7853-002-01	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	08/25/03 12:33

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3H21002: Prepared 08/21/03 Using EPA 5030B (P/T)										
Matrix Spike Dup (3H21002-MSD1)					**Source: B3H0404-05**					
Gasoline Range Hydrocarbons	439	50.0	ug/l	500	18.0	84.2	72-119	0.686	25	
Benzene	7.46	0.500	"	6.65	0.189	109	70-129	3.27	40	
Toluene	36.2	0.500	"	37.0	0.447	96.6	73-114	2.80	40	
Ethylbenzene	9.35	0.500	"	8.55	0.143	108	82-120	1.29	40	
Xylenes (total)	45.3	1.00	"	43.0	0.763	104	74-118	0.221	40	
Surrogate: 4-BFB (FID)	*51.5*		"	*48.0*		*107*	*62-127*			
Surrogate: 4-BFB (PID)	*57.6*		"	*48.0*		*120*	*72-127*			

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers - Redmond	Project: NW Maritime/Port Townsend	
8410 154th Ave NE	Project Number: 7853-002-01	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	08/25/03 12:33

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3H19009: Prepared 08/19/03 Using EPA 3520C										
Blank (3H19009-BLK1)										
Diesel Range Hydrocarbons	ND	0.250	mg/l							
Lube Oil Range Hydrocarbons	ND	0.500	"							
Surrogate: 2-FBP	*0.307*		"	*0.320*		*95.9*	*50-150*			
Surrogate: Octacosane	*0.165*		"	*0.160*		*103*	*50-150*			
LCS (3H19009-BS1)										
Diesel Range Hydrocarbons	1.89	0.250	mg/l	2.00		94.5	45-105			
Surrogate: 2-FBP	*0.294*		"	*0.320*		*91.9*	*50-150*			
LCS Dup (3H19009-BSD1)										
Diesel Range Hydrocarbons	1.97	0.250	mg/l	2.00		98.5	45-105	4.15	50	
Surrogate: 2-FBP	*0.304*		"	*0.320*		*95.0*	*50-150*			

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers - Redmond	Project: NW Maritime/Port Townsend	
8410 154th Ave NE	Project Number: 7853-002-01	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	08/25/03 12:33

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3H18053: Prepared 08/18/03 Using General Preparation										
Blank (3H18053-BLK1)										
Total Suspended Solids	ND	4.0	mg/l							
Duplicate (3H18053-DUP1)					**Source: B3H0321-01**					
Total Suspended Solids	120	4.0	mg/l		120			0.00	19	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers - Redmond	Project: NW Maritime/Port Townsend	
8410 154th Ave NE	Project Number: 7853-002-01	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	08/25/03 12:33

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes

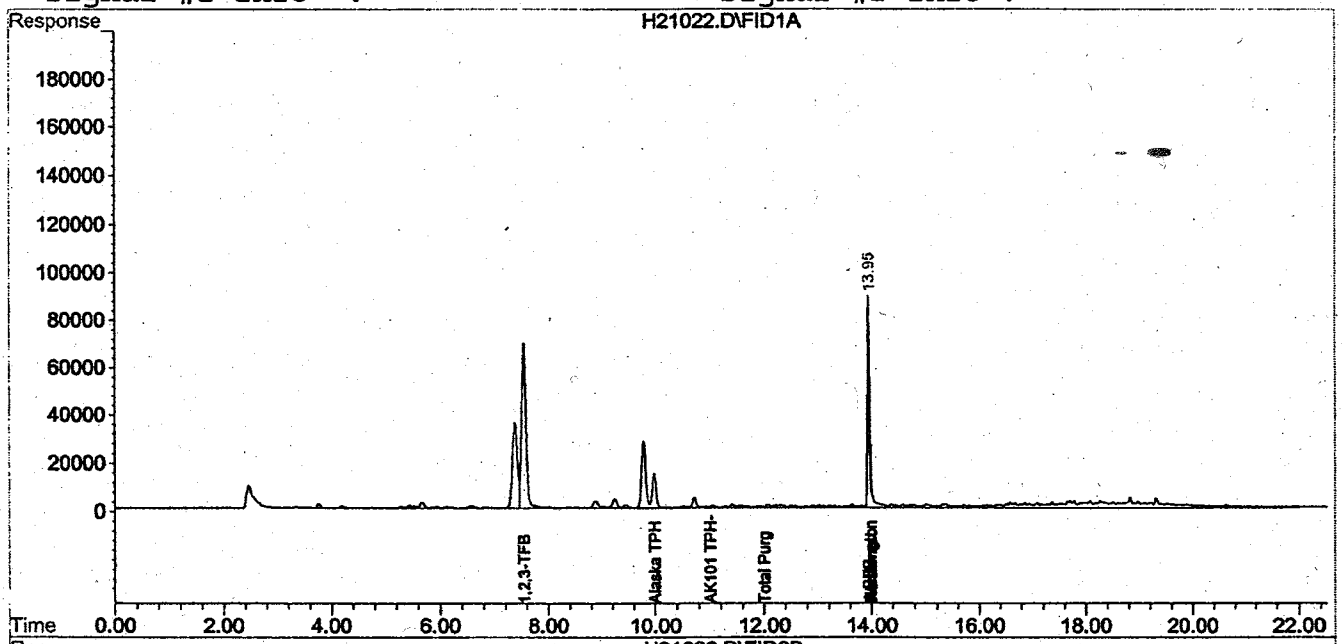
Jeff Gerdes, Project Manager

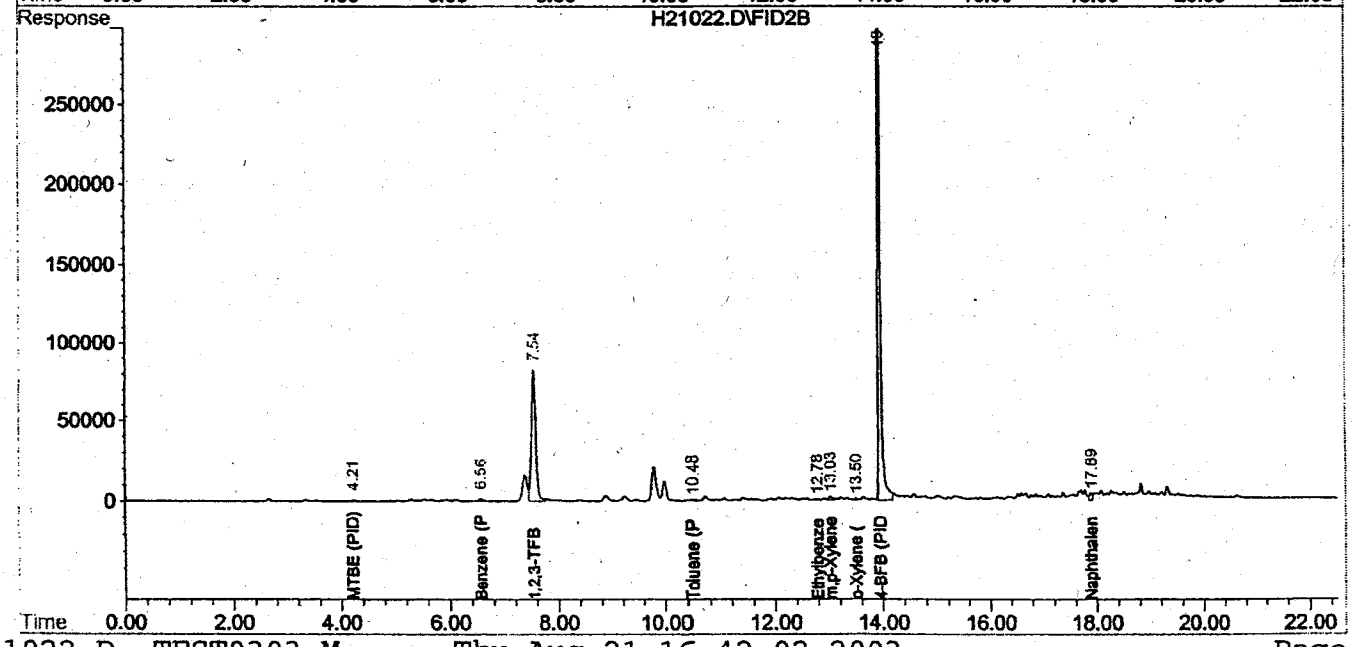
Quantitation Report

Signal #1 : D:\HPCHEM\2\DATA\082103\H21022.D\FID1A.CH Vial: 22
Signal #2 : D:\HPCHEM\2\DATA\082103\H21022.D\FID2B.CH
Acq On : 21 Aug 2003 16:19 Operator: sk
Sample : b3h0394-01 Inst : GC #12
Misc : 1X 5 ml Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: autoint2.e
Quant Time: Aug 21 16:41 2003 Quant Results File: TEST0303.RES

Quant Method : D:\HPCHEM\2\METHODS\TEST0303.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Thu Aug 21 13:21:27 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST0303.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



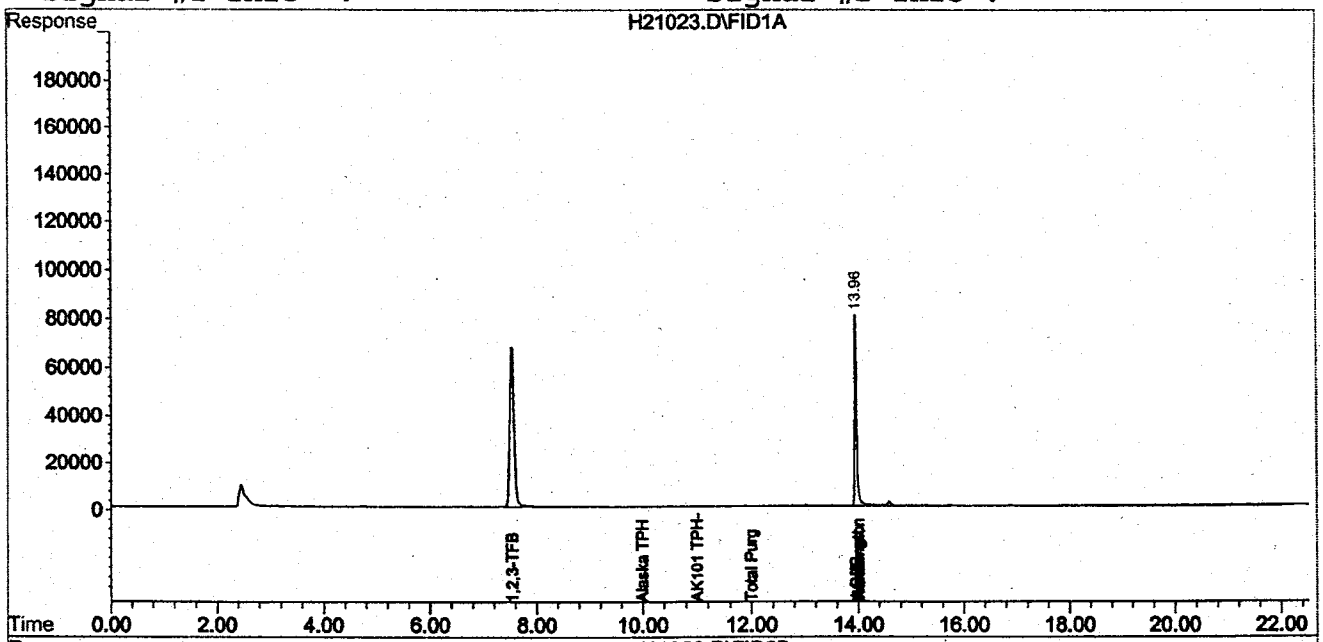


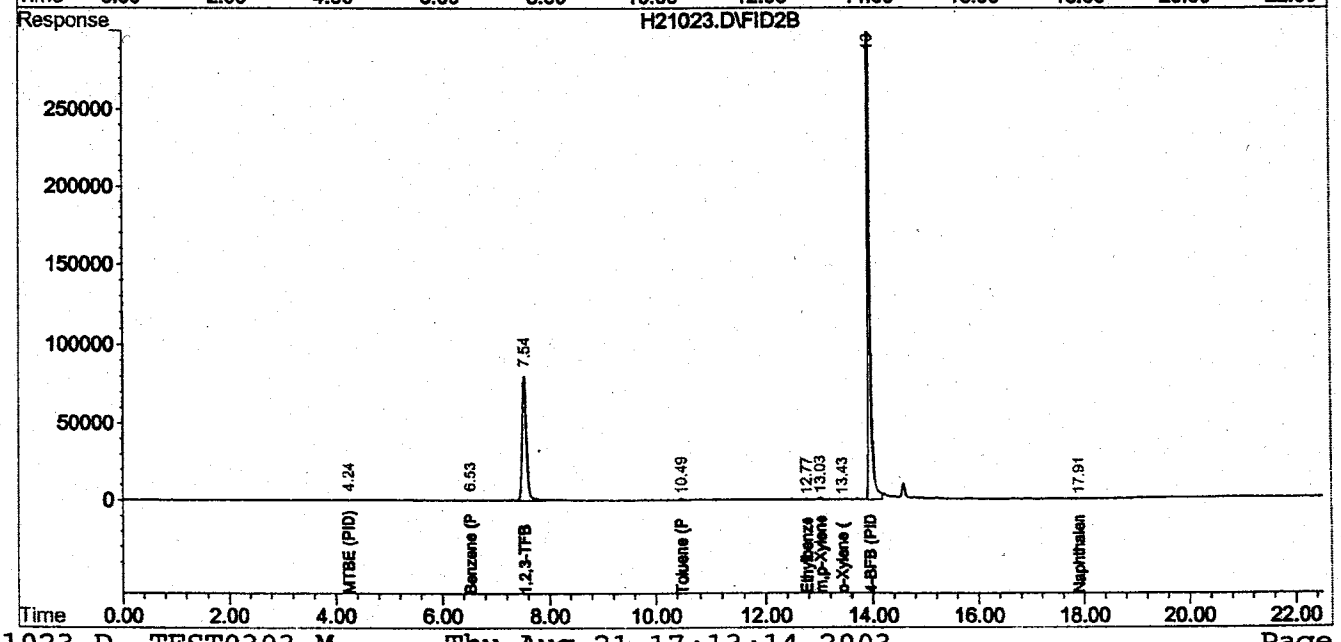
Quantitation Report

Signal #1 : D:\HPCHEM\2\DATA\082103\H21023.D\FID1A.CH Vial: 23
Signal #2 : D:\HPCHEM\2\DATA\082103\H21023.D\FID2B.CH
Acq On : 21 Aug 2003 16:48 Operator: sk
Sample : b3h0394-02 Inst : GC #12
Misc : 1X 5 ml Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: autoint2.e
Quant Time: Aug 21 17:13 2003 Quant Results File: TEST0303.RES

Quant Method : D:\HPCHEM\2\METHODS\TEST0303.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Thu Aug 21 13:21:27 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST0303.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



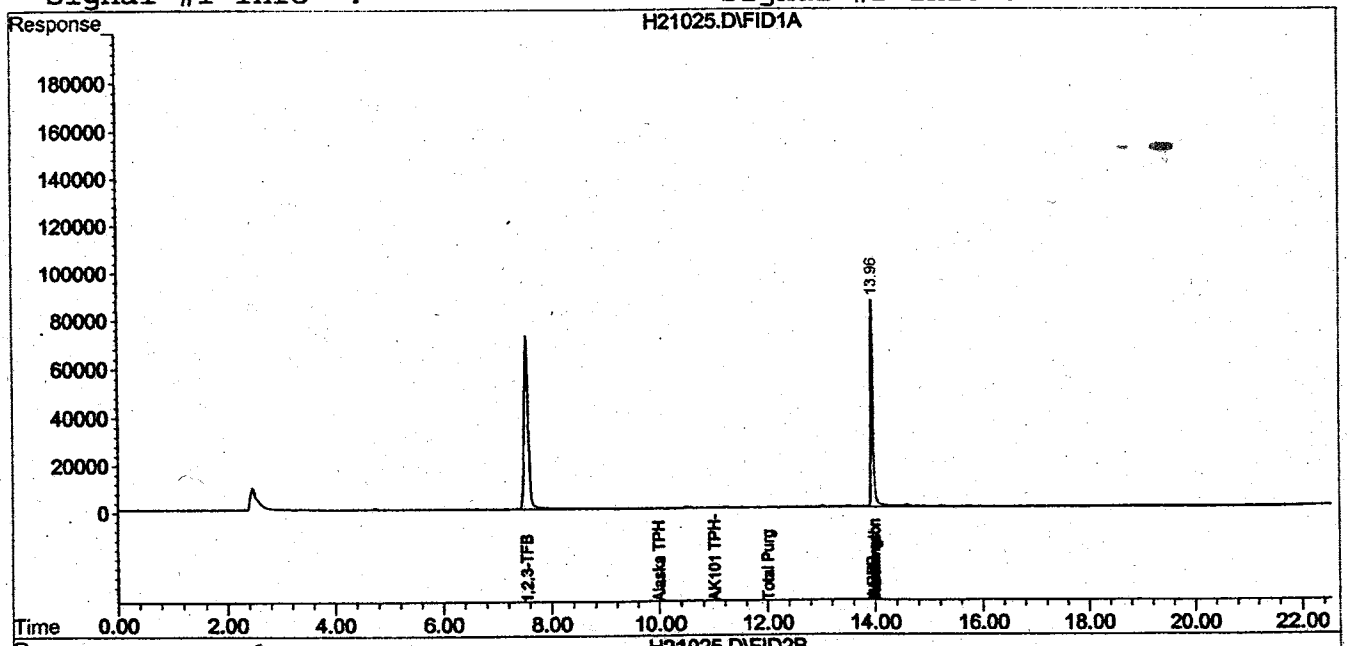


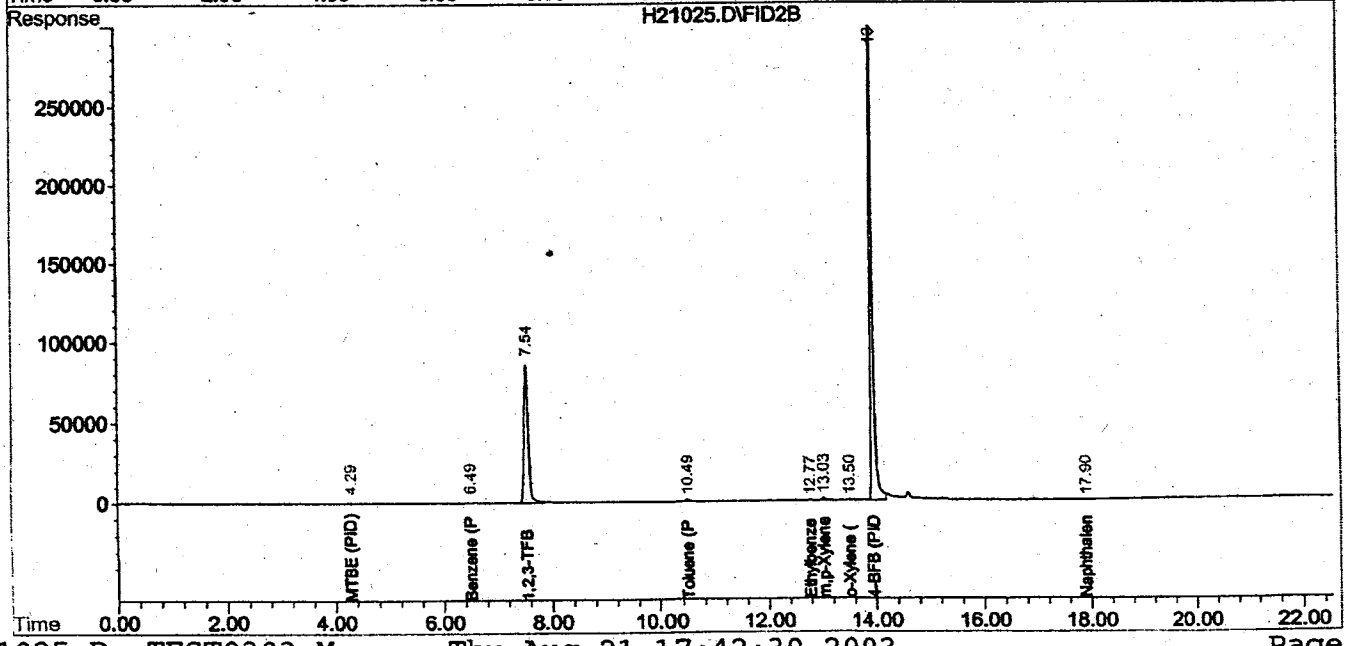
Quantitation Report

Signal #1 : D:\HPCHEM\2\DATA\082103\H21025.D\FID1A.CH Vial: 25
Signal #2 : D:\HPCHEM\2\DATA\082103\H21025.D\FID2B.CH
Acq On : 21 Aug 2003 17:19 Operator: sk
Sample : b3h0394-03 Inst : GC #12
Misc : 1X 5 ml Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: autoint2.e
Quant Time: Aug 21 17:42 2003 Quant Results File: TEST0303.RES

Quant Method : D:\HPCHEM\2\METHODS\TEST0303.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Thu Aug 21 13:21:27 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST0303.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



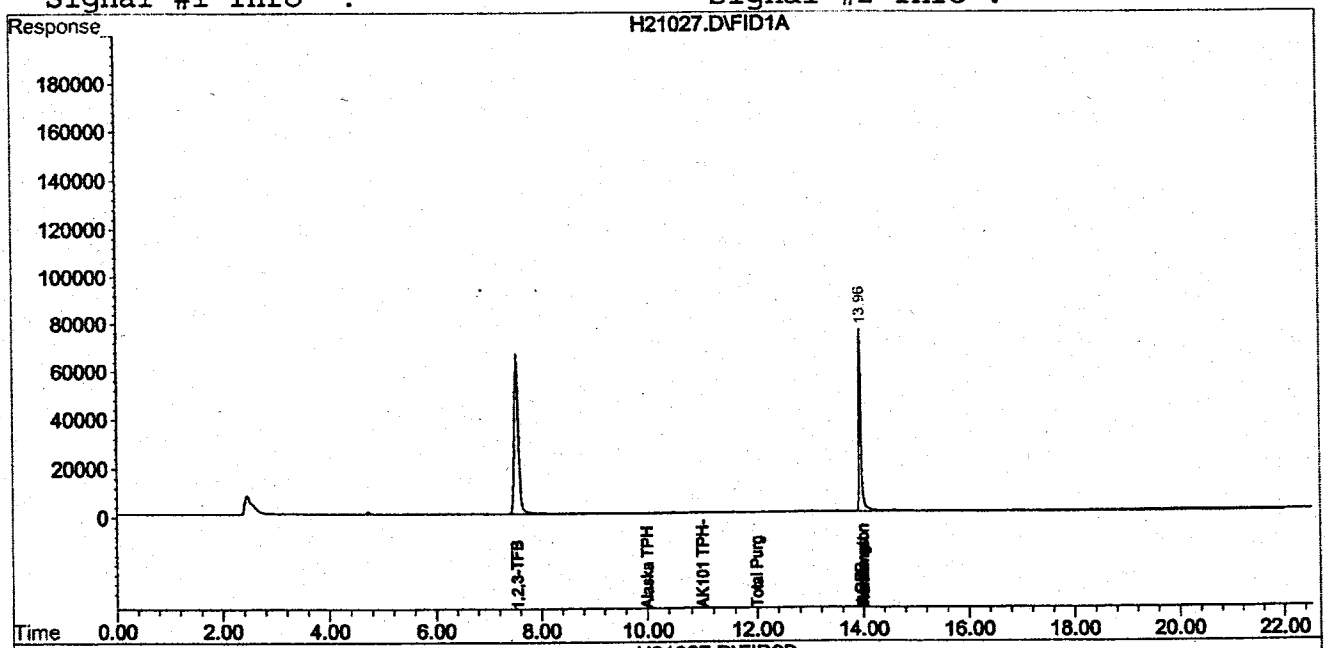


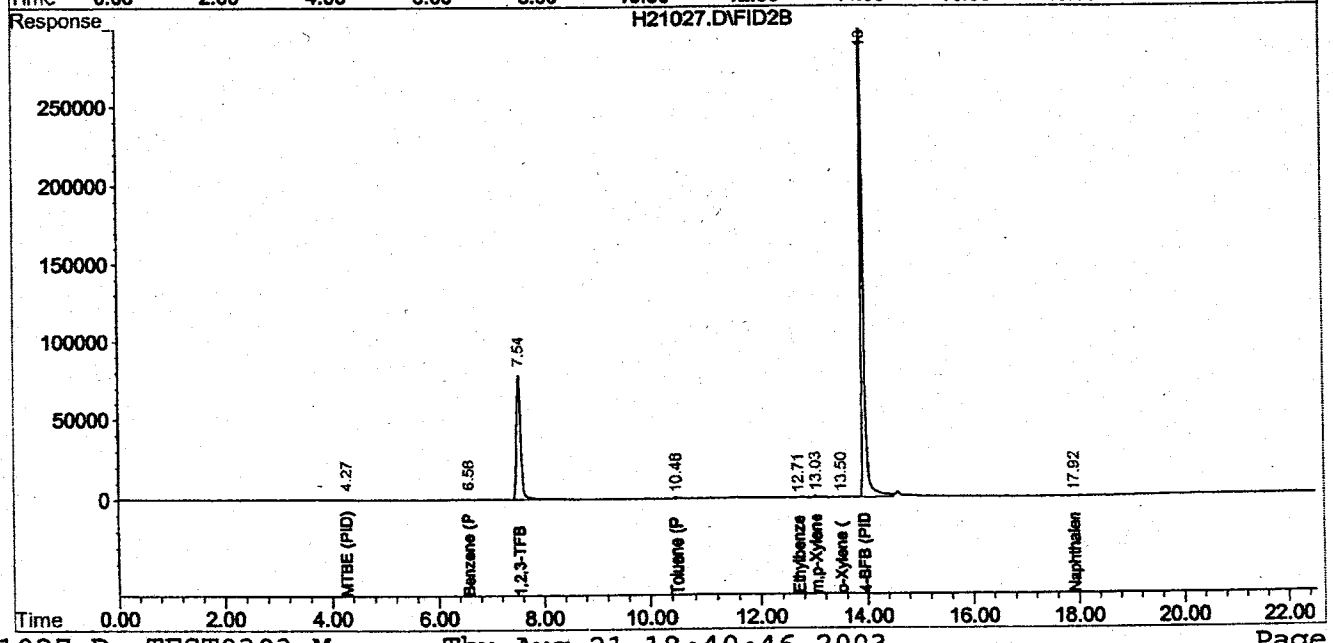
Quantitation Report

Signal #1 : D:\HPCHEM\2\DATA\082103\H21027.D\FID1A.CH Vial: 27
Signal #2 : D:\HPCHEM\2\DATA\082103\H21027.D\FID2B.CH
Acq On : 21 Aug 2003 18:17 Operator: sk
Sample : b3h0394-04 Inst : GC #12
Misc : 1X 5 ml Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: autoint2.e
Quant Time: Aug 21 18:40 2003 Quant Results File: TEST0303.RES

Quant Method : D:\HPCHEM\2\METHODS\TEST0303.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Thu Aug 21 13:21:27 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST0303.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



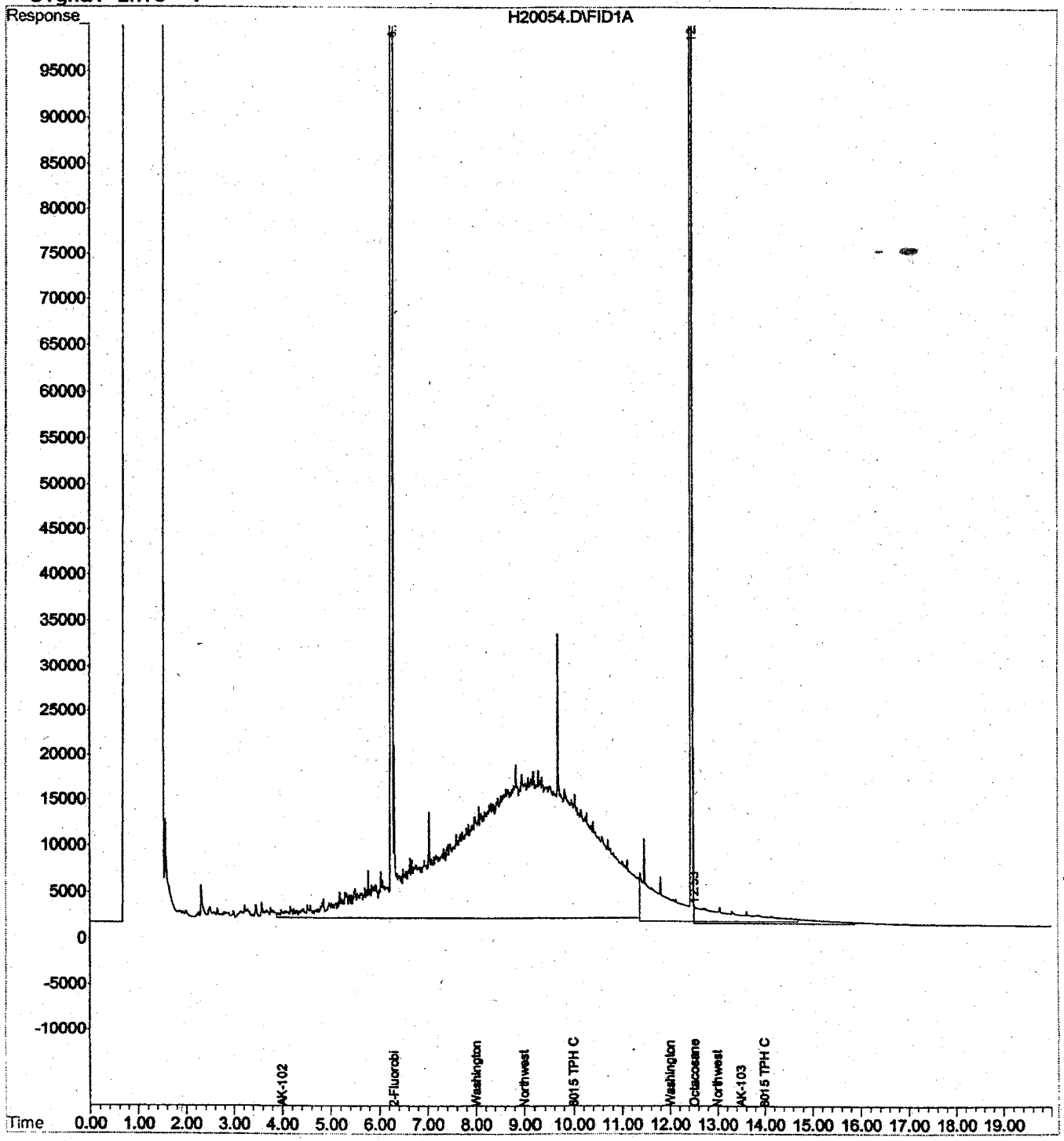


Quantitation Report

Data File : C:\HPCHEM\4\DATA\082003F\H20054.D Vial: 7
Acq On : 20 Aug 2003 18:18 Operator: EDL
Sample : b3h0394-01 Inst : GC #1
Misc : 1x nwdx sg w Multiplr: 1.00
IntFile : SURR.E
Quant Time: Aug 20 18:38 2003 Quant Results File: H1803T1F.RES

Quant Method : C:\HPCHEM\4\METHODS\H1803T1F.M (Chemstation Integrator)
Title : TPH-D Rear Method
Last Update : Tue Aug 19 09:37:45 2003
Response via : Multiple Level Calibration
DataAcq Meth : H1803T1F.M

Volume Inj. :
Signal Phase :
Signal Info :

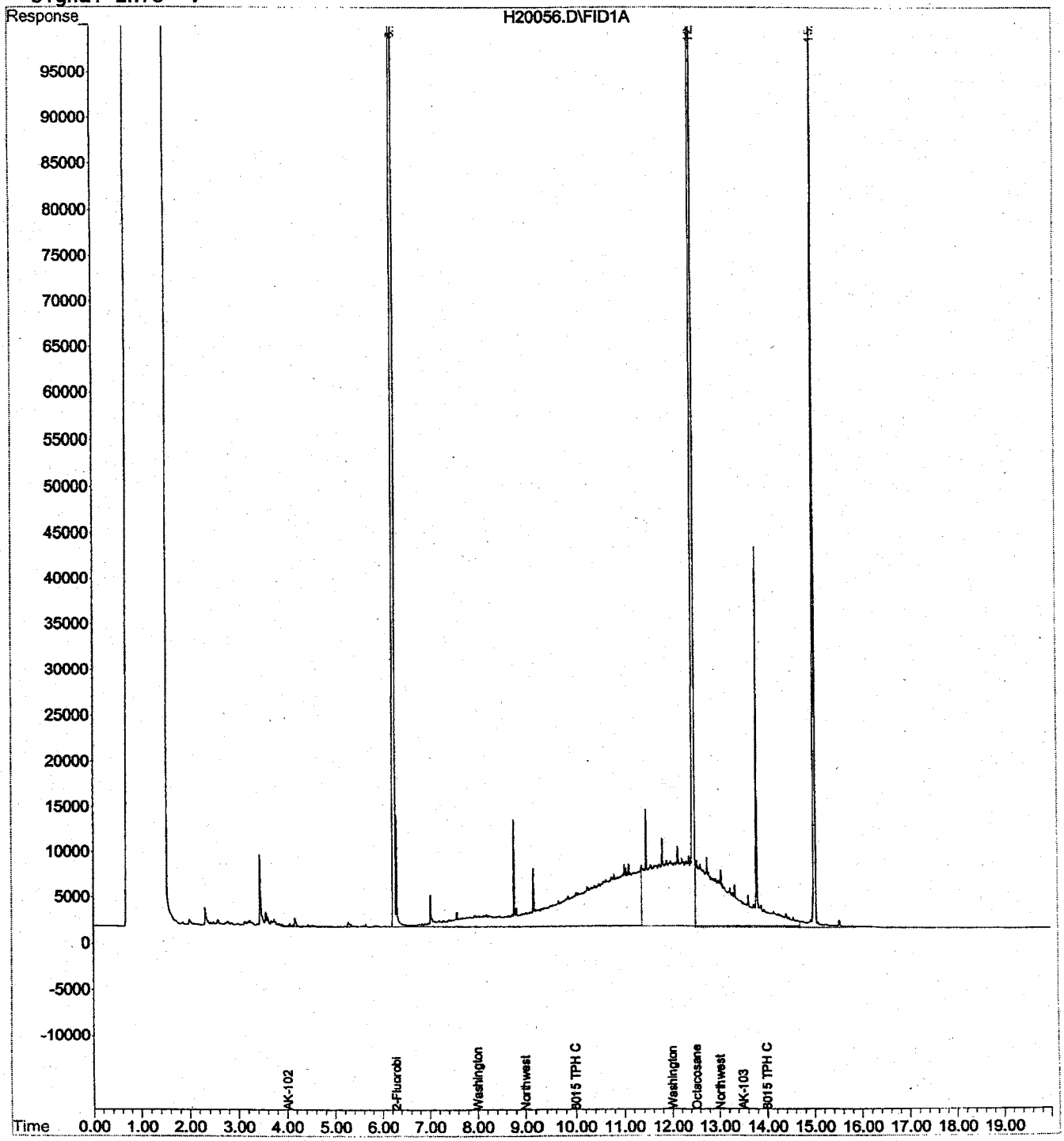


Quantitation Report

Data File : C:\HPCHEM\4\DATA\082003F\H20056.D Vial: 8
Acq On : 20 Aug 2003 18:48 Operator: EDL
Sample : b3h0394-02 Inst : GC #1
Misc : 1x nwdx sg w Multiplr: 1.00
IntFile : SURR.E
Quant Time: Aug 20 19:09 2003 Quant Results File: H1803T1F.RES

Quant Method : C:\HPCHEM\4\METHODS\H1803T1F.M (Chemstation Integrator)
Title : TPH-D Rear Method
Last Update : Tue Aug 19 09:37:45 2003
Response via : Multiple Level Calibration
DataAcq Meth : H1803T1F.M

Volume Inj. :
Signal Phase :
Signal Info :

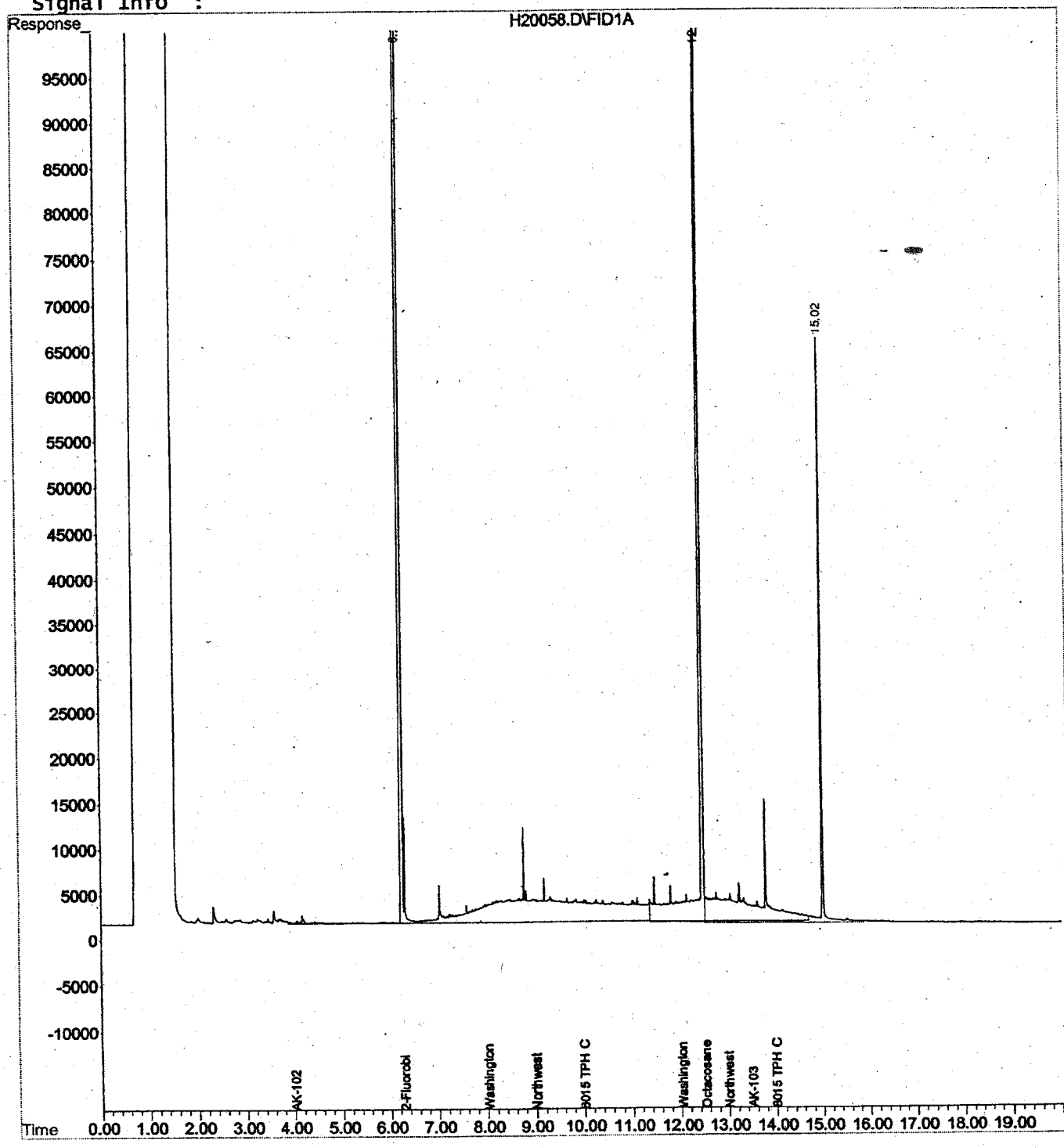


Quantitation Report

Data File : C:\HPCHEM\4\DATA\082003F\H20058.D Vial: 9
Acq On : 20 Aug 2003 19:19 Operator: EDL
Sample : b3h0394-03 Inst : GC #1
Misc : 1x nwdx sg w Multiplr: 1.00
IntFile : SURR.E
Quant Time: Aug 20 19:39 2003 Quant Results File: H1803T1F.RES

Quant Method : C:\HPCHEM\4\METHODS\H1803T1F.M (Chemstation Integrator)
Title : TPH-D Rear Method
Last Update : Tue Aug 19 09:37:45 2003
Response via : Multiple Level Calibration
DataAcq Meth : H1803T1F.M

Volume Inj. :
Signal Phase :
Signal Info :

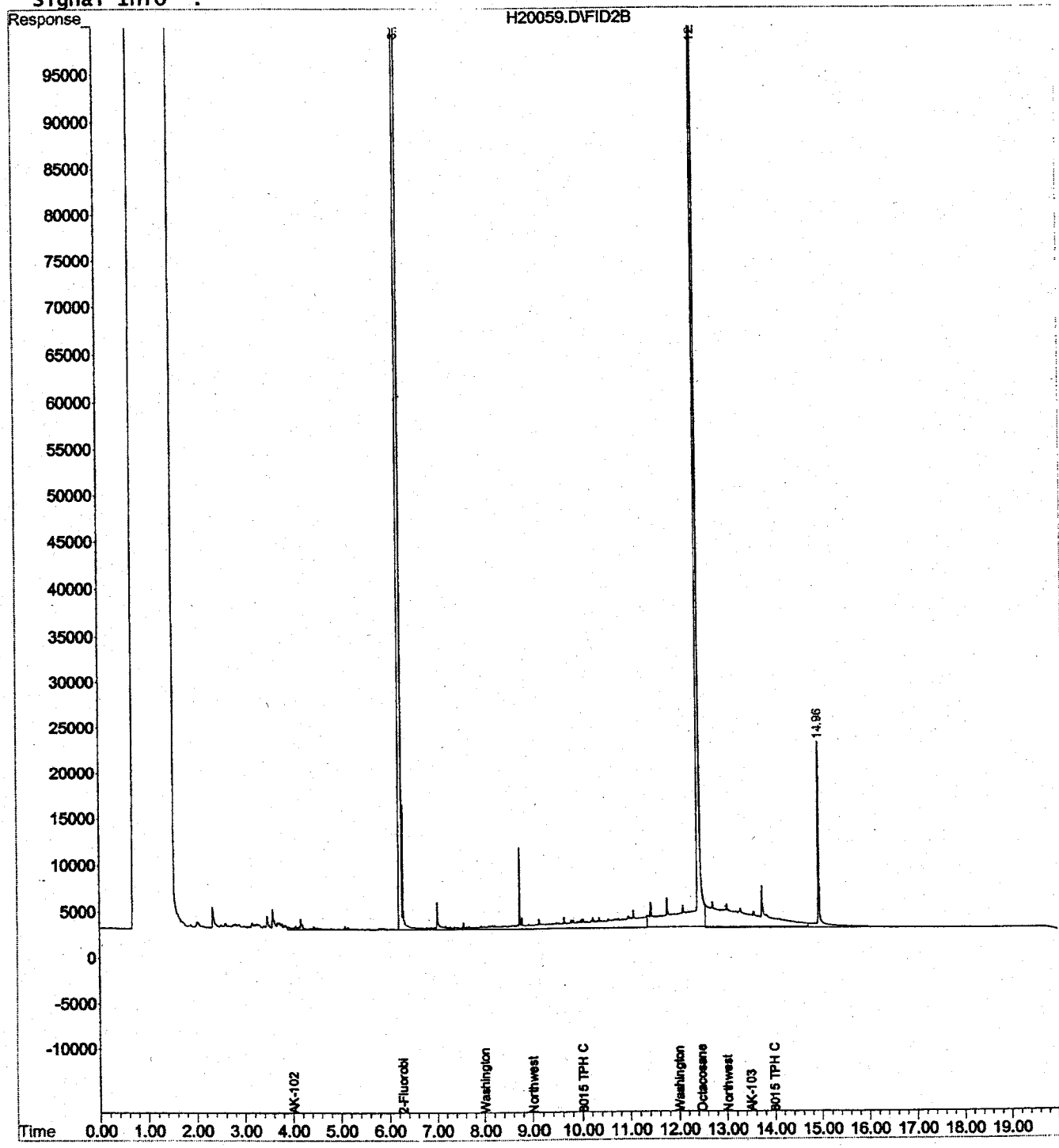


Quantitation Report

Data File : C:\HPCHEM\4\DATA.SEC\082003R\H20059.D Vial: 10
Acq On : 20 Aug 2003 19:50 Operator: EDL
Sample : b3h0394-04 Inst : GC #1
Misc : 1x nwdx sg w Multiplr: 1.00
IntFile : SURR.E
Quant Time: Aug 20 20:10 2003 Quant Results File: H1803T1R.RES

Quant Method : C:\HPCHEM\4\METHODS\H1803T1R.M (Chemstation Integrator)
Title : TPH-D Rear Method
Last Update : Tue Aug 19 10:24:15 2003
Response via : Multiple Level Calibration
DataAcq Meth : H1803T1F.M

Volume Inj. :
Signal Phase :
Signal Info :



11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-9508 425-420-9200 FAX 420-9210
11115 E Montgomery Suite B, Spokane, WA 99206-4776 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7132 503-906-9200 FAX 906-9210
20332 Empire Ave Suite F-1, Bend, OR 99701-5711 541-383-9310 FAX 382-7588
3209 Denali St, Anchorage, AK 99503-4030 907-334-9200 FAX 334-9210

CHAIN OF CUSTODY REPORT

Work Order #: B3H0394

CLIENT: GEOENGINEERS
REPORT TO: TINA XING
ADDRESS: GEI REDMOND
PHONE: 425-861-6000 FAX: 425-861-6050

INVOICE TO:
P.O. NUMBER:

PROJECT NAME: NW MARITIME CENTER
PROJECT NUMBER: 7853-002-01
SAMPLED BY: BRIAN ANDERSON

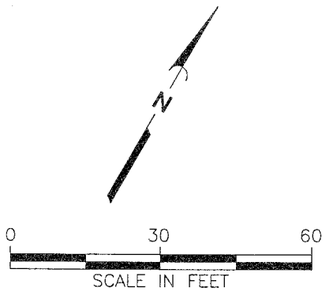
TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE: HCl	HCl	REQUESTED ANALYSES: NWTPH-Gx/BTEX	NWTPH-Dx w/ silica gel	TOTAL SUSPENDED SOLIDS	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	002 MW02 081203	8-12-03 1030	X	X		X		W	6		01
2	002 MW03 081203	1045	X	X		X		W	6		02
3	002 MW05 081203	1100	X	X		X		W	6		03
4	002 MW06 081203	8-12-03 1115	X	X		X		W	6		04
5											
6											
7											
8											
9											
10											

RELEASED BY: Brian Anderson DATE: 8-15-03
PRINT NAME: BRIAN ANDERSON FIRM: GEI TIME: 1737
RECEIVED BY: Demi Hardman DATE: 8/15/03
PRINT NAME: Demi Hardman FIRM: NCA w/O TIME: 17:37
RELEASED BY: DATE:
PRINT NAME: FIRM: TIME:
RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

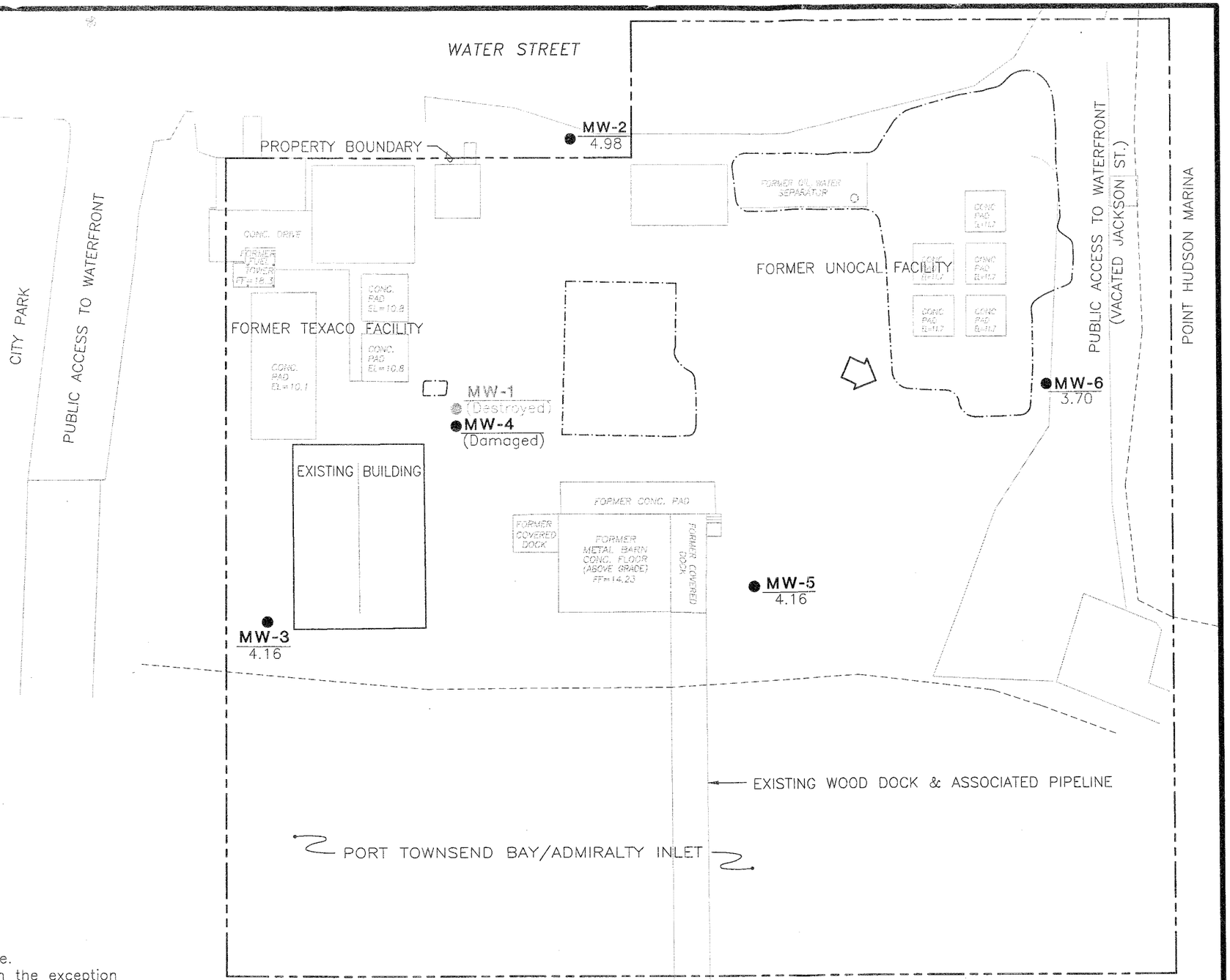
ADDITIONAL REMARKS:
TEMP: 2.7
PAGE OF

COC REV 1/03



EXPLANATION:

- MW-2 / 4.98 — MONITORING WELL / GROUNDWATER ELEVATION (IN FEET)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- JUNE–JULY 2002 EXCAVATION LIMITS
- FORMER FACILITIES



Notes:
1. The locations of all features shown are approximate.
2. Onsite facilities were demolished in June 2002, with the exception of the existing building located at the south end of the site.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

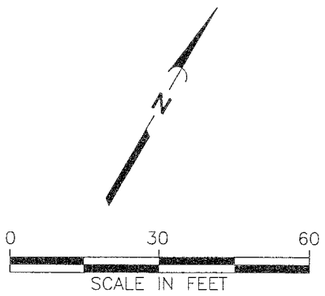
Reference: Drawing entitled "Temporary Erosion and Sediment Control Plan with Demolition Notes, Northwest Maritime Center, Demolition & Remediation Work" Port Townsend, WA" dated 03/19/02.

GeoEngineers

GROUNDWATER ELEVATIONS
08/12/03

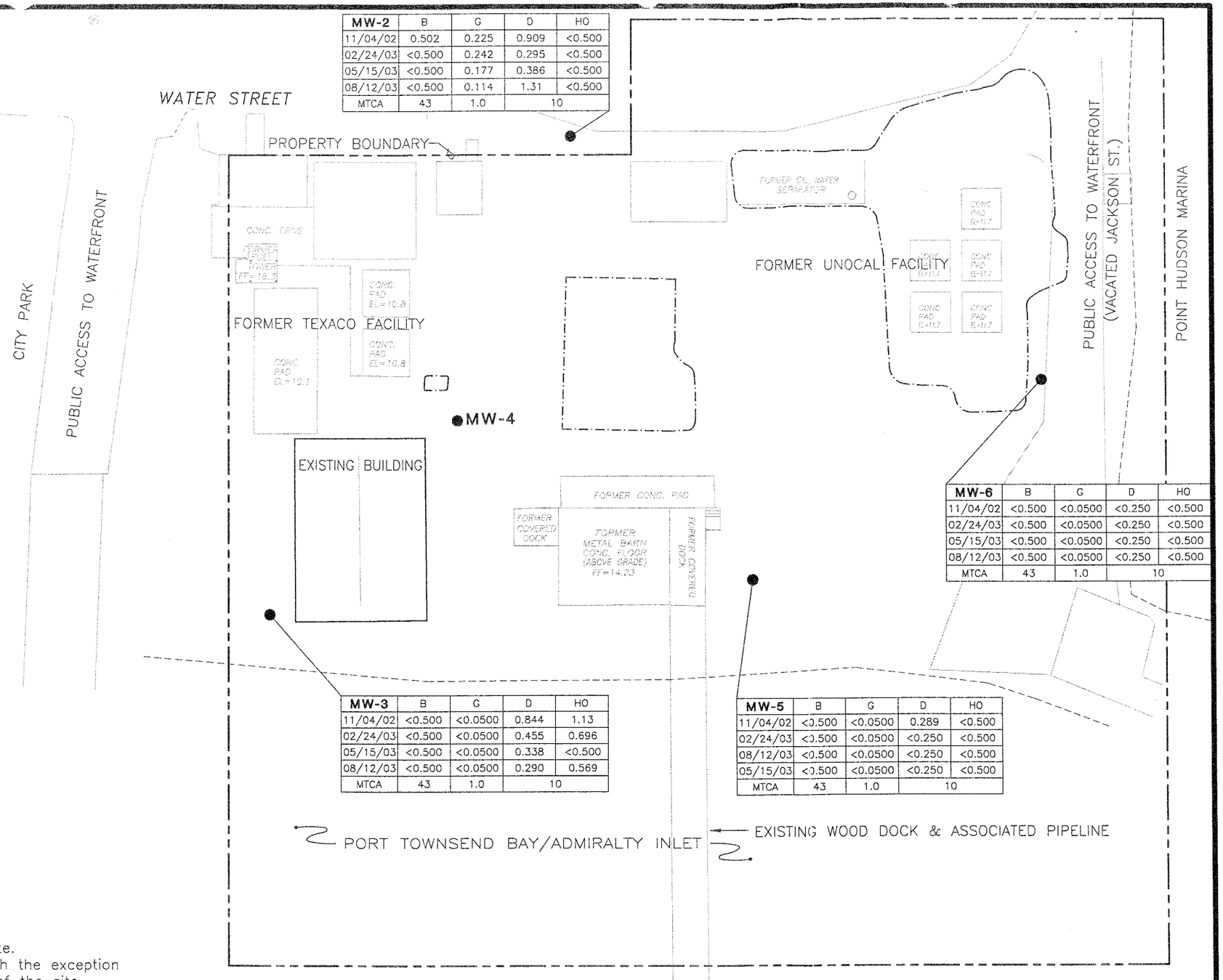
FIGURE 2

REDM\P:\785300201\CAD\T1\785300201T1A.DWG TMK:SYF 09/02/03



EXPLANATION:

MW-2 ●	MONITORING WELL
	JUNE–JULY 2002 EXCAVATION LIMITS
	FORMER FACILITIES
MTCA	SITE SPECIFIC MODEL TOXICS CONTROL ACT METHOD "B" CLEANUP LEVEL (CLEANUP ACTION PLAN DATED MAY 17, 2000)
B	BENZENE (µg/l)
G	GASOLINE–RANGE HYDROCARBONS (mg/l)
D	DIESEL–RANGE HYDROCARBONS (mg/l)
HO	HEAVY OIL–RANGE HYDROCARBONS (mg/l)
µg/l	MICROGRAMS PER LITER
mg/l	MILLIGRAMS PER LITER
--	NOT ANALYZED



MW-2	B	G	D	HO
11/04/02	0.502	0.225	0.909	<0.500
02/24/03	<0.500	0.242	0.295	<0.500
05/15/03	<0.500	0.177	0.386	<0.500
08/12/03	<0.500	0.114	1.31	<0.500
MTCA	43	1.0	10	

MW-6	B	G	D	HO
11/04/02	<0.500	<0.0500	<0.250	<0.500
02/24/03	<0.500	<0.0500	<0.250	<0.500
05/15/03	<0.500	<0.0500	<0.250	<0.500
08/12/03	<0.500	<0.0500	<0.250	<0.500
MTCA	43	1.0	10	

MW-3	B	G	D	HO
11/04/02	<0.500	<0.0500	0.844	1.13
02/24/03	<0.500	<0.0500	0.455	0.696
05/15/03	<0.500	<0.0500	0.338	<0.500
08/12/03	<0.500	<0.0500	0.290	0.569
MTCA	43	1.0	10	

MW-5	B	G	D	HO
11/04/02	<0.500	<0.0500	0.289	<0.500
02/24/03	<0.500	<0.0500	<0.250	<0.500
08/12/03	<0.500	<0.0500	<0.250	<0.500
05/15/03	<0.500	<0.0500	<0.250	<0.500
MTCA	43	1.0	10	

Notes:
1. The locations of all features shown are approximate.
2. Onsite facilities were demolished in June 2002, with the exception of the existing building located at the south end of the site.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Reference: Drawing entitled "Temporary Erosion and Sediment Control Plan with Demolition Notes, Northwest Maritime Center, Demolition & Remediation Work" Port Townsend, WA" dated 03/19/02.

GeoEngineers

SUMMARY OF GROUNDWATER CHEMICAL ANALYTICAL DATA

FIGURE 3

09/02/03 TMK:SYF

REDM\P:\7853002\01\CAD\T1\7853002O1T1B.DWG